

Contributions to Management Science

Ümit Hacıoğlu
Hasan Dinçer
Nihat Alayoğlu *Editors*

Global Business Strategies in Crisis

Strategic Thinking and Development

 Springer

Contributions to Management Science

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Editors

Global Business Strategies in Crisis

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Foreword

The systemic indicators of the world are artificial but humanistic, and their variability is as crucial as their multidimensionality. Hence, apart from both the natural and created indicators, the establishment of social and technical systems by utilizing those already available and the breakdown of this system can stem from only rational and/or emotional human genius. Social and systemic behaviors derive from this ability, and they manage, conduct, and monitor that which is already established. Considering the number of foundations which are widely observed, most commonly organizations and businesses, and the *sociogram* in which they are mapped, we can imagine what kind of social network we are in right now. The reason I have used the term imagination is that we can only try to visualize this *quantitativeness*. Therefore, we live in a world that is surrounded by organizations and businesses and this can influence, direct, and change our behaviors.

The faults mentioned above are directly related to the life span and durability of these social and technical systems, and solutions for these are qualified enough to be planned. Thus, texts, just as medicine prospectuses, can be considered and documented in terms of technical systems. However, this situation has a feature which can be implemented in a more routine and predictable scale. Social systems represent a much more problematic area in terms of the perspectives we focus on. Due to the fact that social systems are required to be successful in terms of their social aspects as well as their technical ones, they need prospectuses related to systemic breakdown and incompetency for both aspects. Notwithstanding, social prospectuses do not have the quality that can be made monotonous and uniform as the technical scales do. We seem to face forming a prospectus dependent on each socio-technical system. Even though they share some major common points, their differences always outnumber their similarities owing to their humanistic properties.

Besides this reality of socio-technical systems, and the aforementioned businesses which illustrate internal conditions, there are also issues of vulnerability and failure, identified as natural disasters, stemming from the external world, as well as from socio-technical and also natural systems.

Monitoring these influences, as well as the ones that can occur internally, and offering solutions require much more effort and work than forming a prospectus. This is the point where strategical analysis emerges. Via a perspective which follows world trends and also develops suggestions accordingly related to new routes and paths, it is possible to plan efforts and studies for the crisis which originates from the most significant socioeconomic problems. A system or a business can only be enhanced, grown, and, thus, turn a crisis into an opportunity in this way.

Grasping the philosophy and vision mentioned above paves the way for determining global strategies for businesses during crisis periods. Otherwise, the problem would not be fully understood and it would not be possible to reach the reality of a strategic way of life. Offering solutions for a strategic way of thinking and problems under pressure from entropy dependent on external conditions is directly correlated with adapting to all the requirements of strategic management. Only this approach can enable systems to improve themselves while showing a tendency to break down, to renew while showing a tendency to be exhausted, and to survive when they are about to vanish under various threats.

If you need a prospectus in order to develop and think strategically during crisis periods, this book offers a great opportunity to you. In my opinion, there is no need for any other words apart from the introduction above.

I appreciate the efforts of the editors and writers.

Central Bank of Turkey
Ankara, Turkey

Nurullah Genç

Preface

The latest economic turmoil with its reflections on business performance forced top managers to develop effective business strategies in order to boost efficiency at company level. The latest global financial crisis also urged them to redefine the boundaries of their operational and strategic activities globally. During recession, global challenges in the competitive business environment became the premier source of threats for entrepreneurs in emerging markets. Subsequently, operational risks have been increasing overseas for decision-makers and investors.

Volatile business environment under fierce economic conditions today led investors to demand more capital gains on their investments as global threats and risks have been increasing dramatically. For sustainable business operations, decision-makers at the top should be designing more effective plans by adopting novel strategies in an efficient way in order to challenge market obstacles while mitigating risks and offering investors more sufficient gains. Are today's managers capable of planning and implementing strategic actions defiantly in a volatile business environment? This book also features some performance assessment tools for top managers.

Enhancing business performance with strategic decisions covers some critical factors: areas of business including organizational effectiveness, performance management, finance, asset management, business culture, leadership, sustainability, innovation, risk management, and data management systems. Strategies out of global recession for business operations will also contribute to the industrial development and economic stability.

In this novel book, it is aimed to analyze effective managerial strategies and practices from an interdisciplinary perspective as a reaction to global challenges in the competitive business environment. The fundamental approach of this publication brings together global issues exclusively in business management, including topics in culture, leadership, and innovation, the competitive strategies, finance, risk management and auditing, and models as well as unique approaches related to strategic management in a reflective way.

All strategies and practices in this book are also aimed to design core competencies for the growth of business. It is also expected to contribute to financial stability, recovery, and sustainability of global business operations overseas.

The authors of the chapters in this publication have contributed to the success of our work by the inclusion of their respective studies. This book, consisting of 28 chapters, is divided into five parts: *Strategic Management and Practices in High Velocity Markets during Crisis; Designing Competitive Strategies, Leadership and Culture during Recession; Strategic Entrepreneurship, Innovation and Design; Managing Risks through Adaptive Strategies and Decision Systems during Crisis; and finally Evaluation of Firm Performance, Financial Efficiency and Managerial Control*. In the first part of this book, the authors assess the institutional and economic approach to strategic management, analyze the decision-making process with strategies out of global recession, design strategic alternatives for global operations, and build organizational insights.

In the second part, the authors develop competitive strategies including topics in organizational behavior, culture, and leadership. Titles cover competitiveness, stakeholder relations, and the human side of strategic decisions, organizational identity, partnership, and leadership.

In the third part, an innovative approach to strategic entrepreneurship during crisis to enhance business performance is developed. Topics include innovation, new product and service development strategies, and sustainable strategic entrepreneurship in volatile business environment.

In the fourth part, the role of adaptive strategies and decision systems in mitigating risks is assessed, including topics in risk management, decision support systems, and logistic risks.

Consequently, in the last part of this book, the authors contribute to enhancing business performance by the evaluation of firm performance, financial efficiency, and managerial control strategies.

Chapter “Institutional Approach to Strategic Management” develops an institutional approach to strategic management with the idea of an institution-based view as a third perspective in strategic analysis in addition to the first two being the industry-based and resource-based views. This chapter underlines that given the influence of institutions on firm behavior, any strategic choice is inherently affected by the formal and informal constraints of a given institutional framework. Dr. Brunetta, Capo, and Vicentini’s major contribution is to focus on a review of the role of institutions in strategic analysis drawing from literature on Institutionalism and on the recently developed stream of institution-based view.

Chapter “Economic Approach to Strategic Decisions” features an economic approach to strategic decisions. Dr. Aslan demonstrates the significance of transaction cost approach including another important strategic instrument of integration. This chapter demonstrates also the recent advances in transaction cost approach that have greatly improved our understanding of the strategic maneuverers.

Chapter “Leading the Strategic Decision-Making Process: Conceptual Frameworks” evaluates how to lead the strategic decision-making process from a

conceptual framework. Dr. Özdağoğlu and her colleagues investigate the critical success factors of the strategic decision-making process emphasized in the current literature and propose two conceptual frameworks based on the factors for top managers that would help them to track the causality and the performance of their organizations within this scope.

Chapter “Building Organizational Insight: Strategy and Organization” develops an organizational insight. This chapter also focuses on the organizational insight as a pivotal element in understanding the processes required to realize and achieve interrelationships among businesses. Dr. Vicentini and her colleagues devote particular attention to the element of synergy creation, horizontal strategy, and organizational coordination mechanisms.

Chapter “Strategies out of Global Recession in Emerging Markets: An Application for 2008 Global Crisis” is based on the claim that the success of the strategies in emerging markets overcomes the impact of economic crisis. In this study, it was determined that the explanatory variable of “government debt” is statistically significant at 10% level and the coefficient of this variable is negative. Dr. Yuksel’s research also indicates that there is a negative relationship between government debt and growth rate in emerging economies.

Chapter “Alternative Strategies for Global Operations of Organizations” develops a theoretical framework for alternative strategies for global operations of organizations. Dr. Eryilmaz’s research presents the entrance alternatives for international markets and strategies that can be preferred by international organizations in an integrative way. In this chapter, a basic framework will be drawn for globalization by the author. Then, as part of globalization, alternative strategies of organizations in order to access new markets have been examined. At the final stage, fundamental strategic options for international competition have been assessed.

Chapter “Building Competitive Strategies and Managing Stakeholder Relations” builds on Competitive Strategies and the management of Stakeholder Relations. In this chapter, the performance results of the stakeholder management theory analyses and competitive strategy on globalization have been illustrated.

Chapter “Human Side of Strategic Alliances, Cooperations and Manoeuvrings During Recession and Crisis” explores the human side of strategic alliances, cooperations, and maneuverings during recession and crisis. Dr. Uslu’s study illustrates that the organizations that adapt to new condition by getting simpler and getting rid of burdens in the constriction process are able to come out in a better condition before the crisis. This chapter also discusses the way of organizations to become human oriented when acting strategically during strategic alliances, cooperations, and maneuverings.

Chapter “The Role of Organizational Identity on Strategic Management Applications” underlines the importance of organizational identity on strategic management applications. At the core of Dr. Buk’s chapter lies the idea that organizational identity can act as a detector for identifying strategic issues and can be an influential factor in developing strategies in response to change. Moreover, a strong organizational identity is a valuable organizational capability that can create competitive

advantage through its urge to adapt to changes. Conversely, a loose identity is weak in detecting changes or threats directed to the organization. Thereby, the chapter focuses on the interaction between identity and strategy when organizations face challenges in the turbulent business environment.

Chapter “The Importance of Trust for Partnership and Collaboration in Volatile Economic Conditions” focuses on the importance of trust for partnership and collaboration in volatile economic conditions. Dr. Gur and Dr. Alayoglu advocate that maintaining and strengthening partnerships, retaining existing customers or finding new ones through innovation, and finding external finance are extremely vital to keep firms alive during volatile economic conditions.

Chapter “Complexity and Crisis Call for Shared Leadership and Empowered Teams” develops a comparative approach to complexity and call for shared leadership and empowered teams. Dr. Cirpan first explores the nature of complexity and crisis. By doing that, he illustrated the requirements of those situations in terms of leadership and moved on to explain the concept of shared leadership and what is needed to apply it effectively. Since business culture has been of vital importance in the effective application of shared leadership, he delineated how leaders can create a culture that fosters empowerment for teams.

Chapter “Establishing an Innovation Culture and Strategic Entrepreneurship” addresses the importance of establishing an innovation culture and strategic entrepreneurship. The chapter concentrates on innovation management in terms of the interrelationship among the four elements of a business: product, process, marketing, and organizational qualities. This chapter also provides a review and interpretation of innovation and management literature in different fields with an eye toward combining them into the framework of strategic entrepreneurship.

Chapter “Strategies for Innovative Organizational Structure: Innovative Culture and Open Innovation” initially assesses the strategies for innovative organizational structure: innovative culture and open innovation. Dr. Gürkan and Tükeltürs point that strategies providing the speed and consequently the competitive advantage can only be determined and applied in an appropriate organizational structure.

Chapter “Building Innovative Strategies for the Competitiveness of Family Firms in Emerging Markets” underlines the importance of building innovative strategies for the competitiveness of family firms in emerging markets. Dr. Erdoğan and his colleagues review the characteristics of family firms and their relation to innovation strategies in emerging markets, with the case of Turkish family firms, and provide an explorative analysis of the relationship between the factors affecting the development of family business and their innovative strategies in Turkey.

Chapter “Innovative Processes in New Product and Service Development” identifies the innovative processes in new product and service development. Dr. Bayık’s reviews the existing new product development processes and sheds light on two new models: (1) customer development and (2) lean startup in terms of customer feedback, market connection, and product revision.

Chapter “Increasing Strategic Competitiveness through Innovation: The Finance Perspective” discusses the concept of financial innovation as a strategically competitive tool. Dr. Turan also questions how to increase strategic competitiveness through innovation within a finance-based perspective.

Chapter “Economic Growth and Dynamic R&D Investment Behavior” develops an economic approach to strategic decisions by examining economic growth and dynamic R&D investment behavior. This chapter aims to test whether R&D model predictions are valid for 76 countries’ economies. The economic methodology used in this study is Panel VAR analysis. Values for the GDP per capita variable that is considered to represent economic growth and R&D per capita variable that is considered to represent R&D activities have been obtained from the World Bank Database. The analysis of the annual data between 1996 and 2014 suggests that economic growth Granger causes R&D spending, but there is no evidence to suggest that R&D spending has an impact on economic growth.

Chapter “Risk Management Practices in Strategic Management” examines the impact of risk management practices in strategic management. This chapter discusses risk factors and risk management practices in terms of strategic management in order to understand effects of economical fluctuations on the firms and to keep up with the globalization. In this study, the process of risk management implementations has been examined in terms of strategic management by reviewing the literature.

Chapter “Reducing Risk Through Strategic Flexibility and Implementation Leadership in High Velocity Markets” explains the effects of strategic flexibility and implementation leadership on reducing risk in high volatile markets. Dr. Kamasak and his colleagues evaluate how to establish a flexible organization, as firms scan environment thoroughly and make their investment decisions determining their priorities according to existing situations. Strategic flexibility can play a critical role for firms to reduce the risk by offering agile and prudent solutions in volatile environments. Yet, implementation of these decisions and objectives is subject to senior management’s determination. Therefore, an implementation leadership style can also be vitally important to achieve “risk reduction”-related objectives. Strategic leadership that initiates the alignment of people to strategy may enable the implementation of risk management practices in the firm.

Chapter “Implementing Adaptive Strategies of Decision Support Systems During Crises” implements adaptive strategies of decision support systems during crises. Dr. Silahtaroglu’s study presents decision support systems in general. Additionally, some details have been given about how to use decision support systems and for what business purposes they may be exploited by the top management.

Chapter “The Formulation of Strategies to Mitigate Supply Risks” formulates strategies to mitigate supply risks. Dr. Sorkun and Dr. Onay indicate that it is imperative for these firms to determine the right strategy so that they are able to both prevent themselves from the destructive negative impacts of risky events and reduce the amount of expenditure made on the actions to mitigate their supply risks.

Chapter “Applying Data Envelopment Analysis to Evaluate Firm Performance” applies a data envelopment analysis to evaluate firm performance. In this research, it was observed that the efficiency of the firms increased significantly in almost every aspect. This increase indicates that it was required to use corporate governance rating to get an appropriate firm performance as well as financial values.

Chapter “Efficiency and Managerial Control in Financial Institutions” takes a contrary view and follows the discussion on efficiency in regard to managerial control from stakeholder perspective and international diversification strategies. Dr. Acar and his colleagues evaluate the dilemma by focusing on the impact of ownership specifically over to the efficiency differences between foreign versus domestic and state versus private financial institutions.

Chapter “Examining Financial Innovation and Performance in Financial Sector: A Comprehensive Review of Emerging Markets” examines financial innovation and performance in financial sector within a comprehensive review of emerging markets. Dr. Karabay and Dr. Çağıl examine the concept of innovation and review the given literature of financial innovation and financial performance relationship in financial sector, particularly in emerging markets. It is also intended to contribute to literature by providing a comprehensive review of conceptual relationship between financial innovation and performance.

Chapter “The Impact of Selected Firm Features on Sales Growth: Empirical Evidence from S&P500” examines the impact of selected firm features on sales growth demonstrating empirical evidence from S&P500. Dr. Gurbuz and his colleagues investigate how selected factors influence sales growth of firms by employing 22 years of consecutive data on a sample of 243 nonfinancial Standard and Poor’s 500 (S&P500) companies. The empirical findings of this study demonstrate significant influence of previous year sales growth, average growth rate of relevant industry, firm size, and change in profitability level on the selected proxy of firm growth.

Chapter “Determinants of Working Capital in Emerging Markets: Do Economic Developments Matter?” focuses on the determinants of working capital in emerging markets and questions economic developments. In this chapter, it is aimed to examine the determinants of working capital management not only at firm level but also at industry-country level.

Chapter “Liquidity Position and Working Capital Adequacy of Companies in Turkey: Outlook from Industry Financial Statements” examines the liquidity position and working capital adequacy of companies in Turkey. In this chapter, the importance of liquidity is addressed and also the relationship between the liquidity and working capital adequacy is highlighted from an industrial perspective.

Chapter “Determinants of Corporate Cash Holdings: Firm Level Evidence from Emerging Markets” focuses on the determinants of corporate cash holdings and assesses the firm level evidence from emerging markets. In this study, Dr. Akben-Selçuk and Dr. Yıldız investigate the factors affecting corporate cash holdings of five emerging markets, namely Brazil, Indonesia, Mexico, Russia, and Turkey.

The authors of the chapters in this book developed models for innovative solutions to strategic issues during recession by assessing critical case studies. Finally, this book gathers colleagues and professionals across the globe from multicultural communities to design and implement innovative practices for the entire global society of banking and finance.

Istanbul Medipol University, Istanbul, Turkey

Ümit Hacıođlu
Hasan Diñer
Nihat Alayođlu

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We have many colleagues and partners to thank for their impressive contribution to this publication. First, we would like to praise the people at Springer International Publishing AG: Dr. Prashanth Mahagaonkar, who has the attitude and substance of a genius: he continually and convincingly conveyed a spirit of adventure in regard to our research at each stage of our book development process; Sivachandran Ramanan, our Project coordinator, without his persistent help this publication would not have been possible; and others who assisted us to make critical decisions about the structure of the book and provided useful feedback on stylistic issues.

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Part I
Strategic Management and Practices in
High Velocity Markets During Crisis

Institutional Approach to Strategic Management

Federica Brunetta, Francesca Capo, and Francesca Vicentini

Abstract The idea of an institution-based view (IBV) as a third perspective in strategic analysis (the first two being the industry-based and resource-based views) has been recently addressed by several strategy scholars. Institutions are both the medium for and the result of social action: they enable and constrain what firms and other agents wish to accomplish “directly determining what arrows a firm has in its quiver as it struggles to formulate and implement strategy and to create a competitive advantage” (Ingram and Silverman [“Introduction: The new institutionalism in strategic management.” Emerald, Bingley, 20, 2002]). This serves to underline that given the influence of institutions on firm behavior, any strategic choice is inherently affected by the formal and informal constraints of a given institutional framework. Our contribution focuses on a review of the role of institutions in strategic analysis drawing from literature on institutionalism and on the recently developed stream of the institution-based view.

1 Introduction

Scholars are laying claim to a deeper understanding of the institutional environment in which firms are embedded (Powell et al. 2005), and the idea of an institution-based view (IBV) as a third perspective in strategic analysis (the first two being the industry-based and resource-based views) has been recently addressed by several strategy scholars (Peng et al. 2008, 2009; Ahuja and Yayavaram 2011). Institutions are both the medium for and the result of social action: they enable and constrain what firms and other agents wish to accomplish, “directly determining what arrows

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a firm has in its quiver as it struggles to formulate and implement strategy and to create a competitive advantage” (Ingram and Silverman 2002: 20). Our contribution focuses on a review of the role of institutions in strategic analysis drawing from literature on institutionalism and on the recently developed stream of the institution-based view. We therefore follow prominent scholars (North 1991; Oliver 1991, 1997; Peng 2002), recognizing that given the influence of institutions on firm behavior, any strategic choice is inherently affected by the formal and informal constraints of a given institutional framework. We hereby focus exclusively on the relationship between individuals, organizations, and institutions, although studying the role of institutional logics and how broader belief systems shape the cognition, and behavior of actors is also very relevant when analyzing the strict relationship between institutions and strategies (Thornton and Ocasio 2008; Friedland and Alford 1991; Lounsbury 2007; Marquis and Lounsbury 2007; Batista et al. 2015). So, an in-depth exploration of the institutionalism is not the focus of this contribution (readers may consult DiMaggio and Powell 1983, for further reference). Also, it is beyond the scope of our work to focus on the investigation of specific strategic issues such as that of the relationship between institution and international business (Peng et al. 2008, 2009), institutions and business models (Casper and Kettler 2001; Capo et al. 2014), institutions and ecosystems (Moore 2006; Giustiniano et al. 2015; Brunetta et al. 2016), or institutions and networks (Powell et al. 2005; Owen-Smith and Powell 2008). More specifically, we aim to point out the important link between the institutional environment and firm strategy in order to underline the importance of reconnecting the analysis of the external and internal institutional environment to the sphere of strategic analysis.

Our contribution is organized as follows. First, we briefly review and identify elements of organizational theory in the institutionalist and neo-institutionalist view that can be helpful in tracing a framework for an institutional understanding of strategy. We then move toward an explanation of the institution-based view and its role in strategic analysis. We finally review possible strategic responses to institutional pressures and the idea of institutional entrepreneurship, underlining the tight relationship between organizations, institutions, and strategic choices which lies at the basis of the IBV of strategy.

2 Understanding the Role of Institutions for Strategy

Institutions play a pivotal role in the definition of the strategic choices that organizations make in order to be able to achieve and maintain a long-lasting competitive advantage. This role has been analyzed, over time, by scholars of different fields and especially in the economic and sociological theories, which have focused on the relationship between organizations and institutions. Institutions are defined as “the rules of the game” and as the “humanly devised constraints that structure political, economical, and social interaction” (North 1991: 4). They represent structures that

regulate relational, economic, and political exchanges and reduce uncertainty by structuring everyday life and guiding actions.

The institutional view argues that organizations are the result of an adaptation to the institutional environment and are not necessarily the products of rational-based planning activity. Thus, institutionalism is traditionally distinguished from the theories arguing for an economic system as a set of rational actors oriented toward their personal goals and underlines the social processes and how these latter give rise to legitimation mechanisms and boundaries to action in individual behaviors (Camuffo and Cappellari 1996). Institutional pressures and social relations influence organizational characteristics and bind their decisional abilities, often resulting in a move away from the preestablished rational goals.

More specifically, organizations act in environments posing specific pressures; organizations have to comply with rules and requisites in order to gain support and legitimacy from other actors in the field (Scott 1995). This pressure pushes them towards structural inertia, following and providing rational motivation to behaviors that may only be legitimized within the field and rooted within the organization.

During the 1970s the neo-institutionalist perspective gave new strength to the institutional theories, establishing itself as a new way of interpreting the relationship between institutions and organizations (Boccardelli and Brunetta 2014). Neo-institutionalism moves away from the rational model and recognizes the relationship between institutions, organizations, and environment as its main pillar, by highlighting how important it is to study the constraints that institutions place on the actors aiming at pursuing their own interests. However, neo-institutionalism shifts the focus of analysis onto the populations of organizations, indeed the set of units, individuals, and organizations that operate in a specific institutional context—the organizational field—defined by DiMaggio and Powell (1983: 148) as a set of “organizations that, in the aggregate, constitute a recognized area of institutional life; key suppliers; resource and product consumers; regulatory agencies; and other organizations that produce similar services or products.”

Neo-institutional theory originates in the work of Meyer and Rowan (1977; 1983) and of Zucker (1977) followed by the articles by DiMaggio and Powell (1983), Tolbert and Zucker (1996), and Meyer and Scott (1983).

The rationalization and diffusion of formal bureaucracies derive from the complexity of relations between organizations and institutions (Meyer and Rowan 1977). While the complexity of relations between organizations would become one of the central nodes of network theory, it is the institutional context especially that became the focus of the neo-institutionalist works which followed. The institutional context came to be defined by several authors as the “rules, norms, and ideologies of the wider society” (Meyer and Rowan 1977: 84), “the normative and cognitive systems” (Scott 1987: 163).

Thus, institutions reduce uncertainty by giving a structure to daily life guiding human actions. So, they include any kind of formal or informal constraints (North 1991). Formal constraints are made up of formal and written rules and include what is forbidden but also the conditions under which certain activities may be carried out. More specifically, formal constraints include legal, political, and economic

rules, following a precise hierarchy flowing from constitutions to regulations, by-laws, and contracts (North 1991). On the other hand, informal constraints are the non-written codes that function as a framework in interpreting formal rules. As a matter of fact, human interaction has always been structured with humanly devised constraints, so informal rules represent the first type of institution and emerge when information is limited, and no formal constraint is in place, reducing the cost of interaction. Informal rules derive from socially transmitted information and form part of cultures and traditions (North 1991). Being so culturally rooted, they tend to persist and be resistant to change. The shift toward more formalized rules is due to an increase in the complexity of interactions and the exchange specialization. Formal rules complement informal constraints, emphasizing their efficacy.

Different institutional settings are likely to give rise to distinctive conventions or forms of collective social order. Within markets, the interactions are constrained, or facilitated, by laws, rules, or informal norms and by the structures that allow for the enforcement of such rules (Boccardelli and Brunetta 2014). The institutional context conditions the organizational model and the strategic choices that firms make in responding to their need for legitimation with respect to the institutions. In fact, organizations may avoid social censure by appearing rational (Scott 1987), thus minimizing the need of external transparency and improving their own opportunities to secure the necessary resources for their survival. Organizations accept recommendations regarding what the appropriate behaviors are as they become rationalized myths (Meyer and Rowan 1977), rules that are not empirically made but are legitimated by the presumption of their effectiveness.

Organizations tend to conform to myths, giving rise to homogenous behaviors, in order to publicly signal their conformity to the institutional schemas and gain legitimacy. Homogenization can be described by the concept of isomorphism that is a constraining process that forces one unit in a population to resemble other units that face the same set of environmental conditions (Hawley 1968). Following DiMaggio and Powell (1983), there are three mechanisms through which institutional isomorphic change occurs: coercive, mimetic, and normative. Coercive isomorphism results from both formal and informal pressures exerted on organizations by other organizations upon which they are dependent and by the cultural expectations of the environment in which the firm is embedded (DiMaggio and Powell 1983). Organizations are also likely to model, their behavior on that of other organizations in situations of uncertainty, enacting mimetic isomorphism processes. In order to gain competitive advantage, firms imitate the behavior of other firms, with the aim of reducing the uncertainty of the external environment. Finally, isomorphic change can be caused by normative pressures, mainly connected to professionalism, education, and legitimacy that foster the adoption of practices and norms.

3 An Institutional-Based View of Strategy: Institution-Based Rents and Strategies

The roots of the institutional-based view (IBV) of strategy are to be found in the neo-institutionalism. Starting from the idea that “institutions matter” (Peng et al. 2009: 3), the IBV has been proposed as a third approach for strategic analysis, together with the industry-based view (Porter 1980) and the resource-based view (Barney 1991), and forms with them both a “Strategic Tripod,” helpful in attaining a better understanding of heterogeneity of performance among firms.

Indeed, strategic analysis has always been focused on understanding the effects of the external environment on the organization in terms of potential profit and on analyzing the resources and competences portfolio that the organization can use to build its key strengths and avoid glaring weaknesses. Nonetheless, both traditional views do not take into account rules, roles, and social processes that may push firms to act irrationally. The industry-based, Porterian view is, in fact, focused on competition, without considering how formal and informal rules influence strategies and behaviors. Similarly, the resource-based view overlooks the external environment and potential isomorphic pressures that may lead firm to adopt similar portfolios or responses to the opportunities and threats arising from the external environment.

The IBV stresses that strategy does not set out to treat institutions as independent variables, but rather studies the dynamic interaction between institutions, organizations, and strategic choices (Peng 2002). The latter, according to IBV scholars, are not only driven by industry conditions and firm-specific resources, but also by the formal and informal constraints of a particular institutional framework that decision-makers face (Oliver 1997; Scott 1995). Indeed, Oliver (1991) suggests that interest-seeking and active organizational behaviors arise as responses to institutional pressures. Reactions to constraints may vary from passive conformity to active resistance depending on the nature and context of the pressures imposed.

A key element in the institution-based view is the definition of “influence rents” the extra profit that can be earned due to the fact that the institutional “rules of the game” are designed to favor an economic actor or group of actors (Ahuja and Yayavaram 2011). Actors can achieve extra profits according to their potential or actual power to influence the institutions, for example, through the actions of lobbies.

More specifically, market problems, the failure of institutions that should oversee anomalies in the market, the possibility of an actor to influence the definition of rules, or the mismatch between institution and problem to solve may result in situations in which specific actors can reach a position of influence rent.

Ahuja and Yayavaram (2011) specify five kinds of market problems that institutions need to solve. First, the problem of information asymmetry (Akerlof 1970): one of the parties to the transaction has more information available with respect to the other party, and that may give rise to problems of adverse selection or moral hazard. That enhances the risk that the transaction does not take place or, in the extreme cases, that the market is not created. The information asymmetry problem

can be solved by institutions through endorsement and verification (e.g., defining unfair behaviors, adopting certification, or ranking).

Secondly, market problems can occur because of power asymmetry, which limits the range of behaviors actors can choose to adopt. For example, if an actor holds a favorable position within a market (e.g., monopoly), distortions may cause a disequilibrium preventing other actors from freely choosing their behaviors. Such problem can be solved by institutions through restraining or limiting the power of players within a market (e.g., antitrust).

Thirdly, agreement consummation constitutes a market problem: in this case, temporal asymmetry related to the enforcement of contracts may occur. If the enforcement is not regulated, problems related to the responsibilities of the parties may emerge, limiting market transactions. Institutions help solve this problem through enforcement, thus defining unfair behaviors and monitoring and sanctioning violations.

Fourthly, individual incentives within the market have to be preserved: in the absence of mechanisms aimed at protecting the appropriability of value created through production or exchange, actors' motivation may be reduced. Thus, in order to protect entrepreneurship and initiative, institutions need to function as third-party enforcers and guarantee support for individual incentives.

Finally, market problems can be related to collective action. The presence of externalities requires collective actions, determined by incentives and coordinated behaviors. However, free riding or an absence of coordination may limit collective action and create market problems, for example, an under-provision of public goods (Dixit 2009). In such situations, institutions allowing cohesion and aggregation may enable collective action.

Building on Oliver's (1991) work, Ahuja and Yayavaram (2011) define two strategic intents—or generic strategies—that firms can adopt to generate or protect their rents of influence, namely, avoiding institutions and manipulating institutions. Obviously, firms may also choose to resist institutional pressures through a buffering or a decoupling strategy, as mentioned in Sect. 1.

Within the generic avoidance strategies, five generic actions can be identified, namely, delaying, substitution, defanging, jurisdiction shopping (also defined as forum shopping or jurisdictional arbitrage), and arbitrage morphing. The first is related to the idea of delaying the enactment of institutional control, for example, by preventing delaying the institution's coming into existence or effective functioning. Substitution refers to switching mechanisms of control by proposing institutional solutions that may be more within the control of specific actors. Defanging defines the action of reducing the power of the institutions, for example, reducing the threat or enforceability of sanctions. Using a jurisdiction shopping strategy (Ahuja and Yayavaram 2011), actors can avoid the control of the institution by selecting a geographic location in which to operate on the basis of a more favorable institutional framework. Finally, arbitrage morphing focuses on changing the actor's purpose in order to prevent the control of an institution from falling into the domain of action of a different institution, eventually, less constraining.

Generic manipulation strategies, on the other hand, are focused on manipulating the institutions, rather than avoiding them. At this level, firms can engage in subversion, starvation, perception management, co-optation, and capture or institutional proliferation.

Subversion strategies are aimed at using the institutions for ends they were not intended for or even for opposite goals. Starvation is targeted at limiting access to resources that the institution needs in order to function effectively, thus creating a market problem of inefficiency. A strategy of perception management is aimed at undermining the authority of an institution, and therefore its perceived legitimacy, by manipulating its reputation. The institutions can, as a consequence, be less aggressive or effective in the pursuit of control. Co-optation and capture strategies are related to the manipulation of the decision-making of institutions. Finally, institutional proliferation results in the creation of multiple institutions, neutralizing or limiting their ability to identify proper intervention domain and task. Paradoxically by multiplying institutions, their individual power might be weakened.

Not always do the actors decide to focus on avoidance, manipulation, buffering, or decoupling strategies. There may be cases in which, on the other hand, they may decide to engage actively in the search for new institutional solutions. This is the case of institutional entrepreneurship.

4 Institutional Entrepreneurship

Institutional theory spans a lengthy tradition and embraces economical, political, and social literature. Within the realm of organizations, institutional theory distinguishes two streams, an old and new institutionalism. The former (Selznick 1948; Gouldner 1954) describes organizations as both economic systems and adaptive social structures, where change exists as a result of the evolving relationships these organizations established with their local environments. The latter, the so-called neo-institutionalism, originated in 1977 with the work of Meyer and Rowan, highlights the homogeneity that characterizes organizations, which tend to respond to the external pressures by complying, meeting the requirements posited by stable institutionalized components (DiMaggio and Powell 1991).

Institutional entrepreneurship fits into these two traditions, marking a point of convergence between the adaptive response of the old institutionalism and the inertia and passive attitude of neo-institutionalist organizations by conceiving a potential for agency within the institutional context.

As actors' efforts were recognized as having the potential to bring about modifications within taken-for-granted structures and to develop strategies to challenge and respond to them (Oliver 1991; Holm 1995; Seo and Creed 2002), the source of change within these structures became endogenous and not merely a result of exogenous shocks, jolts, or crises (Leca et al. 2008).

Extant literature refers to institutional entrepreneurship as the "activities of actors who have an interest in particular institutional arrangements and who

leverage resources to create new institutions or to transform existing ones” (Maguire et al. 2004: 657).

If institutional entrepreneurs may create new institutions, modify or disrupt existing ones, reacting purposefully to the burdens posited by social structures, the question as to who these institutional entrepreneurs arises spontaneously. In fact, is it not likely that every actor will be able and willing to act as a change agent toward institutions: accordingly, who are these actors and what characteristics shall they possess to become institutional entrepreneurs?

By examining the extant literature, Hardy and Maguire (2008) identified different types of institutional entrepreneurs, namely, social movements (Lounsbury et al. 2003), networks (Dorado 2005), associations (Demil and Bensédine 2005), organizations (Garud et al. 2002; Hensman 2003), and individuals (Maguire et al. 2004; Kraatz and Moore 2002). These different actors have to be endowed with several characteristics that permit them to create room for agency within the taken-for-granted norms, regulations, and laws that govern social behavior and provide rules of interaction within the social context: these properties range from intentionality (Battilana et al. 2009), status, power, and resources (DiMaggio 1988) to social skills and reflexivity (Fligstein 1997; Mutch 2007).

At an individual level, scholars have recognized three categories of enabling conditions for institutional entrepreneurship, namely, field-level conditions (Clemens and Cook 1999; D’Aunno et al. 2000; Seo and Creed 2002; Sewell 1992; Tolbert and Zucker 1996; Whittington 1992), social position (Battilana 2006), and organizational characteristics (Greenwood and Suddaby 2006; Kraatz and Zajac 1996; Leblebici et al. 1991; Rao et al. 2000).

Field-level conditions refer to the heterogeneity of these recognized areas of institutional life (DiMaggio and Powell 1983) and to their degree of institutionalization (Tolbert and Zucker 1996): in fact, as stated by Sewell (1992: 19), “the presence of multiple institutional orders or alternatives constitutes an opportunity for agency,” and, on the other side, social structures may experience different levels of institutionalization, ending up in patterns of social behavior that can be more or less subject to change than others (Tolbert and Zucker 1996).

Organizational characteristics may be enablers of actions toward institutions as, by being located at the periphery or center of a field, an organization can contain a small or big number of subject positions (Foucault 1972), positions that endow individuals with the legitimacy and power needed to act to promote institutional change. The debate around whether a dominant or challenger position in the field is more conducive to institutional entrepreneurship has seen scholars employing different arguments: Leblebici et al. (1991) argue how, despite possessing a smaller number of subject positions, organizations located at the fringes of a field will be the ones pursuing modification within the structures, as they would have less to lose, with final outcomes less costly in terms of experimentation and reduced chances of being sanctioned by dominant players. On the contrary, Greenwood and Suddaby (2006) suggest how the quest for new institutional solutions does not emerge within the periphery of a field, where organizations “are less embedded, less privileged, and more exposed to institutional contradictions,” but rather at its core,

where central organizations, by bridging organizational fields (through the “boundary bridging” and “boundary misalignment” processes), can lower their embeddedness and envision alternatives to the current institutional settings.

The third enabler of institutional entrepreneurship is represented by the social position individuals may occupy both within the organizational hierarchy and the organizational network (Battilana 2006): in fact, being part of a higher level of the organizational hierarchy and/or being tied to actors positioned in higher social groups may provide individuals with the information, resources, and power needed to not only envision, but also implement divergent change.

Thus, in order to act as an institutional entrepreneur, actors may first need to occupy a subject position that would provide them with a broadly based legitimacy, shared by a plethora of different stakeholders, and with a set of financial, informational, and reputational resources. Secondly, actors will have to persuade others to engage in the adoption of new practices, with the aim of endorsing these latter, by building up arguments that embrace the interests of the different stakeholders that legitimated these change actions. Thirdly, they have to institutionalize these practices, through bargaining, negotiation, and compromise, by combining them with the values of the stakeholders (Maguire et al. 2004).

5 Conclusion

In this chapter we have identified how institutions contribute in defining those strategic choices that organizations make in order to be able to achieve and maintain a long-lasting competitive advantage, even in context of crisis. A variety of approaches, from different literatures and disciplines, highlights multiple debates and open issues, as in the case of institutional change or on the strategic responses to institutional action. Indeed, the idea of a “tripod” for strategic analysis, including the institution-based view as a third perspective, is increasingly being addressed.

Our purpose was to highlight that given the influence of institutions on firm behavior, any strategic choice is inherently affected by the formal and informal constraints of a given institutional framework. Indeed, we have observed how institutions, or the relative market ordering mechanisms, may fail leaving space to different strategic responses. The existence of diverse institutional spheres may also allow firms to select regulatory frameworks or adopt strategic behavior allowing for the exploitation of different opportunities (or the avoidance of constraints), or, else, may push specific actors to pursue actions of institutional entrepreneurship.

Our objective was to focus on the relationship between individuals, organizations, and institutions; surely, a future step would be to analyze also the role of institutional logics and how broader belief systems shape the cognition and behavior of actors, which is also very relevant when analyzing the strict relationship between institutions and strategies.

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Economic Approach to Strategic Decisions

Murat Aslan

Abstract After the 1980s, due to financialization and penetration of technology, business landscape has changed dramatically. These changes have created an extremely competitive business environment. In this business landscape, firms face so many challenges but at the same time, they are equipped with a large number of “strategic instruments” to deal with these obstacles. Key strategic instruments that are at the disposal of top managers to achieve competitive advantage include, among others: pricing, advertising, quality differentials, R&D, integration, acquisition, financial leverage, brand, and customer loyalty. The central premise of theories in microeconomic literature addresses the fundamental questions of why strategic decisions work differently for different firms and how firms achieve and sustain competitive advantage. Industrial organization which is a subfield in economics concentrates on addressing these research questions. Scholars in industrial organization have developed three distinct theories that investigate possible causative linkages between the performance and the use of alternative strategic instruments. These models are: structure-conduct-performance approach, five forces model, and transaction cost approach. The first objective of this study is to review these key theoretical models. According to the former two models, market structure plays major role in “success” of these instruments. In order to clarify the importance of market structure, we overview three strategic instruments: namely, pricing, advertising, and R&D. In addition to this, in order to demonstrate the significance of transaction cost approach, we include another important strategic instrument: integration. We show that the recent advances in transaction cost approach have greatly improved our understanding about integration, acquisition, and mergers.

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1 Introduction

Firms make a large number of decisions of many kinds for a variety of reasons with varying results. However, not all the decisions are considered as “strategic.” Majority of these decisions are tactical or operational. Strategic decisions, in general, have considerable effects over livelihood and survival of the organization, and therefore they are made by top management.

In economics, particularly in industrial organization (IO), the term “strategic decision” is more or less equal to the term “conduct.” Strategic decision or conduct is an action (or a set of actions) aimed at creating a sustainable competitive advantage over rivals. While the process of strategic decision is chiefly investigated by scholars in managerial science, economists have a tendency to neglect the process side of the strategic decision and focus mainly on “content” side. The researches in content area explore the advantages and shortcomings of alternative instruments (such as merger, acquisition, investment, diversification, portfolio management, vertical integration, disinvestment, product, and market differentiation) in achieving sustainable competitive advantage.

In this study, we approach the issue of strategic decision in the light cast by researches in IO field. In IO literature, varieties of non-price instruments with different nature and characteristics have been analyzed. Since there are so many strategic instruments available at the disposal of any firms, reviewing all these instruments is beyond the scope of this study, and therefore, we cover a limited number of these instruments that we deem particularly important. In this essay, we concentrate on four major strategic instruments, namely pricing, advertising, R&D, and integration.

In the following section, we will provide some background information about strategic decisions and also provide definitions and explanations of several key concepts. Section 3 is devoted to pricing strategy. Sections 4, 5, and 6 review non-price strategies including advertising, R&D, and integration, respectively. In Sect. 7, we will provide a brief summary of the study.

2 Strategic Decisions

Strategic decision is a complex and unstructured phenomenon. In strategic decision process, a large number of factors are in effect. These factors are embedded in both the inner (financial capital, reputation, human resources, power relations between manager and owners, managerial skills) and the outer (industrial factors, macro-economic factors, and global factors) contexts of organizations.

In every day, firms make a large number of decisions for a variety of reasons with different time setting including both daily basis as well as longer perspective. There are three types of decisions that a firm makes: strategic decisions, tactical decisions, and operational decisions. Strategic decisions have considerable effects

over livelihood and survival of the organization. Strategic decisions are political and carry high levels of uncertainty; they rarely have one best solution and, once a decision is made, it is difficult to reverse (Wilson 2003). Tactical decisions, on the other hand, are related to the implementation of strategic decisions. Operational decisions have a short-term horizon as they are taken repetitively and are taken at lower levels of management (Kumar 2009).

As there is a great deal of strategic instruments (acquisition, advertising, financial leverage and debt, horizontal integration, mergers, pricing, product differentiation, outsourcing, R&D, vertical integration) in the hands of managerial team, scholars in IO concentrate on plusses and minuses of these alternative instruments. In order to achieve competitive advantage, the upper management of a particular firm formulates policy or policies (separately or simultaneously) over a set of these strategic variables. In IO, “conduct” and “strategic decision” are used interchangeably implying that strategic decision is the act of using these strategic variables.

2.1 Background Information and Basic Concepts

Market structure is an important concept in strategic decision research. Basic factors concerning economic and technical conditions give rise to industry structure where the structure is characterized by large number of factors including the number of buyers and sellers, the concentration of the industry, extent of vertical integration, cost structures, barriers to entry, price elasticity of demand, and other factors.

According to neoclassical paradigm, there are four types of market structures: (1) competitive market, (2) monopoly, (3) oligopoly, and (4) monopolistic competition. In the perfectly competitive market, due to very restrictive assumptions, all the firms are price takers. In other words, a firm in the competitive market faces a horizontal demand curve. Perfectly competitive market in its pure form is essentially a theoretical construct and in practice, it is difficult, if not impossible, to find perfect competition in the pure form.

In monopoly, there is only one seller possibly arising from entry barriers. The demand curve is fully controlled by the monopoly, and thus the firm has full autonomy to set its price. In pure competitive model, the profit maximization generates a price level (P) that is equal to the firm’s marginal cost (MC), or simply: $P = MC$. However, in monopoly, profit maximizing price is greater than MC ; that is, $P > MC$. Lerner Index is one of the most frequently used indicator that measures “market power.” The index is defined as the ratio of the firm’s profit margin ($P - MC$) to the price level:

$$L = \frac{P - MC}{P} \quad (1)$$

In oligopoly, few firms dominate the industry. Oligopolistic markets have other characteristics, including: barriers preventing entry, substantial concentration, and strategic behavior arising from interdependency. In general, entry barriers lead to substantial market concentration. Production and sales tend to be concentrated in the hands of a relatively few firms. Therefore, when formulating a strategy, a firm should anticipate possible reaction of rivals to its own action.

Market concentration is another key concept. It is a measure of competition. Herfindahl Index (HHI) is the most commonly used index where the degree of concentration is calculated by the sum of the squared market shares of all member firms of an industry:

$$\text{HHI} = \sum_{i=1}^n s_i^2 \quad (2)$$

Where s_i is the market share of firm “ i .” The maximum value HHI can take is 1 (i.e., monopoly). When number of firms is very large and their respective share is very low, value of HHI will be getting closer to 0. Higher the industry concentration, the closer the HHI score is to 1.

In monopolist competition, there are numerous small firms, partially due to nonexistence of major barriers to entry or exit. Each firm in this industry produces similar but not identical products. The products may be similar but not perfect substitutes for one another. Actors particularly buyers possess some information about prices and the quality of products but the information is not perfect. An individual firm’s demand curve in monopolistic competition is relatively elastic but not horizontal as in the competitive market.

2.2 *Economic Theories over Strategic Decision*

In IO, there are three distinct theoretical approaches that contribute to our understanding of strategic decision. These theoretical approaches are: (1) “Structure-Conduct-Performance” model, (2) “Five Forces” model, and (3) “Transaction Cost Approach.”

“Structure-Conduct-Performance” (abbreviated with “SCP”) was initiated by two works: Mason (1939) and Bain (1956). The essence of SCP paradigm is that alternative conducts or strategies for a particular firm are shaped by market structure which in turn will determine the performance. Finally, profit differences among firms, according to SCP, are regarded as transitory or unimportant unless based on scale economies, which are generally found to be insubstantial (Schmalensee 1985).

“Five Forces” framework was developed through the works of Porter in the early 1980s. Similar to Bain–Mason ideas, Porter maintained that market structure is at the heart of strategic issues. However, there are some differences. Most

importantly, the unit of analysis in Porter's model is the firm rather than industry as in the SCP model. Therefore, Porter's model looks at strategic issues from a perspective of a manager rather than a social planner as in the SCP approach.

According to Porter (1980), a company's competitive advantage is threatened by five factors: (1) new entrants, (2) rivals, (3) substitutes, (4) powerful suppliers, and (5) powerful buyers. If entry barriers are relatively high in an industry, a potential new entrant in this industry is unlikely to occur. Rivalry among existing competitors in an industry is recognized through some strategies like price competition, advertising battles, product introductions, and increased customer service or warranties (Porter 1980). The threat of substitute products or services depends on how attractive alternative products are (Porter 1980). Buyers bargaining power depends on whether the buyers are able to compete, force prices down, or bargain for higher quality or service (Porter 1980). The threat of suppliers is high if the supplier group is dominated by few companies and is more concentrated than the industry it sells to (Porter 1980).

Since a firm is conditioned by these forces, Porter argues that a firm must select and follow strategies ("generic strategies") that leverage its strengths and defend against the adverse effects of the five forces. Porter identifies three types of "generic" strategy: cost leadership, differentiation, and focus. According to "cost leadership strategy," a particular firm in any market structure aims at having average cost lower than its rivals so that a firm can maintain its competitive position. Under the "differentiation strategy," the firm's product has some unique characteristic which appeals to its customers, leading to higher margins and profits (Lipczynsky et al. 2005). For example, firms in automobile industry frequently change the design and features of their cars. Moreover, firms invest large sum of money to create and maintain brand. R&D and innovation activities undertaken by firms are related to the "differentiation" effort. Porter's last strategy is about "focus" suggesting that a firm should concentrate on a particular market segment. In the case of differentiation, for example, this may involve identifying a particular group of customers and gearing the firm's product towards their tastes or needs (Lipczynsky et al. 2005). In practice, some auto manufacturers such as Renault, Citroën, Toyota, Honda, and Opel, for example, concentrate on targeting mid and upper mid-income segments whereas some other firms target wealthy customers, such as Porsche, Bentley, and Rolls-Royce.

The third model in strategic decision field is "Transaction Cost Approach" (TCA) initiated by Coase (1937) and enriched by a series works of Williamson in the 1970s. Firms, in neoclassical tradition, are treated as "block box" where firms are formulated as production functions transforming inputs into outputs. Neoclassical model is based on very strict assumptions, including: perfect information, no cost of information, rational actors, and no externalities. That is, there is no friction.

On the contrary, Coase (1937) argues that the presence of large number of frictions in real world weakens the reliability of neoclassical paradigm. There are three major costs (i.e., information, negotiation, and bargaining costs) arising when an actor or a firm uses the price mechanism, according to Coase. In general, these costs are referred to as transaction costs. In addition to price mechanism, Coase

argues, the firm is considered as another mechanism that coordinates the transactions. In other words, firms represent an alternative governance mechanism to the market by providing an environment in which the price mechanism is replaced by the authority of entrepreneur.

The size of firm is the other issue. According to Coase (1937), the size of the firm is defined on the basis of the number of transactions carried inside the firm. The cost of organizing additional transaction within a company may involve benefits (economizing transaction costs) as well as costs (loss in managerial efficiency). According to Coase (1937): “Firm will tend to expand until the costs of organizing an extra transaction within the firm become equal to the costs of carrying out the same transaction by means of an exchange on the open market or the costs of organizing in another firm.”

TCA literature has gained momentum after the 1970s with a series of works by Williamson. Coase (1937) incorporated only *ex ante* transaction costs (i.e., searching for information and negotiating contracts). Williamson (1975) emphasized not only *ex ante* costs but also *ex post* costs (such as monitoring costs, enforcing, and compliance costs).

Boundary relationship between the firm and its environment is one of the core areas in TCA’s research agenda. The boundaries of the firm relates to which activities or transactions should be undertaken in firms (hierarchies), which should take place in various intermediate forms (such as franchising, licensing arrangements, long-term supplier contracts, joint ventures, etc.) and which should be handled in “anonymous” or spot markets (Elfring and Volberda 2001).

3 Price Strategies

Pricing is one of the most important strategic tools. Relative importance of this tool is particularly more prevalent for firms in noncompetitive markets. There are two nonuniform price strategies: (1) price discrimination and (2) tie-in sales.¹

There are three types of price discrimination: (1) perfect price discrimination, (2) quantity (second-degree price) discrimination, and (3) multimarket (third degree) price discrimination. The price discrimination is an appropriate tool particularly for monopoly, but firms in other noncompetitive markets may also utilize price discrimination strategies.

In the first degree price discrimination, a firm is assumed to know the amount of money each consumer is willing to pay for its product and sets its price accordingly. It is also labeled as “personalized pricing” strategy. As one may expect, this strategy involves high information costs and may not be practical.

¹Note that a successful pricing strategy has some prerequisites: (1) some degree of market power, (2) different demand curves with different price elasticities, and (3) no resale.

The second degree price discrimination occurs when price varies according to quantity sold. According to this strategy, a firm knows that there are different types of customers, but this firm is not equipped with necessary information to distinguish different types of customers. In order to solve this information problem, firms tend to offer a menu of packages where each menu contains alternative price and quantity combination in such a way that consumers sort themselves out (self-selecting) by choosing different packages.

There are three subcategories in second degree price discrimination: (1) quantity discounts, (2) quality differentials, and (3) two-part tariffs. In the quantity discount, a firm charges a higher per-unit price for fewer units sold and a lower per-unit price for larger quantities purchased. In quality differentiation, a firm offers customers a choice of different quality products at variety of prices. By offering a high-quality, high-priced product that appeals to customers who place a high value on the product quality, and a low-quality, low price product that appeals to other customers, a firm can separate the two types of customers and charge high prices to those most willing to pay them (Carlton and Perloff 2005). The strategy is in line with one of the Porter's generic strategies. Airline companies offer different class of services (i.e., business class, economy class) for the same flight.

In two-part tariff pricing scheme, a product's price consists of two components: fixed and variable. A consumer must pay a fixed fee independent of the quantity purchased plus amount of money that varies with quantity. For example, cable companies charge very high price for basic package and offer low prices for additional packages.

In the third-degree price discrimination, a noncompetitive firm is assumed to successfully divide the entire markets into segments and charge different prices for each segment. Consumer group in each segment is assumed to have different price elasticity. Pharmaceutical companies use this strategy particularly by setting different prices in different countries. Naguib (2010), for example, showed that the price of Lipitor^{®2} in Egypt is lower than that of the USA. He found that the discrimination can be attributed to factors related to price elasticity of demand.

Tie-in or tying is the other nonuniform pricing strategy. In this strategy, two or more distinct products or services are tied together as a package, and a customer is allowed to purchase only this composite package. There are two forms of tie-in sales: (1) requirement tie-in sale and (2) bundling. In "requirement tie-in sale," a customer who buys a firm's product is required to make all his purchases of another product (or complementary product that allow the original product to work effectively) from the same producer. For example, printer manufacturers charge competitive prices ($P = MC$) for the machines but charge very high prices for the complementary products (i.e., cartridges). The other type of tie-in sale is bundling. A manufacturer offers two or more products (bundling) in a single package so that customers cannot buy either of these products separately.

²A drug developed by Pfizer and is prescribed for patients with high cholesterol.

4 Advertising

Advertising is a form of marketing communication and is intended to inform and influence existing and potential customers. In developed nations, advertising outlays have been around 0.8–2.5 % of their national income. In the USA, for example, \$190 billion dollars was spent on advertising in 2015. For the same year, total worldwide spending was about \$590 billion dollars implying that almost one-third of total worldwide advertising expenditure was spent in the USA (McKinsey & Company 2016).

4.1 Views About Advertising

In the theoretical literature, there two conflicting views about the advertising: “informative view” and “persuasive view”. According to informative view, advertising contains direct information as to existence, location, function, or price of a product and helps alleviating the information problem. According to “persuasive” view, advertising seeks to seduce customers to purchase particular product/service, often by appealing their emotions and general sensibilities.

4.2 Advertising and Consequences

According to the persuasive view, advertising may influence market power, prices, and also profit. In this approach, advertising has some “inducing power” over customers by steering consumers’ preferences to favor the advertised product. The “inducing power” has two consequences. Firstly, it might lead to demand curve to be steeper; that is, the demand curve becomes less elastic. Secondly, it might reduce the cross-price elasticity of demand between advertised product and its close substitutes. Due to statuesque bias created by the attachment, there will be fewer people switching between brands and hence likely to try a new product. In other words, according to persuasive view, advertising will deepen the market power and lessen the competition (Ferguson and Ferguson 1994).

Informative view has its own points about causality. According to “informative view,” advertising reduces transaction costs by lowering the costs of search. By doing so, advertising might lead to two changes in a demand for particular commodity/service: (1) price of elasticity of demand will rise and (2) cross price elasticity of demand will rise. In other words, customers become more sensitive to price changes, and therefore, firms might adopt more competitive pricing strategy.

4.3 Advertising Intensity

Advertising intensity (the level of advertising expenditure relative to sales revenue) displays significant heterogeneity among sectors, and this picture is fairly common across industrialized countries, with the same industries tending to display high advertising intensities (Ferguson and Ferguson 1994). The variation in advertising intensity may be related either to characteristics of product or to characteristics of the industry.

In order to distinguish the reasons as to why some products are more advertised than others, Nelson (1970) offered a theoretical model. Nelson separates products into two major categories: (1) search goods and (2) experience goods. A search good is one whose quality can be evaluated effectively before purchase (e.g., gasoline, batteries, printer paper, soft drinks) whereas the quality of an experience product can be effectively evaluated only after purchase (e.g., automobiles, consumer electronics, restaurants).

For search goods, since consumers can compare attributes of alternative products before the purchase, the favorable effects of persuasive advertising for this category are limited. However, the outcome may be different for the experienced good. Nelson (1974) argues that the “persuasive” elements in advertising may generate important favorable outcomes for experience goods. Nelson (1974) particularly emphasized the link between the quality and advertising and argued that these two may be positively correlated. Broadly speaking, consumers are willing to repeat purchase of products if the advertised brand is of high quality, and therefore the high quality producer has an incentive to advertise because consumers will be satisfied with their purchase and become repeat customers.

Advertising intensity might also depend on market structure. Dorfman and Steiner (1954) developed a model for monopoly and showed that advertising intensity depends on the ratio of advertising elasticity of demand to price elasticity of demand.³

$$\frac{A}{P \cdot Q} = A_I = \frac{\epsilon_A}{\epsilon_P} \quad (3)$$

where A : advertising expenditure by a monopoly, A_I : advertising intensity, P : price, Q : quantity sold; ϵ_A : advertising elasticity of demand, and ϵ_P : price elasticity of demand. When customers’ responsiveness to advertising is big (that is, ϵ_A is large) and their responsiveness to price change is small (that is, ϵ_P is small), the advertising intensity for the firm would be higher.

In oligopoly case, it is often argued that advertising strategy is more important than price competition. If this proposition is true, then advertising intensity should vary with the level of concentration. Cable (1972) found that the relation between

³Due to space limitation, the derivation is not provided in here. See for detail: Carlton and Perloff (2005).

advertising intensity and market concentration follows an inverted U shape. Cable (1972) found advertising intensity is at its maximum when concentration measured by the HHI is equal to 0.40, which is characteristic of an industry of many small firms dominated by two large firms.

5 R&D

R&D expenditures exceed 10 % of total sales revenues at many companies, including Nokia, Microsoft, GlaxoSmithKline, and Google (Besanko et al. 2009). According to OECD (2012) report, recent economic crisis that started in 2008 has negatively affected business innovation and R&D in all countries. The crisis has caused significant reduction in overall global demand for almost all sectors and products. Due to significant squeeze in revenue, overall R&D spending has been adversely affected from the crisis. The size of the effect and the impact on business innovation have differed widely across countries. During the crisis, some emerging countries in Asia, including Korea and China, have used the opportunity to demonstrate their strength while some other countries including Canada, Greece, and Spain have reduced their R&D spending dramatically.

5.1 *Basic Definitions*

R&D is a process intended to create new products or improved technology that can provide a competitive advantage at the business, industry, or national level. Technological progress is not a discrete process or one-time strategy. Firms continually devote their valuable resources to innovation activities. By doing so, the firm aims at introducing new products with superior quality (i.e., product innovation) or improving the methods of production (i.e., process innovation) to have competitive advantage over its rivals.

According to OECD (2012), because of cost-reduction property, process innovation may be less sensitive to business cycles. However, there are some benefits in pursuing product innovation even during the macroeconomic downturns. Historically, a good example took place in the early 1990s. Some airlines were able to develop alternative products for customers. By doing so, some airlines cut their costs and also their prices and they managed to grow out of the recession (OECD 2012).

5.2 Theories over R&D and Market Structure

Schumpeter (1942) was the first to analyze the possible connection between the market structure and technological progress. He hypothesized that there exists a positive correlation between innovative effort and market power. He proposes two arguments to justify his hypothesis. Firstly, if R&D was considered as an activity that incorporates design and engineering, then large firms may have an innovative advantage due to economies of scale in R&D. That is, the nature of engineering and scientific research requires the presence of a minimum size to an R&D department. Second, large firms with considerable market power probably have larger financial means to invest on R&D than small firms.

Arrow (1962) proposed a theoretical model and expresses -exactly the opposite of Schumpeter's hypothesis, arguing that perfectly competitive markets may be more compatible with innovative efforts. According to Arrow, the incentive for innovation for monopoly is lower than that of competitive firms. For a monopoly, a process innovation will cause firm to replace its old physical assets with new ones. The cost is borne by monopoly alone. However, when a process innovation was discovered by a firm in a competitive market, not only the inventor but also all other rivals have to replace the old technology. In other words, the relative replacement costs stemming from innovation for a particular firm is more in monopoly case than in competitive market.

Although market structure can affect the degree of technological change, a new technology can also dramatically affect the market structure. An entrepreneur who creates a new product may seize a market from existing firms and increase concentration. Although the outcome of R&D is not known with certainty, a successful innovation for a particular firm might lead to market power.

5.3 Alternative R&D Strategies

R&D is a strategic apparatus with alternative operational settings. According to Freeman and Soete (1997), R&D can be used as a strategic tool in four distinct ways: (1) offensive, (2) defensive, (3) imitative, and (4) dependent.

By using an offensive/aggressive strategy, a firm aims at dominating the market through the introduction of a new technology or new product. The aggressive strategy typically necessitates high investment in physical capital in the form of equipment and laboratory as well as R&D team. Investment in R&D may be necessary for some firms to survive rather than to dominate the sector (Freeman and Soete 1997). A firm, on the defensive side of the picture, tends to follow the lead which is set by a rival whose strategy is offensive. The defensive firm generally concentrates on retaining its market share. Firms with defensive strategy may not have adequate physical and human resources to pursue an aggressive strategy.

Firms with imitative strategy do not aspire to “leapfrogging” or even to keeping up with the game, and these firms content to follow some way behind the leaders in established technologies, often a long way behind. General pattern of these firms to copy newly introduced process or products, either by acquiring a license in the short run or by exploiting free knowledge in the long run. A dependent strategy involves acceptance of a satellite or subordinate role in relation to other stronger firms. Firms adopting this strategy do not themselves initiate R&D. Many large firms will have a number of such satellite firms around them supplying components or doing contract fabrication and machining, or supplying some services (Freeman and Soete 1997).

6 Integration

6.1 *Basic Definitions*

There are two broad policies in integration. Firstly, a firm can integrate into a new market on its own. Secondly, a firm may follow an integration strategy through a merger or an acquisition. Horizontal integration refers to the merger of one or more firms in the same industry, or firms producing similar products, most often by similar techniques of production (Everett 2003).

Consumer goods are produced through a series of steps described by the vertical chain of production (Besanko et al. 2009). Vertical integration refers to ownership and management of two or more successive stages of the vertical chain of production by a single firm. In forward integration, a firm expands its control to include downstream activities (i.e., marketing, distribution, and retail). On the other hand, backward integration aims at expanding a firm’s control to include upstream activities (i.e., raw materials, intermediate inputs).

6.2 *Why Do Firms Integrate?*

Horizontal integration might have some benefits. These benefits are likely to vary across the cases and time. Firstly, horizontal integration might reduce competition. Second advantage about integration arises from dynamic or synergetic effects. Firms have different capabilities and organizational skills. Integration may create synergy by amplifying favorable idiosyncratic characteristics (Everett 2003). In order to suppress interfirm rivalry, firms may choose collusion (in either explicit or implicit form) over merger or integration. However, collusion (in either explicit or implicit form) involves substantial information and transaction costs. Furthermore, antitrust laws in many countries prohibit such arrangements. On the contrary, horizontal integration might enhance the market power without dealing with these problems.

Vertical integration is a very complex subject. In some cases, technological reasons dictate vertical integration. A standard example is related to steel industry. In the steel industry, blast furnaces that produce steel and the strip mills that shape and cut steel are not only controlled by the same firm, but are also located within the same plant so as to conserve heat (Lipczynsky et al. 2005). In general, where there are closely related or technologically complementary production processes, a vertically integrated firm may be able to achieve better planning and coordination, longer production runs, and better use of capacity (Lipczynsky et al. 2005).

Recent developments in TCA offer another avenue in analyzing vertical integration. TCA formulates three forms of governance system about resource allocation: (1) spot market, (2) contract, and (3) integration. A choice over these alternatives depends on the nature and size of: (1) frictions (i.e., externalities and asymmetric information) and (2) transaction costs. Spot market and contract encompass some frictions in the form of asymmetric information. In vertical chain of production, firms are not willing to disclose information to each other or even worse, may misinform in an attempt to gain unfair advantage. Competitive advantage, to some extent, depends on the smooth flow of inputs including both raw material and also other intermediate inputs. Frequently, the problems about the reliability of upstream firms (with respect to delivery time, the quality, and the price) may create uncertainties.

Vertical integration may eliminate some of the free-rider problem stemming from selfishness of retail firms in downstream. Building reputation and customer loyalty are hard and require significant amount of resources. Firms can have problems motivating independently owned distributors to invest sufficient resources to maintain a brand name—there is a free-rider problem (Lipczynsky et al. 2005). These retail firms, for example, may want to cut costs by hiring less skilled workers and may procrastinate providing some services (i.e., installation and maintenance).

According to TCA, transactions costs may arise as a consequence of contractual hazards associated with transactions mediated through market arrangements (Lipczynsky et al. 2005). In order to lessen the inefficiencies stemming from alternative governance system (i.e., spot market or contract), firm may opt for integration over the alternatives.

However, there are some negative aspects of vertical integration. The implementation and maintenance of successful vertical integration are very difficult strategy for companies. It is often very expensive and hard to reverse. Upstream producers frequently integrate with downstream distributors to secure a market for their output. This is fine when times are good. But many firms have found themselves cutting prices sharply to their downstream distributors when demand has fallen just so they can maintain targeted levels of plant utilization (Hindle 2008).

The 2008 global crisis had a significant impact on worldwide mergers and acquisition particularly in financial sector. Emerging market banks appear to be major acquirers in the postcrisis period, targeting both neighboring countries and developed economies in Europe (Rao-Nicholson and Salaber 2015).

7 Conclusion

Firms make a large number of decisions. Majority of them are either tactical or operational, and only very small portion of these decisions is strategic. In this study, we review three major theories established within the premise of economic philosophy: SCP model, Five Forces model, and TCA. Each model has its own unique features. According to former two models, the “success” of any strategic instruments implemented by a particular firm depends on the market structure. In order to further clarify the relevance and importance of these two models, we overview three particular strategic instruments: pricing, advertising, and R&D. We have shown that the success of these devices is shaped by market structure. The third model, TCA, is particularly important in analyzing boundary relationship between the firm and its environment. The boundaries of the firm relates to which activities or transactions should be undertaken in firms (hierarchies), which should take place in other form of governance modes (i.e., spot market or contract). Overall, this study reveals that the implementation of any strategy is essentially shaped by market structure. However, at the same time, when some firms (particularly in oligopolistic market) employ some of these devices (in particular, R&D and merger) aggressively, the market structure is likely to be altered.

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Leading the Strategic Decision-Making Process: Conceptual Frameworks

Aşkın Özdağoğlu, Sabri Erdem, and Güzin Özdağoğlu

Abstract Leading the strategic decision-making process is a crucial issue in organizations. The success of the process is closely related to the experiences and special skills of the managers as well as to the culture and the structure of the organizations and environmental factors. Such a decision-making process requires improved cognitive, behavioral, and analytical skills from managers. This chapter investigates those success factors of the strategic decision-making process emphasized in the current literature and proposes two conceptual frameworks based on the factors for top managers that would help them to track the causality and the performance of their organizations within this scope.

1 Introduction

Strategic decision-making is handled in the top level of the management hierarchy and a critical process for the sustainability of the organization. Recent studies have revealed that there exist several approaches to managing strategic decision-making processes in organizations. The approaches adopted by managers are related to their experiences and managerial skills for the decision processes such that some of them choose analytical approaches depending on reports gathered from data analysis, whereas some of them prefer cognitive approaches related to their knowledge and experiences or others adopt composition of those approaches.

The strategic decision-making process includes the identification phase, the development phase, and the selection phase. The identification phase is comprised of the decision recognition routine and the diagnosis routine. The development phase of the strategic decision-making process is made up of the search routine and the design routine. The selection phase of the strategic decision-making process is comprised of the screening routine, the evaluation choice routine, and the authorization routine (Schwenk 1995, 473–474).

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External opportunities and threats can be identified with environment assessment. Internal strength and weaknesses can be revealed with the organizational assessment. Analyzing the internal strength and weaknesses and the external opportunities can be used for many purposes in the companies like marketing activities and also strategy definition. Strategy statement shows the roadmap for companies for reaching the mission statement of the company. Mission statement gives the organization's purpose of existence. As can be seen here, analyzing the internal strength and weaknesses and the external opportunities and threats is critical for strategic decision-making process as well. The company can find the strategic gaps with the environmental and organizational assessments. After gap analysis, companies should set the objectives of the strategic decision-making problem. After setting objectives in the problem, all alternatives should be listed and then evaluated with respect to the selected criteria simultaneously. The solution that has been chosen among the alternatives is then implemented and monitored to track the performance. Monitoring and controlling are the critical ingredients not only for strategic decision-making process but also for many business activities (Harrison 1996). Harrison (1996) also presented many examples on strategic decision-making activities of well-known companies.

In this framework, this chapter firstly handles the critical success factors related to the management of the strategic decision-making process related to skills of managers, organizational culture, environmental issues, uncertainty, knowledge level, technological infrastructure, and the use of information systems. After reviewing the current studies that figured out strategic decision-making processes, this study proposes analysis frameworks for researchers and executives in order to improve the control of the process and leading skills.

2 Highlights of the Strategic Decision-Making Process

2.1 Critical Factors of Leading the Strategic Decision-Making Process

Strategic decision-making processes should be modeled from the viewpoint of identifying decision, environmental characteristics, and firm characteristics. Using only one viewpoint cannot explain the nature of the decision-making process. Difficult and complex situations like changes in product quality, new product introductions, changes in the production process, changes in competitor's prices, changes in competitor's markets, changes in competitor's strategies, entry of new companies, and threat to survival are the interest areas of strategic decision-making process (Elbanna and Child 2007). The role of political behavior in the strategic decision-making process is also effective for sustainability of the organization. If the decision-maker spends relatively time for managing political factors, he or she can miss opportunities especially in the competitive and rapidly changing

environment (Elbanna 2006). Dean and Sharfman (1996) also highlighted political behavior, quality, and environmental favorability as the key success factors of decision-making; besides, they defined the critical decision types such as restructuring, new product, organization change, new process technology, marketing strategy, geographic expansion, diversification, new facility, human resource strategy, and quality.

Papadakis et al. (1998) analyzed the strategic decision-making process from the viewpoint of comprehensiveness/rationality, financial reporting, rule formalization, hierarchical decentralization, lateral communication, politicization, and problem-solving dissension dimensions. They stated that top management characteristics, e.g., level of education and aggressive philosophy; internal firm characteristics, e.g., planning formality and firm performance, e.g. return on assets and growth, corporate ownership type, and the number of employees; and uncertainty, threat and crisis in the market conditions, and pressure are critical factors affecting the performance of the decision processes. Langley (1991) also indicated that rationality, formal analysis, and social interactions are related to the strategic decision-making process.

Cognitive ability, intuition, tolerance for risk, and propensity of the chief executive officers to act are the personal factors that effect the strategic decision-making. Centralization level, formalization level, the size of the firm, and industry effects are the structural factors that effect the strategic decision-making (Wally and Baum 1994). Tacit knowledge is the practical knowledge that is learned in an informal way on the job and effective on the managerial characteristics from a behavioral perspective. Brockmann and Simmonds (1997) analyzed the factors affecting tacit knowledge via confirmatory factor analysis and revealed that intuition and experience like age, industry tenure, and job tenure are the critical ones. Although intuition is an effective approach from the viewpoint of many executives and managers because of quick decision requirements in complex market situations, detailed information collection is critical for important decisions (Miller and Ireland 2005). Brockmann and Anthony (2002) also stated that tacit knowledge is a key element for increasing the quality level of a strategic decision made by the top management team of a company. The study emphasized that top management team members can share their explicit knowledge like standard operating procedures, libraries, archives, and databases by interacting with the other employees in the company. This sharing makes analogy possible which can help convert explicit knowledge into tacit knowledge. Accessing tacit knowledge can be made with mental imagery, intuition, introspection, analogy, metaphor, meditation, self-reflection, and incubation. Therefore, the created knowledge can be used to close the gap between what the need is for decision and what the managers could gather from available information.

Forbes (2005) tested the effects of strategic decision processes on entrepreneurial self-efficacy among the population of “Silicon Valley” ventures. The study determined the decision process factors as decentralization, the number of external advisors, decision comprehensiveness, and the use of current information, and firm size, firm age, entrepreneur’s education level, entrepreneur’s gender, and

entrepreneur's prior experiences as an entrepreneur were considered as the control factors. According to the results of the study, the hypothesized predictors contributed significant explanatory power beyond what was offered by the control variables. The results of this study revealed that decentralization, decision comprehensiveness, and the use of real-time or current information were significantly and positively related to entrepreneurial self-efficacy. Busenitz and Barney (1997) examined the decision-making skills of entrepreneurs and managers. According to the results of the study, entrepreneurs are more overconfident than managers in large organizations.

Arendt et al. (2005) classified top management model into three groups, i.e., individual-CEO model, adviser-CEO model, and top management team model, and explained that individual-CEO model performs one-way communication whereas the others perform two-way communication by providing participation for team or advisers.

Collective or participative decision-making is critical for strategic decisions, and collective decision-making models should be constructed for strategic decisions (Stokman et al. 2000). Group decisions are more effective than individual decisions. One decision-maker in the group should be the devil's advocate. A consensus has been gained with a devil's advocate in the group, and this will increase the efficiency of the strategic decisions. Also, the dialectical inquiry should be used for improving the efficiency of the strategic decision-making process (Schweiger et al. 1986).

King and Rodriguez (1981) highlighted that participative system design should be constructed for feeding the strategic management decision support systems, and besides strategic issue competitive information system can be designed. The rule orientation, the past financial performance and interpretation, raising issue, clarifying, generating alternatives, evaluating alternatives, and choosing alternatives are critical activities of strategic decision-making process that need a well-established participation strategy which should be managed through particular elements, i.e., percentage of group participating, proportion of decision-makers from any one group, breadth of participation, and timing of participation (Ashmos et al. 1998, 29).

Informal business and social relationships of the owner-managers like proximity to customers are related with information-gathering process and also strategic decision-making process in small information technology companies. Personal characteristics of owner-managers, informing, option generating, and internal resources of the companies are the elements of the strategic decision-making process (Lieberman-Yaconi et al. 2010).

Papadakis and Barwise (2002) carried out a study to analyze the effect of the characteristics of both the top management team and the CEO on the strategic decision-making process through a model based on comprehensiveness/rationality, hierarchical decentralization, lateral communication, and politicization. Top management team's aggressiveness regarding commitment to beating the competition, attitude to innovation, and willingness to take risks were found to be the most important factors. They suggested that corporate environment, company size,

corporate governance type, and strategic decision's magnitude of impact should be included in the context of the decision process against dynamic conditions of the markets when the effect of environment hostility on the process is considered.

Decision-making skills of the managers also differ with respect to cultural structure, the need for affiliation, power, and knowledge in organizations. For example, high collectivism is a dominant cultural characteristic in far-east countries, whereas high individualism is effective in Western countries. According to Hofstede's classification based on societal value scores, power distance, individualism, and uncertainty avoidance in the Anglo-American system are higher than in Japanese and Chinese system. Masculinity and long-term orientation in Japanese and Chinese system are higher than in Anglo-American system. Naturally, all of these cultural factors will affect decision support systems, group support systems, and executive information systems (Chen and Lee 2003; Martinsons and Davison 2007).

Baum and Wally (2003) determined that environmental and organizational characteristics have an impact on the speed of making a strategic decision. The relationship among the strategic decision-making, dynamism levels of the companies, munificence, centralization of strategic management in the companies, and formalization routines in the companies were analyzed with the structural equation modeling considering firm sizes and the past firm performance measurements, i.e., profitability and growth as the control variables in their structural equation model. Environmental dynamism was also investigated by Hough and White (2003) as a moderator element for the decision quality with the rational-comprehensive decision-making process. The study indicated the availability and pervasiveness as two main measurement units of rational and comprehensive decision-making process. Olson et al. (2007) also analyzed the impact of organizational characteristics on the strategic decision-making and revealed that cognitive diversity, task conflict, and competence-based trust are directly related with each other, and these characteristics also effect the outcomes, commitment, and understanding of the decision.

Brouthers et al. (2000) analyzed the environmental and managerial characteristics that affect decision-making process and found that environmental turbulence, entrepreneurial style, and organizational structure are the most important environmental factors where age, experience, and education are the critical managerial factors. According to the findings of the study, one can infer that integrating environmental-based decision-making and managerial characteristics enriches the knowledge about the strategic decision-making process.

Martinsons and Davison (2007) indicated the effect of uncertainties and risky situations as the other issues in strategic decision-making process. The study stated that managers often try to minimize uncertainties by gathering more information and using analytical approaches or gathering the support of other people for reaching a consensus with a behavioral style. Chen and Lee (2003) also stated that strategic decision-making process includes different cognitive simplification techniques for decision-making under uncertainty. These simplification techniques are availability, adjustment and anchoring, prior hypothesis, and reasoning by analogy. These simplification techniques may be useful for decision-making

under uncertainty, but they can create judgment errors and biases. Elbanna and Child (2007) also suggested that importance level of the decision, the uncertainty of the decision, the motive of the decision, the uncertainty of the environment, hostility level of the environment, firm performance, and the firm size should be taken into account for the rationality of the strategic decision-making process. Sharfman and Dean (1997) considered the adaptation process, e.g., flexibility, as a crucial element of the strategic decision-making process and proposed that competitive threats and uncertainties can be used for understanding the flexibility level in the process.

2.2 Need for Information Systems in Strategic Decision-Making

Information systems provide an effective medium for each level of decision-making from bottom to top management levels. Decision-making at strategic levels needs both internal and external information as well as executive managers' experience and intuitive ability. To a certain extent, information system should be specifically designed for combining all kinds of information flow, intuition, and experience. CEO-oriented information system tools like dashboards, problem-solving environments, and utilities involve these capabilities so that top managers make healthy decisions.

Especially for large-scale organizations, it is often to implement decision support systems and executive support systems structured on the database system of organizations. These systems consist of advances in data analysis platforms and business intelligence components to analyze the data streams and report them systematically. These systems are often integrated with others and construct a complete information system.

Different kinds of information systems at enterprises such as customer relationship management, supply chain management, enterprise systems, and different management levels of information system such as transaction processing systems, knowledge management systems, management information systems, decision support systems, and executive support systems generate information for meeting some decision-making requirements of managers at different levels (Laudon and Laudon 2012).

Information systems provide some supportive strategic tools for leading the organization well as below:

- Agility and flexibility for making a strategic decision
- Competitive advantage
- Sustainability of skills at strategic management
- Collaborative managing of conflicts and resolving them
- Effective time management
- A dashboard for driving business

- A compact view of all kinds of info such as resources and limitations
- Increased reachability
- Online tools for interacting with selection criteria and alternatives
- What-if scenarios through simulation environment in the case of choosing any of alternatives
- The knowledge base for comparing the current situation with the past ones
- Fast decisions for previous similar cases

Molloy and Schwenk (1995) focused on the impact of information technology on strategic decision-making process and stated that efficient use of quantitative data and gathering soft, qualitative data are possible with the help of information technology. The study revealed that the understanding level of the problems by managers would increase with information technology. Frishammar (2003) also discussed the necessity of information for strategic decision-making for minimizing the harmful effects of uncertainty and classified the information in two categories, i.e., hard and soft information. The study emphasized usability of those information categories that the soft information such as ideas, cognitive structures, gossip, and hearsay have a subjective manner, whereas hard information is objective ones depending on quantitative information, e.g., balance sheets, income statements, production plans, etc. Analytical methods within decision support systems can be used, and various reports can be created from hard information.

Chen and Lee (2003) investigated the role of decision support systems and executive information systems in strategic decision-making. They came up with the result that those systems are related with not only the behavioral aspect of managerial work but also the cognitive aspect of decision support. The study stated that the cognitive aspect of the decision-making process must be taken into consideration like behavioral factors and emphasized the need for a support system by the manager's knowledge to determine critical success factors. In the light of these findings, the study proposed a web-based architecture including many components composed of subsystems supporting decision processes.

Consequently, information systems are not a primary factor for leading strategic decision-making process, but it is inevitable for managing all tools and information that support all facilities and processes in any kind of decision-making environment in a business.

3 Managing the Strategic Decision-Making Process

3.1 Conceptual Framework of Success Factors

Previous studies revealed various factors for the success of strategic decision-making process. Therefore, top managers and management team should adopt a framework to manage this process and measure its performance through those factors. However, the importance of the factors or even selecting any of them or

not is a key issue at this point and raised as another decision problem. Selecting among alternatives based on the assigned priorities is a multi-criteria decision-making problem, and the solution methods are dependent upon both nature of the problem and selected evaluation process. For the abovementioned problem, a framework was proposed in order to apply a multi-criteria decision-making method such as analytical network process regarding the complexity of the interrelationships among the factors in different directions. Interdependencies may be graphically represented by bidirectional arrows among criteria. The criterion in the starting point of the arrow effects the criterion in the ending point of the arrow. The factors can be prioritized by firstly constructing a network in accordance with the relationship structure among them and then calculating priorities over series of pairwise comparisons and normalizations (Saaty 2001; Sarkis 1998).

The key success factors emphasized in the related work were evaluated with respect to the interrelationships and hierarchies among them, and the following network structure (Fig. 1) was proposed as a framework to manage the strategic decision-making process of an organization. This network of relationships can be developed using related qualitative techniques such as cognitive maps (Lee and Kwon 2008; Lin and Yu 2009; Özdağoğlu 2010). Since the behavioral, structural, environmental, and cultural characteristics differ in organizations, then the importance of the success factors may also vary and should be tailored by the top management team.

Top management of an organization can evaluate the factors based on this network structure and prioritize them applying the standard calculation steps of

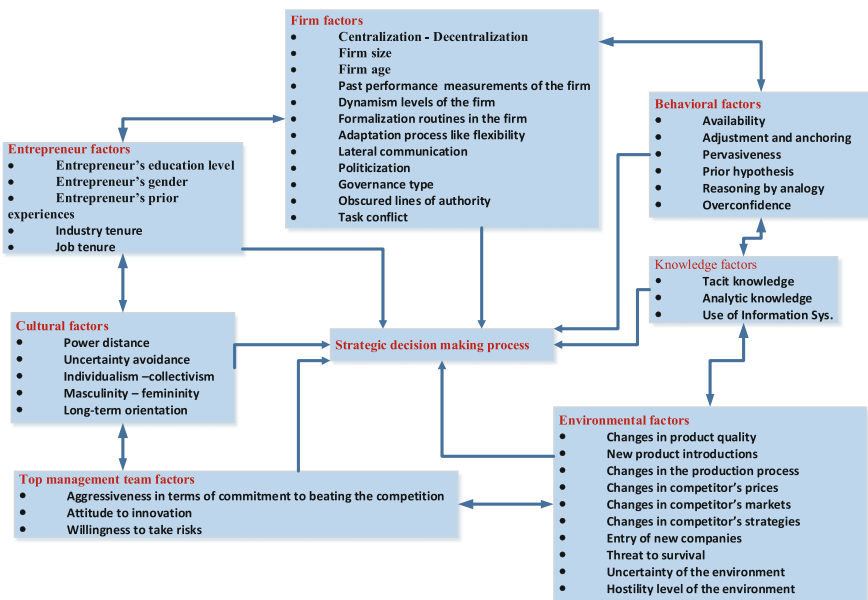


Fig. 1 The key factors effecting the strategic decision-making process and interrelationships

analytical network process (Saaty 2001). Besides decision support systems and executive support system platforms can be designed regarding the requirements of the key success factors for the performance management system.

3.2 Conceptual Framework Reduced to Structural Equation Modeling

Structural equation modeling (SEM) is known as a latent factor modeling that allows building a causality model among related constructs (i.e., factors). In the case of all indicators that have a significant explaining power of variability in a factor, which can not be observed directly but obtain through these indicators like “well-being”, “intelligence”, “success” etc., a statistical model that reveals the causality between these factors such as structural relationships among these factors as similar to regression-based models, exploring some mediating or moderating construct variables between factor structures, creating multilevel and hierarchical factor modeling, and having chance of testing and comparing different structural models (even more than one at a time) for their differences and validations can be constructed. Otherwise, it would not be an effective and right way to create the relationships between indicator variables directly because of the existing models that could not explore the measurement errors of indicators and bidirectional effects between factors, needing more complex models like canonical correlation models or simultaneous equation models. This argument can be supported that in the last decades, most of the statistical software packages have the ability to create SEM models like open source or commercially.

In this point of view, Fig. 1 can be reanalyzed and simplified as adopting an SEM model as Fig. 2:

In Fig. 2, SDM, LEAD, and ENV refer to strategic decision-making, leading, and environmental factor, respectively. In this conceptual and hypothetical model, we can assume that the factors given in Fig. 1 can be reduced to these latent factors. In this design, LEAD is an independent factor; SDM is a dependent factor; ENV is a mediating factor between SDM and LEAD constructs. All the constructs' variability is assumed to be explained by the indicator variables. Figure 2 also shows that there is causality between LEAD and SDM factors. If this model is validated with some appropriate data using model and parameter fit indices and statistical tests, it can be said that leading is an important factor for strategic decision-making and environment plays a mediator role in that it may have direct and indirect (over leading) effects on the strategic decision-making process. Figure 2 is just a hypothetical model, and by adding detailed factor structures from Fig. 1, numerous different models can be generated theoretically because of each small change (e.g., drawing a new path, creating a new error correlation between indicator and constructs) in existing model that causes a new model.

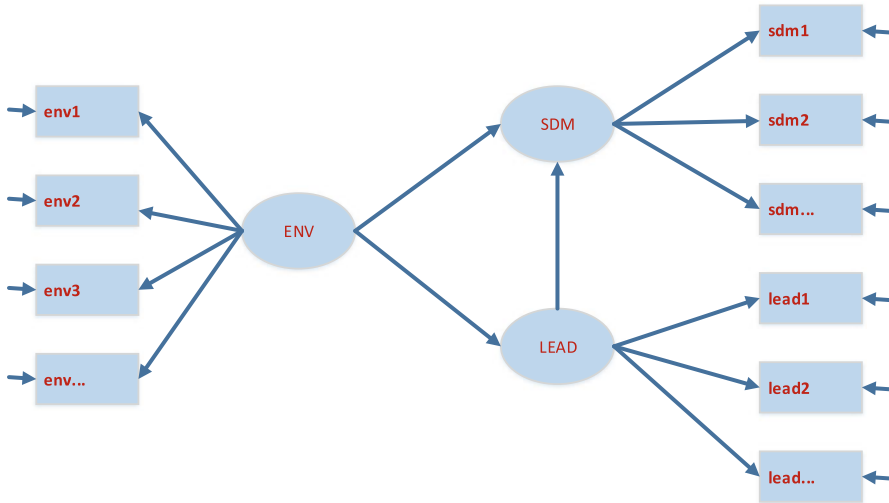


Fig. 2 Conceptual SEM model

4 Conclusion

In this chapter we investigated leading factors in strategic decision-making process by reviewing previous studies and proposing conceptual models on them for further analysis to design a systematic management. Those factors were grouped as firm, entrepreneurial, behavioral, environmental, knowledge, and management team factors and considered in the proposed framework.

At this moment, multi-criteria decision-making models, e.g., analytical network process, can be utilized to prioritize the importance of the factors over the preconstructed network based on the interrelationships. In the first framework, such a network of relationships was constructed based on the factors referred in the literature. This framework can be used as a reference by both researchers and executives. Latent factor models such as structural equation models can be used to reveal the causality between factors. For this purpose, the second conceptual framework was hypothetically proposed as a reference model which was thought as a starting point for managers who can customize their own model.

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Building Organizational Insight: Strategy and Organization

Francesca Vicentini, Federica Brunetta, and Francesca Capo

Abstract In this chapter we focus on the organizational insight as a pivotal element in understanding the processes required to realize and achieve interrelationships among businesses. We devote particular attention to the element of synergy creation, horizontal strategy, and organizational coordination mechanisms. We do so, because at the corporate level, the development, or expansion, toward new businesses recalls the need for an organizational adaptation. Following Porter (“Competitive advantage: creating and sustaining superior performance,” Free Press, New York, 1985), among the possible sources of competitive advantage, lies the potential to develop interrelationships because of the different businesses or products that exist in the organization. Organizations shall therefore aim at developing interrelationships in order to allow the firm to avail of synergies, focusing on horizontal strategies to develop and maintain a competitive advantage. The organizational context—in terms of design, culture, and behavior—can motivate the organization to pursue interrelationships beyond other mere combinations of businesses, as synergies can produce a combined return on resources that is greater than the sum of individual parts.

1 Introduction

The increased—even hyper—competition faced by companies in global markets has pushed them toward the quest for competitive advantage. Indeed, the decision level of corporate strategy is especially linked to specific goals and policies to achieve overall competitive advantage, providing guidelines for the operations and

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coordination of actions (Ensign 2004). Among the three main components of a corporate strategy (product–market portfolio, operation mission, and resource portfolio), decisions at the level of the product–market portfolio include the areas in which the organization decides to compete; thus, they are related to diversification, determining the realm of the organization’s actions (Itami and Roehl 1991).

The development of (or expansion toward) new businesses recalls the need for an organizational adaptation. Following Porter (1985), the potential to develop interrelationships because of the different businesses or products that exist in the firm lies among the possible sources of competitive advantage. Organizations shall therefore aim at developing interrelationships in order to allow the firm to attain synergies, focusing on horizontal strategies to develop and maintain a competitive advantage.

This implies the development of horizontal strategies with the aim of coordinating activities and building programs that shall encourage resources, competencies, and knowledge sharing. The organizational context—in terms of design, culture, and behavior—can motivate the organization to pursue interrelationships beyond the mere combination of businesses, as synergies can produce a combined return on resources that is greater than the sum of individual parts (Ansoff 1988) by developing horizontal strategies and focusing on new value drivers.

In this chapter we focus on the organizational insight as a pivotal element in understanding the processes required to realize and achieve interrelationships among businesses. We devote particular attention to the element of synergy creation, horizontal strategy, and coordination mechanisms.

2 The Key of Sharing: The Creation of Synergies

The word “synergy” derives from the greek *syn* “together” and *ergon* “work.” In the managerial perspective, it has, alternatively, been raised to the meaning of “simultaneous activity, force, action or combined effect” (Ansoff 1965). Notwithstanding the different interpretations given to the actual word, it is recognized that the “synergy” is an essential element for strategy (e.g., Gruca et al. 1997; Boccardelli and Vicentini 2015) and relates to the characteristics required for a company to successfully operate multiple activities. Simply described, it is the general idea that two single activities are worth more than their individual value when joined together, as if $2 + 2$ (the stand-alone value of individual activities) would be equal to 5 in the light of the development of synergies when they are aggregated.

Synergies can arise from the existence of some common factors between constituent elements of the organization (Ensign 1998; Ansoff 1965, 1988). For example, when the same organization uses common sales administration, distribution channels, advertising, or reputation to sell its products, it is likely to develop *sales synergies*. If it focuses on an optimized use of facilities, shared HR management, common inputs, or learning curves, it is most likely availing of *operating synergies* across business. More generally, when the organization is able to

optimize investments across different activities, it could be creating *investment synergies*, while if the sharing happens at the level of managerial abilities in strategic or organizational issues, then a *management synergy* is availed of.

Synergies, then, appear to be key elements for strategy, especially as they represent a system to optimize and plan the use of resources (Hofer and Schendel 1978). They are “instruments through which each business unit reinforces its competitive position, by the means of competence sharing” (Chakravarthy and Lorange 1991: 22).

Synergies are often seen as critical elements in the decision to diversify (Gruca et al. 1997; Crompton 1990; Vizjak 1994) or, more generally, to modify and extend an organization’s portfolio by adding and integrating business units. Synergistic economies are, namely, those that can be realized by firms that have diversified into a related set of businesses (Hill and Hoskisson 1987). Nonetheless, as showed in previous studies (Rumelt 1974; Porter 1987; Nayyar 1992) and as we will discuss later in the chapter, synergies are not that easy to realize in practice. This difficulty is mainly due to the fact that success in the sharing of resources is dependent on two factors. The first is connected to the selection of activities in which an interrelationship (a sharing of activity which implies either a cost saving or a value creation) can arise, which may differ widely according to the type of environment and context that organizations face. The second is related to the actual and real achievement of the sharing opportunities, which is critically related to how efficiently interlinked activities are managed within the organization.

Sharing activities may have an immediate effect on the cost configuration, but only if the value chain activity represents a significant portion of the operating expenses or of the fixed assets (as in the case, later explained, of activities related to infrastructural interrelationships) (Porter 1996).

Porter (1987: 369) defines sharing as a “potential surrogate of market quota” for each of the units. Nonetheless, sharing does not necessarily mean an increase in the market quota, as the shared activity has a complexity which can’t be compared to a single activity. This enhanced complexity represents a sharing cost, which we will highlight later.

Following Porter (1987) we describe the three main types of interrelationships that may lead toward the creation of synergies: *tangible interrelationships*, *intangible interrelationships*, and *competitive interrelationships*. The three types are not mutually exclusive but may lead to divergent effects.

A synergy is generated by economies of scope and by the ability of two or more units to generate greater value by working together than by being kept apart. Thus, interrelationships can be defined as the “sharing of resources or skills in activities that have relatedness to achieve synergy” (Ensign 1998: 361).

Tangible interrelationships arise from the opportunity to share value chain activities among units (Porter 1985, 1987; Hax and Majluf 1987, 1991; Grant 1994 [1991]). This implies that the cost of the specific activity is shared among businesses, allowing for the exploitation of scope economies. Competitive advantage is created either by a cost reduction or by an increase in differentiation and only if the margin exceeds the cost of the sharing coordination and if competitors have

difficulties in imitating the sharing itself. Tangible interrelationships often emerge in those areas in which the company has nurtured distinctive competences and capabilities, which are, indeed, difficult to imitate.

Tangible interrelationships are traditionally identified among the dimensions of the value chain and classified into *production, market, infrastructure, technology, and procurement interrelationships* (Porter 1987, 1996).

Production interrelationships consist in the sharing of those activities usually related to inbound logistics and production and operations, therefore, the first two stages identified by Porter as primary activities. *Market interrelationships* follow on the subsequent value chain phases and therefore relate to outbound logistics, marketing, and sales, after sales. If two activities share common clients or distribution channels, it is possible to exploit sharing opportunities with little cost. The advantage related to sharing market activities is moderated by the potential relationships existing among the different products, for example, the possibility for them to be substitutes or complements. In the first case, the cost advantage could be reduced by the fact that the market will buy either one product or the other, but, in the latter case, it might be enhanced by the complementarity among products.

Among the sharing of support activities in the value chain, *infrastructural interrelationships* are related to legal, accounting, finance, or HR activities. The sharing of these activities is undoubtedly useful, but it tends to have a limited effect as the infrastructure represents a small percentage of the total costs and has a limited effect on differentiation. *Procurement interrelationships* are related to the optimization of the acquisition of common inputs. Finally, *technological interrelationships* are related to sharing R&D activities along the value chain. They may relate to either product or process innovations and may happen to arise together with production interrelationships.

Following the logic that competitive advantage can also arise from the possibility to transfer from (a) one business to another the knowledge related to the fulfillment of a specific activity (Porter 1985), intangible interrelationships can arise even if two businesses maintain autonomous value chains. The know-how developed by each of the units can be transferred if similarities exist (Porter 1987), in terms, for example, of the (1) same strategy; (2) similar value chain configuration; and (3) similar value-generating activities (e.g., brand, reputation, or technologies).

The know-how transfer can happen anywhere in the value chain and from new units to existing ones or vice versa. Where the improvements in terms of costs or business differentiation of the businesses that are the recipients of know-how are higher than the costs incurred in transferring and adapting that knowledge to that of the recipient system, competitive advantage is realized.

Three Porterian (1987, 1996) “tests” are traditionally used to verify if intangible interrelationships will help to reach a competitive advantage. Each test serves a different research question. The first one is related to understanding the similarity of the value-generating activities. The second looks at how important they are for competition. The third test relates to the significance of the know-how which is being transferred for the competitive advantage. The coherence of these three tests

helps the organization understand how far two business units are similar and the portion of know-how that can be actually transferred.

The main problem that organizations could face is an unsuccessful identification of similarities across business units and the improper realization of intangible interrelationships, which has resulted in the lack of success of many diversified firms (e.g., Rumelt 1974, 1982).

Finally, interrelationships can arise from interaction with competitors or multiple competitors. This is due to the fact that the existence of rivals that, effectively or potentially, compete with a certain firm on more than one business line (Porter 1987); thus, the firm must analyze competition beyond a simple activity, from all angles where it is going to face a certain competitor. In theory, a synergy could also be shared among firms, even in the open market (e.g., by adopting common channels of distribution, or advertising, or by sharing marketing and technological information for mutual gain) (Kay 1982, 1984).

In the case of competitive interrelationships, competitive advantage is created by the firm that is best able to exploit interrelationships across tangible and intangible activities, by reducing the coordination and compromise costs.

Interrelationships always imply costs as, in order to pursue them, business units have to change their business-as-usual way of functioning. According to Porter (1987), the costs generated to achieve interrelationships are classified as *coordination*, *compromise*, and *rigidity* costs.

Coordination costs are generated when two business units, by sharing one activity, have to provide for the coordination of some activities such as those of programming, priority definition, and problem resolution. They arise from managing task interdependencies (Jones and Hill 1988; Gulati and Singh 1998).

Coordination implies costs in terms of timing, personnel, and money. Coordination costs vary considerably: the sharing of the sales force requires a continued coordination, while procurement coordination requires a recurring coordination. Also, coordination costs may be perceived differently by the business units: smaller business units, often being overwhelmed by bigger ones, may incur in higher coordination costs.

The second type of costs is that of compromise costs. Compromising over all the business units' needs is critical for the sharing of activities. Compromise costs include not only the costs related to the value-generating activity but also the ones incurred by implementing other related activities. The compromise cost needed to develop an interrelationship is significantly lower if "the business units strategies are consistent with the role of the shared value generating activity" (Porter 1987: 375). The achievement of such consistency requires a small effort, if the strategic guidelines implemented by the business units are steadily coordinated.

The third category is related to rigidity costs. Literature has defined organizational rigidity costs as the costs of reformulating previously institutionalized routines and practices (Rawley 2010; Leonard-Barton 1992; Kaplan and Henderson 2005). Rigidity may take two different forms: an increased difficulty in reacting to competitors' moves and an inability to abandon production. In the case of the former, the sharing may render slow the process of reaction to competitors, as the

attempt by a business unit to nullify a threat from competitors may reduce the value of the interrelationships with other units. In the case of the latter, sharing may give rise to difficulties in exiting production if the abandonment of a unit that does not present competitive advantage may damage other units that share activities with the former.

Any interrelationship generates coordination, compromise, and rigidity costs; thus, to determine the net competitive advantage of sharing, it is important to compare its benefits with these three cost categories. The competitive advantage generated by an interrelationship has to be evaluated unit by unit, and the sum of the net advantages for each of the unit establishes the value of the interrelationship for the whole company. The advantages derived by the interrelationships are evident only if the company adopts an explicit and clear horizontal strategy.

The sustainability of the net competitive advantage of an interrelationship depends on the difficulty competitors may face in adopting the same strategies of the business units. In this case, competitors may develop two different strategies: duplicating the interrelationship or compensating for it by, for example, acquiring a market share in the business unit of interest. The ease of duplication will depend on the presence of competitors in the same group of industrial-related sectors, characterized by the interrelationship. The interrelationships that have the higher value from a strategic point of view are the ones related to sectors characterized by few or no competitors and that have high entry barriers. This implies that, because of the compromise and coordination costs, a company will always have to go after the interrelationships with the competitors that are most difficult to imitate.

3 Horizontal Strategies

The diversified firm formulates its strategy at a corporate level by taking into account two main elements: (1) the choice of the sectors where the firm will be competing and (2) the way in which the business units' strategies have to be coordinated. In the past, many diversified companies have been focusing on the first element, overlooking the need to coordinate the different business units with overall negative results for the company itself. While formulating its corporate strategic process, does the company have to be driven by the demand, thus allowing the mother company to contribute to the competitive advantage of the strategic business units (SBU)? Answering this question means that evaluating the contribution of the diversified firm, as a whole, provides in creating competitive advantage.

Horizontal strategies define and coordinate goals and strategies of the correlated business units (Porter 1985). Specifically, the horizontal strategy formulation helps evaluating both the interrelationships between existing businesses and the potential ones to be generated as a consequence of the company's entrance within new industries. The ultimate aim of the horizontal strategy is to create a higher total value than the sum of the values generated by each of the SBU taken individually.

Hence pursuing a horizontal strategy legitimates economically the presence of a company within several related businesses. Undertaking explicitly a horizontal strategy and having it as the focus of the group, industry, and corporate strategy is pivotal to avoid that the business units, by acting individually, could reduce, rather than increase, their ability to exploit interrelationships.

The definition of horizontal strategies happens at a *corporate* level and thus at the highest decision level of the organization, as it represents a key step in the formulation of the company's vision.

The first step in defining a horizontal strategy is that of identifying systematically all the tangible interrelationships, actual or potential, that can be generated between business units. To do this, it is important to analyze the value chains of the different businesses in a way to evaluate the actual and potential sharing opportunities. At this stage, when looking for interrelationships, it is useful to identify the specific characteristics of the value-generating activities that can act as a basis for sharing.

The next step concerns the identification of intangible relations outside the firm. It is fundamental to do not overlook this step as "it is rare that a firm competes in all the sectors correlated to its current business units" (Porter 1987: 415). The organization has to evaluate its value-generating activities, looking for industries where there can be potential for sharing. For example, if a firm has an effective sales force, which serves a specific group of customers, it has to identify other products acquired by the same groups of customers or products that can fit with its sales force and that can be sold to other group of customers.

Understanding if there can be external tangible interrelationships to be realized out of the firm's boundaries can help companies to plan diversification more effectively, by also developing defensive strategies to prevent potential new entrants (Porter 1987).

The third step is to identify potential intangible interrelationships. The company has to evaluate the value-generating activities in which it has a significant know-how that can be used in other business units and other sectors.

Afterward, the company has to analyze the potential interrelationships with its competitors. In this sense it has to point out all its multiple and potential multiple competitors. In fact, the identification of multiple competitors also signals for a firm the presence of interrelationships.

The next stage involves the evaluation of the importance of interrelationships in terms of competitive advantage. The tangible interrelationships are several for a diversified firm, but the ones strategically significant are often few. A tangible interrelationship that has not been realized is not less important: on the contrary it could be that the cost of compromising could be reduced, making the strategies implemented by the business units more coherent (Porter 1987). Conversely, the intangible interrelationships create competitive advantage if the benefits in transferring know-how are higher than its costs.

The sixth and last stage is directed toward the development of coordinated horizontal strategies to realize and improve the most important interrelationships. Interrelationships can be ameliorated by sharing the appropriate value-generating

activities, by coordinating the strategic positions of the correlated business units, by distinguishing the goals of the business units, by coordinating the offensive and defensive strategies against multiple competitors and the ones with different interrelationships, by diversifying to strengthen the main interrelationships and by creating new interrelationships, or by divesting businesses that have no significant interrelationships with other businesses or that make more difficult for other important interrelationships to be realized.

The concepts of horizontal strategy and interrelationships relate to the activities of the value chain and to the choices and goals that a diversified firm has to define: interrelationships refer to the sharing of resources and skills within correlated activities to create synergies, while horizontal strategies help the diversified firm to develop the interrelationships that, by generating value, allow for the creation of competitive advantage.

3.1 Drawbacks of Horizontal Strategies

While implementing horizontal strategies, some issues may emerge. These could be due to:

- (1) Erroneous interpretation of the strategic contribution of the business units. If a company is not able to evaluate the interrelationships overtime, it will end up encouraging the business units to take initiatives that may hinder the interrelationships themselves, jeopardizing its competitive position.
- (2) Erroneous interpretation of its own position compared to its key competitors. The organization cannot limit its own planning to a business unit level, but it has to implement a coherent and comprehensive planning of its activities with the aim of understanding its position compared to that of its major diversified competitors.
- (3) Management of the portfolio. During the planning activity, industry, corporate, and group executives should not confuse the portfolio planning with the horizontal strategy. The formulation of a clear horizontal strategy is the only tool that “may grant the diversified firm the possibility to create real economic benefits for its business units” (Porter 1987: 426).

In pursuing interrelationships, organizations may also experience the following pitfalls:

- (1) Negative consequences of the sharing and transfer of know-how. The transfer of know-how from one SBU to another one may imply costs, and if the transfer is not adequate to compete with other business units, there is a risk of undermining the entire business system. Therefore, for an interrelationship to be considered strategically desirable, there has to be a clear net potential benefit in the sharing of know-how.

- (2) Illusory interrelationships. In the evaluation of the potential interrelationships, a firm often happens to be driven by the superficial similarities between strategic units that may hinder the actual effectiveness deriving from the sharing of interrelationships.
- (3) Pursuit of interrelationships characterized by meager value-creating activities with limited scale or learning economies or little effect on differentiation. In defining a correlated diversification strategy, the firm has to consider the achievement of effective competitive interrelationships.

4 The Role of the Organization

Strategy and organization are often referred to as inextricably linked or even different faces of the same coin (Chandler 1962). Thus, in order to better exploit horizontal relations and be able to coordinate strategies across businesses, it is necessary for the firm to establish an organizational structure, capable of responding effectively to these needs.

4.1 *Mechanisms of Organizational Coordination*

Porter (1987) suggests a set of instruments to help the organization achieve these needs, which he generally refers to as a “horizontal organization” (Ostroff and Smith 1992; Ostroff 1998).

The horizontal organization includes and develops practices (which are capable of connecting business units within the vertical structure, namely, (1) business units grouping, (2) partial centralization, (3) committees, (4) task forces, and (5) central coordinators.

These instruments are capable of maintaining a balance between vertical and horizontal elements, but more specifically the latter three are defined as *transversal structures*.

The horizontal structure, which tends to be more diffused in big, diversified firms, is the grouping of business units below the control of a manager, in temporary or permanent structures. By choosing this type of grouping, the organization must be guided by selecting, among others, those interrelationships, which will guarantee the strongest strategic and competitive value. The manager of the group of units must then be able to realize the synergies and becomes responsible for a coordination strategy among them.

The second type of structure is represented by partial centralization of a value-creation activity. Again, the activity must be chosen from among those that have strategic relevance. Generally, the centralized activity might be related to procurement, logistics, or sales.

Among the transversal structures, committees can be of different types. They might relate to market activities and be organized by product or technology in order to exploit market synergies. Managers of the related business unit plus an executive overlooking the efforts of each single unit usually constitute this type of committee. Committees may also be focused on R&D, distribution channels, or other structures. In this case operational synergies can be achieved.

Task forces are temporary structures, which are created with the aim of enacting knowledge and competence sharing among HR. Indeed, where the improvements—in terms of costs or business differentiation of the businesses that are the recipients of know-how—are higher than the costs incurred in transferring and adapting that knowledge to that of the recipient system, competitive advantage is realized.

Finally, central coordinators are also capable of realizing interrelationships. Coordinators are usually executives that are able to coordinate activities across units and realize cost economies.

The adoption of one, or more, of these organizational instruments does not automatically entail the realization of interrelationships. It is necessary to realize an internal coherence among all administrative systems with the contents of the horizontal strategy.

4.2 Mechanisms of Network Coordination

Coordination can also be achieved by network mechanisms. Indeed, resources, competence, and knowledge sharing (DeBresson and Amesse 1991; Freeman 1991) are leading reasons for the occurrence of positive impacts of networks. Networks act as channels in which partners bring the knowledge and experience from their interactions with their other partners to their interaction with the focal unit (e.g., Gulati and Gargiulo 1999; Vicentini 2013). Powell et al. (1996) state that organizations network due both to resource and complementarities seeking and from a wish to explore and exploit knowledge bases.

In the past decades, network analysis has attracted a growing interest from organizational theory and managerial studies, especially as it allows studying the relationships among social entities, and what the structure of the relation among actors means—more importantly for strategy—in terms of performance. From the network theory perspective, then, the social environment can be seen as a model for relationships among different actors. In its simplest form, a social network is a map of specific ties, namely, “a sets of nodes linked by a set of social relationships of a particular type” (Laumann et al. 1978). Nodes can represent people, organizations, teams, or even units. The other nodes represent the actor’s social capital, namely, the value that he/she receives from the social network. The structure of the network allows actors to avail of opportunities or constrains them to certain specific actions.

The existent literature agrees on the benefits arising from networks but holds two different views on the structure of the networks from which such benefits arise. On the one hand, a number of scholars have underlined the importance of the closure of

a network, intended as the presence of close, strong ties among actors. This enhances trust and cooperative exchanges (Coleman 1988). The higher the trust among actors, the lower the uncertainty about resource exchanges. As the actors are embedded within relational, institutional, and cultural contexts, close ties influence trust, fine-tuned information transfers, and joint problem-solving arrangements (Uzzi 1997). On the other hand, the potential to explore and exploit new knowledge bases is connected to the concept of bridges, intended as lines connecting two actors, being the sole links that span two different parts of a network. According to Burt (1992), the firm should focus on maximizing the number of bridges in order to increase the diversity of contacts.

Although we have only briefly introduced the idea of network coordination and it is not the purpose of this analysis to explore this argument in-depth, we underline the importance of the network perspective as, with respect to other views, it provides insights on the interrelationship of relations among actors, as each tie is a channel through which resources, tangible or intangible, may flow.

5 Conclusion

Strategy and organization are two sides of the same coin (Chandler 1962); therefore, it is necessary for an undertaking to introduce a horizontal dimension in the organizational structure that responds to the coordination of strategies aimed at each business unit. Porter (1987) defines the necessary tools to facilitate the implementation of horizontal strategies with the term: horizontal organization. The horizontal organization defines organizational practices that facilitate the interrelations. The horizontal objective of the organization is to connect the business units within the vertical structure. To exploit the full potential of the interrelationships is necessary to achieve a balance between horizontal and vertical elements of a diversified enterprise.

Organizational tools that can be used for grouping business units are (1) the partial centralization, (2) committees, (3) task force, and (4) central coordinators of the interrelations. Committees, task forces, and coordinators are defined transverse structures (Porter 1987).

The horizontal structure as adopted by the large diversified companies is the grouping of the business units into groups or sectors, placed under the direct responsibility of an executive. Such groups may be temporary or permanent structures. When choosing this type of grouping, the firm must be guided by the choice of the interrelations with greater strategic and competitive value. For example, a firm operating in the consumer goods sector will have to make a grouping of market interrelations rather than technological ones. The person in charge of each group or sector has the task of identifying all existing interrelationships between the business units and between these and other strategic units in order to implement them as effectively as possible.

The manager is therefore responsible for a real group strategy, aimed at coordinating and exploiting the interrelationships in the most effective way possible.

The second type of structure is formed in part from the centralization of activity-generating value, which must play a strategic importance for the strategic units, while the profit responsibility remains within the business unit. Generally they are partially centralized units such as procurement, sales, and logistic systems, which could fall under the direct responsibility of one or more business units or even depend on a central manager or group.

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Strategies Out of Global Recession in Emerging Markets: An Application for 2008 Global Crisis

Serhat Yüksel

Abstract The aim of this study is to define the success of the strategies in emerging markets in order to overcome the impact of economic crisis. Within this context, the strategies of 22 emerging countries in the 2008 global crisis were analyzed. Moreover, we made logit analysis by using the data for the period between 2008 and 2014. Furthermore, we defined growth rate as dependent variable. In addition to this aspect, we used eight independent variables in order to see the relationship. With respect to the independent variables, five of them are related to monetary policy tools, and three of them refer to fiscal policy tools. As a result of the analysis, it was determined that the explanatory variable of “government debt” is statistically significant at 10 % level and the coefficient of this variable is negative. This result shows that there is a negative relationship between government debt and growth rate in emerging economies. In other words, the policy of decreasing government debt is a successful strategy in order to overcome economic crisis in emerging countries. Because of this situation, emerging economies should firstly focus on increasing liquidity by reducing government debt amount so as to overcome recession in a crisis period.

1 Introduction

A lot of financial crises were experienced in the last century. Some of these crises affected only the country in which the crisis started. However, most of these crises affected many different countries in addition to the original countries as a result of liberal economic system (Claessens et al. 2010).

Financial crisis has many negative effects to the economies of the countries. During crisis period, the stock prices of the companies decline, a devaluation problem is occurred, interest rates go up, and investments in the country almost stop. In other words, the most important effect of these crises is causing economic

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recession in the countries. Owing to this situation, a lot of people lose their jobs and many companies go bankruptcy (Bernanke 1983).

One of the most significant financial crises occurred in the USA in 2009. This crisis lasted about 10 years. It caused millions of people to become unemployed and many companies to terminate their activities. Most of the researchers criticized the actions taken in the crisis period. According to them, because politics were implemented lately, this crisis lasted for a long time. The economy of the USA got better after 1936 by using Keynesian strategies that emphasize government intervention (Crotty 2009).

The global economic crisis occurred in 2008, also called as “mortgage crisis,” which also affected many countries in many different locations. Although it started in the USA, it spread to European countries. Moreover, it also affected emerging countries, such as Turkey, Russia, and Brazil. It was seen that countries took immediate action in this crisis unlike the 1929 crisis (Bratt and Immergluck 2015).

There are many different strategies so as to prevent side effects of the crisis (Bacchetta et al. 2015). Expansionary monetary and fiscal policies are implemented in this situation. With respect to the monetary policies, central banks may decrease required reserve ratio, buy foreign currency from the market, or buy government bonds to increase liquidity in the market. Moreover, fiscal policies are also used in order to solve this problem. Within this context, government can decrease tax rate and public debt in order to increase liquidity in the market. In addition to these strategies, increasing government expenditures is also another way of implementing expansionary fiscal policy (Aloy and Dufrénot 2015).

However, it was seen that some countries became unsuccessful to prevent negative effects of the crisis by implementing the fiscal or monetary policies. Due to this issue, the problems related to economic crisis increased in these countries. For instance, in order to overcome crisis that occurred in Turkey in 1994, the government tried to finance public debt with the money issued by the central bank. Due to this situation, the demand for foreign currency increased, and central bank lost significant amount of its reserves (Şimşek 2015).

Because of this situation, deciding the proper strategies in order to overcome the recession is significant. The main reason behind this situation is that strategies can be different for each country because they depend on many different conditions, such as economic size of the country or the effects of the crisis. Therefore, in this study, analyzing the details of the strategies in order to overcome economic recession was tried. Within this scope, strategies of emerging countries after the 2008 global crisis were explained.

This paper is organized as follows: After giving information about the similar studies in the literature, we will analyze different strategies in order to overcome financial crisis. The fourth section of this paper focuses on the reasons and results of the 2008 global crisis. The fifth section reviews the empirical results of our study. The final section gives information about the conclusion of the study.

2 Literature Review

There were a lot of studies about financial crisis in the literature. Some of them were depicted on Table 1.

Tsangarides tried to analyze the performance of the countries in order to overcome the 2008 global crisis. Within this scope, he compared countries that use different exchange rate regimes. Growth rate, the ratio of short-term external debt to GDP, and current account balance were chosen as performance indicators. As a result of this study, it was determined that there was no significant difference in the performance of the countries that used fixed and floating exchange rate regimes (Tsangarides 2012). Berkmen and others also made a study so as to explain the performance of developing countries after the eruption of the 2008 global financial crisis. They used the type of exchange rate regimes and growth in loans as explanatory variables in this study. It was concluded that countries that have high growth in loans suffered from economic crisis more than other countries. Another conclusion of this study is that exchange rate flexibility helped countries to stabilize negative effects of the crisis (Berkmen et al. 2012).

Céspedes and others made a study related to the difference of fixed and flexible exchange rate regimes in a crisis period. They gave a sample foreign shock to a small open economy and tried to see the effect of this shock on the balance sheet. As a result of this study, it was concluded that countries that have flexible exchange rate regimes could overcome better than the countries which use fixed exchange rate regimes in a currency crisis (Céspedes et al. 2000). Cúrdia also tried to investigate the effects of monetary policy in emerging market economies during the period of currency crisis. Within this scope, he created a model in order to achieve this objective. It was determined that recession is most severe in a fixed exchange rate regime (Cúrdia 2007). Hutchison and others made a study so as to understand the effects of monetary and fiscal policies during balance of payment crisis in emerging economies. Within this context, 83 financial crises occurred in 66 different countries were analyzed by using regression method. As a result of this study, it was defined that fiscal expansion is associated with smaller output losses, whereas there is not such a relationship regarding monetary policies (Hutchison et al. 2010).

Abiad and others tried to investigate the performance of the countries in order to overcome the negative impacts of the crisis. Within this scope, 88 banking crises over the past four decades were analyzed by using regression method. In conclusion, it was determined that expansionary fiscal and monetary policies help to mitigate the impact of the crisis (Abiad et al. 2009). Gupta and others tried to explain the effects of currency crises. Within this context, they analyzed 195 currency crises for the period between 1970 and 2000. As a result of the study, it was determined that countries that have higher external debt affect more seriously from the crisis (Gupta et al. 2007).

Azis made a study in order to predict recovery date from the 2008 global financial crisis. He used analytic network process (ANP) method so as to achieve

Table 1 Major studies related to performance of the countries after crisis

Author	Method	Determinants	Results
Tsangarides (2012)	Regression	Types of exchange rate regimes, GDP growth rate, current account balance, reserves, short-term debt	It was determined that there was no difference in the performance of the countries with respect to the type of exchange rate regimes
Berkmen et al. (2012)	Regression	Types of exchange rate regimes, growth in loans	It was concluded that countries that have high growth rate suffered from the crisis more than the others
Céspedes et al. (2000)	Descriptive statistics	Types of exchange rate regimes, debt, GDP growth	It was defined that countries that have flexible exchange rate regimes could overcome better in a currency crisis
Cúrdia (2007)	Descriptive statistics	Types of exchange rate regimes, interest rate, inflation rate, consumption, nominal wage rate	It was determined that recession is most severe in a fixed exchange rate regime
Hutchison et al. (2010)	Regression	GDP growth, liquid reserves of central bank, interest rate, annual budget balance, foreign liabilities, inflation rate, world GDP growth rate, US interest rate	It was defined that fiscal expansion is associated with smaller output losses, whereas there is not such a relationship regarding monetary policies
Abiad et al. (2009)	Regression	Investment, current account balance, GDP growth, inflation, fiscal balance, real exchange rate, growth in loans, government consumption	It was determined that expansionary fiscal and monetary policies help to mitigate the impact of the crisis
Gupta et al. (2007)	Regression	Capital inflows, export growth, trade openness, short-term debt, GDP, change in reserves	It was determined that countries that have higher external debt are affected more seriously by the crisis
Azis (2010)	ANP	Interest rate, tax, liquidity, government expense	It was defined that applying expansionary fiscal and monetary policies provides the countries to overcome the negative effects of the crisis earlier
Stock and Watsons (2012)	Dynamic factor model	GDP, consumption, unemployment, interest rates, tax, government spending, loan growth	It was concluded that applying contractionary monetary policy was one of the reasons of not overcoming financial crisis
Kannan (2012)	Regression	GDP growth, loan growth, external finance	It was concluded that industries relying more on external finance grow more slowly than other industries

(continued)

Table 1 (continued)

Author	Method	Determinants	Results
Essers (2013)	Descriptive statistics	Exchange rate, interest rate, debt	It was concluded that recovery from the crisis was related to vulnerability of the country
Kara (2012)	Descriptive statistics	Interest rates, liquidity, currency, loans	It was concluded that financial stability is as significant as price stability
Karakurt (2010)	Descriptive statistics	Government expenditure, tax cutting, government investment	It was concluded that monetary policies are effective in order to mitigate crisis
Şimşek (2008)	Descriptive statistics	Liquidity, inflation, currency, capital inflow	It was concluded that expansionary fiscal and monetary policies should be applied simultaneously
Korkmaz et al. (2013)	Descriptive statistics	Unemployment rate, government expenditure, government investment	They concluded that South Korea, Germany, Austria, the Czech Republic, and Poland are very successful in order to prevent unemployment problem

this objective. He concluded that applying expansionary fiscal and monetary policies provides the countries to overcome the negative effects of the crisis earlier (Azis 2010). Stock and Watsons made a study so as to understand the reasons why American economy overcame the effects of the 2008 global crisis lately. Dynamic factor model was used in this study in order to achieve this objective. As a result of the analysis, it was concluded that applying contractionary monetary policy was one of the reasons of not overcoming financial crisis (Stock and Watsons 2012).

Kannan investigated the relationship between loan growth and recovery from the 2008 global crisis. He concluded that industries relying more on external finance grow more slowly than other industries (Kannan 2012). Essers also made a study about the strategies of emerging economies after the 2008 global crisis. It was concluded that recovery from the crisis was related to vulnerability of the country (Essers 2013). Kara explained new policy of the Central Bank of Turkey after the 2008 global crisis in his study. He emphasized the importance of monetary policy tools in order to overcome the effects of financial crisis. As a result of the study, it was concluded that financial stability is as significant as price stability (Kara 2012).

Karakurt made a study in order to investigate the performance of Turkey to overcome the impact of the 2008 financial crisis. In this study, he explained the actions taken by Turkish government after this crisis. It was concluded that monetary policies are effective in order to mitigate crisis (Karakurt 2010). Şimşek tried to explain the importance of fiscal policies during the period of the crisis. She gave detailed information about fiscal policy tools that can be implemented in order to overcome crisis. As a result of the study, it was concluded that expansionary fiscal and monetary policies should be applied simultaneously (Şimşek 2008).

Korkmaz and others investigated successful and unsuccessful countries with respect to overcoming unemployment problem arising in the 2008 global crisis. They gave detailed information about the strategies of the countries in this study. As a result of the analysis, they concluded that South Korea, Germany, Austria, the Czech Republic, and Poland are very successful in preventing unemployment problem. On the other hand, it was also defined that Spain, Ireland, Greece, and Portugal are unsuccessful for this situation (Korkmaz et al. 2013).

3 Strategies for Overcoming Financial Crisis

There are some strategies in order to overcome the negative effects of the financial crisis. The most popular strategies are monetary and fiscal policy tools. Moreover, some new strategies, such as guaranteeing the deposit of the customers by government and liquidity injection, were also used especially in the last financial crisis. The details of these strategies were emphasized below.

3.1 Monetary Policy Tools

Monetary policies refer to the method of intervention to the economy by changing interest rates, the rate of currencies, or money supply. These policies are implemented by central banks. The main purpose of these policies is to reach full employment without causing inflation problems. If central bank aims to increase money supply in the market, this policy is called as “expansionary monetary policy.” This policy is mostly used in the period of recession in order to invigorate the economy. On the other hand, if central bank tries to decrease the money amount in the market, this is named as “contractionary monetary policy.” When the inflation rates are very high, this policy is mainly used so as to decline this rate (Bacchetta et al. 2015).

3.1.1 Required Reserve Ratio

Banks have to hold some amount of their deposits in central bank account. This amount, which is called as required reserves, cannot be used by these banks as a source. The main aim of this issue is that this amount is held as a guarantee in case of any liquidity problem of the banks (Sircar and Goel 2015). Required reserve ratio is determined by central banks. If central bank increases this ratio, it means that banks will hold more money in central bank account and use less money as a source. In other words, money supply in the market will decrease. On the other hand, in the period of recession, central banks prefer to decrease this ratio as an expansionary monetary policy in order to invigorate the economy (Luo and Jackson 2015).

3.1.2 Currency Transactions

Central bank can buy or purchase foreign currency from the market in order to intervene currency rate. Within this scope, central bank prefers to sell foreign currency to the market so as to decrease the currency rate. When currency rate is decreased, the demand for foreign currency will go up, and money supply in the market will decline. In addition to this situation, in recession period, central banks decide to buy foreign currency from the market to increase currency rate. Therefore, the demand for foreign currency will go down and money supply will increase (Keefe and Rengifo 2015).

3.1.3 Open Market Operations

Central banks use open market operations in order to affect money supply in the market directly. Also, this is the most flexible and most commonly used monetary policy tool. In this process, central banks buy or sell government bonds in the market so as to increase or decrease money supply (Su et al. 2015). With respect to expansionary monetary policy, central banks prefer to buy government bonds to increase liquidity in the market. This method is mainly used in recession period. On the other side, central banks sell government bonds to the market as a contractionary monetary policy.

3.1.4 Discount Rate

Banks can get loans from central banks when they need. They repay this amount to central bank with interest amount. This amount is calculated with discount rate that is decided by central bank. This rate can be used as a monetary policy tool by central banks (Williamson 2015). In recession period, so as to increase liquidity in the market, central banks prefer to decline this rate as an expansionary monetary policy. Moreover, they can also prefer to increase this rate in order to decrease money supply in the market.

3.2 Fiscal Policy Tools

Fiscal policies refer to the intervention of government to the economy by using government expenditures and tax policy. In other words, government aims to affect aggregate demand and aggregate expenditures in the market by changing government expenditures and tax rates. If government prefers to increase expenditure or decrease tax rate in order to invigorate the economy, this situation is called as “expansionary fiscal policy.” On the other hand, government can prefer to decrease

expenditure and increase tax rate so as to slow the economy, which is named as “contractionary fiscal policy” (Gramlich 1971).

3.2.1 Tax Rate

Government can change tax rate in order to affect economy. If the aim is to increase liquidity in the market, government will decrease tax rate (Shah 2006). Because of this situation, people can have the chance to increase expenditure. Furthermore, government can increase tax rate as contractionary fiscal policy when it aims to decrease liquidity.

3.2.2 Public Debt

Public debt is another fiscal policy tool of the government in order to affect the economy. If government aims to decrease disposable income, it can prefer to increase public debt (Ardagna 2001). Thus, it will be possible to decrease expenditure and slow down the economy. Additionally, so as to increase liquidity in the market, government can decrease public debt as an expansionary fiscal policy.

3.2.3 Government Expenditure

Government expenditure can also be used as a fiscal policy tool. If government wants to increase demand in the market, it prefers to increase expenditure. Owing to this issue, liquidity in the market will increase, as well. On the other hand, so as to slow down the economy, government decreases expenditure (Kneller et al. 1999).

3.3 Other Strategies

In addition to the strategies emphasized above, there are also other strategies in order to overcome the impact of the crisis, such as increasing guarantee limit of the deposit and liquidity injection.

3.3.1 Increasing Guarantee Limit of the Deposits

Deposit insurance refers to guaranteeing of the deposit of the customers by government in case of banks' failure. The main reason behind this system is that there is a high risk of bankruptcy of the banks when a lot of customers attack them in order to take money back. Therefore, this type of attack should be prevented in order for banking system to work effectively (Demirgüç-Kunt and Kane 2002). During crisis

period, customers become more anxious about losing their money at the banks. Owing to this situation, they tend to attack banks to withdraw their money. Hence, in order not to increase the impact of the crisis, governments increase guarantee limit of the deposits so as for customers to feel safer.

3.3.2 Purchasing Low-Performance Companies by Government

During crisis period, governments may prefer to purchase companies that have very bad performance. The main reason behind this situation is to prevent these companies to go bankruptcy. In other words, government prefers to rescue these companies because if they go bankruptcy, people become more anxious about the future and the impact of the crisis will increase (Eichengreen 2008).

4 2008 Global Crisis

4.1 *Reasons of the Crisis*

After dot-com crisis occurred in the USA in 2000, FED decreased interest rates to the very lower rates in order to stop the effects of the crisis. The interest rate became about 1 % that was the lowest rate in last 45 years. Although it prevented recession, loans became attractive for the people due to low interest rates (Bratt and Immergluck 2015). In addition to this issue, liberal economy was implemented in the USA after 1980. Owing to this situation, there was a financial deregulation in the economy. This is to say, there was no audit or control in financial system. Therefore, banks had a chance to increase their loan amount (Rose and Spiegel 2012).

Because of the situation emphasized above, the amount of the mortgages rose in the USA after 2000. However, banks did not give loans only to the people who have high credibility. Customers with low credibility named by “subprime” also used mortgages in that period. After these people could not pay the loan amount, banks started to have large losses. Before crisis period, FED increased interest rates and this situation caused the price of the houses to decrease. However, most of the subprime customers used the mortgage loans with floating interest rates. Owing to this issue, these customers started to fail to pay loan amount to the bank. This situation also caused the banks to have losses. As a result, a global financial crisis started in the USA (Bratt and Immergluck 2015).

Another important point of this crisis is that the banks issued property bonds with the guarantee of these loans in order to increase profit. These bonds were purchased by different parties from different locations. Owing to this situation, the effects of the crisis spread to many different countries (Rose and Spiegel 2012).

4.2 Results of the Crisis

Because subprime customers could not pay their loans back, banks started to limit their mortgage loans. This situation led the prices of the houses to decrease. In other words, the guarantees of the property bonds lost their values. Due to this issue, both banks and the purchasers of these bonds made too much loss. It was explained in June 2007 that Bear Stearns, the famous investment bank of the USA, was in a very bad situation because of subprime loans. The stock price of this bank declined from 169 dollar to 30 dollar. In March 2008, Bear Stearns was purchased by JPMorgan Chase at a very low price. Similar to this situation, 16% share of Countrywide Financial was also purchased by the Bank of America at 2 billion dollars (Eichengreen 2008).

Merrill Lynch, another important investment bank of the USA, made a loss of 2.14 billion dollars in the first quarter of 2008. Parallel to this issue, JPMorgan Chase, the third biggest bank of the USA, explained the 1.5 billion dollar loss owing to mortgage loans. Furthermore, the American Federal Regulatory Authority took the control of IndyMac Bank due to financial problems (Rose and Spiegel 2012). Lehman Brothers, which was one of the biggest investment banks and many other financial institutions in the USA, went to bankruptcy at the end of 2008. Furthermore, a lot of people lost their jobs. After this issue, there was an economic shrinkage of 6.4% in the USA. The negative effects of the crisis spread to other countries. For instance, Japan economy also decreased about 12.4% (Eichengreen 2008).

In addition to those countries, emerging economies were also affected from this crisis. Because there is a decline in the prices of the commodities after the 2008 crisis, developed countries decreased the imports from developing countries. This situation also caused the revenues of developing countries to go down. Another important point of this crisis for developing economies is that capital movement from developed countries to developing countries went down due to the financial problems occurred in developed countries. This situation also caused recession for developing countries (Bratt and Immergluck 2015).

4.3 Strategies of Some Example Countries to Overcome the 2008 Global Crisis

4.3.1 USA

After having bad experience from the 1929 crisis, it was seen that the USA took the actions immediately in order to prevent problems caused by the 2008 crisis. It was the first country which implemented its recovery package during this crisis. With respect to the fiscal policy, FED decreased the interest rate to 0.25% and provided liquidity to the market. Parallel to this situation, it also decreased the rate of

required reserve ratio. Regarding fiscal policies, the US government decreased the tax rate so as to increase the consumption. In addition to these actions, FED injected 250 billion dollar amount of liquidity in the market in order to invigorate the economy. Furthermore, amount of the deposits, which was guaranteed by the government, increased from 100,000 to 250,000 dollars (Bordo [2013](#)).

4.3.2 England

England is another country which took actions immediately so as to prevent the negative effects of the 2008 crisis. Regarding monetary policy, the Central Bank of England decreased interest rate at 5 % in the beginning of the crisis. In addition to this strategy, the government accepted to give £50 billion liquidity support to the British banks. Moreover, the ratio of value-added tax declined about 15 % as a fiscal policy strategy. Additionally, the amount of the deposit that is guaranteed by the government increased from £35,000 to £50,000 in order to provide confidence in financial sector (Chima and Langley [2012](#)).

4.3.3 China

China decreased interest rate from 7.5 to 5.3 % after the bankruptcy of Lehman Brothers. In addition to this strategy, the Chinese government gave support to infrastructural investment in the country. Furthermore, a recovery package that has the amount of \$586 billion was accepted by the government (Rose and Spiegel [2012](#)).

4.3.4 Turkey

The 2008 crisis did not affect Turkey harmfully. The main reason of this issue is that derivative market was not improved very much during 2007. Another important point is that there was a strong economy and sound banking system in Turkey in the period of global financial crisis. However, recession that occurred all around the world made some adverse effects to Turkish economy. There was a decrease in growth rate and exports, whereas there was a rise in unemployment rates. As for monetary policies, the Central Bank of Turkey decreased the interest rates and increased the liquidity in order to invigorate the economy. Furthermore, required reserve ratio was decreased because of the similar reason. Regarding fiscal policies, government decreased the special communication tax from 15 to 5 %. Moreover, the investment in agricultural sector was increased as well (Yeldan [2009](#)).

5 Data and Econometric Model

5.1 *The Scope and Constraints of the Study*

The main purpose of this study is to determine which policy is more helpful for emerging countries in order to overcome the impact of the crisis. Therefore, we intended to include all emerging countries in this study. According to the emerging market index compiled by MasterCard in 2008 and research made by BBVA in 2010, 51 countries were accepted as “emerging.” However, 22 of them could be included in the study because there was not enough data for remaining countries. The list of 22 countries, analyzed in this study, is explained in Table 2.

The start date of global mortgage crisis is accepted as the last quarter of 2007. Therefore, it is thought that the impact of this crisis started in 2008. Hence, the data

Table 2 List of the countries analyzed in the study

Country	Growth rate 2008	Growth rate 2009	Growth rate 2010	Growth rate 2011	Growth rate 2012	Growth rate 2013	Growth rate 2014
Bangladesh	6.01	5.05	5.57	6.46	6.52	6.01	6.06
Brazil	5.02	-0.24	7.57	3.92	1.76	2.74	0.14
Bulgaria	5.65	-4.22	0.05	1.58	0.24	1.28	1.55
Chile	3.29	-1.04	5.75	5.84	5.46	4.23	1.89
Colombia	3.55	1.65	3.97	6.59	4.04	4.94	4.55
Czech Republic	2.71	-4.84	2.30	1.97	-0.90	-0.53	1.98
Dominican Republic	3.14	0.94	8.30	2.82	2.63	4.78	7.34
Egypt, Arab Rep.	7.15	4.69	5.14	1.82	2.19	2.11	2.20
Hungary	0.84	-6.56	0.74	1.76	-1.69	1.89	3.67
Kuwait	2.48	-7.08	-2.37	9.63	6.63	1.15	-1.62
Malaysia	4.83	-1.51	7.43	5.29	5.47	4.71	5.99
Mauritius	5.51	3.05	4.10	3.89	3.20	3.20	3.60
Nigeria	6.27	6.93	7.84	4.89	4.28	5.39	6.31
Philippines	4.15	1.15	7.63	3.66	6.68	7.06	6.13
Poland	3.92	2.63	3.70	5.01	1.56	1.26	3.33
Qatar	17.66	11.96	19.59	13.38	4.88	4.58	3.98
Romania	8.46	-7.07	-0.80	1.06	0.64	3.53	2.78
Russian Federation	5.25	-7.82	4.50	4.26	3.41	1.34	0.64
South Africa	3.19	-1.54	3.04	3.21	2.22	2.21	1.52
Thailand	1.73	-0.74	7.51	0.83	7.32	2.81	0.87
Turkey	0.66	-4.83	9.16	8.77	2.13	4.19	2.91
Ukraine	2.30	-14.80	4.20	5.20	0.20	0.00	-6.80

for the period between 2008 and 2014 was used in this study. The data was provided from the World Bank.

5.2 *Logit Model*

With respect to the situation in which the dependent variable takes two or more discrete alternatives, three regression models that are generally used are linear probability method, probit, and logit. Linear probability model is the oldest method among them. The main problem related to this method is that dependent variable can take values more than “1” and less than “0.” In order to solve this problem, the values, which are more than “1,” are accepted as “1,” and which are less than “0” are accepted as “0” (Hausman and McFadden 1984). Regarding logit model, the following logistic distribution function is used:

$$F(Y_i) = 1 / (1 + e^{-Y_i}) = 1 / (1 + e^{-(B_0 + B_i X_i + \epsilon_i)})$$

In the equation above, “Y” represents dependent variable and “X” shows independent variable. Furthermore, “B” means coefficient and “ε” demonstrates error term. In addition to them, “e” equals to 2.72. Due to the fact that e is positive, dependent variable always takes values between 0 and 1. Owing to this situation, in logit model, there is not such a problem occurred in linear probability method. Probit model is very similar to logit model. The only difference between these two models is that probit model uses normal cumulative distribution function instead of logistic distribution function (Ai and Norton 2003).

5.3 *Variables*

In this study, we aimed to analyze the performance of the strategies applied by emerging countries in order to prevent economic recession. Therefore, the dependent variable in the study is growth rate. In other words, we tried to demonstrate whether monetary or fiscal policies could increase growth rate or not. Because of this situation, we calculated average growth rate of 51 emerging countries per year. In addition to this issue, we gave the value of “1” for the countries that have the growth rate more than average growth rate. Moreover, countries, which have growth rate less than average, took the value of “0.” So as to analyze the effects of monetary and fiscal policies on growth rates, it was determined to use eight different independent variables in the model. The details of these variables were depicted on Table 3.

Regarding monetary policy tools, we defined five independent variables. Liquid reserves of the banks show the holdings of the banks according to the directives of

Table 3 List of the variables used in the model

Variables	Type of the policy	Related policy tool	Definition	References
Growth rate	–	–	Annual percentage growth rate of GDP at market prices based on constant local currency	Tsangarides (2012), Céspedes et al. (2000), Hutchison et al. (2010), Abiad et al. (2009), Gupta et al. (2007), Stock and Watsons (2012), Kannan (2012)
Liquid reserves	Monetary	Required reserve ratio	The change of liquid reserves of the banks	Tsangarides (2012), Hutchison et al. (2010), Gupta et al. (2007)
Currency rate	Monetary	Currency transaction	The change in currency rates of the countries with respect to dollar	Tsangarides (2012), Berkmen et al. (2012), Céspedes et al. (2000), Cúrdia (2007), Abiad et al. (2009), Essers (2013), Kara (2012), Şimşek (2008)
Total FX reserves	Monetary	Currency transaction	The change rate of FX reserves of the countries	Tsangarides (2012), Hutchison et al. (2010), Gupta et al. (2007)
M2	Monetary	Open market operations	The change in M2 amount of the countries	Azis (2010), Şimşek (2008)
Real interest rate	Monetary	Discount rate	The change in real interest rate of the countries	Cúrdia (2007), Hutchison et al. (2010), Azis (2010), Stock and Watsons (2012), Essers (2013), Kara (2012)
Tax revenue	Fiscal	Tax rate	The change of tax revenue of the countries in the years	Azis (2010), Stock and Watsons (2012), Karakurt (2010)
Government expenditure	Fiscal	Government expenditure	The change rate of government expenditures of the countries	Abiad et al. (2009), Azis (2010), Stock and Watsons (2012), Karakurt (2010), Korkmaz et al. (2013)
Government debt	Fiscal	Public debt	The change rate of government debt of the countries	Tsangarides (2012), Céspedes et al. (2000), Gupta et al. (2007), Essers (2013)

the monetary authorities. Therefore, it was seen that this data is related to required reserve ratio. That is to say, if required reserve ratio increases, the amount of liquid reserves goes up as well. Because it is preferred to use expansionary policy during crisis period, it is expected to see inverse relationship between liquid reserves and growth rate in this study. Currency rate is another independent variable of this

study. The amount of foreign currency, which is bought or purchased by central banks, affects currency rate. With respect to expansionary policy, central banks prefer to buy foreign currency from the market to increase currency rate. Owing to this situation, it is expected to see positive relationship between currency rate and growth rate.

The variable of total FX reserves is also related to currency transactions of the central banks. If central banks purchase foreign currency from the market, its FX reserves will increase. Due to this issue, there should be direct relationship between the amount of FX reserves and growth rate. Moreover, M2 amount demonstrates money supply in the economy. Therefore, this variable is related to open market operations of the central bank. Because of this situation, it is expected to see positive relationship between M2 amount and growth rate. Real interest rate is the last variable related to monetary policy tools. In an expansionary monetary policy, interest rates should be decreased to invigorate the economy. Owing to this aspect, there should be negative relationship between interest rates and growth rate.

As for fiscal policy tools, three different independent variables are determined. Tax revenue shows the amount of tax collected by government. During recession period, tax rate is expected to decrease so as to invigorate the economy. Thus, there should be negative relationship between tax revenue and growth rate. Government expenditure represents all government spending in order to increase demand in the market. Therefore, during recession period, government increases expenditure to invigorate the economy. Thus, in our study, it is expected to see positive relationship between government expenditure and growth rate. The last independent variable in our study related to fiscal policy tool is government debt. Because government prefers to decrease public debt in order to increase liquidity in the market, there should be negative relationship between government debt and growth rate.

5.4 Results of the Model

In order to determine the relationship between monetary and fiscal policies and growth rate of the countries, we made a logit analysis. Firstly, so as to eliminate spurious regression, augmented Dickey-Fuller (ADF) unit root test was made to see whether independent variables are stationary or not. As a result of this analysis, stationary form of all independent variables was used. After this analysis, one explanatory variable had to be excluded from the model in order to prevent multicollinearity problem. The results of the logit analysis were depicted on Table 4.

The above table shows the result of logit model used in the study. These results give information about the condition in which dependent variable changes from the value of “0” to “1.” That is to say, they show the situation that monetary or fiscal policies increase growth rate. Six independent variables could be used, and total FX

Table 4 Results of logit model

Variables	B	SE	Wald	df	Sig.	Exp. (B)
Liquid reserves	-0.432	0.656	0.435	1	0.510	0.649
M2	-2.376	2.700	0.774	1	0.379	0.093
Real interest rate	-0.017	0.042	0.157	1	0.692	0.983
Tax revenue	1.543	1.733	0.792	1	0.373	4.677
Government expenditure	-1.386	2.875	0.232	1	0.630	0.250
Government debt	-0.803	0.487	2.715	1	0.099	0.448

Dependent variable: growth rate. These results show the situation that growth rates move from “0” to “1”

reserves and currency rates had to be eliminated from the analysis due to the multicollinearity problem.

It was seen that significant values of all variables are greater than 0.05. This situation shows that none of the variables are statistically significant at 5 % level. On the other hand, significant value of government debt is 0.099 that is less than 0.10. In other words, this variable is statistically significant at 10 % level. Because the coefficient of this variable is negative (-0.803), it can be said that there is inverse relationship between government debt and growth rate.

Government can affect the economy by changing the amount of public debt. When public debt goes down, liquidity in market rises. The main reason behind this situation is that when government pays its debt, this amount causes expenditure in the economy to increase. In other words, this issue invigorates the economy. It was seen that this result is also similar to the results of some other studies in the literature (Tsangarides 2012; Céspedes et al. 2000; Gupta et al. 2007; Essers 2013).

6 Conclusion

In this study, we tried to identify the success of monetary and fiscal policy tools with respect to emerging countries during crisis period. Within this scope, the strategies of 22 emerging economies in the 2008 global crisis were analyzed for the period between 2008 and 2014. In addition to this situation, logit model was used in this study in order to achieve the objective.

Growth rate was used as a dependent variable in the model because it is an indicator of economic performance. In addition to this aspect, eight independent variables were identified in order to see the relationship. Out of them, five explanatory variables were related to monetary policy tools, whereas three of them represented fiscal policy tools. Stationary forms of these variables were used as a result of ADF unit root test. Moreover, two variables had to be eliminated from the model in order to prevent multicollinearity problem.

According to the results of this study, it was defined that none of the explanatory variables are statistically significant at 5 % level. In spite of this issue, the variable

of government debt is statistically significant at 10 % level. Moreover, because the coefficient of this variable is negative, it can be said that there is a negative relationship between government debt and growth rate with respect to emerging economies.

Government can prefer to decline public debt in order to invigorate the economy during crisis period. Because of this method, liquidity in the market will increase as well. Parallel to this issue, there will be increase in the expenditure in the market. When the results of the study were taken into consideration, it was concluded that the policy of decreasing government debt is a successful strategy in order to overcome economic crisis in emerging countries. Therefore, in a crisis period, emerging economies should firstly focus on increasing liquidity by reducing government debt amount.

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Alternative Strategies for Global Operations of Organizations

Mehmet Eryılmaz

Abstract Nowadays, globalization (and internationalization) is accepted as a fact by both its proponents and opponents. Globalization influences all parts of our lives. As a natural consequence of this development, it has some considerable impacts upon organizations as well. The aim of the study is to present entrance alternatives for international markets and strategies that can be preferred by international organizations in an integrative way. Therefore, first, a basic framework will be drawn for globalization by the author. Then, as a part of globalization, alternative strategies of organizations in order to access new markets will be examined. The final section is allocated for fundamental strategic options for international competition.

1 Introduction

Today, business world is becoming global rapidly. This development forces organizations to adapt themselves into this new reality. Organizations may use various alternatives to enter into international markets. However, entrance isn't adequate to be successful in foreign markets. The subsequent steps of the process should be managed suitably. In general, entrance alternatives and strategies that are used by organizations to compete with the others in foreign markets are given apart from each other in the literature. The small contribution of this study is to provide a broad scanning to readers by integrating them.

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2 Globalization

Although it is often associated with many things, globalization involves travel of capital, ideas, goods-services, human, raw materials, technology, etc. across geographies without limitation of national boundaries. So, many different definitions have been delivered for the concept of globalization. However, it is fair to say that globalization is a concept that the meaning of it remains obscured (Lee and Vivarelli 2006; Reich 1998). But, according to an appropriate definition, it was previously described as “the intensification of worldwide social relations which link distant localities in such a way that local happenings are shaped by events occurring many miles away” (Ivanko 2013: 189). Therefore, it is a process that is related to continuous integration of countries in the globe. There are many triggers of globalization process such as desires of developed countries to extend their talent and raw material pools, availability of low-cost labor forces from developing countries and rapid developments in technology (Kapoor 2011).

In effect, this process isn't new; it seemed to begin immediately following World War II. As an alternative view, some authors see the demise of the cold war as a starting point for globalization (e.g., Reich 1998). However, it has been accelerated recently by increased trade liberalizations (liberalization in other economic activities) and change in technology and decreasing costs of transportation and telecommunication (Mrak 2000). Globalization seems to contain many opportunities and threats for different stakeholders and for different levels. For example, consumers often gain a chance by globalization to select products/services from a more extended pool. On the other hand, globalization seems it has not kept its promise yet about equal distribution of welfare among countries. However, with its advantages and opportunities, it has to be accepted that globalization is a fact and irreversible process (Mrak 2000).

One of the results of globalization is global economy. According to Hitt et al. (2009), global economy is one in which capital, goods, ideas, people, raw materials, services, and skills move freely across geographic borders partially without artificial constraints such as tariffs. There is no doubt that the field of “Management and Organization (MO)” is deeply affected by global economy in theoretical and practical aspects. For example, approximately thirty years ago, Ghoshal (1987) mentioned about the number of articles that were published in popular MO journals (such as Fortune, Harvard Business Review, The Economist) and were about globalization process of organizations is eye-catching. During the long and glorious history of field MO, many scholars have discussed heatedly that whether a topic (e.g., balanced scorecard (Ax and Bjornenak 2005; Braam et al. 2007), knowledge management (Grant 2011), total quality management (Brockman 1992)) is a management fashion/fad or not (Abrahamson 1991, 1996). Global management seems to become an academic fashion as well. The increasing number of papers that have been presented in prestigious annual MO congress (such as Academy of International Business, Academy of Management, and Strategic Management Society) is a clear evidence (Ghoshal 1987). In addition, practices of

MO are enormously affected by globalization as well. For example, Walmart's international investments had been limited only by geographically close countries such as Canada and Mexico. But recently, the retailer has expanded its operations to other continents such as Asia, Europe, and South America. As a result, Walmart had 3443 units and 2760 of them were outside of the United States (Hitt et al. 2009). During the next section, some information will be given about possible strategic alternatives to enter into foreign markets in this global world.

3 Possible Strategic Alternatives in Entering into Foreign Markets and Becoming an International Organization

“Internalization is a process in which firms or industries gradually increase their international involvement” (Eroglu 1992: 19). During this process, organizations can use various strategies. Certainly, strategic alternatives that can be preferred in international operations aren't limited with the ones presented below. However, the most cited strategic options will be taken into consideration.

3.1 Outsourcing Strategy

According to Frischmuth and Oecking (2005), outsourcing comprises of three words etymologically such as outside, resource, and using. Therefore, it means the use of outside resources (Frischmuth and Oecking 2005), and it involves contracting out certain function, product, or service of value chain activities to outside specialists and strategic allies (Gamble et al. 2013).¹ Outsourcing can be used by organizations in many fields of service and production. For example, Uludağ University in Turkey outsources its service of cooking to various catering firms. Extensive usage possibility of it creates popularity among organizations. Indeed, according to a research of Bain and Company, outsourcing has found a place in the list of “Top 10 Management Tools” since the year of 2000 (Rigby and Bilodeau 2015).

Outsourcing activities can be performed in various ways by global organizations as well. For example, global organizations can outsource their marketing or distribution activities to the organizations that can perform these activities at a desirable level. In addition, global organizations often take support from other organizations in production activities (Eren 2003). As a decision at strategic level, some organizations may outsource their information and communication activities as well (Frischmuth and Oecking 2005).

¹Another concept that is similar with outsourcing is “offshoring.” Offshoring is taking activities from a high-cost country to a low-cost one (Carpenter and Sanders 2009: 92).

Outsourcing strategy can create some advantages for international organizations such as performing an activity with lower cost or better by the help of an another organization; gaining access to expertise and skills; augmenting organizational flexibility and speed; decreasing the risks stemming from changes in technology and preferences of consumers/customers; increasing concentration on core businesses, competencies, and products; complying to laws; and finally disposing of troubled functions (David 2011; Fatehi 1996; Frischmuth and Oecking 2005; Gamble et al. 2013; Kremic et al. 2006). These drivers seem to be more relating to private organizations. However, public organizations may have different goals to perform outsourcing such as the general well-being of citizens (Kremic et al. 2006). In addition, some politicians may try to influence voters with some economic decisions in election periods. Political business cycle theories (PBCT) is a subbranch of political economy that “investigates the political reasons of macro-economic fluctuations” (Eryılmaz 2015: 537). Therefore, outsourcing in public organizations may be a political move during electoral periods as well.

However, when it is improperly used, outsourcing can create disadvantages for global organization. For example, organizations don't protect their core competencies frequently during implementation of outsourcing strategy (Prahalad and Hamel 1990). It can cause lost of core competencies. In addition, organizations may choose the wrong activity for outsourcing that creates competitive advantage for the organization. In consistent with this idea, Bettis and his colleagues strongly believe that regularly reducing competitive power of Western organizations stems from improper use of this strategy (Fatehi 1996). The main cause of it seems to be some difficulties in separation of core and noncore activities (Heikkila and Gordon 2002). Finally, organizations that make plans for outsourcing should take their employees' concerns about outsourcing (Roberts et al. 2013) and persuade them about the necessity of this operation. When these aren't done, success possibility of outsourcing project will decrease.

3.2 *Export Strategy*

This strategy is related with the products that organizations produced in their country and sale of these products to other countries (Eren 2003). It is one of the moderate ways to access to international markets. Many countries perceive their global and multinational companies as one of the most important vehicles to achieve their export goals (Fatehi 1996). On the other hand, export strategy is also a decision process that includes some steps such as assessing potential of organization's products and services for selling in abroad, evaluating the preparedness of the organization for export strategy and preparing an export plan and strategy.

So many causes and factors may trigger export behavior of organizations. Some of them are necessities that derive from saturated domestic market, top managements' international orientation, and organizational size (Eroglu 1992).

In this strategy, as an advantage, organizations don't often need big amount of capital to obtain benefits from this strategy. In addition, decreasing costs of transportation and information acquisition (Fatehi 1996) make this strategy more desirable each day. Finally, an appropriate export strategy will affect export performance in a positive way. Indeed, the findings of a research showed that an export strategy which has been selected by an organization is closely associated with export performance (Cooper and Kleinschmidt 1985). In the stated study, export performance was gauged with export growth and export intensity.

For every inappropriately selected and implemented strategy, export strategy can be harmful for organizations as well. When the costs of shipping are so high and there are adverse changes in exchange rates of currency, this strategy may not create expected benefits (Gamble et al. 2013). Finally, differences in formal (e.g., educational, financial, and legal systems) and informal institutions (e.g., culture, language, trust) (De Clercq et al. 2013) among exporters and importers' contexts that is sometimes called as institutional distance (Kostova and Zaheer 1999; Xu and Shenkar 2002) may be another challenge (Fatehi 1996).

3.3 Licensing Strategy

Licensing is relating to giving rights by an organization to firms that operates in abroad on specific brands, business formats, patents, products, and production technologies against numeration for a length of time (Morden 2007). When the time of contract is up, the sides of agreement (licensor and licensee) may come together to extend the time of license agreement (Eren 2003). As another option, the sides of an agreement may terminate agreement at the deadline.

Like previous strategy alternatives, it has both some advantages and disadvantages. As one of the main advantages of this strategy, organizations may eliminate risks that may stem from directly investing in economically and politically unstable countries. However, maybe one of the biggest disadvantages of the strategy, since organizations share precious technological know-how with the organizations in foreign countries, is that they have the possibility to lose their competitive advantage (Gamble et al. 2013).

3.4 Franchising Strategy

“Franchising is an arrangement whereby a manufacturer or marketer of a product or service grants exclusive rights to local, independent entrepreneurs to conduct business in a prescribed manner in a certain place over a specified period of time” (Hoffman and Preble 1991: 74).

Although it resembles licensing strategy to a great extent, there are some nuances between them. Licensing strategy is often relating to manufacturing

industry. However, franchising strategy seems to be more appropriate for service and retailing organizations (Gamble et al. 2013). Another difference between licensing and franchising is that contracts of franchising are often more detailed on operation and they are frequently longer termed than licensing (Miller 1998). Baydöner, Burger King, Domino's Pizza, KFC, McDonald's, and Simit Sarayı, all of these organizations have a common point except for being a fast-food organization. They successfully keep their existences in foreign markets with franchising strategy (Gamble et al. 2013).

Franchising strategy has both advantages and disadvantages for franchisers. The receiver side of this contract, franchisees, undertake important amount of costs and risks. On the other hand, a franchisor only provides supports to its franchisees in various fields such as assistance on business location, general management, access to materials of promotion, preparation of architectural project, recruitment and training of staff, and monitoring of activities (Eren 2003; Eroglu 1992; Miller 1998). Franchisors may have some other advantages such as economies of large scale and rapid market penetration with relatively lower costs. From the franchisee's side, this is an opportunity to enter into a business with a proven product/service or a brand name (Hoffman and Preble 1991).

On the other hand, corporate image and reputation is extremely important for franchisors in this strategy. Consistency and standardization of services of franchisees all around the world supports and facilitates franchisors' image and reputation. However, franchisees may not show sensitivity to quality of services as much as expected by franchisors. Unfortunately, as repeatedly emphasized in the literature, reputation and image of organizations are so fragile (Alsop 2004; Wang 2005). In addition, when a reputation problem is experienced in a franchisee, consumers often lay this burden to the entire franchise system (Hoffman and Preble 1991). Another related problem with this point is that consumers of some foreign markets may demand some little changes in products or services. For example, McDonald's introduced McTurco into Turkish fast-food market that seems to be more mouth-pleasing for Turkish consumers. It can sometimes be necessity for global organizations to balance sensitivity about global standardization of services and sensitivity to local expectations.

3.5 Joint-Venture Strategy

In academic world, international joint venture is a very popular field of study since various disciplines such as business policy, finance, industrial organization, organization theory, and strategic management are closely interested in it (Balakrishnan and Koza 1993). In practice, international joint ventures have become one of the most popular alternatives of entry into foreign markets (Barkema et al. 1997), and it is often preferred to other means of accessing resources (Beamish and Lupton 2009). In this strategy, organizations that want to enter into new and/or foreign markets may find reputable, knowledgeable, and experienced local firms and get

into coproduction and co-marketing activities with them. In joint-venture strategy, instead of owning the local company, international organization and its local partner form a third commercial entity (Miller 1998). In this manner, it is fair to say that since risks and costs are shared by international company and local partner, it is one of the most preferred entrance strategies by global companies (Eren 2003).

One of advantage of this strategy is that a local partner has a stock of information and experience about consumer behaviors and government regulation in local market. On the other hand, general opinion about joint ventures is that joint ventures have a high failure rate (Hennart et al. 1998). There may be alternative reasons for this situation. On the other hand, as stated above, international organizations often have to share risks and costs with their local partners. In addition, some research (e.g., Barkema et al. 1997) showed that cultural distance between investor organization and organization of host country affects longevity of international joint venture.

There are so many examples of this strategy all around the world. For example, DowAksa is a joint venture that was established in 2012 between a Michigan-based chemical company, Dow, and a Turkish acrylic company, Aksa Akriklik Kimya Sanayi A.Ş. in Turkey (Dow, unknown date). Another example of joint ventures is those established by the British Jaguar Land Rover and Chinese Chery automobile (Monaghan 2012).

3.6 Direct Investment Strategy

Direct investment is increasingly preferred by international organizations as an important strategy (Hoenen and Hansen 2009). In this strategy, organizations build a plant and sell their products/services by themselves in foreign countries. Sometimes direct investment may be compulsory for the organizations that desire entering into new markets since foreign governments enforce some restrictions in trade (Fatehi 1996).

This strategy has some advantages such impossibility of loss of precious technical knowledge, gaining experiences by doing, necessity of conduct of more detailed investigations about investments. In addition, direct investments are important at a higher level of analysis as well. Some research found that direct foreign investments increase productivity and level of wage in the host countries (Doeringer and Terkla, unknown date). However, it seems to be the most risky and costly alternative for organizations that aren't informed of local market (Eren 2003). Because when an organization builds a production plant abroad, it causes some long-term commitment of this organization in relating foreign country. Finally, sometimes direct investment may be compulsory for the organizations that desire entering into new markets since foreign governments enforce some restrictions in trade (Fatehi 1996).

4 Fundamental Strategic Options in International Competition

In the previous section, it was discussed how organizations become an international one. At this point, strategic behaviors of international organizations will be examined under this title. At this point, strategic options that can be used by organizations in international competition can be grouped under three titles.

4.1 Multidomestic (Think Local/Act Local) Strategy

When there are considerable cultural differences from one country to another one, organizations may change their products, marketing methods, and competitive approaches from one market to another one.

The main advantage of the strategy is that actions and business approaches are arranged in terms of expectations of local consumers. Today, so many local competitors focus on a narrow market segment and provide customized products/services. This development forces international organizations to local responses (Miller 1998). However, this strategy may have some disadvantages as well. For example, uses of different competitive approaches in different countries that are based on different competencies and capabilities make knowledge transfer across countries (Gamble et al. 2013).

4.2 Global (Think Global/Act Global) Strategy

Multidomestic strategy is appropriate for the situations that local responsiveness is one of the most important factors for the success of organizations. When an industry shows a standardized set of characteristics in almost every country, global strategy is often preferred by organizations. Organizations that use global strategy employ the same competitive approaches, products, and brand names in every country. For example, Ford has seemed to recently choose global strategy with 2010 Ford Fiesta and 2011 Ford Focus models. These models were marketed in Asia, Australia, Europe, and North America with the same way (Gamble et al. 2013). Another important example for organizations that use this strategy is Caterpillar (Miller 1998).

By this strategy, organizations may gain economies of scale. Indeed, single country isn't often enough to reach this purpose (Miller 1998). However, the danger in this strategy is that organizations may fail to satisfy some consumers.

4.3 *Transnational (Think Global/Act Local) Strategy*

Since the previous two strategies have unique advantages, some organizations may prefer to use a combination of them (Miller 1998). Transnational strategy endeavors to balance sensitivity to efficiency and local adaptation (Dess et al. 2012). In this strategy, organizations adopt the same competitive approach (low cost, differentiation, or focused) everywhere. However, they modify their products and marketing efforts in terms of local consumers (Gamble et al. 2013). For example, Coca-Cola prepared some commercial films for Turkish market. In the films, member of Turkish families break their fasts in blessed Ramadan with drinking Coca-Cola.

5 Conclusion

Today, many organizations prefer to think and/or act globally due to various reasons such as the desire to growth, spreading the risk. In this study, first, globalization concept was discussed briefly. Then, alternative strategies that can be used during entrance into new markets were examined. Finally, strategic options that can be used by organizations to compete internationally were examined. The small contribution of this study was integration of entry modes for foreign markets and strategies that can be used after entry.

This field of study seems to bring great potential for future research. For example, the selected entry mode of the organization was largely evaluated from rational-choice perspective in this study. At this point, subsequent studies may investigate that the entry mode of organizations can be a result of institutional mechanisms such as regulative, normative, or mimetic ones (DiMaggio and Powell 1983). In addition, in a more microlevel of analysis, the impact of previous experiences on managerial attitudes toward entry (or not entry) decisions may be researched. For example, do previous and repeated failures of entry efforts create “learned helplessness” (Abrahamson et al. 1978; Martinko and Gardner 1982) among managers or do they persist to enter into foreign markets in spite of previous bad experiences? Or if they continue their efforts to entry into foreign markets, how can this situation be explained psychologically? With the concepts of “learned optimism” (Schulman 1999), “escalation of commitment” (Staw 1976, 1981) or another one? Therefore, the field seems to have a great potential for both micro- and macrolevel research.

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Part II
**Designing Competitive Strategies,
Leadership and Culture During Recession**

Building Competitive Strategies and Managing Stakeholder Relations

Zafer Adiguzel

Abstract Stakeholder management and competitive strategy concepts are very important for a company's position and its corporate structure and for understanding which sectors or customer groups have an effect on business, how the company can be successful, and whether the company can respond to the demands and needs of stakeholders. In the traditional view, stakeholders include employees, shareholders, suppliers, and customers; however, the society, nongovernmental organizations, governments, and media also have a significant impact on business. Therefore, stakeholders have been examined as internal and external ones. To achieve sustainability for their business, companies should strategically analyze and evaluate the stakeholders, who are at the core of their activities and fulfill their necessary responsibilities. This study illustrates the performance results of the stakeholder management theory analyses and competitive strategy on globalization: (1) the stakeholders and competitive strategy of the companies suitable for their employees and management team's expectations; (2) determining how to meet the expectations of stakeholders; (3) relations between stakeholders and business performance; and (4) finally, relationships with stakeholders, the strategies for managing stakeholders, and the relationship between the business performance and stakeholders.

1 Introduction

Nowadays, the competitive environment is rapidly changing and developing; firms are establishing relationships with managing stakeholders for it is becoming a more important issue every day. In particular, the rapid changes and competitive strategies between institutions in the business world are increasing the importance of establishing communication and sharing information with stakeholders. Globally,

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removal of borders becomes public information and communications; it is forced to expand borders and services go beyond national borders to organizations. The institutions are responsible for fulfilling their goals and objectives; however, through established communication with stakeholders, it will be fulfilled to keep their chances of sustainability principles. In particular, many companies are in a competitive environment due to the deletion of their industry; companies survive that have customers who are satisfied with their products or services and employees whose wishes and aspirations have been fulfilled because their companies have been successful in the competitive marketplace. No matter which sector of business, the institutions that give importance to the concept of stakeholder management, by building on the foundations of a more robust corporate structure and creating both employee and customer loyalty, will be successful in a competitive environment. The important issue to be considered in the management of stakeholders is to examine stakeholders in two groups: internal stakeholders and external stakeholders. The competitive strategy of the institution, by identifying internal and external stakeholders, will be more healthy in achieving its goals and objectives. Internal stakeholders include employees, shareholders, and managers specified, and external stakeholders include customers, suppliers, civil society organizations, and government indicated. Competitive environment to institutions are very good review and analyze to stakeholders that need to fulfill strategically. It is an important responsibility. Businesses using progressive technology and communication channels, reducing costs to the lowest level, can make distant countries closer due to the impact of globalization, and since they have the ability to reach consumers by removing all boundaries, they are able to get a big advantage in a competitive environment. Especially, when you consider the sectoral structure of institutions, the position of competitors that are against the institution's stakeholders' thoughts, attitudes, and behaviors, the institution's presence in its sector of business, it is important in terms of the sustainability of their presence in the institutional sense. In general, if stakeholder theory and competitive strategy are taken into account, then institutions fulfill the principles of sustainability with growth and profitability; it depends on the conduct of activities on a regular basis. Meeting the expectations of stakeholders is of utmost importance for corporations in today's competitive environment. In this study, together with the impact of the global crisis in the world, businesses have advantages and disadvantages in the competitive environment, which have been analyzed and examined in regard to stakeholder management.

2 Stakeholder Management

Stakeholder theory is described as the evaluation made by stakeholders about the company's coordinated relationships with individuals in line with the business objectives and announcements made about the failure or success of the business (Freeman 2004). A new perspective of stakeholder theory explains how value is created through interaction with customers, suppliers, employees, financiers,

communities, and managers and how these relationships work (Freeman 2004). Although the impact of the decisions on stakeholder relations management has not been fully understood yet, there are many new studies that place emphasis on stakeholder relationships and provide more information (Jones 2011; Laplume 2008; Freeman 2010). Contrary to the studies that carried out to understand and to shape the management actions, these studies put emphasis on stakeholder's perspectives and behaviors, thoughts and ideas, and what affects them. This stakeholder management approach sees the individual relationships in a company as a network (McVea and Freeman 2005). Here, instead of known individual logic, the customers, suppliers, or employees in general were regarded as stakeholders and the effect of competitive strategies on the employees were examined within the framework of stakeholder theory.

When companies reach a mutual agreement with the stakeholders, they need to create positive relationships related to the expectations and targets, make long-term strategic plans, and also need to know the extent of the stakeholders' support and how to manage their contribution. Stakeholder management is about establishing positive relationships with stakeholders, understanding their expectations, sustaining the company's strategic targets by controlling internal and external stakeholders, and ensuring these targets are accepted by the stakeholders. Stakeholder management is a process that is carefully planned and monitored using predetermined guiding principles (Table 1).

First of all, business management should identify the stakeholders and indicate their origin. Naturally, the stakeholders will change according to the business sector; the companies in the different sectors will be in contact with the different stakeholders. As mentioned before, stakeholders can be classified as internal or external, primary or secondary types, etc. The important point here is that although external stakeholders do not affect business as much as internal stakeholders, external stakeholders influence internal stakeholders indirectly; therefore they hold significant importance. When determining the stakeholders, special factors such as the business sector, the size of the company, and its location should be taken into account. It is also necessary to pay attention to the position of stakeholders towards the company and the communication between the stakeholders and their impact on each other (Polonsky 1995: p. 35).

2.1 Stakeholders Analysis

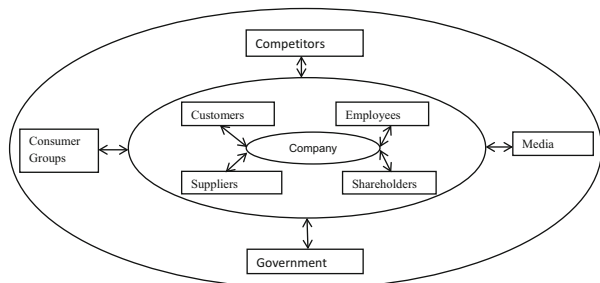
In today's business world, the disappearance of borders has become unavoidable with the globalization, and therefore the stakeholder analysis has become more important than ever. In this situation, the business managements should evaluate their responsibilities and the related costs very carefully (Fig. 1).

It is important for a company to protect its activities, profits, reputation, and assets, but at the same time, in the case of failure of business management, the company should analyze the costs caused by the attitude and behavior of the stakeholders.

Table 1 We need to express academics and expert’s views on the definition of stakeholders

Nutt and Backoff (1992)	•"Affected by the business strategy and will affect all parties"
Bryson (1995)	•"Any person, groups or organizations affected by the organization's resources"
Murray and Vogel (1995)	•"They are affecting the organization and they are being affected by the organization. Stakeholders have behavior affected from formal and informal, individually and collectively, positive and negative."
Eden and Ackermann (1997)	•"Can change the strategic future of the organization, small groups, individuals or great organizations"
Johnson and Scholes (1998)	•"Individuals or groups are connected to organizations to fulfill their own goals."
Post, Preston and Sachs (2002)	•"Employees in a company, individuals and contributors, intentionally or unintentionally who created its income through activities, providing potential benefits and/or risk carriers"
Jones, Felps and Bigley (2002)	•"Owners benefit should pending interests of the company and/or they are the ones that will affect the achievement of the target company"
Clarkson (2007)	•"Corporation's activities (past, present and future) expectations, demans are individuals and groups"; "Undertaken by the individual company or the results of collective action, it should be legal and moral."

Fig. 1 Stakeholder map.
 Source: Spellman 2011: p. 93, Managers and Leaders Who Can: How You Survive and Succeed in the New Economy



It is useful to prepare a stakeholder map to specify how they see the company, what they think, and what are their possible reactions. Map would reveal how the organization should work in terms of stakeholder management. It is very clear that the company should communicate with the stakeholder groups that have the most interests or power and give more attention to them. It is an inevitable fact that the

company should also maintain the satisfaction of stakeholders that have less benefit but hold power to influence the company (Spellman 2011: p. 93).

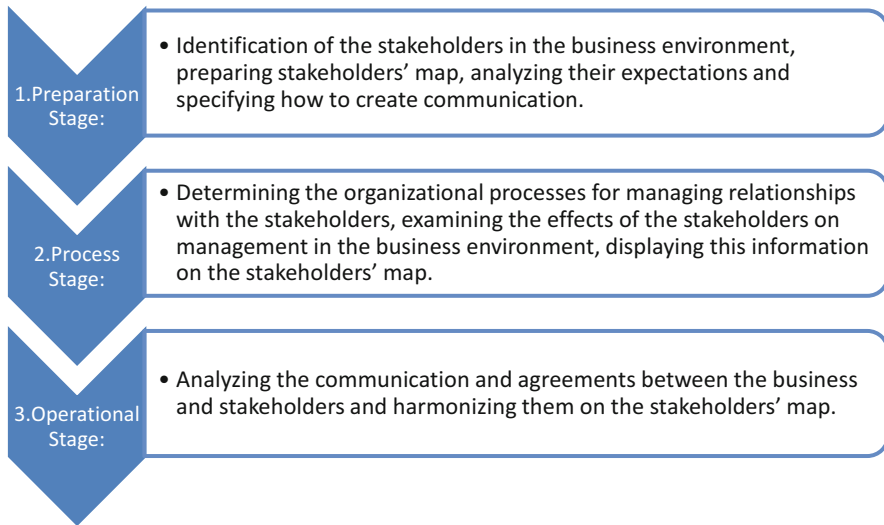
The most important and difficult part of the stakeholder management is the process when needs of a stakeholder group conflicts with other stakeholder groups. The conflicts in the business are usually caused by the different expectations of stakeholders and shareholders (Spellman 2011: p. 92). While the shareholders expect profits, the stakeholders have other expectations such as salary increase, bonus system, and additional and social rights which may reduce the profit. Business executives must act very carefully in a thin line when considering the needs and demands of the companies and requests of stakeholders. If they are not careful enough and make a decision that does not meet the expectations of stakeholders, this may lead to the emergence of severe problems. For example, when they make a decision opposite to the expectations of the employees, this may cause employees to leave the work, or if they decide opposite to the expectations of the consumers, they may boycott the products. In this case, it would not be possible for the company to sustain the profitability of the business.

2.2 Developing Stakeholder Management Strategies

Business management cannot meet the expectations and demands of all the stakeholders, and therefore they should follow a policy to appeal to the general and define a priority order. Consequently, it is necessary to perform a good analysis of the stakeholders to create a decision-making strategy that helps to identify which stakeholders should get the priority and which expectations of the stakeholders should be met (Polonsky 1995: p. 40). In order to take a decision about the best appropriate approach towards the stakeholders, the business management should determine their position in optimum way. For this reason, they have to establish a clear and direct communication with the stakeholders to analyze the position of the business. The better understanding and correct communication between business management and stakeholders would prevent potential conflicts and allow positive developments on business performance (Preble 2005: pp. 423–424).

2.3 Stakeholder Management Process

The most important aspect of stakeholder management is that it is a process that helps businesses to create strategies in light of the expectations and demands of the different stakeholders in their business environment (Polonsky 1995). Freeman has divided the stakeholder management process of an organization into three stages (Freeman 1984: pp. 54–58; Table 2).

Table 2 Freeman, stakeholder management process

2.4 *Review of Stakeholder Management in the Business World*

In today's global and competitive business environment, the decisions taken both by businesses and the stakeholders affect each other. It is important that the company should make decisions taking into consideration the interest of both sides for the activities carried out in cooperation with stakeholders. In particular, it is necessary for companies to form a good communication and interaction network with their environment to minimize the negative impact of communities on the business. If the stakeholders participate in strategic management decisions, they can positively affect the market value of the company and its profitability.

According to Freeman, today, stakeholder management has been recognized as part of the activities carried out by an organization. Important stakeholder roles include advocates, sponsors, business partners, and agents of change (Freeman 2004: pp. 228–241). The principles of strategic planning in stakeholder management have several stages and dimensions:

- Corporate communication tools
- Strategy objectives
- Corporate social responsibility, sustainability

The diversity of the stakeholders directs companies to decide which stakeholder groups should be included in which strategic issues or problems and to what extent. If the decisions taken by the business management have an impact on one or more stakeholders, these decisions are considered to be important. In order to better

understand the impact of stakeholders on businesses, they have been classified into several categories.

Freeman stated that “internal stakeholders” consist of shareholders, executives, employees, and trade unions, and “external stakeholders” are the suppliers, business partners, customers, the media, civil society organizations, government, regulatory bodies, local and religious communities, business associations, academic institutions, consumer associations, etc. (Freeman 2004: pp. 228–241).

According to Mahoney, stakeholders should be separated into active and passive ones. “Active stakeholders” have a direct impact on the company or have the right to vote on the board of directors or give service to the company. “Passive stakeholders” may not have an immediate impact on the company but can contribute significantly. They include business unions, business associations, and media, which play an important role in the protection of the consumers and the environment (Mahoney 1992: pp. 363–380).

Freeman and Evan also presented the concept of narrow and wide stakeholders. “Narrow stakeholders” mainly refers to those that are affected by the company’s policies, i.e., shareholders, management, employees, suppliers, and customers. “Wide stakeholders” refers to the state, the general public, loyal customers, and other environmental groups that are less affected by the company policies (Freeman and Evan 1990: pp. 337–359).

Finally, the stakeholders have been studied in terms of primary and secondary ones. “Primary stakeholders” are essential to the company, which cannot survive without them. Generally speaking, customers, employees, suppliers, and shareholders are included in this group of stakeholders (Clarkson 1995). “Secondary stakeholders” are those that affect or are affected by the company’s activities in the business sector. The presence of these stakeholder groups does not prevent the continuation of the activities or the existence of the company. Media and other interested parties have been described as secondary stakeholders (Clarkson 1995).

If we look at the interests of stakeholders in the business sector, we can see that they are a wide range of significant pursuits such as social changes, working conditions, environmental protection, physical or mental health care, safety, and security. One of the most critical issues for business managers is that of matching the interests of stakeholders, evaluating the interests and needs of various groups, and making decisions that are beneficial to the company.

2.5 Strategic Stakeholder Analysis

The importance of stakeholder theory is that business creates a social environment together with its stakeholders and it cannot be ignored by business management regarding decisions related to stakeholders (Tongpong et al. 2010: p. 248). Strategic stakeholder analysis is about examining stakeholders, focusing on key stakeholders, giving priority to specific stakeholders, acting according to their needs, considering stakeholders’ opinions and gathering information, and eventually identifying

strategical targets using the information collected and deciding on the implementation. Therefore, stakeholder analysis guides business management to understand how powerful the stakeholders are and what their needs are (Harrison and St. John 1998: pp. 14–16).

2.6 Determining Share of Stakeholders

It should not be forgotten that stakeholders will have demands and expectations. Therefore, company management should determine stakeholders, their share, and the characteristics of their share and foresee how they will react to the company. Furthermore, the company management should specify their share in terms of their position (Preble 2005: pp. 416–417). It should be kept in mind that environmentalists have a bigger share regarding environmental issues; however, they have a very small share in terms of industry relations (Polonsky 1995: p. 35). Business management should consider the power of stakeholders, their influence on the business, and their demands and requests when determining the share of the stakeholders. Companies trying to develop strategies are expected to fulfill their ethical responsibilities, even if the stakeholders do not have enough power (Carroll and Buchholtz 2000: pp. 79–81).

2.7 Determining Stakeholders' Priorities

Business executives have limited information and limited resources at their disposal in a limited time. This situation causes businesses to put stakeholders in a specific order from a different perspective. The order of priority of the demands of the competing stakeholders helps business management to handle the situation better. Listing stakeholders in order of priority according to their demands helps business managers with their decisions (Preble 2005: p. 421). We know that stakeholders will have expectations about benefiting from the company, but also, the part of the stakeholders' interest may not be the priority for others. According to stakeholder approach theory, even if one group's interest is beneficial to all the other stakeholders, it does not always mean it has a priority right (Schilling 2000: pp. 226–227). The importance of stakeholders can change according to the strategy adopted by the business management. If the business management decides on an aggressive growth strategy, the stakeholders providing credit will gain importance; if the business management decides to implement differentiation strategies rather than aggressive growth, the communication with suppliers will be more important; if the business management follows a purchase strategy, the importance of communication with the public, government, and competitors will increase. Business strategies strongly affect the communication and dependency between the business and stakeholders (Harrison and St. John 1996: p. 50).

2.8 Determining How to Meet the Expectations of Stakeholders

To meet the demands, needs, and expectations of stakeholders, firstly companies should identify them in the easiest way and shortest time. For that, the company should communicate with the stakeholders, and if they cannot build effective communication, this may cause a loss of time. If there is a lack of clear and open communication, or inefficient and ineffective interaction, this may lead to not understanding their demands and also to a fight between stakeholders. Effective communication between a business and stakeholders can allow the company to influence the stakeholders and prevent adverse effects on the business (Polonsky 1995: pp. 36–40).

Determining the expectations of stakeholders may be a difficult and complex process for companies. When dealing with environmental issues, it is necessary to specify the expectations of environmentally conscious organizations. Companies usually do not communicate directly with such organizations, and therefore they should use information technologies to understand their expectations. They should not only analyze the expectations of the stakeholders with whom they have indirect communication, but they should also identify the stakeholders that may have a dangerous impact on the business (Preble 2005: p. 419). One of the most important responsibilities of management is to analyze and determine which stakeholders can cause threats and which ones may create opportunities for the business. As a result of the analysis of the stakeholders, business managers should discuss the ethical, legal, and economic issues to make healthy decisions (Carroll 1991: p. 44).

3 Competitive Advantage Theory

Competitive advantage theory is an approach that considers the influence of other companies on a particular organization. Positive competitive advantage may affect the success and failure of a company, and together with internal and external environmental variables, it can ensure an advantageous position against the other firms in the sector. It is accepted that a database should be built to identify the company's strengths, weaknesses, opportunities, and threats. Building a database will help to specify how the company can use its internal and external resources in the best possible way (Grant 1991).

Competitive power has a positive effect on improving living standards, increasing productivity, effectiveness, and innovation, and most importantly enhancing employment opportunities as a solution to the unemployment problem. The increase of competitive power gradually increases investment and leads to the development of production facilities, and this may result in an increase in export and contribute to the country's economy. Porter stated that companies need to

analyze their position in the market primarily and extensively in order to implement cost leadership and differentiation strategies (Porter 1985).

The competitiveness of companies can only be better understood if they are examined together with other businesses offering the same products and services. More competitive information can be obtained by comparing a company with other national and international companies in the same industry. When we look at today’s business world, we can understand the situation better, as there are companies that hold successful positions in their own countries but have not become successful in the world market yet. When businesses develop business strategies, they should first determine the strengths and weaknesses of the company and then evaluate the factors affecting its competitiveness in the sector and in the country.

Cost leadership and differentiation are competitive strategies, and they help businesses to gain competitive advantage over their rivals. Companies need to differentiate their products or services according to the needs of customers to make them feel special in their business sector. To use the resources most effectively, the correct strategy should be determined. Cost leadership in products and services ensures continuity of profitability, and variability in products increases awareness about competitors (Table 3).

For companies to achieve a competitive advantage, their customers can be a source of self-efficiency (Prahalad and Ramaswamy 2004: p. 141). In order to obtain a competitive advantage over their competitors, companies are required to build relationships to meet customers’ expectations and needs; they have to

Table 3 There are several factors in achieving competitive power in the business sector

Production cost	Reducing cost price enables companies to obtain price advantage and strengthens their market position. It leads to them keeping their existing customers and acquiring new customers and helps them to gain competitive advantage (Rozenzweig, Roth and Dean Jr., 2003).
Compliance with quality and standards	Companies that comply with quality and standards can also meet the expectations and needs of their customers. This is an important criterion that allows companies to gain competitive advantage in the business sector (Lynch et al, 2000).
Skilled labor	In today’s world, labor costs are no longer the main factor that affects competitiveness. Instead, a skilled and trained workforce has become more important, and with the right evaluation and reward systems, companies may build a ground for the improvement and development of new ideas and new products in the production process. This creates advantage over competitors (Chaston and Mangles, 1997).
Production technology and R&G activities	Companies need to set up an appropriate technological structure to present their products in the best quality to their customers. The technological investments and the R&G activities will help businesses to develop new products and processes and this will lead them to keep their competitive advantage (Li and Calantone, 1998).
Market share	Companies have to specify a target market to keep their market share in the business sector where they offer their products and services to consumers. Generally, businesses that hold a targeted market share have a competitive advantage. The criteria to measure whether a company reaches the targeted market share can be identified with existing and new customers (Neubaum and El-Hagrassy, 2002).

establish good communication with their clients and include them in the process of providing a better quality of products or services.

4 Competitive Strategies

According to Porter (2007), a company's relationship with the business sector and the market environment plays a major role in determining the company's competitive strategies. The power elements around the company can affect the entire sector. In this case, how the company handles them is important. This principle is important in terms of how the competitive strategies affect the management–employee relations, employee behaviors, and the position of the business and the competitors in the sector.

When we look at the barriers to entering the market, we can see five factors, which are defined as economies of scale (new entrant, suppliers, buyers, substitution, competitors in the sector). These factors can discourage business administrations who want to find a place in the sector in two ways:

- A company that is willing to enter the sector estimates the reactions from its competitors and decides not to face this risk.
- A company that is willing to enter the sector slowly rather than speedily cannot afford the cost risk.

If a company performs its activities in more than one sector, it can carry out its activities by sharing the potential risks (Porter 2007).

One of the barriers to entering the sector is “product differentiation.” Companies that are willing to enter new markets, where the competitors already have a market share with loyal customers, have to break the customer loyalty, and therefore it is necessary for them to provide differentiation of products and services. This will increase the cost and acts as a barrier to market entry (Porter 2007).

The other barrier to market entry is called “R&D costs.” Companies have to invest extensively in research and development activities in order to differentiate their products or services and compete against their rivals. When companies change their suppliers to meet the expectations and desires of consumers, new kinds of costs will arise, such as the testing of new raw materials and the training of employees. These one-time costs also become a barrier to market entry (Porter 2007).

The other barrier to market entry is known as “distribution channels.” The relationships between existing companies and wholesalers and retailers make it difficult for new firms to enter the sector. Therefore, companies who want to enter the sector and keep a market share have to bear further costs, such as special promotions, to improve their sales (Porter 2007). These strategies of new companies may lead to retaliation from existing companies. This is seen as a barrier to market entry for new entrants in the sector.

“Government policies” in the sector are the other barriers to market entry and affect all businesses. Changes in legislation can even influence the leading companies in the sector; the companies do not have control over it and this may block market entry. All the companies in the sector have to follow the government policies closely in order to be aware of the legal obligations that may arise, and they should take the necessary precautions and develop their strategies accordingly (Porter 2007).

The strategies of existing companies against “substitute products” can be a competitive factor. If there is no product differentiation and no cost increase, the prices fall due to excess capacity, and the profitability rate decreases gradually in the competitive environment. In order to prevent this, the main strategy of companies will be to offer better value to their customers and become more effective.

The other important force of competition is “the power of the purchasers.” This is a very important competitive force, as if purchasers have bargaining power, they can bring down prices, request better quality and service, have the option to move to another company, and provoke sellers against each other (Porter 2007).

Competitive strategies can be defined as companies selecting different activities to their competitors and consciously creating their own value (Porter 1996). Competitive strategies are divided into two factors: external environment and business resources (Grant 1991). External environmental factors are described as market characteristics and economic sectors, whereas internal environmental factors are defined as business functions (Kotler 1997).

4.1 Cost Leadership

Cost leadership of companies means being superior to their competitors by providing lower costs and better prices in the market. In other words, it is gaining leadership and competitive power by reducing costs and achieving superiority over competitors on the basis of market price. All the functions of a company (finance, production, marketing, etc.) should work very well in order to achieve competitive power. According to Porter, cost leadership can be ensured by following a particular chained discipline. Porter states that the chain will consist of establishing active/efficient facilities, benefiting from experienced expert personnel, controlling expenses, and keeping the cost of R&D, sales, and advertising activities at a minimum level (Porter 1980). The long-term benefits of cost leadership are not sustainable, and therefore short-term benefits increase in importance. The reason is the danger of preparing strategies without foreseeing the changes in cost. Furthermore, in the event of strict cost-conscious situations, necessary expenses might be compromised.

However, the businesses may encounter some risks during the implementation of cost leadership strategy, which are:

- If the businesses give their attention only to the lowering costs, they may not be aware of the market or product changes that may occur.
- The new companies may enter the market in the business sector and produce substitute products at the low cost with a good investment.

- The business investments focused on reducing costs may fall behind the innovation and the evolving technology (De Bono 1996).

This situation might put the company in danger; for example, if companies cutoff communication and training expenses, which are essential features of today's world, they may put the future of the company in danger.

4.2 Differentiation

The importance of differentiation is making the customer feel that a product is unique in the business sector. The product should be unique in terms of image, technology, and service compared to competitors' product in order to attract the customers' attention. Porter stated that if a company can offer differentiated products and services compared to its competitors, it can gain benefits at an above-average level in the sector (Porter 1980). Companies can increase their profit margin through differentiation, low cost, or unique products or services for customers. Companies can gain customer loyalty through differentiation strategies, prevent other companies entering the market, and hold an advantageous position against substitute products (Porter 1980).

There are some risks that may be encountered by the businesses during the implementation of differentiation strategies and they include:

- The implementation of diversification strategies for many products or services by the company and its competitors may cause confusion of the customers and may lead to decrease in the demand.
- The differentiation strategies may increase the cost and cause decrease in the customer's loyalty to the brand.
- The differentiation strategies may increase the cost and this situation reflects in price and that may cause customers to prefer saving money and stop buying the product all together.
- If there are many product imitations, the consumers lose their differentiation perception (De Bono 1996).

5 Hamel and Prahalad's Competitive Strategy

According to Hamel and Prahalad, if a company wants to be successful in its competitive strategy, it has to predict the future quite well. They argued that companies can only be successful if they see future opportunities in relation to their products and services and if they can prepare strategies to turn these

opportunities in their favor. There are four basic approaches to being successful in the future and to leaving competitors behind:

- Design a good process to identify and evaluate tomorrow’s opportunities.
- Understand how the competitive environment will differ in the future.
- Mobilize all departments and workers to implement the plans designed for the company’s future.
- A strategic decision capacity that allows a company to outmaneuver its competitors (Pralhalad and Hamel 1990: pp. 275–292).

Businesses must adopt different strategies from their competitors to have a voice in the sector. The new strategies may allow businesses to use their resources efficiently, and also, they should aim to create a leverage effect for creative and scarce resources (Pralhalad and Hamel 1990: pp. 275–292).

Hamel and Prahalad brought three basic aspects to the strategy:

The starting point of the strategy should pass through an understanding of the basic abilities of the company.

The business should develop foresight about the sector.

The business should create strategic intent (Pralhalad and Hamel 1990: pp. 275–292).

Another important strategy for businesses in the competitive environment is the technology strategy. It was understood that if businesses use technology as an advantage over their competitors, they may gain stability from strategic management (Pralhalad and Hamel 1990: pp. 275–292).

6 Relations with Stakeholders and Business Performance

With the aim of improving business performance, companies communicate and collaborate with other businesses in the sector because interaction with other companies may lead to gaining benefits such as lower costs, high-quality products and services, a better position in a fight against the uncertainty that might occur in the sector in the long term, and wider recognition by the stakeholder groups. But they also aim to improve their relationship with the stakeholders in order to enhance business performance (Maurer and Sachs 2005: p. 93). As for the principle of sustainability, for businesses to ensure their goals and targets, companies should manage the primary stakeholder that holds strategic importance, and therefore they need to establish satisfactory communication and relationships with them. The business management should give attention to the fact that the primary stakeholders are divided into internal and external stakeholders, and management must make strategic decisions by distinguishing internal and external stakeholders from each other. There will be a difference between investment for internal stakeholders (workers) and investment for external stakeholders (supply chain or customers). Different strategic decisions and priority steps should be taken for each stakeholder

group because the two groups contribute to business performance differently (Galbreath 2006: p. 1117).

7 Developing Stakeholder Management Strategies

The business management cannot meet the expectations of all stakeholders, and therefore the company should determine a policy to address the general expectations and priority demands. It is necessary for companies to conduct a good analysis to decide on a strategy about which stakeholders' expectations will be met and what the order of priority will be (Polonsky 1995: p. 40). The business management should determine their own position to make better decisions regarding stakeholders, and therefore they should establish clear and direct communication with stakeholders to analyze their own position. If businesses and stakeholders can create better and correct communication and understand each other, it can prevent conflicts that may occur and can lead to a positive impact on business performance (Preble 2005: pp. 423–424).

8 Relationships with Stakeholders, the Strategies for Managing Stakeholders, and the Relationship Between the Business Performance

Using a strategy map to analyze stakeholders affects business performance positively and provides better relationships with the stakeholders. The literature research conducted in recent years shows that correct and solid relationships with stakeholders and making successful decisions about managing them result in better performance. There will be a particularly positive effect on financial performance. The main purpose of stakeholder theory is to make the relationship between a business and stakeholders more understandable and present a feasible theory about how to relate stakeholders to business performance (Hillman and Keim 2001: p. 295).

The level of impact of stakeholders on business performance may differ over the years. However, it is important that companies have relationships with the right stakeholders in the business sector. Different strategic decisions will be made for each stakeholder group, and it is important to identify the stakeholders accurately and evaluate the stakeholder analysis strategically (Rodgers and Gago 2004: pp. 349–363). Before making strategic decisions, the business management should evaluate the information obtained from stakeholder theory and consider how to take advantage of the opportunities and decide on what strategy will be used for which stakeholders, as this will have an effect on their business performance (Vilanova 2007: pp. 146–162).

9 Conclusion

When analyzing a company's business performance, it is important to examine how the company has been managing stakeholders and what strategies will be used in the future. Business management performance evaluation includes an examination of stakeholders' relationships together with the structure of the organization and focuses on communication strategies. Planning and implementation strategies are extremely important for business management. In any business sector, companies need to analyze their competitors extensively to determine strategies that may allow them to gain competitive advantage over them. It has been understood that cost leadership and differentiation strategies against their competitors can positively affect the business performance of the management.

Analyzing and managing information efficiently is very important for business management when taking strategic decisions that affect business performance. A review of the literature also reveals that business management strategies have a large impact on business performance. Furthermore, stakeholder management plays a significant role in the strategic decisions of businesses, and therefore companies should build good relationships with stakeholders to achieve the best results. It is very important for businesses to analyze stakeholders and develop strategies accordingly in order to make decisions aimed at increasing business performance.

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Human Side of Strategic Alliances, Cooperations and Manoeuvrings During Recession and Crisis

Tuna Uslu

Abstract Together with the globalizing economy, it is no more possible for any system to survive by ignoring the market changes and transformations. A change taking place anyhow in any place of the world triggers complex processes and affects everyone by growing in waves. Successful ways of business conduct of today is based on predicting the growth speed of these waves and on the ability to carry out strategic cooperations and manoeuvres accordingly. Sometimes these fluctuations also trigger serious crises. Apart from the shocks created in organizational structures, periods of crisis have complex effects on people. Some people approach to these events in hesitation, while other people or organizations happen to have skills to turn these processes into opportunity. The practical examples show that the organizations that adapt to new condition by getting simpler and getting rid of burdens in the constriction process are able to come out in a better condition before the crisis. This section discusses the way of organizations to become human oriented when acting strategically during strategic alliances, cooperations and manoeuvrings.

1 Introduction

The changing ways of doing business and organizational development process, within the globalization period, have been moving towards managing the intangible abstract assets more than physical resources and must focus on managing the processes instead of concrete outputs. While the standardization process that started with the reconstruction and quality assurance systems has been silhouetting for the organizations, in the following years, approaches such as transformation engineering and organization learning have been moving towards differentiation and creating competition advantage. During this transformation process, organizations learn

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just like the living entities, change and chart out their own course. From this perspective, organizations have been transforming into organisms that the human abilities are attributed to. They are born, they learn and they develop; however if unable to ensure their continuity, they die as all the people do. With the total quality movement in the organizations, this made it necessary for the employees to take part in the process both mentally, physically and psychologically. The organizations, being more than organisms that possess a certain structure, are now abstract fields that continuously change and transform with their employees and structures. These abstract fields, beyond the economical and physical resources, host social and psychological interactions (Uslu 2014: 288).

Another aspect of globalization is economic and financial crises other than international competition. The increase of expansion speed of crises and their impact areas causes it to affect its region and all other countries during the course of time, which supports the chaos theory. Market changes and transformations among the factors that create financial inconsistency also cause employment issues, social trends, fluctuations and constrictions in money markets and therefore crisis (Silver 2014). On the other hand, the strategic cooperations in the process of globalization are a popular expansion and management strategy chosen by the businesses in the present world of competition (Elmuti and Kathawala 2001). Strategic cooperations take place in various ways. However, the most widespread cooperations are company mergers, company acquisitions and assignments, joint venture and licence agreements. It is highly remarkable that these strategies take place particularly during and after crisis periods. For example, the 2001 crisis in Turkey had a positive incentive for the company mergers. The post-crisis increase trend in company mergers had a wary progress in 2002 and 2003 and reached to a significant level in 2004. There was an almost booming increase in 2005 (Deloitte 2010). This process has a significant impact on the social environment and human relations, particularly the employees.

Today, organizations try to survive in a continuously changing dynamic environment. In this process, trends are set by the organizations that keep pace with innovation and create transformation, and only the organizations that are able to follow change trend can adapt to this new environment, whereas organizations that are left out of this field cannot survive. The leading factor that ensures transformation of businesses is the ability of top management to change and to manage change (Romanelli and Tushman 1994). On the other hand, strategies that used transformation processes like mergers and acquisitions usually focus on profitability and sustainability (Cartwright and Schoenberg 2006). However, the works for acquiring companies, stocks and assets should not be considered merely as a process of tendering and contracting (Bruner 2004) but dealt with as change and transformation processes that should be managed. In addition, change processes like mergers and acquisitions have sociocultural aspects that have individual and organizational impacts on employees (Marks 1982; Buono and Bowditch 2003). The failure to accomplish set goals in many attempts of organizational change makes one think that focus should be on how employees think, feel and behave during the

transformation period (Ngyuen and Kleiner 2003). From the psychological perspective, the integration strategies and plans of organizations should be reviewed in relation to moods of managers, supervisors and personnel (Mirvis and Marks 1992).

The company mergers are a desired incident for the company stakeholders, while it is a little different for employees. The company acquisitions and mergers are infections, and it is normal that the fever of the organization increases and the body of the organization starts a resistance order (de Geus 1997). The mistakes that cause failure of mergers are usually experienced in the post-merger integration process (Simpson 2000). Particularly, the failure to assign the required importance to the human factor during the integration process can be shown among the significant causes of failure (Hutchison 2002). It is emphasized that the emotions and personal contributions of the members of organization should be taken into consideration for a new formation to succeed (Syrjala and Tuomo 2007). The management reorganizes the human resources of the merging businesses in this period to make sure that the personnel not fitting to the structure of the new business are discharged or leave voluntarily (O'Rourke 1989). If we study mergers by taking human factor into consideration, every year thousands of people lose or change their jobs upon mergers. This obviously may cause psychological traumas. Individuals losing their jobs or those who cannot adapt to their new work environment are negatively affected by the mergers activities (Kusstatscher and Cooper 2005).

During crisis periods, business may realize a series of options that have direct or indirect negative effect on the rights, health and security of their employees in order to ensure compliance. The leading elements of the crisis adaptation strategy are reducing the costs, decreasing the scale, closing down some businesses and units and narrowing the employment. Shrinking is the first option chosen by the businesses to reduce their expenses, and it can be defined as a passage from the current organization structure to the required organization structure. In this sense, businesses reduce their productions in the event of crisis, avoid from creating new employment, fire several employees, widespread temporary employment and transfer certain parts of production to supplier relations and subcontractors (ILO 2009). Economic crises may increase the inequality between income groups as well as the death rates among both adults and children. Suicide rates among low-income young men may increase. It was determined that the geographical and ethnic inequality with respect to life expectation and death rate increased during crisis periods (Mills 2010). Suicide-based deaths increase in periods when economic growth is reduced and there is shrinkage (Bezruchka 2009). As there are such big and serious reflections of economic crises and shrinkage on human psychology, the effects on individuals and employees should be managed by the public and organization managers. It can be said that the crisis period start in a business when disputes among employees increase, the effect of business operations decreases, the business image is hurt and it becomes gradually impossible for the business to achieve its goals (Fink 1986).

2 Effects of Crises on Organizations and Employees

The word crisis is a concept that is used in daily life and in almost every part of life. Crisis is a very delicate issue that takes place in all organizations like non-profit organizations, state organizations, service organizations, small partnerships, strategic cooperations and international organizations (King 2002). An important feature of crisis is that it is a circumstance including events that may cause significant organization losses and involve time pressure for making decisions (Mitroff 1992). Organizational crises affect each unit and individual of the organization in waves and leave significant destruction behind. Crises are the circumstances that threaten the priority goals of the business and involve limited time to prevent shock in decision makers when they occur and therefore cause high stress. Another essential feature that distinguishes crises from ordinary circumstances is that it involves the requirement of immediate intervention to the emergency. One needs to act quickly in crisis periods. In this sense, a crisis period can be defined as the changes that require urgent response and rapid adaptation (Puchan 2001). As the response to crisis to be given by the organization is determined and guided by individuals, one should study first the managerial, then the individual and then the organization reactions (Milburn et al. 1983a, b). In addition, the effects of crisis on employees are very important for the organization and organizational activities (Podolok 2002).

In the crisis period, there may be shocking stress reactions, symptoms of violence, distress from problems, depression, exposure to assault and sadness. The concerned stress may cause long-term mental and physical diseases as well as family problems. In such periods, the management of the organization should have its personnel feel that it cares about them (Persons 1995). In crisis periods, people experience “hidden anger”, “accusations of each other” and “communication disorder”. These feelings rapidly spread in the workplaces, and employees start to think that they are the ones who are wronged the most instead of sharing and thus reducing their feelings. The variables that affect the thoughts of an employee about his job include salary, promotion chances, social benefits, managers, colleagues, working conditions, communication, security, efficiency and quality of job. Each of these variables has various effects on the job satisfaction (Berry 1997).

3 Human Factor in Crisis Management

Crisis management refers to the management activities in a critical time period where the management decisions would decide the future of the organization (Weisaeth et al. 2002: 37). Crisis management involves the activities like analysing the possible or ongoing crisis process in businesses, solving the problems behind the crises and overcoming the crisis period with the least damage. Crisis management refers to “the internally connected evaluation or inspection to be carried out in

a series with respect to crises that pay causes a significant danger to the basic processes of the business, employees and managers and external environment". The crisis management is a process involving series of activities like crisis prediction, prevention, preparation, determination of priorities, planning and implementing the improvement and learning mechanisms (Mitroff 1992). The categories of an ideal crisis management programme include strategic activities, technical and structural activities, evaluation and diagnosis activities, communication activities and psychological and cultural activities (Pearson and Mitroff 1993).

Taking human element and human resources into consideration for crisis management is as important as the system design, and integration is for the organization (Pearson and Clair 2003). Strategic cooperations have become a decisive feature on the basis of new industrial relations. Partnership in the broader sense refers to "cooperation of employers and unions to achieve joint goals like equality and competitiveness" (Lucio and Stuart 2004). Indeed, the turbulent and uncertain markets, competition environment, changing political status, transformations in business strategies and innovative methods require a new interaction based on the contribution of parties. In the narrow framework, the human resources management understanding and policies based on technical and completely profit-based idea cause significant problem for the organization at times of organizational crisis (Sheaffer and Negrin 2003). Today, businesses obtain their competitive superiority through functional flexibility provided by various qualified workers with multidimensional skills in addition to their new production systems (de Silva 1997). Therefore, what shocks the organization worse than the crisis is the misuse of human resources and ignoring many human qualities with respect to crisis management and solution (Weisaeth et al. 2002). It is believed that the most important element for a successful merger and acquisition process is the human factor (Carey and Ogden 2004). Therefore, one needs to diagnose the qualities and psychological responses of employees, to exhibit a leadership skill to channel them for the solution of crisis and to show it in human resources policies (Burnett 1998). As a result, it becomes possible to implement cooperation-based strategic human resources management in organizations.

3.1 Developing Resistance Against Crisis

Crisis management is not a discipline that can be learnt in the middle of a storm during an organizational work. Crisis management should be learnt when there is no cloud in the horizon (Hesselbein 2002). The manager should be able to have good estimation of long-term circumstances to avoid from the possible future crises. However, many organizations evaluate short-term conditions quickly while ignoring the long-term conditions (Schleh 1974: 19). According to the literature, this approach constitutes the basis for unpreparedness and failure in crisis.

According to one view, the failure in crisis actually makes us prepared for both the present and future crises. Particularly, a business which didn't have a crisis before will be caught unprepared to the crisis if it gets wrong signals from the market (Silver 1992: 13). The studies didn't show a significant relation of crisis experience and technological risk in the industry with crisis preparedness while organizations with high performance in the market were found to be more prepared to crisis (Carmeli and Schaubroeck 2008). Some companies do not panic at the crisis environment but develop various product and production processes by avoiding excessive reactions and creating different tactics and crisis plans for alternative possibilities. It is attempted not to reflect the increases in production costs to the product prices thus the expected inflation rate is taken into consideration in determining the prices. In sales, it is attempted to increase the sales volume by presenting attractive price offers to customers (Barton 1994; Mitroff 1988). In a sense, the businesses that turn crises to opportunity are the organizations that use proactive approaches in their operations and that constantly learn, improve and develop themselves even in normal times beyond being prepared.

Organizations use certain methods to achieve their strategic, tactical and operational goals. These methods they use are also perceived and explained by the society somehow. There is a relation between the rules applied by the organization, way of behaviour, perception of the organization by the society and the performance of the organization. If the behaviours and applications are accepted, the image will increase and this will bring financial support to the sales of the organization and investment opportunities. The benefits obtained by the employees in this case will result in more work, protection of institution and integration with the institution (Bromley 1993). Particularly the human resources policies of the institution are the factors that configure the image to be provided by the employees with respect to their own organizations, culture structure, vision and the image taking place out of the institution (Dowling 1997). In order to create an image of a strong organization, the needs of the employees and their expectations from their organization should be covered. Employees generally need a vision and be proud of their jobs. Again, the employees expect a shared organization culture, a communication climate operated by all aspects and career opportunities (Schutz and Cook 1986). Employees will be able to experience an internal transformation in compliance with the process. Structural premises interact with personality traits and empower employees while they also ensure development of attitude against the condition. As a result of this transformation, they will be able to acquire a role where they can express and represent themselves in this uncertain atmosphere or newly established balance. These effects lead to social identity formation of individuals and are reflected to observable and organizational outputs through an external representation process (Uslu 2014). The employees in the process first experience an internal transformation and get repositioned and then externally describe themselves through this new identity and move towards outcomes (Fig. 1).

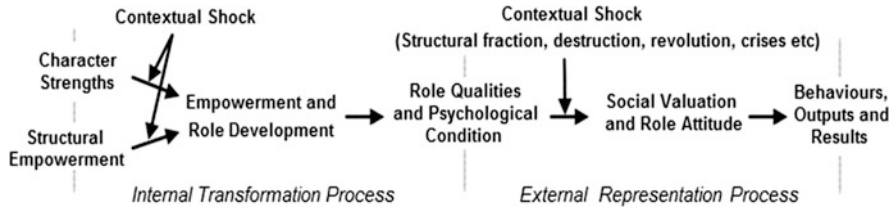


Fig. 1 Internal transformation and external representation process of employees

3.2 *The Role of Employees in Strategic Crisis Planning*

Employees want to make sure that they are safe particularly at periods of crises. They need to trust in their leaders and experience internal peace caused by loyalty to leaders. It is only in this way that employees can take an effective role for the organization to overcome short-term circumstances and resolve the crisis in a short time (Mitroff 2001: 19). The most important issue to give priority in preparing the crisis plan is to ensure maximum safety of the employees and to present them a psychological peaceful environment (Perra and Morrison 1997).

Other than that, the crisis plans should be able to root causes of crisis and what can one or more possible factors are. In addition, they should be able to prevent aggravation of emergency case and to cover possible serious outcomes (Harris 1996). Good management of crisis period refers to determining the factors of crisis in a restrained manner, to create crisis teams, to take corrective measures to avoid long-term problems and to make flexible emergency plan against a possible future crisis (Allen 1986).

In crisis conditions, creating an independent crisis team becomes useful in achieving a more effective solution. In addition to normal operations, tasks to be carried out with new groups to manage the crisis period become useful in reducing tension of employees and encouraging drive for success. These temporary and even independent working groups are the process of temporary coordination of managers at different units. These groups try to solve a distorted structure or a certain problem (Knowles and Saxberg 1988).

3.3 *Effectiveness of Organizational Communication in Recession and Reorganization*

Considering the fact that there may be conflict of authority at times of recession and the managers controlling the behaviours of employees may be changed or reduced, it is seen that trust and authorization at such times have a critical role for the company to perform its essential functions. On the other hand, the feeling of trust between management and employees decreases at times of recession. The main cause of it is that the employees start to doubt about the openness of the top

management and think that the management is concerned about its own needs, that the management doesn't do its job well and that the company is no longer reliable (Mishra 1998). Conflicts between employees, their thoughts on decisions made in the organization and concerns regarding work-related problems, hesitating to speak out about neglect and improprieties, could do serious damage to the institutions (Morrison and Milliken 2000). How the employees perceive the institutional management and communication methods are the determining factors in terms of job satisfaction and performance (Zhui et al. 2004).

When reducing the management expenses, one should be careful not to damage the basic function of the organization and not to create an excessive opposition among the employees (Chang and Campo-Flores 1980). The way of coping with recession is more critical for the success of the operation rather than the recession itself. The studies showed that the recession actions merely for reducing the number of employees usually ended up with failure. On the other hand, considering the criteria of increasing quality and minimum impact to employees, it is observed that the more success is achieved by the company by reducing its expenses in more comprehensive recession actions for changing the strategies, processes, control, product and services of the company (Mishra 1998).

The fact that there is a widespread perception among the employees that equality and justice are not observed in the relation environment and applications in the workplaces during process like crisis, narrowing or strategic cooperations causes an environment that has negative effect on the health of employees (Wilkinson 2001). Similarly, it is seen that many studies on mergers and acquisitions only deal with the financial function and strategy selection of mergers but ignore the ethical problems in this process (Lin and Wei 2006). This has a negative effect on employees. There are two ethical problems in the mergers and acquisition operations (Werhane 1988). One of them is the violation of the rights of employees as the employees lose their jobs after mergers. Another ethical problem is the violation of the shareholders. Although the shareholders are the people who are affected the most by the operation, they are little informed about their liabilities, obligations and benefits they will obtain from the merger.

An important element to prevent the formation of organization crisis is to ensure the flow of correct and sufficient information. Depending on the ability of the system, quality information within the decision process includes an effective information flow to avoid excessive loading in the system (Smart and Vertinsky 1977: 640). In order to obtain information on a crisis, one needs to hear all people in an organization. It is necessary to benefit at the period of determination of the crisis from the independent observer out of the business just like the people in the business (Augustine 1995: 29). The most important issue during the crisis is communication and exchange of information. Hence, most of the conflicts and problems in the process are caused by misunderstandings. When the case becomes problematic, the words to use should be selected more carefully, and the actions to take should be more meticulous (Coombs 2001; Goldsmith 2002). In addition, the crisis should be explained to employees with all causes of it during the process.

Information should be given on how the management will run the crisis and the measures to be taken should be explained (Mishra 1998). If the employees cannot receive replies to eliminate their personal concerns, they cannot show the performance expected from themselves in the crisis. The management should use the “mobile management” technique during the crisis period. The leader should speak to the employees and colleagues face to face and one to one. In addition, employees should be able to feel that the management cares about their expectations. The concerns of employees should be noticed by the management and their views should be listened and appreciated (Sherman 2001: 30–31). If the management acts with the feeling of responsibility and cares about internal communication, the employees will be the most willing and effective advocate of the organization. This will enable them to easily overcome the problems they face (Cohn 1991: 20). In addition, the communication between these people after the crisis feeds the roots of innovation (Hurst 1995).

4 Capacities and Strategic Manoeuvres That Provide Adaptation to Sudden Changes by Organizational Learning

The skill of an organization to expand its capacity to determine its own future has a very big importance during the crisis which is an unplanned development. The resistance of organizations that constantly improve themselves against sudden changes is higher. For this, however, the learning in the organization should be continuous, or one needs to start a process of cultural change which will radically change the learning approach. The learning organization is centred first of all on the change of mentality. A learning organization is a place that allows people to form and discover their own realities. How to change or reorganize is based on the constant expansion and organization of the capacity of a learning organization to determine its own future (Solomon 1994).

4.1 Reactions of Employees During Reorganization Process

Reorganization refers to rearrangement of physical and psychological areas of a business (Uslu 2015). It requires a comprehensive reorganization work to close the strategic gap caused by not following the innovations brought by change and to eliminate the destruction caused by crisis. If, in the present process of fast change, the organizations cannot show this sensitivity while they are required to be sensitive as an open system against every change, there will be strategic gaps, and irreversible expansion of the strategic gaps refers to the stage of crisis. The priority activity

by an organization at this level is to bring a new structure and understanding to the organization according to the changing conditions so that the organization can achieve its goals and objectives. In a sense, this is the process of reorganizing and addressing the management functions according to the external conditions (Dessler 1986). Reorganization refers to the radical transformation and redesign of work processes in order to realize radical improvements in the most important performance criteria of our age like cost, quality, service and speed (Hammer 1990; Hammer and Champy 1993). Reorganization process also affects the relations between the employee and organization. Lack of information by the employees about the future and their fear of uncertainty may cause a tendency of resistance against the transformation process. Employees may channel their energy to defend themselves and to swim against the stream by responding to this process instead of participating in and adapting to change (Uslu 2015). Therefore, it is critically important to make them a part of the process by informing and including for reducing the resistance by aligning the wheels of the organization to the same direction.

4.2 From Classical Management to Lean Organizations for Adaptation to Sudden Changes

Lean organization concept is another concept that is closely related with and emerging in practice as a result of the concepts like level reduction, zero hierarchy, shrinking and reorganization. Lean organization refers to the redefinition and organization of the functions, departments and processes to provide a positive contribution to value creation (Womack and Jones 1996). This concept involves the integration of the organization structure to make sure faster response to the quality and standards requested by consumers. In lean organizations, the prior objective is to exclude the activity and positions for creating added value and to make the decision maker and the one doing the job as close as possible. This is a structure that is free from details, not delaying works and able to give prompt reaction. The most important differences between “Lean” and “Fordist” production include a the creation of a working organization to make more use of the intellectual knowledge of the work force which is one of the principles of lean management (Lewchuk and Robertson 1997). Teamworks also involve the most important aspect of the lean production practices (Kirkman 1997: 735). The importance of lean organizations is increased due to the narrowing of time, necessity to take quick decisions and to show prompt reactions to the circumstances particularly during the periods of crisis. The lean organization model is an organization model that can promptly respond to change and that is away from centralization and hierarchy which supports the structural functionality of organizations for preventing or observing crises.

4.3 The Behaviours of Employees During the Stages of Strategic Alliances, Merger and Acquisition Process

Psychological problems during and after the structural transformations of strategic alliances like mergers and acquisitions cannot be known adequately as well as the differences in attitudes and behaviours of employees. In fact, mergers and acquisitions are a destruction process (Bruner 2004: 85). Researchers (Marks and Mirvis 1992; Cartwright and Cooper 1993; Schraeder 2001; Buono and Bowditch 2003) designate human resources problems and human and social dynamics during and after the change process as an important determinant of the success or failure of mergers. In addition, it is understood that low cultural adaption is an important cause of failure (Schoenberg 2000). The organization atmosphere (Schneider and Reichers 1983; Rousseau 1988; Ruppel and Harrington 2000) as an indicator of corporate practices, quality processes, employee practices, innovation and organizational factors (Hansen and Wernerfelt 1989) is an important descriptor of business performance.

Mergers have many direct impacts on employees. Because of temporary lay-offs, uncertainty, new company culture, management and job roles, mergers and acquisition affect millions of employees every year (O'Shaughnessy and Flanagan 1998; Griffen et al. 2007), and this reduces the performance and competitiveness of the newly structured organization (Weber 1996). Negative factors in the process are mostly felt in the departments or subdivisions that are discharged or divided the most (Uslu 2014: 310). The most frequent negative outcome of merger and acquisition process is the increase in employees' intention to leave (Krug and Aguilera 2004). Some of the other negative outcomes of change process are reduction in job satisfaction and organizational commitment in the one hand and increase of job stress, mistakes and restraints of employees on the other hand (Latack 1986; McHugh 1997).

Employees are bound to be seized by negative feelings mainly when their organizations are divided or their departments are discharged. The difference between positive organizational behaviours and emotional commitment to organization is in favour of organizations that undergo mergers and acquisitions rather than those that are divided or discharged. The reason is that when the department is divided, positive feelings and commitment to organization of employees may disappear (Uslu 2014: 315). Commitment to change and organization can be ensured as long as the executions during the process are managed fairly; organization has a positive approach to the reactions of participants to change and is able to integrate employees to the process (Wanberg and Banas 2000). In the process, the innovative approach of the management has an important role on employee psychology. At this point, what matters is that the innovative organizations have the ability to better manage the processes. Especially, the contribution of innovation to process management appears to be more than organization management and positive leadership approach (Uslu 2014: 317).

During the merger and acquisition process, employees become bound to face the increase of different approaches, systems and objectives in the post-acquisition integration stage where organizational transformation starts (Chakrabarti and Mitchell 2005). If the perceptions and expectations of employees on the process are negative, it is possible that they have negative attitude towards administration and start to work less efficiently as a result of reduction in their job satisfaction (Covin et al. 1996). In this period, more attention is needed for the requirements and requests of employees (De Cock and Rickards 1996; Bijlsma-Frankema 2001). In order to be able to reach the real value to be created by merger, it is understood that administrators need to manage the human aspect of change (Gertsen et al. 1998; Olie 1994; Buono and Bowditch 2003). Leadership approach is an important premise with respect to adaptation to change (Kavanagh and Ashkanasy 2006). In the process of merger, leaders should focus on creating openness, cooperation, moral and commitment by developing sense of belonging among employees. This leadership approach requires direction towards human resources, sociocultural problems and humane issues in order to be able to improve individual competencies and empower organization climate. Quinn and colleagues (1996) who put emphasis on developing, empowering and committing employees define this approach as a “human relations” point of view characterized by flexible guidance of individuals and focusing on the inner circle of organization. They advocate that leaders should feature mentorship and facilitate qualities during the process. A proper management of the process has positive effect on psychological ownership, emotional commitment to organization and job satisfaction of employees, while it has a negative effect on their intention to leave. In this process, the period with the most negative effect on employees is understood to be post-merger integration. Especially in this period, the positive effect of the ability of organization to manage the process and of the psychological ownership of employees is heavily noticed on job satisfaction (Uslu 2014: 7).

5 Conclusion

The most widespread strategic cooperations are mergers, acquisitions and assignments, joint venture and licence agreements. It is highly remarkable that these strategies take place particularly during and after crisis periods. As mentioned in the literature, the process of mergers and acquisitions may be a threat for the employees to maintain their organizational identities. Therefore, the operations of mergers and acquisitions need to be carried out specifically by pre-planning, supporting and improving positions of employees in the workplace. Employees will be able to experience an internal transformation in compliance with the process. Structural premises interact with personality traits and empower employees while they also ensure development of attitude against the condition (Uslu 2014: 278). It is seen that structured innovations in the process empower process management activities and reduces the organizational cynicism and intention to leave of employees (Uslu

2014: 309). Open and ethical communication of leader has also an important role on the organizational commitment of employees through process management (Uslu 2014: 310). As a result of the transformation, employees will be able to acquire a role where they can express and represent themselves in this uncertain atmosphere or newly established balance. These effects lead to social identity formation of individuals and are reflected to observable and organizational outputs through an external representation process (Uslu 2014: 270).

In general, the biggest negativities for employees in organizations that undergo critical processes like strategic cooperations are experienced in the post-merger integration process. Employees perceive weakening with respect to positive guidance within the framework of positive leadership and with respect to open and ethical communication especially in this period. Therefore, their work enthusiasm and target-oriented hopes can be broken. This causes a reduction in benefitting from the sources of the organization during the process of negotiation and contracting as well as a reduction of psychological ownership in the following integration process. In this period, organizational cynicism levels of employees increase, and their organizational commitments and job satisfactions get weaker (Uslu 2014: 316). Change and crisis management is also not a discipline that can be learnt in the middle of a storm. It should be learnt when there is no cloud in the horizon. Structural transformations are operations that need to be carried out by planning on the levels of organization, division and individuals before the process by the top management. Therefore, regardless of the fact that there is a merger, acquisition, assignment or discharge, it is observed that transformations, which are attempted without determining procedure, innovation and process stages, corporate infrastructure, organizational communication instruments, leadership approach and human resources practices, would fail (Uslu 2014: 318).

The priority activity of the management at the first stage of the transformation is to bring a new structure and understanding to the organization according to the changing conditions so that the organization can achieve its goals and objectives. In a sense, this is the process of reorganizing and addressing the management functions according to the environmental conditions. The leader of the change needs to create a programme characterized by flexible guidance of individuals focusing on the inner circle of organization and separate sub-plans for each period beginning from the first stage. These plans need to include the corporate and cultural transformation of the organization step by step as well as the compliance of employees with this transformation (Uslu 2014: 318). The categories of the programme include strategic activities, technical and structural activities, evaluation and diagnosis activities, communication activities and psychological and cultural activities. The strategies and plans of organizations should be reviewed in relation to moods of managers, supervisors and employees. Lack of information by the employees about future and their fear of uncertainty may cause a tendency of resistance against the transformation process. Employees may channel their energy to defend themselves and to swim against the stream by responding to this process instead of participating in and adapting to change (Uslu 2015). Therefore, it is critically important to make collaborators and employees a part of the process by informing and including for

reducing the resistance by aligning the wheels of the organization to the same direction. In the process, leaders should focus on creating openness, cooperation, moral and commitment by developing sense of belonging among employees. This leadership approach requires direction towards human resources, sociocultural problems and humane issues in order to be able to improve individual competencies and empower organization climate.

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The Role of Organizational Identity on Strategic Management Applications

Tuba Bozaykut Buk

Abstract The new millennium started with evident hints that strategic management is one of the most required skills for business success. Previous research has shown that as a competitive advantage factor, organizational identity affects strategic thinking, planning, decisions and actions. Based on the past research, at the core of this chapter lies the idea that organizational identity can act as a detector for identifying strategic issues and can be an influential factor in developing strategies in response to change. Moreover, a strong organizational identity is a valuable organizational capability that can create competitive advantage through its urge to adapt to changes. Conversely, a loose identity is weak in detecting changes or threats directed to the organization. Thereby, the chapter focuses on the interaction between identity and strategy when organizations face challenges in the turbulent business environment.

1 Introduction

The vital role of strategic management on business operations, performance and success becomes apparent especially in managing changes that arise in the environment. As the logic of strategic thinking requires adaptation to external change, it is pivotal for firms to develop the ability to cope with uncertainties and changes in the environment. Accordingly, firms can use various strategies for responding to changes or crises they face. Strategies can be either directed outward at industry dimensions or inward toward the internal processes of the firm (Chattopadhyay et al. 2001). As an internal capability, the identity of an organization is a facilitating factor in achieving competitive advantage and a “strategic tool” for positioning in the market (Stensaker 2015). Hence, identity is not an issue that can be separated from the strategic thinking of the organization.

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In relation to environmental adaptation, organizational identity is regarded as one of the important determinants of strategic action and provides a base for strategic responses to environmental pressures (Hatun et al. 2012). Past studies point out that organizational identity affects strategic issue interpretation, strategy formulation, strategy making and strategic action. Therefore, the concept of organizational identity within the strategic management field is described as a “generator for strategies, a screen, a constraint, a filter, an enabler and an influence on strategy”, thereby constituting a competitive advantage factor (Barney et al. 1998: 166).

This chapter develops a framework for understanding the role of organizational identity as an influential organizational feature on strategic thinking and planning in responding to changes or challenges. For this aim, firstly, the significance of the concept of identity and its definitions are briefly explained. Then, the chapter continues with a focus on the relationship between identity and strategy. Finally, the interplay between identity and strategy in times of change is discussed in order to provide a clear understanding of the interconnectedness of strategy and identity.

2 Organizational Identity

According to Social Identity Theory (Tajfel 1978), individuals define themselves according to various self-categorizations such as age, gender or religious beliefs (Ashforth and Mael 1989) and form collective identities based on social categorizations. Similarly, organizational identity is related to a sense of belongingness in organizations. Organizational membership is associated with organizational identity formation, but the main bond that links members to the organization is the emotional and cognitive attachment through which members are tied to that organization (Greene 2004).

Albert and Whetten (1985: 265) defined the concept of organizational identity as the “central, distinctive and enduring characteristic of an organization”. Dutton et al. (1994) contribute another perspective on this definition with their emphasis on the cognitive link formed between the individual and the organization. To Dutton et al. (1994), organizational identity is deeply constructed in the minds of the members, such that organizational identity is the sum of the individualistic evaluations concerning the general conduct of the organization.

In the literature, many authors refer to organizational identity as an answer to the question, “who are we as an organization?” (Stimpert et al. 1998). What’s more, identity “provides a lens through which managers interpret organization-level issues and conceive and disseminate strategic impulses to address them” (Hatun et al. 2012: 306). Thereby identity influences both members’ and managers’ interpretation of themselves, their organization and the environment.

Focusing on the identity construction process, Berger and Luckmann (1966) pointed out the association between social processes and identity formation. To Berger and Luckmann (1966), an organization’s social structure and social

exchanges play a significant role in its identity construction. From the perspective of social identity theory, the relationship with stakeholders as a pivotal social exchange form is acknowledged as one of the main determinants of organizational identity construction (Brickson 2005). Surpassing individual perceptions, an organization's social identity refers to "socially shared conceptions that define a common interpretive framework on group history or a shared sense of future direction" (Postmes 2003: 8).

Organizational identity is also constructed through transmitting organizational values that are directly linked to the identity. That's to say, identity is constructed through dialogues with other reference groups (Välilmaa 1998). Bostdorff and Vibbert (1994) examined organizational messages and put forward the idea that organizations strategically communicate certain values for public acceptance. The ways of developing a distinguishing identity, to Bostdorff and Vibbert (1994), are to advertise, to convey and to be an advocate for certain values that are to be associated with the identity. Bick et al. (2003: 839) supported the idea that organizational identity is "the communication of the core values, philosophy, and the strategy of the organization through the delivery of its products and/or services". Hereby, the construction of organizational identity refers to a dynamic process of discourse exchanges between insiders and outsiders (Coupland and Brown 2004).

3 The Interplay Between Identity and Strategy

To function as an organizational guide in times of turmoil, the strategic management philosophy should cover "the cognitive terrain of the organization" (Fiol and Huff 1992: 278). One of the major constituents of the cognitive terrain is organizational identity. Organizational identity is also noted as one of the strongest organizational capabilities that link members to the organization and shape their attitudes and behaviours.

Barney's (1991) resource-based view of firms is among the first approaches to emphasize internal capabilities as competitive advantage factors. To Barney (1991), firms can achieve competitive advantage by developing strategies based on internal resources that are "rare and can't be imitated or substituted". Similarly, Barney's (2001) later study showed that firms that develop their strategies based on intangible assets have better performances compared to those which develop their strategies based on tangible assets. To be competitive, then, organizational identity can be approached as one of the most valuable intangible assets for strategy formulation.

In Fig. 1, Barney et al. (1998) display the interaction between organizational identity, strategy and action. The reciprocal interdependence can be seen in the figure; both identity and strategy affect organizational action and are affected by it.

To Ashforth and Mael (1996), as an answer to the question of "who we are", organizational identity indicates the firm's service area and industry. In addition, organizational identity influences the strategic thinking that guides the organization

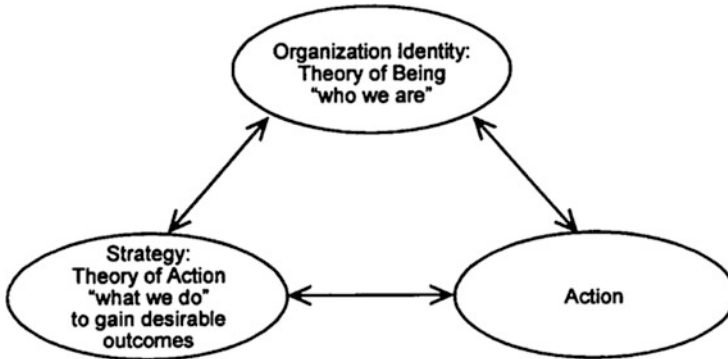


Fig. 1 The link between organizational identity and strategy (Barney et al. 1998: 114)

for competitiveness in the industry. In other words, by defining the organization's central and distinctive features through identity, the core competence and the attributes for attaining competitive advantage are also determined. For instance, a bank identifying itself as a participation bank indicates that it will operate in a different environment than a bank positioning itself as a commercial bank.

In their article on identity and strategy, Ashforth and Mael (1996: 19) explain the relation between strategy and identity as in the following lines:

Identity can serve as a wellspring for strategy, although identity and strategy are reciprocally related such that identity is enacted and expressed via strategy, and inferred, modified, or affirmed from strategy. Identity and strategy are claims that are articulated and negotiated by organizational stakeholders and members.

Ashforth and Mael (1996) also propose that the relation between identity and strategy is dynamic and bidirectional for three reasons. The first one is "the principle of equifinality", which suggests that "for realizing a given organizational identity, the firm can use various strategies and not stick to a given strategy" (p. 33). Secondly, for many different reasons such as weak identity, different self-interests or lack of organizational resources, the relationship between identity and strategy can be loosely coupled. The third reason, according to Ashforth and Mael (1996: 33), is the fact that an organization can reflect its identity through strategy and/or "may infer, modify, or affirm an identity from strategy and the responses it evokes". As an example, a financial institution that specializes in giving loans to entrepreneurs may identify itself as a "microloan" organization.

Similar to Ashforth and Mael, Corley (2004: 1157) in his study of organizational spin-off empirically shows that top management is more concerned with outsiders' perception of the organization, considering organizational identity as "a driver of organizational strategy". Top managers see organizational identity in relation to the organization's strategy and purpose and "as something that needed to adapt with the demands and constraints placed on the organization by outside forces" (Corley 2004: 1169).

Another point of identity and strategy relation is that they are significant resources for organizational control (Ashforth and Mael 1996). Members' identification with the organization means that they embrace the targets, beliefs and values of their organization as their own and act according to the organizational identity and values. Accordingly, identity and complementary strategies can be taken into account as "substitutes for costly control systems" (Ashforth and Mael 1996: 49).

In their study on the application of strategic management principles regarding identity management, Kruger and Mama (2012) propose a holistic model incorporating business strategy formulation with identity management strategy formulation. They approach identity as a "strategic resource, which can lead to improvements in an organization's internal processes and value chain" (p. 156) and argue that identity implementations should be "an integrated part of strategy formulation" (p. 158). The authors propose that a firm should first set its vision, mission and objectives, state its business question, analyse its competitors and industry, understand the threats and opportunities in the external environment and its internal strengths and weaknesses and then construct its identity.¹

Another aspect of the relation between identity and strategy is that the lack of a strong identity can have negative consequences on strategic planning (Ashforth and Mael 1996). The inability to construct an appropriate organizational identity would mean that the firm has difficulties in finding the right path to follow or may follow too many paths, wasting organizational resources. Another handicap is to have multiple identities construed in the organization that would create various identities and lead to conflicts of interest. In such scenarios, members who adopt a sub-identity would not follow the main objective of the organization. Further to that, as identity and strategy merge into each other, they become more "institutionalized in structures and processes" (Ashforth and Mael 1996: 36). Therefore, it is vital that there is coherence between identity and strategy.

4 Organizational Identity, Strategy and Change

The emergence of an unexpected external situation and a "mismatch between the corporate strategy and this new environmental trend" means that a company is facing a "crisis situation" (Appelbaum et al. 2012: 292). A time of crisis implies that changes will be experienced both in the environment and in the organization. Likewise, change can be defined as deviations "from the present state and moving to an unknown future state" (Fox-Wolfgramm et al. 1998: 87). On the other hand, organizational identity stands for "who we are", and because changes can distort perceptions, it may not be so easy to answer that question in a time of crisis. What's

¹Also see Kruger and Mama's (2012) recommendations for five steps to guide the application of strategic management principles in identity management implementations.

more, it is possible for firms to revise their strategies toward the external or internal environment, which in turn may affect organizational identity.

To Dutton and Penner (1993: 92), organizational identity defines what strategic issues are of top priority for firms and acts as a “cognitive filter” influencing members’ participation in the strategic change processes. Identity affects individual perceptions and may influence members to act in a certain way. When a change in strategies is in question, members may approve or disapprove of the process depending on the rationale of the organizational identity. In other words, organizational identity may determine the members’ willingness to participate in the changes. Dutton and Penner (1993: 93) also propose that if members notice an organizational identity-related issue that requires attention, they will be more motivated to put the issue on the strategic agenda of the firm.

In a similar manner, Kovoov-Misra (2009) asserts that perceptions related to an identity change can vary depending on members’ perception of the crisis situation. If members evaluate the crisis as an opportunity, they won’t oppose the change and will participate in the process. Conversely, if they see the crisis as a threat, then they will disapprove of the process and won’t support the identity change, wanting to stick to the values of the existing identity. Kovoov-Misra’s (2009: 494) findings showed that in threat situations, individuals will be more interested in perceptions of “who we are” and in opportunity situations “who we could be”. The pattern of reaction would be the same for strategy changes. If members see the strategy change as a threat to organizational identity, or if they see the change as something that would conflict with the principles of organizational identity, they may not accept the strategy change in the firm. This is called “identity resistance”: because of the change, a gap between current identity and the envisioned identity would occur and members would not leave the current identity (Dutton and Dukerich 1991; Elsbach and Kramer 1996; Fox-Wolfgramm et al. 1998).

Besides identity resistance, firms can witness “virtuous resistance”. Fox-Wolfgramm et al. (1998) describe virtuous resistance as the perception of evaluating the change unnecessary as it is “already a part of the identity”. To provide an example, Fox-Wolfgramm et al. (1998) examine a defender and a prospector bank’s reactions to regulatory pressures arising with the enactment of a Community Redevelopment Act. Echoing Greenwood and Hinings (1993), Fox-Wolfgramm et al. (1998) evaluate organizational identity as a determinant factor that influences responses and adaptation to the changes in the environment. To the authors, strategic orientation is another determinant of either complying or resisting environmental pressures. The defender bank identifies itself as a “small, and safe hometown bank” and firstly perceives the Act as a “big city issue” and not an issue for their concern (p. 106). When the Act is introduced, the prospector identified as one of the leaders in the market similarly doesn’t respond to the Act, but for completely different reasons. For the prospector, the resistance results from identity resistance. The identity of the bank does not fit the Act’s demands. On the other side, the prospector bank’s non-response relies on the idea that the bank is at its best in fulfilling the institutional pressures by leading others; hence, there is no need for a change (virtuous resistance). Based on their findings, Fox-Wolfgramm

Table 1 Summary of the previous studies

Author	Subject	Methods	Findings
Dutton and Penner (1993)	Importance of Organizational Identity for Strategic Agenda Building	Literature review	Organizational identity affects strategic change through its links to the processes of agenda setting Organizational identity systematically has effects on the perception of issues and their motivation to invest in and act on the issue
Fox-Wolfgramm et al. (1998)	Examination of a “defender” and a “prospecter” bank’s strategic adaptation to the Community Redevelopment Act across 7 years	Case study and printed documents and records from banks, regulatory agencies and community groups were used	Strategic orientation of organizations operates as “an interpretive structure resulting in (1) different reasons, based on the organization’s identity and image, for complying with or resisting institutional pressures for change and (2) different patterns of change in organizational structures and systems” (p. 102).
Kovoor-Misra (2009)	Perceived organizational identity (POI) on organizational members’ perceptions and behaviours during crisis and change situations	Case study	Individuals’ POI will “differ based on whether threat or opportunity is perceived during crisis and change situations The scope of POI change is also dependent on perceptions of identity cost and the identity gap” (p. 494).
Ravasi and Phillips (2011)	Strategic change and its congruent with organizational identity	Case study	Identity management is an important organizational mechanism that preserves the congruence between identity and strategic changes There is a significant “connection between identity claims and beliefs and strategic projections” (p. 103).

(continued)

Table 1 (continued)

Author	Subject	Methods	Findings
Appelbaum et al. (2012)	Organizational crisis and organizational change management	Literature review and a case analysis	Identification of firms has influences on strategic issue interpretation and strategy development processes
Hatum et al. (2012)	Organizational identity and its links with the processes of issue identification, strategic impulse definition and implementation	Longitudinal and comparative case studies	Organizations with strong identities are able to forecast relevant changes. They can answer back with definite adequate strategic responses Having a loose identity can cause misinterpretations of industry trends and strategic paralysis
Chatterji et al. (2015)	The competition between US banks and credit unions in the aftermath of the financial crisis	Secondary data on banks and credit unions from 2004–2012	Credit unions that had distinct identities from banks increased their market share after the crisis
Gerstrøm (2015)	Organizational identity constructions in times of death	Interviews with 20 organizational members of a bank that went bankrupt Documents were complemented by secondary interviews with other members of the financial industry	Legacy organizational identity and death are affected by each other. The narrative constructed by members can cover a legacy organizational identity transformation and can include several identities conflicting but combined into a coherent narrative

et al. (1998) propose that identity is more influential in sustaining change than success (Table 1).

Similarly, Ravasi and Philips (2011) assume that beliefs related to organizational identity influence how members project their organizational image to outsiders. To Ravasi and Philips (2011: 105), these projections, called “strategic projections”, are central to organizational image and should be consistent with the strategic actions of the firm. The threats and opportunities in the environment, known as “strategic

issues” (Ansoff 1975), are mainly detected by top management or the decision-makers in the organization. The interpretation of strategic issues as threats or opportunities is influenced by the features and values of the firm’s organizational identity. Based on organizational identity, events in the environment are evaluated as threats or opportunities; on the basis of these evaluations, strategic actions are taken (Sternad 2012).

Another feature of organizational identity is its degree of power in supporting strategy changes. Ashforth and Mael (1996: 53) emphasize Thomas and Gioia’s (1991) finding that a strong organizational identity provides the base for standing still when faced with external threats. Similarly, various studies show that a strong organizational identity is an influential facilitator for strategy formulation and action. As a clear example, Hatum et al. (2012) empirically show that a strong organizational identity confirms adaptation to severe shocks. Hatum et al. (2012: 328) describe the strength of an identity as “the permanence or dilution over time of core organizational values”, and in line with their definition, they evaluate organizations that can keep their original value labels permanent over time as having strong identities; conversely, they define organizations that lose their original value labels over time as having loose identities. The findings of Hatum et al. (2012: 306) imply that “strong identities managed to adapt in an evolutionary (i.e. gradual, non-turbulent) manner; conversely, organizations with loose identities could only adapt in a revolutionary (i.e. sudden, almost violent) way for survival”. Hatum et al. (2012) also find that identity plays a mediating role in issue recognition, strategic impulse definition and implementation in adapting to external challenges. On issue recognition, organizations with strong identities would have a clear vision and evaluate external challenges in a realistic manner. Those with loose identities would have difficulties in detecting changes and responding accurately. About strategic impulses, Hatum et al. (2012) argue that strong identities are advantageous in taking actions over the loose identities that can be myopic to changes. In implementing the selected strategies, Hatum et al. (2012: 328) evaluate strong identities as “the psychological anchor organizations required to perform smooth, evolutionary transitions”.

On the other hand, a strong identity can also result in “inertia or myopia” by limiting or preventing optimal responses to external threats or opportunities. A strong identity can be a factor in slowing down or hampering strategic changes, as in the prospector bank example of Fox-Wolfgramm et al. (1998). Bouchikhi and Kimberly (2003) define this situation as an “identity trap” because of its surpassing dominance over changes (Roch and Boivin 2006: 1). In her recent case study on the identity of a bank that went bankrupt during the global economic crisis, Gerstrøm (2015) shows how the positive perceptions of the organizational identity of the bank as “robust and risk-adverse” act as an identity trap and lead members not to see the crisis as a serious threat that would affect their bank. As a consequence, the bank couldn’t respond to changes or revise its strategies and collapsed as a result. Another example of the effect of identity perceptions on strategic actions can be found in Appelbaum et al.’s (2012) study on the organizational change management of two firms, Lehman Brothers and Paulson & Company, during the global financial crisis.

The study shows how two firms differed in their identification, strategic issue interpretation and strategy development in responding to the financial crisis. To Appelbaum et al. (2012: 297–300), Lehman Brothers' evaluation of itself as "too big to fail" and its assumption that there was no need for a change in their operations resulted in its collapse; conversely, Paulson & Company "was able to turn the crisis into an exploitable opportunity through proper identification and reaction".

As a final recent example, Chatterji et al. (2015) in their study on the influences of the recent financial crisis on market share for American banks and credit unions provide empirical evidence that credit unions gained market share from banks because of their traditional identities that are distinct from common banks. Chatterji et al. (2015) wrote that regulations in the field created an identity change for credit unions. Credit unions became more like banks and started to attract mainstream customers instead of narrowly defined social groups. To Chatterji et al. (2015) credit unions that address a particular group and have distinct identity features (such as single-bond credit unions) attract more customers and hence gained market share compared to common banks addressing everyone after the crisis. Based on their findings, Chatterji et al. (2015: 29) made the assumption that to the extent that credit unions keep their identities distinct from banks, they would benefit from legitimacy threats to banks. Conversely, to Chatterji et al. (2015) if they try to evolve their identities and resemble banks, they may lose their competitive advantage, become "indistinguishable" and be fragile and harmed further in future crises.

While new developments and changes occur externally, firms may need to change or revise their inner structure and organizational identity as a strategy to adapt to these changes. This can be also seen in the case of firm acquisitions, mergers, joint ventures, etc. The change process may be overcomplicated as identity clashes or identity tensions may occur (Appelbaum et al. 2012). In order to manage identity challenges during crises, it is important for managers to think strategically and implement strategies that would help to end these tensions. Therefore, managing identity clashes and tensions appropriately has a vital importance in overcoming the fatal effects of the challenges.

5 Conclusion

Leaving big question marks on their legitimacy, environmental challenges bear witness to the collapse of many institutions and enterprises. However, organizational identity as a valuable organizational capability can embrace and support the reformation of strategic thinking and activities in responses to the changes. Also, the interaction of identity and strategy is critical as both have their own ways of responding to changes in the environment. Moreover, both constitute the cognitive terrain of organizations in shaping the perceptions and behaviour of those involved in a firm's activities. Strictly speaking, identity and strategy influence each other, and the alignment of identity and strategy helps firms to reach organizational targets in a more efficient and effective manner.

The significance of organizational identity comes forth when challenges arise, as it can either help an organization to adapt to changes or act as a hindrance to change efforts. As it has a strong impact on perceptions and acts like an organizational detector, organizational identity highlights environmental challenges as strategic issues to be handled. Thereby, it acts as a sensing element for the organization in reading environmental changes and labelling them as strategic projections. In other aspects, identity can also act like a resistance mechanism to changes if there is a gap between the actual or projected identity and the strategies. Therefore, it is difficult to manage identity and strategy congruently, and further studies are needed to elucidate the relationship between the two concepts.

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The Importance of Trust for Partnership and Collaboration in Volatile Economic Conditions

Nurullah Gur and Nihat Alayoğlu

Abstract Volatile economic conditions are painful for most firms. Firms struggle to survive when market demand is sluggish, uncertainties are high, and credit conditions are tight. Therefore, maintaining and strengthening partnerships, retaining existing customers or finding new ones through innovation, and finding external finance are extremely vital to keep firms alive during volatile economic conditions. In this chapter we argue that trust plays a key role in protecting strong relationships with partners, customers, suppliers, and other actors or when developing new relationships. Trust might help to protect partnerships and establish collaborative relationships by mitigating asymmetric information and free-rider problems, allowing for more open and honest information sharing and restraining opportunistic behaviour.

1 Introduction

Volatile economic conditions mean high levels of uncertainty, limited access to finance, low-risk appetite, and depressed markets. Economic crises and downturns have negative effects on firms' performance in different ways such as: (1) reduction in the demand for products, (2) reduction in liquidities in the financial system, (3) increased uncertainties as to future developments, and (4) impacts due to changes in innovation policy (OECD 2012: 24). It is difficult for firms to survive in such an environment; however, firms are living organisations, and one of their

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fundamental goals is to maintain their continuity and transfer it to following generations.

Firms are more likely to go bankrupt within a volatile economic environment. For example, Bhattacharjee et al. (2009) find that a sharp increase in inflation and depreciation of currency causes higher firm exits in the UK. Deteriorating credit market conditions serve as one of the main reasons that cause an increase in firm bankruptcies. Firms that are more vulnerable to deteriorating credit market conditions, and that have low access to finance, are less likely to survive during economic downturns (Clarke et al. 2012; Hallward-Driemeier and Rijkers 2013). Volatile economic environments also hamper entrepreneurship. Klapper and Love (2011) find that the global financial crisis reduced entry rates for new firms.

Maintaining and strengthening existing partnerships is crucial for firms because dissolving a business partnership means either a reduction in firm size or a deterioration in firm performance. Both conditions can shorten the life cycle of a firm. Firms that cannot maintain their dynamism and compete with their rivals cannot deal with the pernicious effects of economic crises. Therefore, firms should turn such crises into opportunities and renew themselves. In this regard, collaboration is important significantly. Conducting joint R&D projects with universities, research centres, and other stakeholders, and making innovations, can serve as a smart strategy for firms to get ahead of competitors during economic crises and downturns. Trade credit, which is a type of financial collaboration between firms, plays a vital role in overcoming financial difficulties in volatile economic conditions.

To stand firm against economic crises or downturns, firms need to strengthen their partnerships, preserve their external financing opportunities, and make innovations. Trust between business partners is necessary to protect partnerships from the pernicious effects of economic crises and downturns. Trust might also provide support to firms by increasing external financing opportunities and promoting R&D collaborations. Therefore, a high-trust culture could enable firms to overcome economic crises and downturns with the least amount of damage. In this chapter, we will analyse the importance of trust for partnership and collaboration in volatile economic conditions.

2 Partnership and Collaboration as Stabilising Factors

Partnership, which is known to have existed since the early ages as an outcome of the actions of people who wanted to create an alliance for commercial activities, can be defined as an alliance between two or more people in the framework of an agreement on several conditions for the purpose of making an economic and monetary enterprise with capital and labour (Halis et al. 2010a) and for the purpose of making and sharing profits in accordance with either specific or legal criterion determined (Aras 2012).

In today's world, forming healthy and sustainable "partnerships" is one of the most important needs under consideration for both national economies and

businesses. In particular, partnerships that form due to the merger of companies in the same sector provide many advantages in business enterprises such as production proliferation, professionalism, growth, and opportunity to use new technologies (Alayoğlu 2008).

In addition, firms will be able to protect themselves by forming partnerships or alliances against any possible threats caused by the uncertainties in the market. They will be able to minimise the transaction costs that might emerge with the efficient management of opportunities. Furthermore, it might be possible to develop new opportunities that will contribute to the competitive power of the firm by creating synergy with the help of a common organisational mind, and new initiatives might be triggered (Halis et al. 2010b).

It can be said that the importance of partnerships is even greater from the perspective of national economies in matters such as transforming small savings into investment and production, opening up new areas of employment, using idle resources in a way that can produce value added, and making society more dynamic. In this framework, partnership is an opportunity for potential resources to transform into work, and it is one of the most important instruments in the development of the country (Alayoğlu 2008). This is because the formation of partnerships means new workplaces, employment opportunities, more tax revenues, and an increase in the GDP of the country (Arat 1998).

The growth of an economy is only possible through the success and stable growth of existing companies—in other words, by ensuring their continuity. Forming a dynamic and stable structure of small- and medium-sized businesses is necessary for developing countries to build large-scale national business enterprises that can compete worldwide (Iraz 2006). In turn, for this purpose, in addition to the formation of new structures via the mergers of small-scale enterprises, encouraging small sums of capital to join and form medium- or large-scale and stronger firms and creating legal and administrative regulations that could contribute to the health and sustainability of these partnerships are important. It should not be forgotten that the strength and health of an economy is measured by the strength and health of the businesses that constitute it (Alpugan et al. 1990).

In today's competitive environment, the chance of competing in the market and overcoming the uncertainties for a single firm, either in national or international markets, is getting lower. Considering such circumstances, forming partnerships will strengthen the ability of firms to compete and enable them to reach their goals in a much easier way (Durak 2011). Therefore, to maintain their positional market strength, firms see the establishment of a partnership or collaboration among firms as an exit through which to eliminate the risks and uncertainties produced by the competitive environment (Halis et al. 2010b).

Building collaboration with different stakeholders is also crucial for firms to survive and compete in today's competitive environment. Firms should easily be able to access resources (especially financial resources) and should be open to new developments and innovations. Firms should monitor changes in the markets and respond to such changes instantly; however, firms cannot do all of this alone and

need to collaborate with others. This is especially true during volatile economic conditions.

Firms need to turn crisis into opportunity. Therefore, it would be beneficial for firms to work together with other firms and/or universities to conduct pioneering research or develop creative-destructive products. Empirical studies show that collaborative R&D networks increase firm performance (see Belderbos et al. (2004) and Aguiar and Gagnepain 2015).

A helping hand from trade partners is also vital, especially in overcoming liquidity constraints during volatile economic conditions. Trade credit is a type of financial collaboration. There are empirical papers showing that trade credit promotes firm and industry growth (see Fisman and Love 2003 and Ferrando and Mulier 2013). The importance of trade credit increases during times of economic crisis.

3 Trust Effect

It is important to have a strong relationship with partners, customers, and suppliers and to develop new forms of cooperation with other firms or universities when the landscape of the economy is volatile. Trust plays a key role in protecting strong relationships with partners, customers, suppliers, and other actors or when developing new relationships.

What do we mean when we talk about trust? In one of the most comprehensive definitions, Bromiley and Cummings (1995: 223–224) define trust as “an individual’s belief or a common belief among a group of individuals that another individual or group (1) makes a good-faith effort to behave in accordance with any commitments both explicit or implicit, (2) is honest in whatever negotiations preceded such commitments, and (3) does not take excessive advantage of another even when the opportunity is available”. It has been well established that trust has a positive effect on business performance by reducing transaction costs, limiting the free-rider problem, restraining opportunistic behaviour, and enhancing cooperation (Fukuyama 1996; Bloom et al. 2012).

In this chapter we analyse the importance of trust during volatile economic conditions. We mainly focus on three channels through which trust matters and business performance during bumpy economic times.

3.1 Trust and Partnership

Theoretical studies suggest that partnership is a variable that is highly dependent on trust. Since trust is a norm heavily affected by culture, the partnerships and behaviours of the partners are highly likely to be influenced by the existing culture as well (Halis et al. 2010b). In an economic environment, trust should exist between

an employee and employer and a producer and a customer (Inam 2003). Indeed, one of the most important factors that facilitates economic activities and operation of partnership rules is to establish the dominance of the feeling of trust (Alayoğlu 2008).

Trust is a positive emotional and cognitive response of a party who is willing to rely on the actions of another party in case of a risky situation. This response (i.e. trust) is crucial in terms of shaping our predictions or expectations about people by taking their behaviours and intentions into account (Halis et al. 2010b). In companies that are not based on one-person ownership, each of the shareholders should consider that any action to be taken concerns others as much as themselves and should act accordingly (Genç 2007). Partnerships in which trust has not been established are doomed to eventually break up, no matter how big their business volume is or how high the profits and earnings are (Buladi 2006). Trust increases tolerance among partners, leads to more efficient communication, and helps in avoiding conflicts and clashes between partners (Halis et al. 2010a). Zand (1992) argues that trust increases the effectiveness of joint problem-solving. In an empirical paper, Mohr and Spekman (1994) find that trust improves the success of partnerships.

Firms should monitor their environment to acquire more accurate and reliable information to respond to threats and opportunities expeditiously (Krishan and Martin 2006). On the one hand, trust might increase knowledge sharing between partners or between firm owners and their suppliers and thus accelerate firms' responses to changing market conditions. On the other hand, relying more on information that comes from trusted partners might bias expectations and thus facilitate incorrect decision-making. McEvily et al. (2003: 97) explain this dilemma as follows: *“When knowledge is received from a trusted source, the receiver is less likely to verify the knowledge for accuracy and is more inclined to accept the knowledge at face value. This allows the receiver to immediately act on the knowledge and use it to generate additional knowledge... Such shortcuts in knowledge acquisition can speed organisational learning, alertness, and responsiveness... At the same time, there are limits to the effectiveness of sharing knowledge solely on the basis of trust. Even the most reliable and best-intentioned source can mistakenly share knowledge that is inaccurate, invalid, or outdated. This is one reason why organisations that rely excessively on trust as an organising principle may experience strategic blindness, overconfidence, inertia, or the inability to innovate.”*

Using survey data from 126 international alliances, Krishan and Martin (2006) find that trust has a positive effect on alliance performance; however, this effect is weaker under high environmental uncertainty. This result confirms that strategic blindness, as described by McEvily et al. (2003), causes problems when environmental uncertainties are high. Therefore, although trust is helpful in increasing the effectiveness of joint problem-solving and knowledge sharing, the problem of strategic blindness should be taken into account by partners.

The ability to speak in a straightforward manner forms the basis of trust and reliance in a partnership. In today's world, transparency in regard to speaking has a

significant place in business life. It is a fact that, in partnerships, the insufficient establishment of transparency can be a source of conflict and disagreement between partners. In particular, when shareholders that are outside management cannot acquire information about their company, this can lead to disagreements between partners, a lack of confidence, division, and accusations of cheating (Alayoğlu 2008).

Empirical papers also confirm the importance of partnerships and transparency for firm performance in volatile economic conditions. Using a sample of 644 nonfinancial firms listed on the Korean Stock Exchange during the East Asian crisis, Baek et al. (2004) examine whether firm ownership or corporate governance affects firms' performance during a time of crisis. They show that firms with less concentrated ownership by family shareholders, greater transparency, and more sources of external financing experienced a lower drop in the value of their equity in the stock market. These results indicate that firms can survive and perform better during economic downturns by forming partnerships with outsiders and being more transparent. The protection of minority shareholders also matters in lessening the impact of a crisis. In another empirical study of the East Asian crisis, Johnson et al. (2000) find that countries that protect the rights of minority shareholders faced less severe exchange rate depreciation and stock market turmoil during said crisis. Using firm-level data from 35 countries, Lins et al. (2013) find that family firms underperform significantly relative to other firms during the global financial crisis (2008–2009) in terms of the amount of investments and stock market returns.

3.2 Trust and Innovation

Uncertainties over market conditions and shaky financial markets hinder R&D activities and, thus, innovation by reducing demand, increasing financial constraints, and worsening expectations during unstable economic conditions. Public support, which is one of the most important drivers of R&D and innovation, also generally shrinks due to austerity measures taken in a time of economic crisis. This is what happened during the global financial crisis.

Even so, crises do not always reveal a pessimistic picture of innovation. For those who have the capability and courage, crises also offer the opportunity to take risks and make changes. Global giants such as Disney, Microsoft, Hewlett-Packard, Oracle, and Cisco were established during economic downturns (OECD 2012). The steam turbine, transformer, radio, refrigeration, magnetic tape recording, the first working helicopter, and nylon are some of the major innovations that were made during economic downturns (Florida 2009).

The famous economist Joseph Schumpeter (1942) sees innovation as an activity that takes new entrepreneurs, firms, and industries to the stage in which new products and production techniques vanquish outdated ones. This process is called "creative destruction". Therefore, crises might provide an opportunity for

entrepreneurs, firms, and industries to be on the winning side of the creative destruction process.

The conducting of R&D requires collaborative effort. Therefore, it is necessary for entrepreneurs and scientists to combine their talents to conduct pioneering research or develop a creative-destructive product; however, conducting joint research carries the risk of technology leaks, information theft, and reputation loss (Frost-Arnold 2013; Bien et al. 2014). For example, in university-industry (U-I) research collaboration, firms might fear that universities might leak their firm-specific knowledge to competitors within the same industry. The free-rider problem is another potential issue in joint scientific and technological research, in which partners may act to capture the greatest benefits from the partnership by contributing the least amount of resources (Bromiley and Cummings 1995).

There are mainly two methods to mitigate these risks and, therefore, organise research networks. The first one is based on third-party enforcement of agreements, such as contracts. Contracts act as safeguards to protect licences, investments, and patents in such joint research partnerships. The second method relies on building trust among partners. Trust enables the reduction of not only transaction costs, by replacing contracts with handshakes, but also agency risks by replacing the fear of cheating and evasion with mutual confidence (Adler 2001). Trust mitigates information asymmetries by allowing for more open and honest information sharing (Zaheer et al. 1998). Trust also increases the willingness of research partners to understand each other and allows for behavioural adjustment according to the needs and expectations of partners (Santoro and Gopalakrishnan 2001; Bruneel et al. 2010).

It is difficult to package all possible issues and specify the legal consequences of such issues into a single contract (Williamson 1971). Trying to do this can cost a lot. Therefore, the creation of contracts does not always prevent opportunistic behaviour. Besides, as the knowledge intensity of research, or a product, increases, contract monitoring becomes very difficult (Gilsing and Nooteboom 2006). In this case, trust becomes even more important to reduce the need for, and cost of, monitoring agreements (Bromiley and Cummings 1995).

Empirical literature provides evidence that confirms this prediction. Using regional-level data for 14 EU countries, Akçomak and Weel (2009) find that innovation is higher in regions where trust is higher. In a firm-level study for the UK, Bruneel et al. (2010) examined whether trust affects perceived barriers for U-I R&D collaboration. They considered two types of barriers: orientation-related barriers (e.g. a mutual lack of understanding about expectations and working practices) and transaction-related barriers (e.g. potential conflicts with the university regarding royalty payments from patents or other intellectual property rights and concerns about confidentiality). The authors found that trust is negatively related with both orientation-related and transaction-related barriers.

Trusting employees might be also important for innovation activity. Nowadays, a number of firms provide their employees with the opportunity to arrange their own working hours rather than adhering to a standardised schedule. Godart et al. (2014) argue that trust-based work practices might foster the development

of new ideas and thus increase innovation by reducing time pressure and increasing job satisfaction. Using panel data on German firms, these authors found that firms using trust-based working time arrangements tend to introduce new products or improve upon existing products.

3.3 Trust and Trade Credit

Trust is also crucial for the sustainability of one's relationship with customers and suppliers in a volatile economic environment. Here, trust affects the customer-supplier relationship mainly through the trade credit channel. Trade credit is a type of financial agreement wherein a customer can buy goods and services in a way so as to pay for the materials purchased in the future (generally after 30, 60, or 90 days). This is not a formal credit agreement, but an informal one based primarily on trust. A typical firm can offer or demand trade credit. Accounts receivable represents the total amount of money that a firm has a right to collect arising from the sale of products or services on credit to its customers. Accounts payable are liabilities of a firm arising from buying goods or services on credit from a supplier.

Trade credit plays a key role in providing finance to financially constrained firms because suppliers have more advantages than financial institutions in overcoming asymmetric information and enforcement problems (Petersen and Rajan 1997). This is especially true in a volatile economic environment (Love 2011). Liquidity shrinks suddenly when economic uncertainties rise. Banks become reluctant to lend to the real economy since, not only does it become difficult for them to assess the financial positions of the firms during foggy weather, but they also prefer to implement a wait-and-see policy. Trade credit might be substituted for bank credit during troubled times. Using data on Spanish firms over the period from 1994 to 2010, Carbo-Valverde et al. (2016) find that small- and medium-sized enterprises (SMEs) are heavily dependent on trade credit during a financial crisis.

Nevertheless, empirical evidence suggests that trade credit might also dry up when expectations worsen. Love et al. (2007) focus on the Mexican Peso Crisis (1994) and the East Asian financial crisis of 1997–1998 to analyse the effects of crises on trade credit. The results show that firms that had their financial positions negatively affected by a crisis tended to extend less trade credit to their customers; however, those financially vulnerable firms increased their own use of trade credit from their suppliers after the crisis. In another paper, Love and Zaidi (2010) examine the effect of the East Asian financial crisis on the use of trade credit among SMEs. They find that, after the crisis, firms that were excluded from obtaining credit by banks received less trade credit and shorter lengths of time in which to repay trade credit. In summary, these empirical papers indicate that an economic crisis negatively affects credit mechanisms not only through the banking sector but also through trade credit channels. Therefore, obtaining trade credit

becomes more difficult during a volatile economic environment, especially for SMEs.

Trade credit is based on the promise of future payment. There is also no collateral requirement in these transactions. The provider of trade credit takes the risk that the receiver will not pay in the future. The underlying logic and working mechanism of trade credit makes trust extremely crucial. Therefore, it is natural to expect that suppliers provide more trade credit to customers when the level of trust is high.

Empirical evidence supports this prediction. Using data on listed private firms in China and exploiting differences in the level of trust between regions of China, Wu et al. (2014) find that firms located in higher-trust regions received more trade credit from suppliers, extended more trade credit to customers, and collected receivables and paid payables more quickly. Levine et al. (2016) use firm-level data for 34 countries over the period from 1990 to 2011 to examine whether trust improved firms' resilience to banking crises through the promotion of trade credit. Their results show that firms that are highly dependent on short-term liquidity receive more trade credit and experience smaller drops in profitability and employment during banking crises in high-trust countries than similar firms in low-trust countries.

When the amount of trade credit shrinks, as in the case of an economic slow-down or a crisis, firms might be forced to reduce their capacities (Fisman 2001). Declining capacity utilisation could bring the economy to the brink of the abyss. When economic activity slows down, trust is needed for the survival of the trade credit mechanism and thus greases the wheels of economic growth. Trust might also support economic growth by encouraging firms to give trade credit in countries with dysfunctional financial markets, because empirical evidence shows that the role of trade credit in firm performance is more important for countries with underdeveloped financial markets (see Fisman and Love 2003).

4 Conclusion

Volatile economic conditions are painful for most firms. Economic activity shrinks significantly during volatile economic conditions, and it is difficult for firms to survive in such an environment. Firms struggle more when market demand is sluggish, uncertainties are high, and credit conditions are tight. Therefore, maintaining and strengthening partnerships, retaining existing customers or finding new ones through innovation, and finding external finance are extremely vital during volatile economic conditions. It is necessary to strengthen cooperation between business partners to keep firms alive during volatile economic conditions.

Moreover, firms should also increase cooperation with their suppliers, employees, and other stakeholders. Trust might allow partners to work in harmony and fight harder to avoid a shipwreck. Trust might increase R&D cooperation not only between universities and firms but also among firms themselves by enhancing

coordination, reducing free-rider problems and transaction costs, and restraining opportunistic behaviour. Therefore, new products and services will bloom. Trust might also reduce liquidity constraints of firms by fostering trade credit.

We do not claim that trusting your business partners will always increase firm performance. Too much trust will also cause undesired results such as being deceived or manipulated by business partners. In this chapter, we argue that if there is a high-trust environment in a business community or country, this will increase the probability of staying strong during volatile economic conditions.

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Complexity and Crisis Call for Shared Leadership and Empowered Teams

Huseyin Cirpan

Abstract It is a very well-known fact that firms are operating in a very volatile business environment. The success and failure of every type of organisation mainly depends on the quality of leadership, and the complexity of today's business environment makes leadership increasingly challenging. Many crisis management mistakes have been attributed to leadership failures. It is becoming almost impossible for any individual to possess all of the skills and abilities needed to competently navigate organisations through today's challenges. Complexity and crisis by their very nature call for looking at the leadership role from a new perspective and responding to the new reality differently to sustain a business.

Here, we will first explore the nature of complexity and crisis. By doing that, we illustrate the requirements of those situations in terms of leadership, and we move on to explain the concept of shared leadership and what is needed to apply it effectively. Since business culture is of vital importance in the effective application of shared leadership, we will delineate how leaders can create a culture that fosters empowerment for teams.

1 Introduction

Change has been with human beings since the beginning of history. What is different these days from previous years is the scale and pace of change. The scale of change is remarkable and the pace of change is incredible. These changes are occurring in the areas of technology, especially in communication technology, demographics, social/political changes and environmental changes (for an account of these changes, see Obolensky 2014). Recent research has predicted that the speed of current change is so fast that by the year 2025 people would see the equivalent of all the primary discoveries of the previous century (e.g. electricity, automobiles,

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space travel, the internet) in less than a week (Modis 2003, cited in Martin and Ernst 2005).

The first implication of these radical and rapid changes is that the business environment is far more shaky, volatile and unpredictable. This period has had the acronym VUCA, meaning volatile, uncertain, complex and ambiguous, applied to it (Kail 2010; Mack and Khare 2016). A lot of work has gone into developing models to understand and make sense of these without much success. People have more and faster access to what is going on around, and information is flowing in vast quantities. These models do not help to foresee the future and plan accordingly, due to the steep speed of changes.

On top of these changes, businesses find themselves in crisis situations stemming from internal and/or external forces that intensify the hardship organisations have to deal with. It may be feasible to discern some signs of the internal dynamics that are likely to cause a crisis. It is hardly possible to know what kind of ‘things’ will happen that disrupt our business. We may continue our business operations and think that we are doing everything right, but one day we realise that we have lost, as the Nokia CEO confessed in a speech (Jawabra 2015).

By their nature, crises and complex challenges are unexpected and unique occasions and ask for knowledge, capabilities and approaches that currently do not exist or are unknown in the organisation. As such, these challenges create new demands for leadership. The speed of change and complexity in today’s business environment make leadership more and more difficult, placing unreal expectations on leaders (Yukl 2006). Evidently, it is becoming almost impossible for any individual to possess all of the skills and abilities needed to competently navigate organisations through today’s challenges (O’Toole et al. 2002).

In this chapter, we explore how leadership is changing in the light of increasing volatility, unpredictability and complexity, both in society and the business environment. First, we look at the nature of crisis and complexity, and, following this, we explore what is required and needed to cope with complexity and crisis situations. As a response to complexity, shared or distributed leadership will be offered as a good way of navigating through it. Lastly, we analyse the culture of organisation in terms of the effective application of shared leadership. Empowering teams are concomitant with the effective application of shared leadership in an organisation. We provide some guidelines on how to create a culture that fosters empowerment, accountability and a sense of ownership for employees.

2 The Nature of Crisis and Complexity

As mentioned above, the reality managers face today is quite different from the past. Therefore, approaches that work well in one set of circumstances but fail in others are the result of the changes that have occurred in the world. One size-fits-all leadership is not an effective way of providing leadership.

Snowden and Boone (2007) developed a model called the Cynefin framework that helps leaders to understand the nature of real-world problems and respond to them in a more effective way. The framework is based on how clear the relationship is between the cause and effect of a situation. It classifies the issues facing leaders into mainly four categories, namely simple, complicated, complex and chaotic. The authors see that complexity is much more common in the business world of today and requires usually counterintuitive approaches. According to the framework, each category calls for different approaches and actions. Simple and complicated domains assume an ordered context, where we can perceive the cause-and-effect relationships, and, accordingly, leaders can decide on the right solutions. On the other hand, complex and chaotic domains are unordered, where the cause-and-effect relationship is not perceptible right away. For these domains, there is not an easy right answer to pursue, and what is needed is based on emerging patterns.

Complexity can be seen as many interconnecting diverse agents affecting each other in an open interactive process that cannot be controlled, directed or fully predicted. The interactions among agents are nonlinear. These parts, for example, customers, suppliers, the economy, technology or competitors in a business environment, act on their own and on their behalf and at the same time affect each other. Also, these parts are not isolated, but rather, interdependent parts of a dynamic complex system. Yet how interactions are managed by agents to influence the behaviour of the whole system is not well understood (Surie and Hazy 2006). As complexity increases through multiple interactions of agents, the ability to understand and use information to plan and predict becomes more difficult.

The interactions among parts of the system are so dynamic that they imply continuous change. The world we live in is far more complex than hitherto, changing faster and more uncertain than ever before. These changes are occurring so quickly that leaders cannot keep up. Although they are in charge of the organisation and accountable for the results of the decisions they make, they are not in control anymore, even if they try hard to present themselves as if they are in control. In fact, since followers in the system are part of the change process and, on the ground level, are experiencing the challenges they face, they may know much more than the appointed leader.

Another important implication of these steep changes is the shift of power from one single entity to many interaction entities of the market as a whole. Single entities like governments, big businesses and religious organisations have still some degree of power, but their power is limited compared to the aggregate power of the markets. So power has not only shifted but atomised, and most of the leaders of organisations feel themselves not really powerful and to be held in the power of the markets (Obolensky 2014).

Complexity implies that challenges are caused by any part of the dynamic system, and any small change in a part can have an impact on multiple dimensions of the system. This interaction makes it difficult to study and understand in a comprehensive way. Crises that occur are also complex in their cause and effect. Traditional research tools fall short in their prediction of what will happen and when it will (Manson 2001) As a result, the reality changes that one person sees will

change due to position and speed. So, there will be many alternative, even opposing, views on how to interpret the nature of what is happening around. People from different levels read the situation differently, and all involved have a partial understanding of what is actually happening.

The foremost and distinguishing feature of crisis and complexity is the novelty of the situation. What we face that we have not encountered before is unique, though it may look similar to or comparable with previous experiences we have lived through. As a result, complex situations challenge our basic assumptions and paradigms and defy existing solutions and approaches, and they require a new perspective and approach (Martin and Ernst 2005). Complex challenges force us to take urgent and decisive action, yet because the individual or organisation does not know how to act, what is essential is the capacity to read and understand the situation and improvise the approach as the reality emerges.

Every crisis specifically affects the standard of life, behaviour and the decision-making process; it also directly affects all management processes. It is a threat to people and their property, evokes a sense of uncertainty and fear, threatens the function of systems in the organisation, creates the need to solve problems urgently, may trigger unexpected behaviour in people, such as panic, and creates a growing need for the cooperation of teams and information to circulate from inside and outside the organisation (Herrera 2011).

As mentioned above, in complex and chaotic situations, the cause-and-effect relationship is not clear, especially in chaotic cases. Turbulence and unpredictability are the main features of these cases. The natural outcome of these is that the challenge an organisation faces goes beyond any formal structures of authority. The command-and-control mode of leading may exacerbate the situation. Furthermore, chaotic cases call for immediate action: there will be many decisions to make and no time to think. The assumption that a heroic leader is in charge and will rescue people and compel them to adhere to a command structure may actually hinder immediate and effective responses (Snowden and Boone 2007).

Chaotic situations require five strategic tasks that are not associated with any one leader. The first is to understand what is occurring, which is difficult in many cases. The second is to take immediate and crucial decisions. The third is to interpret the event and actions for others. The fourth is to take urgent action to reestablish order. And the last is to learn and look for new ways of doing things differently. These actions can come from both formal and informal sources (Boin, Hart, Stern & Sundelius 2005).

Various styles of leadership are required at different stages facing a crisis and in different contexts. In a crisis situation, one paradox people experience is that they look for someone to take charge and coordinate the overall effort, which is necessary to prevent panic and give assurance to them. Yet people on the ground are able to see what is needed and react more quickly. What happens in reality that when crises overwhelm the capacity of formal systems and structures, new leadership takes shape and emerging leaders step into the void, playing critical and improvised roles in rescue and rebuilding efforts (Rego and Garau 2007).

The characteristics of complex challenges can be summarised as follows (Rego and Garau 2007, p. 45):

- Complex challenges go beyond an individual's leadership capability. They require the involvement and interaction of others.
- Complex challenges potentially have a significant strategic impact if they are not properly navigated.
- Complex challenges require novel solutions. When standard solutions are not working, they signal that something different is necessary.
- Complex challenges demand flexibility and agility on the part of the leader and the organisation.
- Complex challenges create a paradox between the need for reflection and the pressure to act.

Based on the arguments mentioned above, it can be concluded that leaders face great challenges in responding effectively. Challenges are different in nature and require different mindsets and perspectives. Given the complexity and unpredictability of the environment today, organisations will not survive long unless they have the necessary skills, abilities and creative people who comprise their social capital, even if people in leadership positions are highly gifted, intellectually minded and charismatic. Due to the different nature of challenges leaders face, people who are in charge will need to discern when to share power and when to use it on their own, when to turn to the wisdom of people around and when to follow their own guidance (Snowden and Boone 2007; Obolensky 2014).

When we face complex challenges, the imposition of the solutions from the top down will not work; instead leaders in formal positions allow solutions to emerge from the organisation, teams or community, depending on the context. Since our subject is complex challenges, we will look at the shared leadership approach as an effective response to increasing complexity and uncertainty and then move on the characteristics of creating a culture of empowered teams, which is the critical part in applying this approach.

3 Shared Leadership and Its Components

The traditional stream of leadership development prepares managers for an environment of certainty, whereas they now have to deal with increased complexity, uncertainty and turbulence (Mason 2007). The usual authoritarian, control-based leadership style, when applied in an unordered context, can lead to the destabilisation of relationships and behaviours (McElwee, cited in Mason 2007). Following same line of thought, Pearce (2007, p. 355) has pointed out: 'As organisations have steadily progressed into the knowledge economy we can no longer rely on simple notions of top-down, command-and-control leadership, based on the idea that workers are merely interchangeable drones'.

What is needed is a complex approach of leadership that involves transformation, facilitation or influence. And leaders establish the conditions in which individuals, groups and the system as a whole are encouraged to respond spontaneously to the changing environment (Fitzgerald and van Eijnatten, cited in Mason 2007). In other words, leadership in a complex and chaotic context should be natural and emerging, with leaders focusing on creating an internal environment conducive to co-creation, co-inquiry and co-evolution. Power should be distributed in a way that enables people make decisions autonomously, take risks and try out new ways of thinking. Managers must support this approach by providing timely and necessary information, and employees must control themselves. This process is called self-organising management (Mason 2007).

In searching for a new type of leadership to respond to the new reality and challenges of today, many people underline how the leadership role in organisations does not belong only to a single, central leader sitting at the top. As a result, leadership is accepted as a role 'shared' by individuals or teams at any level across the organisation. For this process, different names are offered in the literature that mainly refers to the same notion of shared leadership: shared leadership, collective leadership and distributed leadership are used interchangeably. Since it is not within the scope of this work to give a full account of how leadership has evolved over the years and what leadership theories are, we only consider here the concept of shared leadership and its components. Crevani et al. (2007) compiled a list of arguments in favour of shared leadership practices. The list can be seen in Table 1.

First of all, it should be emphasised that shared leadership does not deny the role of leadership. It only challenges the notion of a leader as one single individual sitting at the top of an organisation or the notion of leadership as something that is executed by any single individual. When we talk about leadership, we tend to think of a heroic, gifted individual achieving a desired target despite all the hurdles encountered along his/her way. The questions of whether we need leaders at all or whether leadership functions need to be fulfilled by people in managerial positions seems to need exploring.

Answers to these questions may change according to the definition of leadership. Leadership can be defined as having an impact, whether it be positive or negative or whether it has a narrow scope or a wider perspective. According to this definition, we not only need leadership but also leadership is inevitable. Moreover, we can claim that *everyone is a leader* in his/her influence area. We generally associate leadership with the positive and wider scope impact. What is important is the content and function rather than the magnitude. This definition also differentiates the process from the position. Leadership is a process not a position. At all levels in organisations, groups, communities or society, every single individual, regardless of their position, has a power or capacity to have some degree of impact on others or the system through interacting with other parts of the system. What is essential to understand here is that to create such an interaction process among people, the system as a whole must respond effectively to the changing environment and produce the desirable results by contributing to the best of every single individual's

Table 1 Summary of arguments in the literature in favour of shared leadership practices (for references, see Crevani et al. 2007)

Perspective	Arguments found in the literature
Individual perspective (shared leadership as a way of enhancing the lives of those who work in managerial positions)	<ul style="list-style-type: none"> • Solo leadership consumes people, and there is a risk of a high level of stress and anxiety • Enhanced balance of work requirements and personal responsibilities/private life • Better sense of security and stability in decision making and implementation • Enhanced possibility to learn having the co-leader as an example and as a feedback giver • More enjoyable work
Co-worker perspective (shared leadership as a way of enhancing the correspondence between employee expectations and actual organisational practices)	<ul style="list-style-type: none"> • Young people are used to working in teams with some degree of shared leadership. When they rise to higher organisational levels, they are more likely to want to continue sharing leadership and resist traditional solo command • Expectation for co-leadership created by the experience of living in modern (at least Western) family models, where both parents participate in decision making, reinforced by experiences of working in teams • Young employees expect more democratic leadership in modern organisations
Organisational perspective (shared leadership as a way of enhancing leadership effectiveness)	<ul style="list-style-type: none"> • Single-person leadership cannot reflect and handle the environmental complexity facing most organisations. Several different competences, skills and roles are required • Communication between professions can be enhanced through mutual leadership • Shared leadership means that more parts of the organisation and different interests can be represented at the same time at a managerial level. One consequence can be facilitation of change processes • Both stability and change can be represented by a dual leadership, thereby facilitating organisational change • Lower risk for suboptimal solutions if the leadership of an organisation is truly shared by the management team • Less vulnerability in the case of leader absence or resignation • Co-leaders can have a larger span of control together and more time for their co-workers and for reflecting on the strategy and the basic values for their unit • Organisations can avoid losing young, interesting leader candidates because of stress associated with leader posts • Organisations can benefit from the cognitive and behavioural capabilities of a larger number of individuals
Societal perspective (shared leadership as a way of maintaining and increasing the legitimacy of leadership and management)	<ul style="list-style-type: none"> • When power is too concentrated, it may result in immoral and/or illegal actions taken by individual leaders struck by hubris • Shared leadership increases the possibility of including minorities into managerial positions, thereby increasing the legitimacy of leadership

ability at all levels (Lichtenstein et al. 2006; Kimsey-House and Kimsey-House 2015).

Following the line of thinking above, shared leadership can be defined as ‘a relational, collaborative leadership process or phenomenon involving teams or groups that mutually influence one another and collectively share duties and responsibilities otherwise relegated to a single, central leader’ (Kocolowski 2010, p. 24).

Carson et al. (2007, p. 1222) proposed that ‘shared leadership is facilitated by an overall team environment that consists of three dimensions: shared purpose, social support, and unified voice’. Wood (2005, p. 76) studied top management teams in churches with three or more pastors and determined that shared leadership involves four distinct dimensions: ‘joint completion of tasks, mutual skill development, decentralised interaction among personnel and emotional support’. He found that while ‘empowering team behaviors related positively with shared leadership’ (p. 64), surprisingly, team structure (horizontal) did not have a significant effect on shared leadership.

It seems obvious that shared leadership requires a specific approach and certain awareness to create the conditions in which individuals, teams and the system are facilitated to respond spontaneously and naturally to the fast changing environment and increasing complexity. Based on the literature research, some core components of shared leadership can be identified:

Embracing Complexity The first component is accepting complexity as a way of thinking and not something unusual that will go away. We are trained to think in terms of simple causation: A leads to B, B leads to C. The world of complexity is much more about playing and considering various simulations than it is about linear A to B planning. Entering the world of complexity, we must completely change our approach, envisioning multiple formal and informal connections, hidden potentials, latent tendencies, leverage points for initiating the chain-of-change and ways of empowering others (Praszkier 2015). Embracing complexity means that imposing a solution or order will fail; what is needed is to create an environment and experiments from which good solutions can emerge (Snowden and Boone 2007).

Scanning for Changes in the Environment As mentioned above, firms are open systems and always interacting with their environment; paying attention to changes and developments is of critical importance to being able to respond to the relevant ones. This is not the role of the leader sitting at the top of the organisation. On the contrary, at all levels, employees can sense and interact with the environment. ‘As they are merged or linked with each other, they help leaders to expand on their abilities to navigate through challenges. As they combine and recombine through individual and collective experience, they become organisational capabilities for leading through complexity’ (Rego and Garau 2007, p. 46).

Accepting Everybody as a Leader Since shared leadership is about distributing the power and functions of leadership among members and represents a shift away from the concept of a top-down approach, every individual has the potential to have

an impact on business and may be called upon to play certain functions at certain times (Drescher et al. 2014). Accepting everybody as a leader also means that leadership cannot only be done by being in front or at the top; there are other ways of leading, regardless of one's position in the organisation (Kimsey-House and Kimsey-House 2015).

Building a Creativity-Enabling Milieu Businesses in today's age of ecosystems need to be creative. Firms need to reinvent how they create, deliver and capture value, especially vis-à-vis the growing importance of increasing added value (Satell 2014, cited in Praszkiar 2015). Through creativity and innovation, organisations will be able to have the ability to find new ways to develop and apply novel strategies to complex business challenges.

Mastering Social Capital The essential component for triggering the process of change through empowerment is building social capital. Social capital is considered to be a critical factor in the ability to sustain bottom-up mechanisms (Fredette and Bradshaw 2012, cited in Praszkiar 2015). Trust plays a concrete role in creating social capital, facilitating interactions among members and producing more results, thus creating a productive cycle of higher trust yielding better results, which, in turn, reinforces trust levels. Trust levels are also very critical in terms of empowering employees to own matters and share the responsibility of leadership. Trust is also crucial for encouraging employees to take risks and try new things out with any fear of being judged.

Developing Social Empathy Social empathy in a relationship enables people to tune into each other's inner worlds, hidden dreams and desires, as well as pain. As a result, leaders may discover latent potential or dormant tendencies and identify potential leverage points that can be used for triggering the chain of change (Praszkiar 2015).

Loosening Structures: From Silos to Adaptive Systems In changing from top-down to bottom-up processes, the work organisation needs to shift. Most businesses are traditionally organised according to two basic themes—functions (marketing, finance, etc.) and hierarchy (top, middle and lower levels). This way of working is too slow and costly in comparison to the rapid changes in markets that require fluid and flexible structures. To unleash the potential of employees and be more responsive to the marketplace and complex challenges, what is needed is a complex adaptive system where teams are formed, perform and then disappear as the need arises. In this dynamic system, human resources policies and processes are clear, information is shared through sound and flexible technology and strategies are developed collaboratively and emerge in response to the external environment (Obolensky 2014).

All Around Feedback Loops Feedback is a critical process for learning and developing any behaviour and system. In functional organisations, feedback usually flows from top to down, mainly once or twice a year. Since changes are so fast, a one-way feedback, called 90-degree feedback, is not enough. Employees benefit

from receiving input not only from their managers or peers but also from outside stakeholders, like customers and suppliers, with whom they are in contact. If employees are going to be more responsive and agile in their actions, there needs to be a fluid and inclusive 360-degree feedback system (Obolensky 2014).

4 Creating a Culture of Shared Leadership and Empowerment

Organisational culture, which refers to shared values, norms and practices of behaviour, affect the successful implementation of shared leadership in an organisation (Angelle 2010). In a study of the banking sector, Erkutlu (2012) found that shared leadership could be developed in an organisation by creating a supportive culture where team members felt their input was valued and appreciated.

Before moving into how to create a culture of shared leadership and empowerment, some consideration of empowerment is necessary, including what we mean by empowerment and what the characteristics of the empowered teams are.

Empowerment means different things to different people. Therefore, it is important to clarify what we mean by empowerment at the outset. Quinn and Spreitzer (1997) summarised the approaches to empowerment under two headings: the mechanistic approach and the organic approach. The mechanistic approach is about delegating decision making within a set of clear boundaries and scope. According to this approach, 'empowerment is a top-down process where senior management developed a clear vision and then communicated specific plans and assignments to the rest of the organisation' (Quinn and Spreitzer 1997, p. 38). The second perspective on empowerment sees it as being about risk taking, growth and change. For this approach, 'empowered employees would be entrepreneurs and risk takers, acting with a sense of ownership in the business' (Quinn and Spreitzer 1997, p. 38). Having considered these two completely different perspectives, Quinn and Spreitzer (1997, p. 39) concluded that 'the successful implementation of empowerment does not require a choice between the mechanistic or organic views. It requires something much more complex—integration of both views'. So the question is, how can organisations and communities embed empowerment into their cultures?

The main aim of creating such a culture is to establish a dynamic and a context where needed, and effective action can emerge or flow naturally in a highly complex and adaptive way from any individual at any level in the organisation, not from a particular assigned leader.

From the organic, bottom-up perspective of empowerment, managerial practices such as sharing information, providing structure and developing a team-based alternative hierarchy are not enough for effective implementation. After all these managerial practices, employees may remain hesitant about taking the initiative and remain risk averse. For the effective implementation of empowerment, employees

must feel themselves empowered. After many years making observations, Quinn and Spreitzer (1997) identified four characteristics of empowered people: having freedom and discretion (self-determination), feeling a personal connection to the organisation (meaning), being confident about their abilities (competence) and being able to have an impact on the system (impact).

Randolph (1995) participated in in-depth research conducted with ten forward-thinking companies from different industries with various level of success in their journey to empowerment. He found that there are three keys to empowering people and organisations to work in concert to get the job done: information sharing, creating autonomy through structure and letting teams become the hierarchy.

To integrate these two different perspectives and create a culture of environment, Quinn and Spreitzer (1997) offered four key levers for psychological empowerment in the workplace: a clear vision and challenge, openness and teamwork, discipline and control and support and a sense of security.

Clear Vision and Challenge For employees to feel empowered, they need to understand top management's vision for the business and the strategic direction of the organisation. 'Such a vision provides clear direction so that employees feel they have the capability to act autonomously in their work rather than wait for permission and direction from top management' (Quinn and Spreitzer 1997, p. 45).

For this purpose, the first step is to share information about the company's market share, growth opportunities and even sensitive financial information. Without this kind of information, people cannot see the impact they are creating for the organisation or where their work fits into the big picture. In this process, top management's role is crucial. Randolph (1995, p. 21) reported a company's endeavours for some time through various trainings and concluded that 'it was not until senior managers began sharing sensitive financial information about the company that the seeds of empowerment began to grow and the teams became truly self-directed'. Sharing information creates trust among employees towards the company and managers. The trust level of employees is critical regarding them taking risk by acting on their own. Especially with complexity and crisis requiring the trying out of new and unfamiliar things, employees must take risks and will only take risk in a culture of trust. Through trust, the growth of shared leadership is associated with increased group performance (Drescher et al. 2014).

Openness and Teamwork Empowered teams are very different from participative teams or semi-autonomous teams. 'They make decisions, implement them and are held accountable; they do not just recommend ideas' (Randolph 1995, p. 28). The business culture experienced by employees emphasises the value of human assets, where employees feel a sense of participation, flexibility, concern, creative problem solving and cohesive teamwork (Quinn and Spreitzer 1997). Through this openness and teamwork, employees feel empowered to contribute, learn, collaborate and work together for problem solving. By actively participating in a team and feeling valued and appreciated, team members are more likely to work collaboratively and develop a sense of shared responsibility and accountability for team outcomes (Kirkman and Rosen 1999).

Discipline and Control Changing from a top-down culture towards empowered teams is a gradual process. Therefore, paradoxically, people at the beginning wait for clear instructions and guidelines from the top management on what to do in an empowered way. Without ‘clear goals, clear lines of authority and clear task responsibilities, employees experience chaos rather than empowerment’ (Quinn and Spreitzer 1997, p. 46). Structural elements of empowerment create a clear vision and clarify the little picture, set goals and roles collaboratively, create new decision-making rules that support empowerment and establish new performance appraisal processes based on collaboration and continuous improvement (Randolph 1995). Although some sort of structure is needed for empowerment, ‘to run complex processes one need only simple rules. More than that, complicated rules may hinder the flow of necessary activity’ (Praszkier 2015, p. 39).

Support and a Sense of Security An easy way of understanding whether the system really wants empowered employees is to check whether employees feel a sense of social support from their managers, peers and subordinates (Quinn and Spreitzer 1997). During the empowerment process, teams need to learn new skills and to be encouraged and supported in making changes.

Empowering cultures are characterised as open, harmonious, trusting, safe, wanting everyone to excel, sociable and nurturing. In such a culture, employees assist one another through encouraging and appreciating individual and team contributions and accomplishments (Marks et al. 2001).

As noted earlier, non-linearity is one of the main characteristics of complexity, meaning that the mutual interactions of parts create results that are often heightened and thus nearly impossible to predict (Lichtenstein and Plowman 2009). Without any fear of being punished or blamed, employees go out of their routines and take risks in new situations. For these reciprocal interactions of agents to take place, leaders must create opportunities for various groups to meet and support employees. In this way, the leaders develop intimate and meaningful bonds among members throughout the organisation. Over time, this generates a kind of ‘relational space’, in which people get to know each other quite well in small groups (Bradbury et al. 2007). ‘Relational space’ refers to a certain high quality of interactions, reflecting a shared context of mutual respect, trust and psychological safety in the relationship (Bradbury and Lichtenstein 2000). As predicted by complexity theory (and managerial psychology), these rich interactions strengthen interpersonal networks, which help amplify the changes as they emerge.

5 Conclusion

Organisations and leaders in them face complexity, volatility, change, ambiguity and huge pressures in today’s business environment. The expectations of stakeholders of organisations are ever increasing. Competition in the marketplace is so harsh that it is getting more difficult to survive and prosper. Ecological concerns are

putting extra pressure on the business leader. Alongside these changes, organisations are becoming more decentralised: traditional command-and-control management has given way to polyarchy; power has shifted from one single entity or a small group of entities to the collective actions of many agents of the market. So how can we navigate our way through this complex situation?

Complexity science offers some tools and insights to leaders on how best to respond to the increasing unpredictability. There are no right or wrong solutions. In complexity, the cause-and-effect relationship cannot be predictable. It only emerges out of the interactions of many parts. Within each interaction, there is a potential for releasing creative energy, intelligence, initiative and positive change in the organisation. This suggests that responsibility to respond to complexity does not only belong to the formal leaders of the organisation but to every member in the system who can or actually should play an important role in the process. Shared leadership provides clear and unambiguous pathways, driving responsibility downward and making the organisation much more responsive, agile, flexible and adaptive at the boundaries.

‘This approach encourages all member to *be* leaders—to “own” their leadership within each interaction, potentially evoking a much broader array of responses from everyone in an organisation’ (Lichtenstein et al. 2006, p. 8).

This approach to change and leadership helps us to unite employees in finding creative solutions to the problems faced, achieving goals, supporting each other and respecting and appreciating diversity. Moreover, this creates a culture of openness, sharing, valuing each other, bonding, harmony and respecting diversity, where employees adapt and respond well to the challenges. Without such a culture, teams do not feel empowered or safe enough to take responsibility and risk, or own the outcomes of the work, and as a result the shared leadership approach fails to fulfil its promises to navigate the organisation through complexity and crisis times. It should be underlined that shared leadership is an ongoing and fluid process, requiring perpetual checking, nurturing and re-evaluation in order to be adaptive and responsive to an ever-changing environment.

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Part III
Strategic Entrepreneurship, Innovation
and Design

Establishing an Innovation Culture and Strategic Entrepreneurship

Halil Kürşad Aslan

Abstract The purpose of this chapter is threefold: one, to focus on the concept of innovation under today's global economic realities, two, to focus on the strategic entrepreneurship literature, and finally to combine these two pieces together. The chapter concentrates on innovation management in terms of the interrelationship among the four elements of a business: product, process, marketing, and organizational qualities. This chapter provides a review and interpretation of innovation and management literatures in different fields with an eye toward combining them into the framework of strategic entrepreneurship.

1 Introduction

Innovation is about the creation, diffusion, marketization, and practical usage of new ideas and technological advances in an economy. It could take many forms in the production processes such as introduction of new products, production processes, new sectors, or new organizational/institutional quality. As an economic concept innovation could be analyzed in many different perspectives: the micro-level (individuals and ideas), firm-level (entrepreneurship), innovation culture (societal and organizational level), national innovation (state-level) to the broadest one global political economy (international institutions and unregulated global market) levels. For each level, scholars concentrate on distinct features and dimensions of innovation. There is a huge body of research and literature on innovation. In this chapter, we try to analyze it with multilevel perspective and gain well-to-do insight through multidisciplinary approach with integrating political, economic, and management perspectives.

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2 Understanding Innovation in Light of Global Economic Dynamism

In the twenty-first century, we are now living in a global economy in which high level of uncertainty, rapid technological advancements, increasing inequalities, and geo-economics (temporal, spatial, and political economy) are defining features. It is commonly shared that geopolitical competition among the USA, EU, Russia, China, and India is reshaping the world economy and unravelling global power relationships and governance (Leonard 2015).

World economy has seen a deep crisis between late 2007 and mid-2009. The global crisis hit the manufacturing sector most. Under these circumstances, adaptation and innovation capacities of firms have gained extra importance. After the global turbulence of 2007–2009, it has been uncovered that some corporations were caught unprepared to crisis such as General Electric, Toyota, and Sony while some others with a strong innovation culture proved their preparedness such as 3 M and Apple (Dervitsiotis 2010). Market forces have presented reward to winners. Apple's stock was \$78 per share in 2008, and it jumped around \$250 per share late in May 2010, following the introduction of another big innovation, the iPad. Innovation-driven firms, such as Google, 3 M and BMW, have shown significant profits, managing to satisfactorily withstand the 2008–2009 turbulence (Dervitsiotis 2010). 3 M has never given up its innovation activities even during the crisis times. To support innovation, 3 M consistently allocates 6–7 % of its entire sales revenue (\$1.4b in 2008) to research and development.

In the most recent World Economic Forum in the winter of 2016, it has been emphasized that fourth Industrial Revolution is on its way: while the First Industrial Revolution used water and steam power in production, the Second one used electric power for mass scale production, and the Third Industrial Revolution used electronics and information technology, the Fourth Industrial Revolution is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.

In the year 2000, there were almost 360 million Internet users in the entire world; in 2015 this number reached 3.17 billion. Moreover, in 2015, the total number of mobile phone users worldwide reached approximately 4.5 billion. Technology is changing at an unprecedented pace. Within this environment, business world uses an axiom “innovate or die” in order to show the vital place of innovation in the competitive global economic structure. Scholars try to present new perspectives on the dynamics of the national and the global economic structures. All those new perspectives share the view that competitiveness of nations or firms is founded on innovation. Innovation is more valuable in the emerging technologies along with new economic sectors: spin transistors, biotechnology, biomedicine, nanotechnology, robotics, artificial intelligence, digital imaging, etc. have higher return potentials (Hung and Chu 2006). And innovation is not limited to product or process innovation. Novel approaches in the organizational domain are also significant, and they come up with high levels of returns in the competitive world economy. Global

economy is characterized by increasing uncertainties, rapid change, and innovation; thus, it is important for corporate management to stimulate new industries from emerging technologies to provide economic growth, competitiveness, and sustainability. It is easy to see that creating a new sector of economic activity is advantageous since the first entrepreneur to create a new sector enjoys a temporary monopoly.

3 States, National Culture, and Government Structured Innovation Systems

In order to challenge global economic hardships, countries are following similar paths in regards to science, education, technology, and innovation policies. Production of knowledge and technological innovations in the global economy require nation states, all developing or developed alike, to provide support for publicly funded scientific research that leads to the competitiveness and commercialization of products. Supporting research and development, and formulating a national innovation policy especially in developing countries, seems to be essential for economic growth and development. According to an expert report on innovation, after the 2008 global crisis emerging markets have not reduced their pace regarding innovation struggles such as R&D expenditures. Actually some emerging economies have increased their R&D budgets by significantly wider margins than their richer neighbors. Countries such as China, Argentina, Brazil, Poland, India, the Russian Federation, Turkey, and South Africa (in order of R&D spending growth) have shown a very high compound annual growth rate in their R&D spending from 2008 to 2013 (GII 2013).

Under the rubric of national innovation systems, governments assume major roles in designing science, technology, and innovation policies. One of them is to articulate a vision for science, technology, and innovation. Another role governments are expected to assume is finding new sources of economic growth and competitiveness (OECD 2010). Other role for governments is establishing priorities for public investment. Additionally, governments are also taking the leading role in stressing the crucial importance of innovation in strategic sectors and technologies. Dutch and Brazilian governments' initiatives along with China's 12th Five-Year Development Plan and Turkey's Industrial Strategy Document and Action Plan are examples for national schemes to support strategic sectors (OECD 2010). Finally, another role mentioned in the literature for governments is about the role of mediation and engagement with stakeholders and administering incentive mechanisms (Feldman and Kelley 2003; OECD 2010).

Under global economic conditions, governments have seen that technology and innovation are so vital for their national economies, and they have started to establish institutions and necessary legislation to improve their level of domestic innovation. These institutions, agencies, legislation, and macro-policies are

commonly known as national innovation systems (Reichelt 2007). A national system of innovation has been defined as "... the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify, and diffuse new technologies" (Freeman 1995, p. 6). Countries and their respective national innovation systems could be analyzed in two major areas: national cultural peculiarities and the quality of institutional framework.

It is obvious that countries would have a strong desire to institutionalize their technology and innovation policies. For example, Bloomberg Innovation Index provides useful insight about the institutionalization of innovation. This index ranks countries according to their overall ability to innovate with six equally weighted metrics: (1) research and development expenditure as a percentage of GDP, (2) manufacturing value-added per capita, (3) number of domestic high-tech public companies, (4) post-secondary education, (5) research personnel, and (6) number of patents. According to Bloomberg Innovation Index-2015 scores, S. Korea, Japan, Germany, Finland, Israel, USA, and Sweden make the top seven countries in the innovation league.

Under the national innovation systems, central bureaucracies act as regulatory bodies and they promote cooperation and collaboration activities between domestic firms, universities, research institutes, and the public sector. In regards to the institutionalization processes of the national innovation systems, technology transfer is an essential component of any national innovation strategy. Increasing number of technology transfer offices act as all-encompassing interaction mechanism between the research centers including universities and economic actors, companies, and the government (Reichelt 2007). The crucial contribution of technological transfer to the national innovation system is to adapt, absorb, diffuse, and exploit the opportunities provided by external economies rather than the conventional focus on capital accumulation (OECD 2005). In order to improve innovation capabilities, it is essential to invest in technology transfer programs and innovation clusters with local, interregional, and global networks and value chains (GII 2013). In sum, national economies and national systems of innovation are still among the essential domains of both economic and political analysis (Freeman 1995).

As an example for the national institutionalization processes, Sweden created a central government institution, VINNOVA, "the Systems of Innovation Authority" in 2001 (Lundvall et al. 2002). In its official mission statement, VINNOVA declares that it aims at promoting sustainable growth by improving the conditions for innovation, as well as funding needs-driven research. In another case in Taiwan, it could be seen the Industrial Technology Research Institute (ITRI) as the largest national research organization. ITRI announces its mission as setting up new industries and to help existing industries upgrade themselves. Regarding the support of new technological industries by government-induced policies (e.g., integrated circuits, personal computers, notebooks, scanners, and TFT LCDs), the Taiwanese case illustrates a successful model for policy makers (Hung and Chu 2006). In the recent decades, the national innovation system of the United States' NIS model has also become very popular, and many countries started to follow American model particularly its decentralized structures (Reichelt 2007).

Research and development spending as a percentage of GDP gives an idea about the innovation capacity and strength of innovation culture. For example, S. Korea and Japan are one of the most successful countries regarding their innovative capacity buildup with their large and wise allocation for R&D activities. According to a survey, Japan, Switzerland, the United States of America, and Sweden are counted as the world's top 4 innovators among 82 countries (EIU 2007). A most recent report (GII 2013) also ranks three of these four countries as the leading innovators: Switzerland (1st) Sweden (2nd), and United States of America (5th).

It is obvious that a positive correlation exists between the level of national R&D spending and innovative capacity. As of 2014, R&D expenditures as a percentage of GDP is 2.75 % for the USA, 2.05 % for China, 3.58 % for Japan, 4.29 % for S. Korea, 2.84 % for Germany, 3.16 % for Sweden, 2.97 % for Switzerland, 2.25 % for France, 1.19 % for Russia, 0.54 % for Mexico, and 1.01 % for Turkey. In addition to the level of R&D spending, annual patent applications are also included in innovation analyses at the country level. It is important to note that there is a strong growth of patent applications worldwide in the recent decades—by 7.5 % in 2010 and 7.8 % in 2011 (GII 2013). As can be seen in Table 1, emerging markets, and notably China, are now driving the growth in patent applications and making up an increasing share of global patents.

The United Nations Development Programme (UNDP) scales countries along the technology achievement index. It also distinguishes among four categories of countries: innovation leaders, potential leaders, dynamic adopters, and marginalized countries, thus marking countries by their relative position in a world market of technology, innovation, and commercialization (Drori 2010). In the distribution of worldwide patent activities, it is seen that there are five leading economies. Patent offices of the United States, Japan, South Korea, China, and the European Patent Office accounted for approximately 76.5 % of the total patent grants across the world in 2006 (Drori 2010). This picture says that technology creation remains mostly a monopolized domain, and this also means that there has been a dependency structure regarding the technology ownership (Drori 2010; OECD 2010).

In the rapidly changing global economic conditions, governments aim at specializing in niche markets. They follow strategies of conquering niche markets or targeting strategic sectors. Most notable examples are California in the United States of America, Baden-Württemberg in Germany, the Capital Region of the Republic of Korea, Guangdong Province in China, Stredni Cechy in the Czech Republic, and the Mumbai region in India (GII 2013). National governments are required to provide infrastructure for innovation that foster knowledge sharing and knowledge diffusion within innovation hubs. The GII (2013) mentions about the factors leading to the excellence of innovation hubs such as the role of large research universities and multinational corporations. It is certain that increasing competition in the global economic stage has also deeply affected the innovation role of multinational corporations. New trends support the fact that those multinational companies need to organize their innovation processes so as to make them competitive and sustainable (Fallah and Lechler 2008).

Table 1 Total patent applications by countries (residents and nonresidents total)

	2000	2004	2008	2012	2014
USA	295,895	356,943	456,321	542,815	578,802
China	51,906	130,384	289,838	652,777	928,177
Germany	82,246	82,280	89,077	88,625	91,637
France	24,144	25,370	25,470	26,534	27,139
Sweden	7373	5659	5995	5906	6293
Switzerland	6112	6839	8005	9609	8902
S. Korea	102,010	140,115	170,632	188,915	210,292
Russia	32,337	30,190	41,849	44,211	40,606
Mexico	13,061	13,198	16,581	15,314	16,135
Turkey	3433	917	2397	4666	5501

Source: World Intellectual Property Organization <http://www.wipo.int/pct/en/>

Another dimension of the national innovation systems is the cultural drivers. A major highlight in the innovation studies is that creative learning and organizational characteristics are predominantly a socially embedded process that could only be wholly understood by looking at cultural and institutional backstage (Lundvall 2010, p. 1). For example, there are deep differences between Asian and Western cultures. Yet within the same Western club, cultural differences might cause distinct outcomes in the technological and industrial policies. For example, while the Swedish innovation policies have been focusing on promotion of process innovation, the Danish policies focused on experience-based incremental product innovation in low technology sectors (Lundvall et al. 2002, p. 227). Several studies have shown that countries may organize their developmental programs in line with their societal values and achieve economic growth with their styles:

The Danish economy is one of the most egalitarian in the world in terms of income distribution, and it is among the ones with the highest GNP/capita. The growth success of the USA has gone hand in hand with increasing inequality. The experience of Denmark demonstrates that there is no necessary connection between strong growth and growing inequality” (Lundvall et al. 2002, p. 219).

Nonetheless, despite of cultural differences, countries have also tended to converge on successful models. For instance, in the 1980s and 1990s, East Asian economic success stories, namely Japan and S. Korea, created widespread interest for applying Asian management techniques to Western business world. With the beginning of the new millennium this time, the gravity of the world economics has shifted to China, and, in general, Asian business practices have come under spotlights. The comparison has been mainly between the individualistic and collectivistic work ethics. Some scholars, for instance, mentioned about the long-term character of interfirm relationships in Japan and vis-a-vis the arm’s length relationships in the Anglo-Saxon cultures (Lundvall et al. 2002, p. 219).

In order to benefit from cultural diversity and its contribution to innovation, 3 M is a distinct case. The company follows a specific organizational policy to exploit opportunities. In its self-description, 3 M expresses that its organizational structure

has been designed to gain strength from diversity: 3000 of its more than 10,000 technical employees are located outside the USA. These technical employees work in research-based laboratories in 34 different countries. The result is a highly skilled global workforce uniquely positioned to create proactive solutions for market demands.

4 Strategic Entrepreneurship, Organizational Culture, and Innovation

The process of innovation has been poorly understood since it is seen as a creativity-based random process; however, recent surveys, which are able to measure business world's pulse, expose that competitive advantage and innovation performance is the direct result of effective innovation management (BCG 2015; Dervitsiotis 2010). Allocation of large R&D budgets does not guarantee innovation outcomes or profit. In the real world cases, technology companies like Motorola did not realize a rival competitor's rise: Nokia. Today, "Nokia is the global market leader in handsets and is rapidly expanding its portfolio in infrastructure, gaming, and other broadband applications" (Fallah and Lechler 2008, p. 59). Global surveys also show that success depends on institutionalization of innovation management. There are many cases to support this fact. For example, what makes Google one of the most innovative companies in the world is hidden in the words of its CEO Larry Page: "*The people behind the scene which makes Google the company it is today. We hire people who are smart and diligent, and we prefer the ability over experience...*" (Google Case). This is a deliberate company policy to prioritize ability over seniority. Another one is a pharmaceutical company, Gilead Sciences Inc., which is included in the most innovative companies' 2015 list as the 8th. One of the reasons for the success of Gilead's innovative capacity is related to its top management team who combines technical expertise with an equally deep knowledge of market demands (BCG 2015).

Since its early times, innovation studies highlighted critical place of institutionalization processes. Taking into consideration importance of institutions for innovation and learning processes, it is useful to remind that *institutions* are understood as norms, habits, and rules are deeply ingrained in society, and they play a major role in determining how people relate to each other and how they learn and use their knowledge (Johnson 1992 cited in Lundvall et al. 2002, p. 219). Successful firms "manage to use the entire company as a new-idea laboratory" (BCG 2015). For example, 3 M's renowned "Innovator Award" is a well-thought incentive to enhance innovation. In 3 M, staff can devote 15% of their work time to self-directed projects, and this award is given to employees who use their 15% self-directed work time to develop a new product or technology (Case 3 M). Similarly, to promote new ideas, Google encourages all engineers to spend 20% of their time working on their own ideas. Take one of Google's most innovative practices: its

policy of giving 20% free time to engineers to work on independent projects. Initiated in 2004, the policy has begun innovations such as Gmail, Google News, and Ad Sense (Google Case). Another case is LinkedIn which launched its “InCubator” program in 2012. According to this program, engineers can get 30–90 days away from their regular work to develop ideas: employee with an idea to organize a team and pitch their project to executive staff once a quarter. Those whose ideas are greenlit by cofounder Reid Hoffman and CEO Jeff Weiner, among others, then they get up to 3 months to spend developing that project.

Innovation could be about creating a new product or a new process that ultimately makes life easier and more comfortable. In other words, innovation is “. . .the generation, acceptance, and implementation of new ideas, processes, products, or services” (McClean 2005, p. 227). In the new millennium, it is commonly agreed that economic success and growth depends on knowledge, information, and innovative economy. The corporate success in turn depends on employees’ level of knowledge, job experiences, and creativity. Employees’ creativity provides high levels of return to the companies. Creativity engenders new ideas, and this could potentially transform into a new product, process, or service, which ultimately leads to profit for companies. In the past, early innovators concentrated on individual talent. William McKnight, who was 3 M’s unassuming CEO during the 1930s and 1940s, famously said that “Hire good people and leave them alone.” McKnight accordingly encouraged employees to spend 15% of their time noodling on their own projects, and this policy still survives at 3 M (Cain 2012). Keeping employees happy is a strong value; accordingly, Google created a unique work environment that attracts, motivates, and retains the best players in the field. Google is chosen as the number 1 place to work for the seventh time in 10 years by the Fortune magazine according to its 2016 report. On their Mountain View, California, campus called the “Googleplex,” employees are treated to free gourmet food options including sushi bars and espresso stations (Google Case).

It is interesting to note that the concept “quality” has evolved in line with innovation. The word “quality” has evolved from (1) product-related quality to (2) process (fitness for production and delivery) to (3) searching for new value-generating options (fitness for innovation) to (4) developing new organizational designs or fitness for adaptation (Dervitsiotis 2010).

Then, we could safely say that the most important input in the production processes is knowledge and its management with institutional mechanisms. And the most vital process is both organizational learning and knowledge management during the production processes. In the organization studies, it has been emphasized that firms with inner learning dynamics are more productive and more innovative. Promotion of organizational change through education and training (Lundvall et al. 2002) is crucial for innovative capacity. In the new age of the globalization, it should be highlighted that “The fact that knowledge differs in crucial respects from other resources in the economy makes standard economics less relevant . . .” (Lundvall 2010, p. 1).

4.1 Product and Process Innovation

It is obvious that a successful firm develops and introduces new products to the market as its primary driver is to make as much profit as possible. In this regard, this firm is supposed to follow some preliminary steps before introducing its new product.

Potentially, a firm could perform different types of changes in its production processes so as to improve its productivity or commercial performance. These positive changes might be conceptualized under four types of innovations: product innovation, process innovation, organizational innovation, and marketing innovation (OECD and Eurostat 2005). Product innovation can be defined as “the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness, or other functional characteristics” (OECD and Eurostat 2005, p. 48). On the other hand, definition of process innovation could be made as “the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment, and/or software” (OECD and Eurostat 2005, p. 49).

If we look at the practical side of the business world, it might be insightful. One of the declared company values of 3 M is to see the future (or going beyond). 3 M sets goals to challenge for significant improvements. One objective is to generate 30 % of all sales from new products introduced in the past 4 years. However, 3 M’s commitment to stretching goals is demonstrated through an additional objective: to cut the time for new products to reach the market by a further 50% (3 M Case).

Moreover, practitioners suggest that “Product development occurs when investment in research and development leads to new and innovative products. This usually involves phases such as idea generation, testing, engineering, prototype creation, commercialization, manufacturing, and marketing.” (3 M Case). Product development may take so many years, and it requires significant capital investment; therefore, 3 M uses the term, “patient Money” (3 M Case). Investments in global innovation reach have at least a 3-year time lag. Companies have to make adjustments in reaction to these influences in a tactical manner, without changing their strategic direction (Fallah and Lechler 2008, p. 70). Many innovations require a lengthy period, often of some years, from the time when they become available to the time when they are widely adopted. Thus, strategic entrepreneurship requires an effective management of this lengthy process keeping always in mind the main goals of enterprises as value creation.

With an increasing rate of change in the global economy, especially after the onset of the 2008–2009 economic crisis, innovation management emerges as a powerful way to facilitate a firm’s adaptation to new conditions. Knowledge management is seen as the principal ingredient of competitiveness, innovation, and economic prosperity. Scholars suggest that the most important competitive advantage is derived through more valuable, rare, imperfectly imitable, and

nonsubstitutable resources than those held by competitors (Barney 1991). This is also known as the *VRIO* framework: *value* (V) means whether it provides competitive advantage, *rareness* (R), or whether competitors possess it, *imitability* (I), or whether it is costly for competitors to imitate, and *organization* (O), or whether the firm is organized to exploit the resource (Barney 1991; Terziovski 2010).

Entrepreneurs identify and exploit opportunities that their competitors have not yet observed or have underexploited. An appropriate set of resources is required to exploit entrepreneurial opportunities with the greatest potential returns. There are both competitive and cooperative ways of observing other firms. Some firms prefer to imitate while other firms tend to perform complementary innovations. Firms engage in new business opportunities according to different Schumpeterian strategies (or combinations of them). Earlier studies introduced five major Schumpeterian strategies: pioneers, adaptationists, imitators, complementors, and mixed strategies. Thus, the complementor strategy tries to complement the efforts of the other player by investing in its own, but related, business niche. In many cases, there will be a symbiosis between complementors and pioneers (Lundvall et al. 2002, p. 223).

As the knowledge-based economy develops, innovation and technological development go hand-in-hand, and they shorten product life cycles. Particularly in the manufacturing industry, the product life cycles are steadily decreasing. In our daily lives, we witness rapidly changing models of electronic products such as computers and mobile phones (Hsu 2005). An expert report suggests the speed of innovation processes is critical, and successful innovators demonstrate their ability to shorten innovation and product development cycles and reduce time to marketization (BCG 2015). Due to the speed of the technological advancements, product life cycle management has become a prominent feature in organizational theories. In order to optimize product and process innovation, firms increasingly rely on automated product life cycle management systems that facilitate entrance and marketing of new products and services.

Moreover, while implementing knowledge management, firms could advance their value-creation capabilities and enhance their managerial decisions (Alavi and Leidner 2001). It has been widely accepted that knowledge is a significant organizational resource. While employing organizational knowledge and knowledge management techniques, scholars highlighted the significance of IT in support of these processes and information systems, commonly known as knowledge management systems. A knowledge process includes acquisition, conversion, application, and protection that are essential organizational capabilities or “preconditions” for effective knowledge management (Gold et al. 2001). Effective knowledge management includes business intelligence, collaboration, distributed learning, knowledge discovery, knowledge mapping, opportunity generation, as well as security. It is certain that creativity and innovation have a strong positive correlation. Yet creativity is analyzed mostly at the individual level; however, “innovation is the process by which these ideas are captured, filtered, funded, developed, modified, clarified, and eventually commercialized and/or implemented” (McClean 2005, p. 240). Nonetheless, it is important to note that there is a potential danger: “It

seems almost counterintuitive that strong innovators would emphasize process. After all, R&D is a creative function, and too much process management runs the risk of squelching the very creativity that is the lifeblood of innovation” (BCG 2015, p. 11).

4.2 Organizational Innovation and Marketing Innovation

Innovation is a dynamic and multidimensional concept. Meanwhile, there is not a guarantee for new product to be successful; it is likely to fail as well. Therefore, for firms it is a challenge to successfully market their innovations. In other words, because of novelty, innovation comes with a certain degree of uncertainty and risk. A specific innovation is regarded as successful if and only if it can be taken to market to generate cash (Dervitsiotis 2010). For this reason, innovation excellence requires both a high level of innovation capability to create a sustained stream of successful innovations and new streams of cash revenues.

Taking into consideration the adoption of new products with an unknown level of uncertainty, scholars and practitioners have developed some conceptual arrangements in regards to organizational innovation. In a rapidly changing world, scholars observe a paradigm shift in the management of global innovation that has been occurring as the result of two fundamental forces of the knowledge economy: instantaneous market demands and expanding sources of technological knowledge. New conditions of the global economy require firms to synchronize their organizational processes so as to “allow technology and market knowledge to connect in a timely manner no matter where this knowledge resides in the company and to allow the best innovation ideas to move forward” (Fallah and Lechler 2008, p. 67). Toyota is a good example: Based on the corporate philosophy of “customer first” and “quality first,” Toyota Motor has been able to combine customer needs with available technological advancements. Additionally, another case, 3 M, tells us corporate vision to see the future or foresight. For 3 M, it is vital to, “. . .anticipate the structure of the future before it arrives.” 3 M can solve articulated needs, whereby the customer knows and communicates what they need, as well as unarticulated needs, whereby 3 M proactively provides a solution for a problem that the customers don’t yet realize they have!

Firms need to develop expertise in and a culture for converting research-based innovations into marketable products. On this matter, we have a concept, commercialization, which is about the processes of turning a new idea into a marketable good or service. Commercialization could be defined as the processes undertaken by firms to transform knowledge and technology into new products, processes, or services, in response to market opportunities (Rosa and Rose 2007).

Xerox in the early 1970s introduced several important innovations that later shaped the computer industry (the Graphical User Interface, the Ethernet, the Adobe document format, etc.), but failed to commercialize them because of its restrictive focus on printing technology. These innovations were exploited

successfully by Apple and other firms providing them with a unique competitive advantage (Drori 2010). Google is one of the most-known and most successful companies in the world in terms of commercialization; we even use “googling” as the term to refer to searching information on the Web. It started as a student project by Larry Page and Sergey Brin in 1996; Google became the most frequently used Web search engine on the Internet with six billion searches per day as of late 2015 along with other innovative applications such as Gmail, Google Earth, Google Books, and Google Maps. All those successful cases sign the critical importance of ability to combine innovation with market realities.

In the aftermath of the 2007–2009 global economic crisis, it is reported that large companies aim for growth and in their search for growth the biggest challenge is seen as the organizational issues. Another concern in the so-called global survey was the commercialization issues. Many business leaders mentioned about the commercialization as one of their biggest challenges (McKinsey 2013). As a successful case in regards to marketization of innovation, 3 M presents interesting insights. 3 M has achieved sales revenue of \$US25.3 billion in 2008. Almost 64 % of 3 M’s entire sales revenue originates from international operations. In its self-description, 3 M reveals that it has key values underpinning its continual success. These values include its commitment to customer satisfaction with superior quality and commitment to investors with an attractive return through sustained and high-quality growth (3 M Case).

4.3 Strategic Management or Entrepreneurship?

Under the realities of global economic competition, firms, SMEs, or large corporations alike take positions so as to be adaptable and benefit from changes in the market environment: they exploit opportunities and search for better strategies in order to thrive (Hitt et al. 2001). It is also important to note that while taking strategic positions firms also take into account national and cultural peculiarities. These strategies could be analyzed under the strategic entrepreneurship literature or strategic management literature. Both of them try to discover business opportunities and develop them towards competitive advantages (Hitt et al. 2001). Thus, this study employs both of these concepts interchangeably. This study takes strategic entrepreneurship with its organizational connotations so as to include resources, organizational learning, and innovation.

It is becoming more apparent that investment in technical and organizational knowledge along with human capital is vital element for firms to achieve competitive advantage. As said before, strategic entrepreneur is mostly about identifying and exploiting opportunities (Hitt et al. 2001). Strategic entrepreneurship involves discovering newness and novelty in the form of new products, new processes, and new markets as the drivers of wealth creation (Ireland et al. 2003). This is predominantly about strategic decision-making and corporate governance processes.

There are four major tools that strategic entrepreneurship employs for innovation management: institutionalization of the work place, enhancing organizational culture, encouraging collaboration and coordination within the firm, and open innovation approach so as to attach employees with outside partners and experts. Besides, managing the effectiveness of the innovation process requires a balanced set of innovation metrics related to all innovation drivers, i.e., leadership, culture, and people participation together with innovation results, such as time to market and financial metrics.

The literature commonly agrees that organizations that rely on formal strategies perform better than those without strategies (Terziovski 2010, p. 895). A key conclusion in these surveys is that the innovation process can be improved significantly only by institutionalizing innovation management and making it a core process, in the same way as was done with quality management and finance management (Dervitsiotis 2010).

We sought to identify the key contributions of knowledge management capability. Such contributions may include: improved ability to innovate, improved coordination of efforts, and rapid commercialization of new products. Other contributions may include: the ability to anticipate surprises, responsiveness to market change, and reduced redundancy of information/knowledge (Gold et al. 2001). Companies need to consolidate and reconcile their knowledge assets. In order to achieve competitive sustainability, many firms are launching extensive knowledge management efforts. However, many knowledge management efforts are misguided as information projects. Moving beyond information management and into the knowledge management framework is a complex undertaking involving the development of institutional structures that allow the firm to recognize, create, transform, and distribute knowledge (Gold et al. 2001).

MNCs vie to optimize their global innovation reach. In particular, companies in research-intensive industries have recognized that expanding global innovation reach is important to maintaining competitiveness. They are exploiting three different sources of competitive advantage (1) by seeking access to technological knowledge in countries with high R&D intensity; (2) accessing cheaper labor and operating flexibility; and (3) accessing market knowledge (Fallah and Lechler 2008, p. 63).

Another major tool regarding strategic entrepreneurship is about organizational culture. Having awareness on the value of change or novelty modern companies are supposed to establish a business culture and accompanying organizational structures and processes that make innovation a working mechanism. Example could be given about an organizational value held by 3 M. Celebrated aspect of 3 M's workplace culture is 15 % rule that encourages employees to explore and work together to generate ideas. 3 M also prioritizes organizational learning with external sources and cultural features. Communication is a major value in 3 M. 3 M feels that successful people need to work with others; thus the company uses technical forums, trade fairs, and conferences to encourage networking and ideas sharing. Staff use part of their 15 % self-managed time to help people from other areas. Networking occurs internally across platforms and externally through customer

feedback and joint ventures. Staff can be transferred locally and globally and apply their particular expertise on projects. This adds value by sharing both expertise and the experience of 3 M's diverse global culture (3 M Case). Additionally, we could see another case: Toyota established an employee suggestion system. The Creative Idea Suggestion System was established in 1951. As of early 2016, the total number of suggestions surpassed 40 million.

Findings suggest that an innovation culture scale may best be represented through a structure that consists of seven factors identified as innovation propensity, organizational constituency, organizational learning, creativity and empowerment, market orientation, value orientation, and implementation context (Dobni 2008). Organizational culture is defined "as a system of assumptions, values, norms, and attitudes, manifested through symbols which the members of an organization have developed and adopted through mutual experience and which help them determine the meaning of the world around them and how to behave in it" (Janićjević 2012). Prior research found that organizational culture has an influence on the process of innovation within organizations because the organizational context can serve as a supportive factor for innovation. The authors pointed out that there were six supporting scales that influenced creativity. This included: (1) organizational encouragement, (2) supervisory encouragement, (3) work-group supports, (4) work freedom, (5) sufficient resources, and (6) challenges at work. Similarly, several scholars have indicated that organizational culture affects creativity and innovation within the organizations through encouragement, support, and implementation. Many dimensions of organizational culture have been found to affect organizational innovativeness, such as learning and development, participative decision making, support and collaboration, power sharing, status differentials and communication, and tolerance for conflict and risk.

In 3 M, product development is driven by the cross-fertilization of ideas and new technologies shared across the entire company: "Products belong to divisions, but technologies and ideas belong to the company" (3 M Case). 3 M has developed six principles of innovation to support this culture. Google is also one of the best companies that successfully combine technological innovation with a strong organizational culture.

It is ironic to see that "... culture can be a highly effective killer of new ideas" (BCG 2015, p. 20). A successful innovator organization enables a working environment and culture that enable to set the breeding ground for engaging the creative talents of employees, providing opportunities for creative interactions and making good use of the ideas generated by other sources. Moreover, cultural openness to innovation is an organizational quality. In other words, generating innovative ideas and turning them into commercial usage require an enabling institutional context. As important, a critical part of innovativeness is the cultural openness to innovation (Dobni 2008). This environment constantly encourages firm workers to seek novelties and promotes a climate favorable to change and creativity. As an example for a cultural milieu to support creativity, Google is appropriate. Google's company culture is reflected in their decision making as well. Decisions at Google are made in teams. Even the company management is in the hands of a triad: Larry Page and

Sergey Brin hired Eric Schmidt to act as the CEO of the company, and they are reportedly leading the company by consensus. In other words, this is not a company where decisions are made by the senior person in charge and then implemented top down. It is common for several small teams to attack each problem and for employees to try to influence each other using rational persuasion and data. Organizationally, Google maintains a casual and democratic atmosphere, resulting in its distinction as a “Flat” company. The company does not boast a large middle management, and upper management is so hands on, it’s hard to qualify them in a separate category. Teams are made up of members with equal authority, and a certain level of autonomy is maintained. This techno-democracy takes a good deal of effort to maintain (Google Case).

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Strategies for Innovative Organization Structure: Innovative Culture and Open Innovation

Güney Çetin Gürkan and Şule Aydın Tükeltürk

Abstract One of the main factors ensuring the survival of the organizations is their innovation capacity. They have to put the products and services to be implemented on the market prior to their competitors by predicting the customer needs in order to gain advantage during the intense competition in the modern business world. These strategies providing the speed and consequently the competitive advantage can only be determined and applied in an appropriate organization structure. The appropriate organization structure for innovation is the organic structure convenient for dynamic environments. Additionally, the innovation may be easily developed in ambidextrous organization structures supporting both radical and incremental innovation. Other factors that catalyze the innovation are tolerance for the mistakes, continuous learning, motivation for risk taking, competitiveness, good management of conflict, open communication characteristics, and innovative organization culture. The external orientation which is the common feature of innovative organization culture and innovative organization structure brings along the open innovation which is the inevitable approach of our present day. By accepting that the innovation idea source may come within the organization as well as from outside and creating a system accordingly will have an effect which will increase the organization's innovation potential.

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1 Introduction

As the world turns out to be a structure based on finance in the 1970s, industry in the 1980s, resources in the 1990s, and information in the 2000s, the innovation and management became considerably two dominant concepts for a company in terms of creating and developing competitive advantage (Junarsin 2009: 10). In case that the competitive capacity is based on the innovation, it's observed that new product/service development period decreases and the rate of production of the new product imitated by the competitor companies increases, but also the innovation is taken into consideration much more than before and it starts to become the main focus of the company strategies (Çetin Gürkan 2013: 187).

Innovation is not producing a product that has not been used previously or not developing a service model. According to the description of OECD, the innovations involve the important technological changes in products and processes, new products and new processes. If the product is put on the market (product innovation) or used in the production process (process innovation), it means that the innovation has been completed (Iboto-Arens 2005: 54). Innovation is the core competence that the organizations have to preserve constantly. The innovation capacity is the prerequisite of an organization in order to use the creative resources and new technologies successfully. The other way round, if new technologies are developed in an organization, they bring along changes in the administrative implementations and complicated opportunities and challenges leading to new organization types (Lam 2004: 115).

The competition between the companies encourages the innovation. The innovations realized in the sector decrease the costs and increase the product quality. Thanks to the contribution of the interactive innovation process, all organizations can take advantage of this development (Cantwell 2004: 545). For the organizations, the costs don't define solitarily the competition advantage but also the speed of responding to the market needs and the quality of the product and service; the development of new products and services are the new management models. Entering the new markets, increasing the existing market shares and competitive capacity is possible with innovation (Elçi 2006).

Several factors, which take part in gaining the innovation capacity by the organizations, can be mentioned. Among these, it's fundamental that the organization culture turns out to be an innovative organization culture predisposing the continuity and triggering the creativity. The main characteristics of the innovative culture such as promoting freedom and risk taking, being future oriented and extraverted, high level of trust and clarity in communications, and interactions between the functions reveal the generation of new ideas and therefore the innovation itself. In this structure of the culture, the source of idea may come from inside or outside. It's important that the organization culture and structure, which will enable the transformation of idea into innovation, is provided.

2 Innovation for Living

According to OECD Literature, as a process, the innovation refers to “the transformation of an idea into a marketable product or service, a new or developed production or distribution management, or a new social service management.” However the same word also refers to a “marketable, new and developed product, method or service” obtained at the end of this transformation process (Göker 2000). The changes, differences, and novelties made in products, services, and methods of business practices in order to create economic and social values are called innovation (Elçi 2006).

The definitions concerning the innovation concept underline three dimensions in general; these three dimensions are described as the innovation which refers to the creation of a new product/service for a business unit, the innovation which refers to the process, and the innovation which is considered as an organization feature (Carmen et al. 2006: 181; Oyon 2007). Several opinions consider the innovation as the release of a totally new product, service, or business practice method providing a competitive advantage instead of an innovation which is new for a business unit. Malcolm (2008: 3) who supports this opinion describes the innovation as the emergence of the customer need which has not been satisfied physically or emotionally and subsequently the fulfillment of this need in an innovative and creative way.

The organization administrations have to include the innovation among their obligations in order to comply with today’s competition conditions. All the company managers want their organization to become the new Apple, Google, or Netflix, and they don’t want to make the same mistakes Kodak, Blockbuster, or US Steel did (Satell 2013). Innovation may not be always expected to be totally new. Some innovations may be new for the company but they aren’t unique for the market. However the innovations which provide efficiency in competition and which are new for the market have strategic qualities (Betz 2001: 50), and they are stated as radical/disruptive innovations. Every company must increase its income and if possible also its prices and it should limit the expenses. But the income can’t be increased through old distribution channels by using the same methods and selling old materials to old customers. As long as the organizations don’t supply the new products and services for the customers, it’s not possible for them to increase their income arrestingly. If the energy is only focused on limiting the expenses and decreasing the number of personnel, it’s not possible to achieve it. But the customers always wait for new, useful, valuable, unexpected, and exciting products (Hamel 2003: 11). An important part of the innovation process consists of the research of new ideas that have trading potential. Usually the companies invest a significant amount of money, time, and other resources for the research of new innovative opportunities. Such investments increase the ability to create, use, and recombine new and existing information (Laursen and Salter 2006: 131). In the past years, the most important tools creating the competition advantage for the organizations were considered as their values and sizes. However,

nowadays, the innovation made in products, services, and processes took the place of these tools. It's not only important to provide a competitive advantage but also to establish the system that will maintain this advantage in the long term (Uzkurt 2008: 13). In this sense, the companies have many motivation factors in order to concern about the innovation. The innovation may decrease the production costs, increase the quality of the products, create new product markets, or capture a market share, and it may bring down the company's commitment to the uncertain and unreliable production factors during the production. In general, the innovation that provides a sustainable cost or a demand-side advantage against the competitors of the company also increases the company profitability (Webster 2004: 733).

When encountered with uncertainties and indoor/outdoor environmental changes, the organizations have to be innovative in order to survive and reach their goals. The organizations have difficulties in complying with new environmental conditions without innovative activities (Park et al. 2015: 319). In today's competitive business world, the resistance against change is very dangerous and the innovation is the trigger of the change. Even if the change brings along the unknown and the risk, the change capacity of the organizations bring along the innovation (Ahmed 1998) and consequently the sustainability. Thus, the organization that doesn't have a developed innovation capacity lose its place in the market because it can't keep up with the competition conditions in due course.

3 Transformation Toward Innovation

3.1 Change in Organization Culture: Innovative Culture

Organization culture is defined as all the traditions, understandings, and norms developed by the employees of the organization over time. In other words, the organization culture is the system of the norms, behaviors, values, beliefs, and habits directing the behaviors of the employees during the historical life cycle of the organization. This system forms an identity for the organizations and it helps the organizations to work effectively and efficiently and to reach their goals and targets (Şahin 2010). Innovative culture is an orientation for experimentation of the new alternatives and approaches by finding new resources, demolishing the existing norms, and creating new products which will increase the performance. Innovation culture facilitates the experimentation of the new alternatives (Wei et al. 2013: 1029). Innovative culture can be understood by observing the innovation in terms of technology, information exchange, and entrepreneurial activities. So basically, it's the existence of the values and deep belief in the innovation (Park et al. 2015: 320). Additionally, it also encourages the creative, innovative employee behaviors that help them take initiatives linked to the new product results providing advantage (Jassawalla and Sashital 2002: 42).

Martins and Terblanche (2003) underlined the importance of the strategies, structures, support mechanisms, behaviors, and communications encouraging the innovation in order to create an organization culture supporting the creativity and innovation. The presence of innovation in the mission and vision in terms of strategy and the expression of the support of innovation and creativity within the target of the organization and additionally the enlistment of the awards and recognition and the communication with the creative personnel and resources are extremely important for the innovative organization culture. In order to eliminate the obstacles blocking creativity of the people, tolerance for the mistakes, continuous learning, encouragement for risk taking, competitiveness, good management of conflicts, and open communication are the necessities that mustn't be underestimated. Additionally, in the innovation culture, it's very important to activate the extraordinary and less used skills, to decrease the numbers of hierarchy levels in the organization, and to be always alert for the internal and external signals (Işıklı et al. 2009: 731). On the other side, Uz Kurt (2008: 146) underlined that it's important to have a strong administrative support, have an active internal and external communication, pay attention to the customer needs, forgive the mistakes during the innovative efforts, and reward the success in the innovative organization culture. In the cultures in which the innovation is highly supported, the official meetings are made carefully in order to share the information, widen and develop ideas, express the disagreements, and manage the conflicts, and they are common rituals. In the organization cultures in which the innovation is supported at a low level, although the new product development process seems to be extremely ritualistic on the legal side, actually it's usually not (Jassawalla and Sashital 2002: 47–48).

According to Ahmed (1998), an organization must have several norms in order to have the qualities for supporting the innovation. These norms can be given in subtitles such as freedom and risk taking, dynamism and being future oriented, external orientation, trust and openness, interaction between functions, the commitment of the leader to innovation, rewarding, sparing time for innovation and special trainings for this subject, and development of the organization structure according to the autonomy and flexibility. In addition to these, organizational learning must be supported because it will provide the necessary information flow; contributor decision-making techniques should be applied in order to take advantage of different ideas (Yiğit 2014: 7). Dobni (2008) has suggested that the components referred to as environment will reveal the innovation culture in order to apply the innovation and to have a market orientation for innovation, to have the intention to be innovative, and to have a background supporting the innovation in his research that has been conducted in order to reveal the innovation culture indicators. The study results showed that this structure of four components forms the innovative culture, and it can be used in order to analyze if an organization has the innovative culture or not.

The importance of the transformation of the organization culture into the innovation culture shows itself in 3M, which keeps its place among the most innovative companies for years. The company has a life cycle of more than

100 years and for this period it has a good reputation as the biggest innovator. The company's success, which has a significantly coherent picture, is a result of its creative culture (Tidd et al. 2005: 510). Many writers and academicians claim that the key to a successful innovation is a good management. Actually, 3M, where the innovation is very well managed, is literally specialized in the subject of culture. A more recent research shows that 3M company, for more than 90 years, has brought the management techniques such as setting clear goals and having good communication together with an organization culture that nourishes the ideas and magnifies the creativity (Trott 2005: 405).

The enterprises have to make the innovation culture a part of the organization culture. In order to create an innovation culture in the company, first of all the senior managers have to embrace and encourage this change. Some literature studies show that the organizational and administrative support (Cramm et al. 2013) and the emotional intelligence of the managers (Altındağ and Köse dağı 2015) have a critical importance for the innovative culture. In addition, the experiential studies reveal the positive effect of innovative culture on the organizational performance. Park et al.'s (2015: 313) study show that the contributing management affects the innovative culture positively and again the innovative culture affects the organizational performance positively. Toaldo et al. (2013: 264) has proved that the innovative culture has positive effect on the organization performance by means of its positive effect on the marketing strategy process. As the organization culture turns out to be an innovative structure, an increase in the intention of creativity and innovation within the organization is observed.

3.2 Settlement of Open Innovation in Terms of New Idea Resource

In the last years, the nature of innovation has changed significantly. The increase in the complexity level of the products, the presence of the low priced but qualified workpower in the developing countries, and the development of special talents in different parts of the world, which are specific only for those regions (MacCormack et al. 2007: 1), prompted the organizations to go beyond the used traditional models in reaching the innovation resource. Open innovation is about seizing the best ideas and best people wherever they are. It refers to see not only the new products and services but also the new processes, new business models, and new methods of business practices (Murphy 2007: 6).

Recently, the R&D was considered as a strategic value by the enterprises and it was accepted as one of the prerequisites in order to enter into the many industries competitively. The companies, other than the big ones (such as DuPont, IBM, AT&T gibi) who have large resources and long-term research programs, weren't able to compete. However these big companies could have taken a big share out of profit. If there were others who want to take the roles of these enterprises, they had

to create their own laboratories. Today the circumstances changed. New and relatively small companies may catch up with the success of the others thanks to their innovative structure. The numerous innovations don't always bring along the success to these enterprises that make innovations by using only their own resources. There's a significant decrease in the innovation capacity of many leading enterprises. This situation leads the enterprises from "closed innovation" to "open innovation" (Chesbrough 2004: 23, 2011: 35).

For many years, the closed innovation mentality was accepted as the best way in terms of innovation idea resource that brings new ideas to the market. The organizations that embraced the closed innovation idea made much more bigger investments in the R&D activities compared to their competitors, and they made great efforts for employing the best and the most brilliant employees. In the closed innovation model, the organizations create their own innovation ideas, and later on, they develop the product related to that idea, produce, market, distribute it, and provide the service after sales. This refers to the paradigm "If you want a job to be done in the right way, you should do it yourself" (Fig. 1) (Chesbrough 2011: 36). Closed innovation paradigm is no more sustainable. Open innovation paradigm took its place. Open innovation refers to the obligation of using the outsourced ideas as well as the insources and also the ways to reach the domestic and foreign markets concerning that the enterprises are looking for the way to progress. Open innovation is a structure accepting that the ideas within the company can be obtained from the external channels and markets, namely, from the external resources other than the company's existing operations (Chesbrough 2004: 23).

In achieving the innovative performance, the role of networks, partnerships, and connections has become essential. The first Schumpeterian model, in which a single entrepreneur brings innovations to the market, has been replaced by a rich model in which different actors work together in the trial and distribution processes of the transformation of a new idea into a successful commercial explosion. This new model of innovation reveals an interactive innovation process in which the users of innovation system, suppliers, and entities take place. In this case, the innovators are rarely on their own. Usually they tend to unite with the teams based on trust, to meet in the application partnerships, and to be included in the intense interactive networks (Laursen and Salter 2006: 132).

As shown in Fig. 1, in the open innovation, the organization can commercialize both its ideas and the ideas inspired from the innovations of the other organizations. The limits are transitive. It can be aimed to generate new markets among the existing ones (Chesbrough 2011: 37). If the innovation concept will pass from closed to open, the companies will have to change their usual innovation management measurements. For the open innovation, the measurements can be clarified with the answers of these questions (Chesbrough 2004: 25):

1. What percentage of your product and service sales were provided by the outsourced, licensed technologies last year? Did this percentage have an increase or decrease when compared to 2–3 years ago?

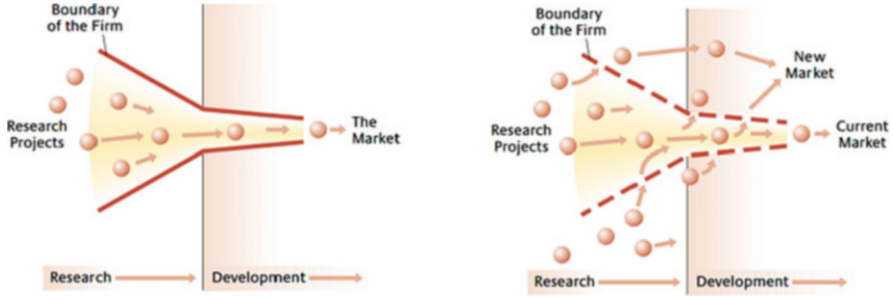


Fig. 1 The closed and open innovation models. *Source:* Chesbrough (2011)

2. How much time does it take to put into effect the licensed ideas in the company and how much time does it take for another company to do this? Did this period change in the last 5 years? In which direction?
3. What percentage of the inner ideas was recommended as a royalty from outside? What's the time difference between the patenting of the ideas and their outsourced licensing?
4. How many projects were completed last year? How many of them were revised later on? How many of them were suggested for further developments?
5. Has one of the projects in number four been technically developed quickly or has any of them developed faster than expected in the market? Has any project succeeded to provide external capital in order to develop more? Has any of them been preferred by the big customers?

Open innovation model is ideal to deal mostly with the unpredictable trends of the technology, new markets, the instability of customer behaviors, and growing complexity (Murphy 2007: 6). In this system, different actors and the interaction between these actors are extremely important. The support units such as the government institutions, financial institutions, and commercial chambers take a role in the realization of the innovation. Furthermore the actors such as competitors, universities, innovation centers, customers, and suppliers are also involved in the process actively (Rossi et al. 2013: 170). In the open innovation, the idea resource is discovered in its place with a continuous external observation in contrast to the cases in which the innovation idea resource is expected only from the present units within the organization. The close contacts established by the enterprises with the users and suppliers of the products and services, the partnerships with the competitors, and the collaborations made with the research-oriented departments of the universities are among the activities that will increase the innovation capacity of the organizations.

3.3 *Change in the Organization Structure*

It's necessary to design an appropriate organization structure for the organizations to comply with the changes within their environments in the long term, to obtain a sustainable place in the market by preserving their competitive advantage, and to develop the organizational processes that provide the emergence of novelty (Altuntaş and Dönmez 2010: 54). There should be particular talents and skills in the organization in order to realize and proceed the innovation no matter where its innovation resource is coming from. In order to have these talents and skills, it's necessary to have an organization structure accordingly (Uzkurt 2008: 146).

According to Junarsin (2009: 12), a company needs four components in order to manage the innovation successfully. These are designing the innovation strategy, implementing the strategy effectively by synchronizing the new technology and market needs, developing a supportive organization structure for the innovation, and establishing and developing external connections such as technology partners and other shareholders. It's important to remember that innovation is a teamwork. Innovation is not linked to a single person or a leader with a strong vision. It's necessary to have more than a single person's effort and a sum of great talents. Moreover, it's something more than a basic innovation team can achieve. To create innovation, starting with the radical innovation in the first step and commercializing, it's necessary to create a partnership network that provides a collaborative business ecosystem (Shelton 2007: 151).

Innovative organizations are the organizations that show innovative behaviors in a consistent manner over time. In the organizations it's believed that decentralized and informal organization structure facilitates the innovation tendency. It's seen that the big organizations have more tendency to embrace the innovation as they have the resources to implement the innovation when compared to the small organizations. At the same time, the flexible and open structures of the organizations increase the innovation by encouraging the new ideas (Subramanian and Nilakanta 1996: 634).

The flexibility in the organization structure, namely, giving the opportunity to use initiative to the employees instead of controlling them strictly during the business process, encouraging them to give new ideas, and reorganizing the structure of the organization in this way may trigger the innovation. Providing autonomy to the employees, giving them empowerment and chances to contribute to the decisions, and additionally making the groups dynamic with the help of collaboration groups will give the chance to be more creative and to reveal new ideas (Martins and Terblanche 2003: 71). The organization structures of Mintzberg can be evaluated in terms of innovation potential. The structure characterized by Mintzberg as the basic structure is usually highly innovative and extremely entrepreneur. In the professional bureaucracy, the people are innovative but the coordination between the functions limits the innovation capacity. Highly flexible adhocracy that can easily comply with the environment indicates an extremely innovative structure. In the adhocracy, low formalization, organic structure, small

units, high level of speciality, and decentralized structure prepare the right conditions for the innovation; however continuity of the adhocracy structures may not be provided; in this case the innovative activities may be interrupted in time (Mintzberg 1980: 330; Aypay 2014: 453; Lam 2004: 120).

Tushman and O'Reilly (1996: 8) suggested the ambidextrous organization structure which can make the changes in both evolutionary and revolutionary senses in order to survive. The ambidextrous organization design that Tushman and O'Reilly III worked on for many years and Kaplan and Winby (2007) suggested for innovation creates certain units which have unique processes, structures, and cultures aiming to support especially early-stage innovation. These units consisting of often one or more innovation teams reside in a bigger main organization; however, they are established for supporting their unique paradigms, activities, and behaviors when a new job is launched. In the ambidextrous organization design, there are venture rules that gather the best ideas both within and out of the organization in a flexible structure, focused on a single target in order to discover, evaluate, and direct the growth opportunities of the enterprise, different from the consultant committee which gives suggestions related to the industry. Additionally, innovation groups, providing access to the best applications for the company by developing, integrating, and implementing the information provided from different resources and creating a collaborative frame, are created. The leader resource network, derivant from the universities, consulting firms, research institutes, think tanks, and other organizations, is a part of the components of this kind of structure (Fig. 2).

In a research performed by O'Reilly and Tushman (2004), they analyzed the organization designs over 35 radical innovations. The results obtained show that more than 90 % of the innovation breakthroughs are realized in the ambidextrous organization design and 25 % of them realized in the functional organization design. It's observed that there isn't any innovation breakthrough in the unsupported teams and in the cross-functional design.

While describing the most adequate organization structure for the innovation, the need to eliminate the high-level bureaucracy, the blocks in front of the communication, and the factors that prevent the release of good ideas can be mentioned. However while establishing this structure, it's necessary to be careful about the changes that may cause chaos. Sometimes the created skunkwork groups and the informal structures may also be against the successful innovation. For this reason, the innovative organizations have to ensure the balance of informal and formal (Bessant and Tidd 2007: 554). The main components for designing an innovative organization and making innovations are the vision, leadership and willingness, effective teamwork, continuous personal development, enlarged communication networks, highly contribution to innovation, external focalization, creative organization climate, and learning organization (Table 1).

The classification of mechanical and organic organization structure performed by Burns and Stalker (1961, cited in Lam, 2004: 118) related to the organization structures draws attention also with its background that affects the innovation. In case that the environment is stable and predictable, appropriate solid structures are

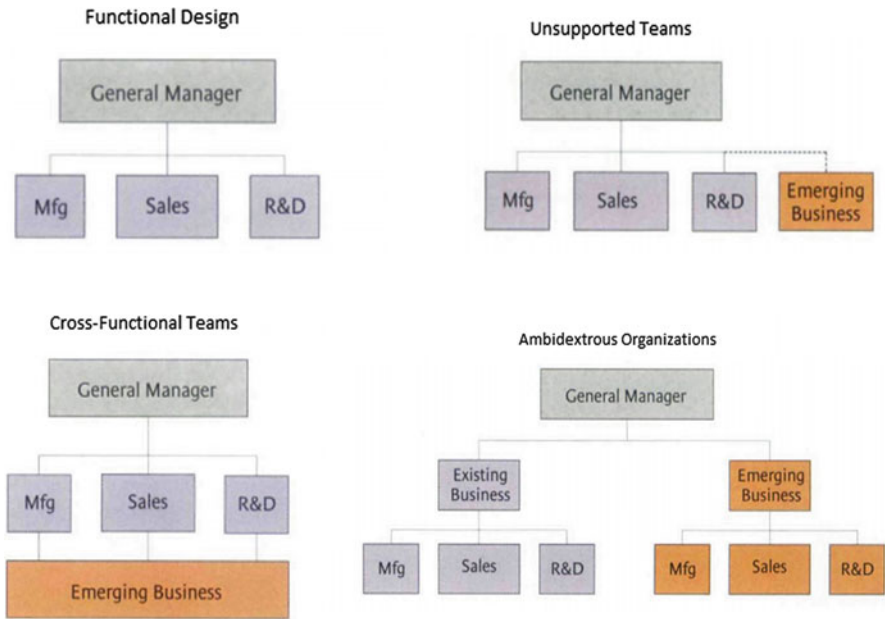


Fig. 2 Ambidextrous organization design. Source: O'Reilly and Tushman (2004)

called mechanistic structures, the flexible structures focused on complying with the changing environmental conditions, that find innovative solutions in case of emergency are called organic structures (Lam 2004:118). With an overall perspective, the innovation develops more in organic organization structures than mechanic organization structures. The innovation is seen mostly in contributor organization structure and cultures. The general characteristics of the organic organization structures that support the innovation are considered as getting out of the rules, being a contributors and informal, supporting face to face communication, eliminating the limits between the departments by creating teams between the disciplines, being open to the ideas coming from outside, being flexible for the variable needs, eliminating the hierarchy, and enabling the creative communication. Quite the opposite, the mechanistic structures, which have characteristics such as certain department divisions, functional speciality, hierarchy, bureaucracy, many rules and procedures, long decision mechanism chains and slow decisions, and very less individual freedom, prevent the innovation (Ahmed 1998: 36). Additionally, at the same time, the organization structure that is cohesive in its relation with the organization environment is very important for the innovation. In an environment of a high uncertainty and chaos, the flexible organization structure is effective in dealing with the problems (Uzkurt 2008: 149). Daft (2015: 378) also suggests the organic organization structure in order to support the change in the technology. In this flexible structure, creative departments can be established such as the idea incubation center and the innovation can be started in there. Additionally, different

Table 1 Components of the innovative organization

Components	Key features
Shared vision, leadership, and the will to innovate	Stretching strategic intent, top management commitment to innovation
Appropriate structure	Organization design with creativity, learning, and interaction. Finding appropriate balance between organic and mechanistic options
Key individuals	Promoters, champions, gatekeepers, and other positions that facilitate innovation
Effective teamworking	Appropriate use of teams to solve problems. Requires investment in team selection and building
Continuing and stretching individual development	Long-term commitment to education and training to ensure high levels of competence and the skills to learn effectively
Extensive communication	Communication within and between organization and outside. Internally in three directions—upward, downward, and laterally
High involvement in innovation	Participation in organization-wide continuous improvement activity
External focus	Internal and external customer orientation. Extensive networking
Creative climate	Positive approach to creative ideas, supported by relevant motivation systems
Learning organization	High levels of involvement within and outside the firm in proactive experimentation, finding and solving problems, communication and sharing of experiences, and knowledge capture and dissemination

Source: Bessant and Tidd (2007: 555)

and nonformal, small units that are focused on innovative ideas can be created. These units are closed groups called as skunkworks and they are structures in which time and freedom are given to the highly talented people.

Right organization structures, processes, and cultures must be created in order to share the information and direct the organization to make innovations. The changes in the organization structure cause a serious performance increase in some organizations. For example, Netscape was founded in 1994 and in 1996 after reorganizing their product departments by changing them into mini departments which have their own general managers and special product development activities; their sales increased from 80 million dollars to approx. 500 million dollars (von Krogh and Cusumano 2001). Due to the fact that there are many blocks that prevent the creativity of the employees in bureaucratic organization structures that are not flexible with a strict hierarchy, the innovation chance is getting low in this kind of structures. The prerequisite of being an innovative organization is to adapt the organization structure to develop a new product.

4 Conclusion

Innovation is to develop different, new ideas and to implement them. These ideas can be developed in order to solve the unsolved problems or to satisfy unsatisfied needs. Today in every sector, there is an intense competition environment. In this environment, for sustainable competition, the most effective tools are considered as innovation strategies. For the organizations, the innovation is an important competitive tool in terms of increasing the efficiency and profitability, growing the current market, and creating new markets.

Thanks to open innovation model, the collaborations performed with external shareholders (suppliers, customers, universities, etc.) cause a decrease in R&D budget. The open innovation contributes to decrease the R&D costs of the companies; at the same time, it contributes to develop more customer-oriented products. The open innovation, contrary to what is believed, is not a threat for the R&D activities but it has a supportive role. Today millions of consumers take part in the innovation process of the enterprises of which they are customers, and in this case, they are quite content to contribute to the production process of the products of which they got satisfaction. Thanks to this paradigm, the brands increase the common activity areas with their consumers.

Another factor that triggers the innovative activities of the organizations is to establish the right organization culture in order to make innovations. The organization culture, in which the innovation idea will grow, has to be tolerant to the mistakes in order to support the creativity of its employees, and it has to be free in order to encourage them to generate new ideas. Additionally, the realization of innovation increases in the organizations in which the creativity is awarded and appreciated, the blocks in front of information sharing are eliminated, and multifaceted nature of the communication is implemented. Moreover, the organization structure must be also cleared of the factors that may prevent the innovation. It's not possible to reveal the ideas that may turn out to be an innovation in the organizations closed to outside where there is a high level of hierarchy and a strict bureaucracy, the functions are separated with sharp lines, no communication is possible except for the vertical communication, and the information flow is interrupted. For this reason, it's necessary to establish flexible structures called as organic structures that may adapt to the rapidly changing environment, which consist of small departments and require high level of expertise. The periods of accepting the innovation in the closed systems as the activities realized only by the R&D departments remain in the past. There is an extremely dynamic environment to be adapted and an intense global competition atmosphere, and in order to be innovative, the organizations have to provide their own dynamic structures by getting away from the traditional structures.

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Building Innovative Strategies for the Competitiveness of Family Firms in Emerging Markets

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Abstract Studies based on the relationship between the evolution of family firms and their innovative performance have been rare in family-business research. This chapter reviews the characteristics of family firms and their relation to innovation strategies in emerging markets, with the case of Turkish family firms, and provides an explorative analysis of the relationship between the factors affecting the development of family business and their innovative strategies in Turkey. The most prevalent characteristics of Turkish family firms that affect their innovation decisions are the collectivist family culture, pragmatic growth decisions, and paternalistic control tendencies. The differences based on these characteristics should affect their approach to innovation differently. Founders follow an exploitative innovation strategy. Later generations coming after the founder generation generally focus on more exploratory strategies to meet market demands. By the third generation, as the firm has institutionalized, they try to balance the two forms of innovation by using their resources and exploring environmental opportunities in the form of ambidexterity.

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1 Introduction

Innovation is one of the most important determinants for family firms in realizing their primary goals in terms of long-term success, growth, and survival (Damanpour and Evan 1984; Sorenson et al. 2008; De Massis et al. 2013). Family involvement in ownership and management, shared family values, and the ease in accessing financial resources definitely affect the innovation capabilities of family firms differently (Patel and Fiet 2011; De Massis et al. 2015). It is inevitable that there will be differences in the innovation strategies of family businesses when the contextual factors like cultural, social, and economic issues affecting the evolution of family businesses are taken into account (Classen et al. 2014; Gomez-Mejia et al. 2007; Zahra 2005). This complexity can be observed throughout the literature reporting different findings on the relationship between innovation and family-business characteristics in different contexts (Shepherd and Zahra 2003; Astrachan et al. 2003; Zahra 2005). Focusing on more contextual research settings may contribute to find a way along these, sometimes contradictory, findings to explain these complex relationships.

Most of the small businesses that are the engines of the economy and employment in Turkey are family businesses similar to the case in many other developing countries across the world (Anderson et al. 2003; Astrachan and Shanker 2003; Caliskan 2008). While family businesses constitute a large share of all small businesses, many of these businesses face failure and end their businesses before succeeding to the second or further generations (Astrachan and Allen 2003). Observing the same challenges in the field, studies on family firms in Turkey have been mainly focused on the characteristics and problems of family firms in the early years of the literature (Kirim 2001; Karpuzoglu 2002). In recent years the focus of studies has shifted to more specific issues such as management transition (Erdogmus 2007) and the competencies of future leaders of family business (Günver 2002). Strategic perspectives on innovation in Turkish family firms have only recently been gained attention (Gerni 2013; Altindag et al. 2011).

This chapter reviews the innovative strategies for the competitiveness of family businesses in emerging markets by focusing on Turkish family businesses. After the introduction the chapter continues with the review of innovation and its importance for family firms. Then, the next part discusses the process and factors of innovation in family firms by giving examples from developed as well as developing countries. The fourth section explains the business contexts of Turkish family firms and their innovation strategies.

2 Innovation in Family Firms

Family firms play a significant role in economic progress as they can be recognized as important drivers of innovation and entrepreneurship (Zahra 2005; Astrachan 2003). Being naturally entrepreneurs, family firms contribute significantly to developing new technologies especially in the early years of the business (Gupta and Das 2008). Findings in innovativeness of family businesses in the prior literature are conflicting most of the time. On one hand, some studies address the importance of ownership and family involvement in driving entrepreneurship, innovation, and economic progress. However, on another hand, there are studies confirming that the relation between family firms and innovation is not significant or even negative because of the conservative nature of the family businesses and unwillingness in taking risks (Shepherd and Zahra 2003).

With respect to the management style, later generations are more professional as compared to first generations' more paternalistic and informal way of management (Dyer 1988; McConaughy and Philips 1999). The first generation has internal focus and later generations have external focus (Cruz and Norqvist 2007). Later generations are more likely to emphasize business growth for firm's long-term survival (Kellermanns et al. 2008; Beck et al. 2011). The literature emphasizes the positive effects of later generations' involvement on innovation in managing the family businesses.

Family firms outperform nonfamily firms in creating and exploiting opportunities in domains of their business sectors (Sharma and Salvato 2011). Long-lived family firms are ambidextrous and simultaneously both explore new opportunities and exploit already discovered opportunities (Bergfeld and Weber 2011). The unique attributes of family firms influence the way family firms balance exploiting existing knowledge and exploring new knowledge (Sharma and Salvato 2011). Drawing from prior literature, Allison et al. (2014) suggest two perspectives about ambidexterity in family firms. One perspective claims some family firms that engage in both exploration and exploitation are stable over time resulting in continuous innovation. On the other hand, the second perspective suggests that family members engage in radical innovation, authorizing subordinates for ordinary and routine innovation. Overall, there is not much known about how family firms handle exploitation and exploration over time and how their innovation approach influences firm performance (Allison et al. 2014).

3 Building Innovation Strategies for Competitiveness

3.1 *Need to Innovate for Survival*

Why certain firms are systematically involved in innovation more than others is deeply studied in the literature from various viewpoints. From the economics point of view, innovation has been valued in terms of the resources spent in producing

innovation such as R&D investments or the tangible innovation output such as the number of patents or number of new products (Gopalakrishnan and Damanpour 1997). Firms innovate to increase growth, productivity, and overall performance. On the other hand, technologists view innovation as a process of generating new technology and improving based on the existing technology in order to manage technological transitions and compete in the market with new or improved products (Pappas 1984; Gopalakrishnan and Damanpour 1997). Drawing attention to globalization, Criscuolo et al. (2004) argue that globally engaged firms that have access to larger stocks of knowledge are more innovative than their solely domestic counterparts. Much prior research is able to associate family firms' unique cultural, organizational, and socio-cognitive characteristics to higher innovativeness in the literature. Zahra (2005) finds that the long-term view and willingness to survive provide incentives for these firms to further invest in innovation and develop new business models and technologies. Family firms differ in governing practices in contrast to nonfamily firms making them to seek noneconomic opportunities that may result in longer-term innovation practices (Patel and Fiet 2011).

It was found that family firms generally invest less in R&D, which researchers attribute to family owners' tendency to avoid perceived threats to their socio-emotional wealth. Family owners and managers who attach more importance to long-term family goals are more willing to take risky long-term investment decisions for their firms. When short-term family goals dominate, family owners and managers may behave as reactive agents, opportunistically, or even not investing in long-term projects in order to promote and preserve their own economic and affective interests (Chrisman and Patel 2012). Concern for socio-emotional wealth may cause family firms to follow strategies that are control oriented rather than long term oriented (Chrisman et al. 2013; Gomez-Mejia et al. 2007). Although research shows family firms invest less in R&D, in some studies it was found family firms are more productive in terms of R&D (Chen and Hsu 2009; Chrisman and Patel 2012).

3.2 Factors/Components that Effect Innovativeness in Family Firms

There is some remarkable research associating the dynamic relation between innovativeness and family firm success under changing levels of various resource bundles. Small firms generate personal income within family and social networks in local economies (Ozcan 1995). Spriggs et al. (2012) investigate the relationship between innovative capacity and small family firm performance given different levels of family ownership dispersions and collaborative network orientation. Collaborative network orientation developed through long-term relations with customers, family members, and community is positively associated with

innovative capacity and firm success (Sorenson et al. 2008; Gomez-Mejia et al. 2007; Zahra et al. 2004; Ritter and Gemunden 2003).

When it comes to ownership structure, high levels of ownership dispersion might result in higher information exchange indicating higher firm performance (Ling and Kellermanns 2010); even this gets better when higher numbers of family members across different generations are actively involved in family management (Zahra 2005). However, more family members (as owners) translate also to more conflicts in terms of longer decision-making processes and more information to exchange lowering the overall firm success (Dooley et al. 2000; Ward 1997). It is worth to note that Spriggs et al. (2012) hypothesize the contrast between these that high innovative capacity with either concentrated ownership and high collaborative network orientation or dispersed ownership with low collaborative network orientation enhance firm performance.

Generational factors also play a key role in understanding how innovativeness affects family firm success and survival (Kellermanns et al. 2012; Beck et al. 2011). Family firms gain higher chances to identify entrepreneurial opportunities through engaging subsequent generations in management because of the lost entrepreneurial orientation of the founders over time (Salvato 2004). Having multiple generations actively involved in the management is found to be significantly associated with increased focus on innovation (Zahra 2005). Subsequent generations are drivers behind innovation with fresh ideas and new knowledge (Litz and Kleysen 2001). There is more centralized decision making in first generation than in second (Dyer 1988) because of the founder centrality of the first generation holding the power in one hand (Brun de Ponet et al. 2007). Besides, founders and first generations are more likely to be risk averse because of longevity concerns (Naldi et al. 2007).

3.3 Differences in Innovation Strategies Across Countries

Besides the inconsistent findings in the literature on family firms' innovativeness, many of the existing studies are also cross-sectional, focusing on one generation or fixed time interval. The fragmented analysis of how family firms use innovation in nurturing their competitive advantage through the relation between family involvement and innovation inputs, processes, and outputs does not necessarily suggest patterns on how family firms innovate differently than nonfamily ones. In most of these studies, the life cycle of family businesses in approaching innovation through different generations is the missing link. Most of the prior research aims to understand innovation in family businesses focus on Western countries showing cultural dissimilarities (Chen and Hsu 2009). However, a firm's culture is shaped by many factors, including values of its founders and managers, human resources approaches, and cultural and religion practices of the country of origin, which in turn affect family firms' innovativeness.

Reviewing theoretical and empirical studies in the area of technological innovation in family firms, De Massis et al. (2013) provides an agenda of the current state of family firm innovativeness and the potential areas to contribute in the future. Selecting the most influential peer-review articles in technological innovation in family firms in the last 15 years, they identify three ways family involvement affects the firm innovativeness: innovation inputs (e.g., R&D inputs), innovation activities (e.g., leadership in new product development projects), and innovation outputs (e.g., number of new products). The mixed evidence in the literature particularly on the effects of family involvement on innovation outputs suggests to account for contextual factors and the moderating role of family involvement in the relationship between innovation inputs and activities as well as between the innovation activities and outputs.

Based on an exploratory multiple-case study of six Italian family firms, De Massis et al. (2013) suggest that success factors critical for product innovation do not apply to family firms. From the perspective of product innovation process, De Massis et al. (2015) conceptualize strategy, organization, and climate (Tidd et al. 2001; Trott 2008) as the three distinctive perspectives though family firms may impede or facilitate innovativeness differently from nonfamily ones. Evidence on data collected through a multiple-case study involving ten Italian small- and medium-sized family and nonfamily firms reveals that family firms predominantly establish functional organizations, they are more risk averse, and the innovation process is less structured with an orientation toward investing in exploitative innovations (De Massis et al. 2015). In a similar vein, analyzing a sample of 2087 German SMEs, Classen et al. (2014) associate higher propensities to invest in innovation with family-owned SMEs; however, such family SMEs invest less intensively in innovation reflecting to the risk-aversion and long-term orientation aspects of family-owned firms. The findings of another study of publicly held firms in Canada recorded a significantly lower R&D intensity than nonfamily firms (Munoz-Bullon and Sanchez-Bueno 2011). Similarly, Chen and Hsu (2009) suggest a significant negative relationship between family ownership and R&D investment reflecting to the efficient use of R&D for family firms in Asian countries.

4 Innovation Strategies in an Emerging Economy: Turkish Family Firms

4.1 The Context of Family Firms in Turkey

In Turkey the state has been a prominent role in business life from the beginning of the republic (Bugra 1994). Private sector has gained a comparable increased role after two major economic development attempts in the 1950s and 1980s (Kozan et al. 2006). Family and other in-group relationships influence the way of doing business (Kabasakal and Bodur 2002). Business organizations that are described as

family type (Trompenaars and Hampden-Turner 1998) are mainly owned by families (Gunduz and Tatoglu 2003). Family members occupy critical positions in those firms (Fikret-Pasa et al. 2001). These firms were usually founded by a single family or a small number of allied families that established the core of the group in which human and other resources were shifted when necessary (Bugra 1994). Family groups own directly or indirectly more than 75 % of companies in the Istanbul Stock Exchange (Yurtoglu 2000). It should be emphasized large holding companies are also family owned.

The Turkish family holdings are similar to the business groups in emerging economies such as the Korean chaebols, the Indian business houses, and the Latin American and Spanish “grupos” (Guillen 2000). These business groups (1) operate in different industries, (2) are guided by a unified entrepreneurship, and (3) have not a fully integrated organizational structure (Guillen 2000). In terms of resource-based view, business groups in emerging economies were created by entrepreneurs and firms regarding political and economic conditions while entering new industries. Yildirim and Üsdiken (2007) reported Turkish holdings are an archetypal example of diversified family-business groups (FBGs). The main characteristics of these family-owned firms are unrelated diversification through legally separate firms under central coordination and control (Yildirim-Oktem and Üsdiken 2010).

Although private sector was dominated by large family-owned conglomerates, small businesses have a critical role in business life. In comparison to the counterparts in the East Asian economies, small businesses in Turkey could go a long way for playing a role like them (Kozan et al. 2006). The main characteristics of Turkish small firms can be described as highly personal and unstructured nature of business practice, the informal style of management, and the importance of family and friend involvement and networks (Ozcan 1995). Some of Turkish family businesses compete and cooperate jointly in the market place. Siblings or cousins who are not working in the same firm compete with each other in the same sectors without disrupting the large family relationships at all in most of the cases. The joint competitiveness of the relatives and keeping the siblings at different businesses or branches are one of the main distinctive features of the Turkish family businesses (Erdogmus et al. 2015). Small firms rely on family resources for financing business and investment rather than loans of the government or private institutions (Ozsoy et al. 2001).

Being high on collectivism, uncertainty avoidance, and power-distance describe Turkish culture (Hofstede 1980; Kabasakal and Bodur 2002, 2007). In Turkish society people are loyal to family values and trust their family members. Leaders and managers show paternalist behaviors with parental consideration toward subordinates (Aycan and Kanungo 1997; Fikret-Pasa et al. 2001). Managers with an autocratic style of leadership are perceived essentially as extensions of the founder owner in traditional Turkish businesses (Marcoulides et al. 1998). Most of the Turkish companies are coordinated and controlled with a high degree of centralization (Kozan and Ilter 1994). In many emerging economies, family dominance in the top positions of the business groups is very salient. In these cultures, high

respect for the elderly people is a norm, and older generations have more privileges and a higher status relative to the younger generations (Chung and Luo 2008).

4.2 Innovation Strategies of Family Businesses in Turkey

In Turkey most of the small businesses that are the engines of the economy and employment are family businesses. Regarding small- and medium-sized family businesses in Turkey, collectivist values and behaviors shape family-business relations during the development of family business. Instead of long-term business partnership, traditional values, sectarian affiliations, and family and social environment govern networks among small firms (Ozcan 2006). Erdil et al. (2004) investigated the effect of entrepreneurship orientation, technological competence, and network competence on the innovation and performance of family business. They found the effect of entrepreneurship orientation on innovation, but other variables had no effect. Sayli and Agca (2009) investigated the effect of family culture on intrapreneurship. Agca and Kizildag (2013) found that there were less differences between generations in terms of entrepreneurship. Managers believe the importance of innovation, but the traditional structure and culture of family businesses are obstacles for innovation (Baraz 2008). He added that the governance structure of bigger organizations facilitates innovation. Kaya and Aytekin (2004) emphasized that the performance of those family businesses that empower employees are affected positively from market dynamism. Those family firms in the stock exchange and had family members on the board had more positive financial performance (Turgut and Dicle 2004). Boards of family businesses delegated more decision-making authority to family member general managers (Yamak and Oktem 2008). Sustainability of entrepreneurial firms depends on value creation and delegating entrepreneurial cognition to the next generations (Ozdemir 2013).

As a family, having the ownership and control of the business at various degrees results in different strategies of innovation as compared to the nonfamily peers in the same industrial sectors with similar firm-level characteristics. Young family firms usually adopt exploitative innovation strategies to improve the efficiency of the production using the existing technologies or focusing and learning through the existing markets (Erdogmus et al. 2014). With the involvement of the second generation in the family business, more progressive approaches (using adjacent technologies and markets) are employed along with the continuing exploitative innovation. Continuous innovation has been perceived as an assurance of the continuity of the family businesses that have succeeded to the third generation and reached the maturity stages in the business dimension of their development. With the exploitative innovation going on, they simultaneously attempt to use new technologies and look for opportunities in new markets employing exploratory innovation strategies. Since Turkish family businesses grow in the form of clusters, they adopt an ambidextrous approach by using both exploitative and explorative innovation simultaneously in all businesses and branches.

5 Conclusion

Family firms desire to maintain and increase managerial control and/or ownership of their businesses. The involvement of the younger generations in the business is an indication of this desire and of the continuity of the family business. Traditional family values appear to be substantially dominant in the first generation while the family retains most of these values through the second generation; however, traditional family values cannot be carried on to the third generation in most cases. Pursuing higher education becomes dominant among the third generation, and the third generation is usually incorporated into the business after higher education has been completed. Incorporating the third generation into the family business differs significantly from the second generations' active involvement in business. The practices of entering into the family business, education, and integration of daughters to the family businesses and consumption behaviors of family members are significantly changed by the third generation. These changes resulted in new consumption habits in families and affected family-business relations. The third generation is usually perceived as reluctant in taking responsibilities, having higher expectancies and thus having problems in adapting to the family business from the point of view of the older generations. Therefore, incorporating third generation into family business is very critical to invest in innovation for family businesses. Incorporating the third-generation children into the business has thus been a question second-generation family members that are active in the business have been trying to find an answer.

As a result to be innovative in family firm managing relations among family members in growing family business is very critical. Managing family relations provided more business focus. Integrating later-generation family members and professional into family business is a requirement and also challenge for innovation. It is accepted that later generations want to do things differently. So young family members and professional bring fresh ideas and techniques into family businesses. They create an innovative culture and climate and invest more research and development. For the sustainability of family firms, institutionalization of innovation is very critical in the time of new-generation family members and professionals.

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Innovative Processes in New Product and Service Development

Muhsin Bayik

Abstract There are many processes for new product and service development. The common shortcomings of these models are being linear and excluding feedback loops, lacking of customer or supplier involvement, and not being connected to market conditions before the actual rollout of the products. This chapter reviews the existing new product development processes and sheds light on two new models: (1) customer development and (2) lean startup in terms of customer feedback, market connection, and product revision.

1 Introduction

New product and service development has been a point of interest for a long time. New products bring along certain advantages to the company and keep the ship afloat through market condition changes.

New products may help a company's stock market price increase. The impact of new product introductions on the value of the firms was analyzed (Chaney et al. 1991). The aggregate impact of the new product announcement over 3 days was an increase in the share value of the company. The market's reaction to the information in the announcement was related to the number of products in the announcement and whether the products were truly new.

The company can differentiate itself from the pricing of the competitors by coming up with new products. When a company develops a new product which is totally different than the existing ones in the market, if the product is protected by means of a patent, then the company can choose to charge a premium price for the product (Dean 1976). In the long run, this will lead to a better balance sheet for the company.

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New product and service development plays an important role in the future of the company; therefore management must pay attention to existing gaps in the market and support the teams working on new products in order to assure a success in the marketplace against competitors.

2 New Product Development Categories

There is a great amount of research on types of new product development. There are eight basic distinct categories (Trott 2012):

1. Departmental-stage models
2. Activity-stage models
3. Cross-functional models
4. Decision-stage models
5. Conversion-process models
6. Response models
7. Network models
8. Outsourced

2.1 *Departmental-Stage Models*

Departmental-stage models are the early form of NPD models. The model is linear, where a certain department is responsible for a specific group of tasks. When the tasks are completed, the project is passed unto the next department in line. A representation would be like the R&D department would come up with a bright idea, the engineering department would work on that idea and come up with a working prototype, the manufacturing department would work on a viable product before actual production, and the marketing department will take over the project for product launch.

Departmental-stage model has some flaws compared to what is really going on in new product development. In the model, the flow is linear and there is no feedback, which does not reflect the practice in real-life cases. Marketing can be involved in the process way before than anticipated and stay connected, using market and consumer analysis. Engineering and manufacturing stay in touch all the time, in the case that there would be a need for revision. Models are also referred to as “over-the-wall” models, since the project is thrown over the wall to the next department when tasks are done.

2.2 Activity-Stage Models and Concurrent Engineering

Activity-stage models are similar to departmental-stage models, but the reality is better represented since they emphasize activities. By way of feedback loops, iteration is embedded in the system, which was nonexistent in the previous model. The model is criticized for over-the-wall approach. More recent models, in order to address the need for cross-functional activities, adopted a concurrent engineering approach. In this version, the product and the production and support processes are concurrently designed. The focus shifts from functions to the whole process.

According to the findings of a study by Maylor (1997), in concurrent new product development, supplier involvement affects the outcomes positively. Though time reduction was the major benefit sought, the main benefits achieved were meeting customer needs first and reduction in time to market second. The tools and techniques play an important part in effective product development.

2.3 Cross-Functional Models

The communication between different teams can be a major problem during new product development. It would be more complicated when the project moves between different functions back and forth, and the project could be changed at each stop. In cross-functional teams, to overcome most of the limitations, people from all the necessary departments are included in the dedicated project team. This also would bring along a project management approach and interdisciplinary teams.

Song et al. (1998) found that R&D and marketing joint involvement is fruitful in market opportunity analysis, R&D—manufacturing cooperation and marketing—manufacturing cooperation are productive in the planning stage. On the contrary, R&D—manufacturing and R&D—marketing—manufacturing joint involvement is counterproductive in market opportunity analysis. Different new product development stages call for different types of involvement. The importance of a function varies depending on the stage. Cooperation between two departments is more efficient than all departments working together.

Atuahene-Gima and Evangelista (2000) analyzed the effect of marketing and R&D on new product development and found that R&D and marketing staff have different perceptions on each other regarding new product performance. While each team believes their own influence leads to a higher new product performance, marketing views R&D's impact as related positively to new product performance, and R&D sees marketing's impact as negative. Both teams need to have a better self-assessment of their influence in new product development.

2.4 Decision-Stage Models

In decision-stage models, the new product development process is a series of decisions which need to be made for the progress of the project (Cooper and Kleinschmidt 1993). The model facilitates iteration through feedback loops, but there is criticism for the model regarding feedback being implicit rather than explicit.

2.4.1 Stage-Gate Process

In this process, the effort is divided into clear-cut time-sequenced stages divided by management decision gates (Cooper 1999). Multifunctional teams need to accomplish certain cross-functional tasks before getting management approval for the next stage of product development. The process has its own downsides. The process is sequential and can be slow, and it is focused on end gates rather than on the consumer. The low knowledge level of the gate keeper can lead to poor judgment.

2.5 Conversion-Process Model

Conversion-process models perceive new product development as many inputs into a “black box” and where these inputs are converted into an output (Schon 1963). The inputs can be customer requirements, technical considerations, manufacturing limitations, and managerial priorities, and the output would be the new product. The wide variety of information inputs utilized in forming a product is acceptable, but the lack of detail on other issues is the biggest drawback of this model.

2.6 Response Models

The model’s focal point is the response of the individual or organization to a new idea or project. This approach has brought to light additional factors which affect the acceptance or rejection of new product proposals, specifically at the screening stage.

2.7 Network Models

In network models, knowledge is accumulated from different departments like marketing, R&D, and manufacturing as the project progresses from initial idea to

development. External connections bring in information which contributes to success in new product development.

According to a research by Oerlemans et al. (1998), economic networks influence innovation processes. Companies use not only internal resources but also use their environment for better innovation results. The contribution of buyers and suppliers to the innovation process is important. The impact of external resources to the performance of companies working on incremental innovations is higher than that of companies working on radical innovations. Innovation models paying balanced attention to both internal and external resources were found to be more fruitful.

3 The Next Phase of New Product Processes

Cooper (1994) proposed fundamental changes to the stage-gate model and stated that the third-generation process will evolve from the current systems. The new process is expected to be flexible. It will have fuzzy gates allowing conditional Go decisions which are situationally dependent. It will be fluid and adaptable, with overlapping stages. It will be focused, developing methods which will enable prioritization of projects and sharper focus.

3.1 Customer Involvement

According to a meta-analysis by Chang and Taylor (2016), customer involvement in the ideation and launch stages contributes to the new product development process by accelerating time to market and thus improving new product financial performance. Customer participation in the development stage delays time to market and negatively affects new product financial performance. Compared to high-tech industries, customer involvement is a more effective strategy in low-tech industries, since it is easier to integrate and to utilize knowledge in low-tech industries. The effect of customer involvement for small firms is significantly greater than for large firms. The benefit of customer involvement in emerging countries on time to market and new product financial performance are significantly greater than those in developed markets.

It was found that customer involvement had different impacts for different innovation types (Menguc et al. 2014) Under high incremental innovation capability, customer involvement in design helps new product performance. Under high radical innovation capability, customer involvement harms new product performance. Supplier involvement in design was helpful under high incremental and radical innovation capability.

In new service development, experienced teams are found to be less inclined to implement feedback from customers involved in the development process

(Carbonell and Rodriguez Escudero 2015). This finding is in line with previous research stating that past experience can have a negative effect on innovation performance due to inflexibility or capability pitfall (Liu and Hart 2011; Michael and Palandjian 2004; Sampson 2005). The new service development teams will have a tendency to build on existing knowledge instead of acquiring new information as they get experience in developing and launching new products. Experienced team members are inclined to use past experience as a reference for success and are less willing to use the feedback from customers involved in NSD development-related decisions. This approach can affect the market performance of the new services in a negative way.

A social network comprised of customers, www.mystarbucksidea.com, was analyzed for customer interaction and contribution on web-supported new service development (Sigala 2012). It was found that customer interactions and feedback brought in information on new service ideas, how they can be further developed, and what these services mean for the customers, adaptability and further enrichment of the ideas by other customers. Customers were also found to generate new ideas, to interpret, and to spread them among the web community.

According to a research by Larbig-Wust (2010), the companies which involve customers in idea generation and concept development stage diminish uncertainty on what customers need. The involvement of customers in business analysis stage was found to have no impact. Companies with such practices tended to revise their new service offerings according to the customer feedback in order to gain competitive advantage in the long run.

Customer characteristics in customer-oriented innovation were analyzed (Alam 2011), and it was found that most widely used characteristic was existing relationship with the customer which is followed by customer initiation of innovation. The least used characteristics were customer expertise and lead users. A combination of these characteristics can be used when picking customers for involvement in new service development.

Cui and Wu (2016) analyzed the antecedents and impact of three forms of customer involvement in innovation: customer involvement as an information source (CIS), customer involvement as codevelopers (CIC), and customer involvement as innovators (CIN). It was found that CIN is more useful when the company is equipped with strong technological capabilities, which can also constrain the benefit of CIC.

4 Customer Development Process

A product-centric model coming from manufacturing industries has been widely used by a large number of companies. In an established industry and a well-defined market, when the customers are waiting for such a product, this model works fine (Fig. 1).

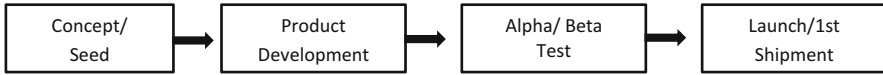


Fig. 1 The product development diagram. Source: Blank, S. (2013). The four steps to the epiphany. K&S Ranch

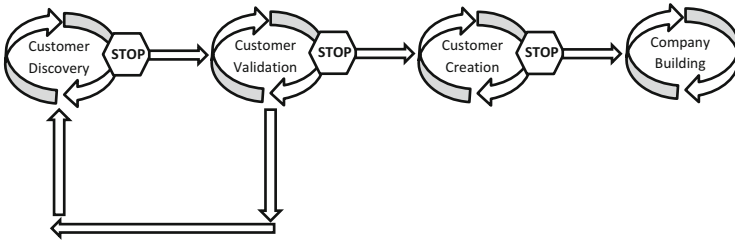


Fig. 2 The customer development model. Source: Blank, S. (2013). The four steps to the epiphany. K&S Ranch

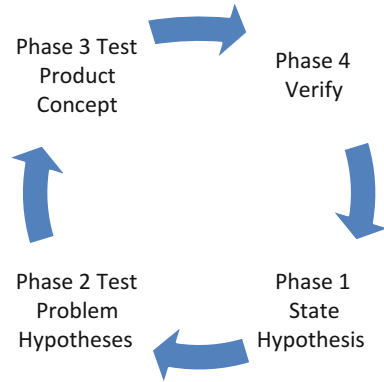
For startups, the model does not address all the needs. Startups fail due to lack of customers and a proven financial model. In the model, there are no customers. The emphasis is on “first customer ship” date. The linear flow seems to be intended for large companies or customers, which hinders the learning process within the organization. The model does not include meaningful milestones in terms of sales, marketing, and business development.

As an answer to all the concerns raised by startups regarding new product development, Blank (2013) proposes the model below (Fig. 2).

In the customer discovery process, the first task is to write down briefs describing the vision of the company, including assumptions about the product, the customers, market conditions, pricing, demand, and competitors (Blank 2013). These assumptions must be tested by listening to potential customers. The purpose is to get a broad picture of their problems, their business, and their product needs. After listening to customers, the product and the briefs need to be revised accordingly. The revised concept must be tested by the customers. While doing so, the validity of the business model of the company is also under scrutiny. The presence of the customers, finding a solution for them, a must-have product constitute the business model. After testing the pricing, distribution strategy, and sales, one discovers the buyers with a budget. As the last group of tasks, documents for problem statement, revised product requirement, revised sales and revenue plan, and a business and product plan need to be prepared. Then it is time to go out to try to sell the product to a limited number of visionary customers. When there is success in convincing customers to buy the product, one needs to proceed to customer validation. Otherwise, it is necessary to go back and learn more about the customers (Fig. 3).

Customer validation process starts with sales preparation activities like forming a clear value proposition, preparing sales materials, creating a distribution channel

Fig. 3 Customer discovery. Source: Blank, S. (2013). The four steps to the epiphany. K&S Ranch



plan, creating a sales road map, hiring a salesperson, agreeing upon product features and dates among product and customer development teams, and forming the advisory board. Next step is to try to sell the unfinished and unproven product to customers. There may be failures as well as successes. The purpose is to get answers to all sales road map questions. After getting some orders, the company can start working on the positioning of the product and the company itself. The initial positioning can be discussed with professionals from the industry and some analysts to get their feedback. The order quantity needs to be checked if it is adequate for a profitable business which shows that the product is solving customer needs. Sales and channel model need to be analyzed in terms of profitability. The amount of knowledge to scale the business needs to be accumulated. If all the results of the checks are positive, then the company can proceed to Customer Creation (Fig. 4).

In customer creation, market type is selected, and first-year customer creation and sales goals are set. The company tries to determine market size, total available share of the market, and customer budget for the product. The company then forms its strategy, goals, objectives, milestones, and customer creation budget. Product positioning messages are prepared. The product is launched, and the audience, the communication method, and the message are defined. Performance tracking metrics are established. Integrated marketing communication elements focusing on demand creation are put into action (Fig. 5).

In company building, sales pattern changes from “earlyvangelists” to mass market customers. More sales staff need to be hired and the budget allocated for sales needs to be increased. Executive management must be reviewed for scaling. Customer development team must be organized by business function. Each department must develop its own departmental mission to support the corporate mission. In the final phase, the company works on creating fast-response departments, equipped with accessible customer information and corporate-wide information dissemination system (Fig. 6).

Fig. 4 Customer validation. Source: Blank, S. (2013). The four steps to the epiphany. K&S Ranch



Fig. 5 Customer creation. Source: Blank, S. (2013). The four steps to the epiphany. K&S Ranch

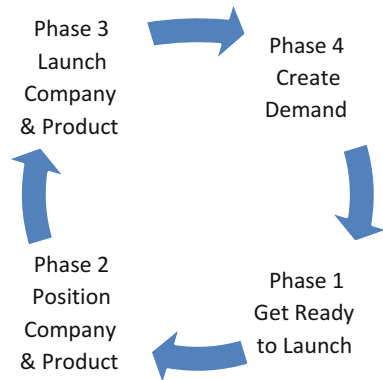
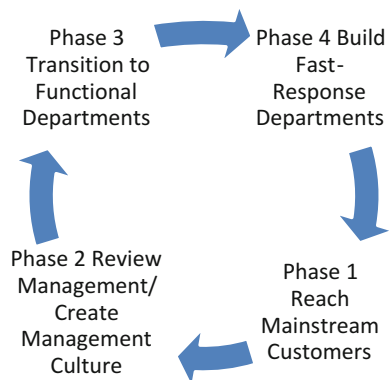


Fig. 6 Company building. Source: Blank, S. (2013). The four steps to the epiphany. K&S Ranch



5 Lean Startup Methodology

The lean startup takes its name from lean manufacturing methodology which was developed at Toyota Motor Company by Taiichi Ohno and Shigeo Shingo (Ries 2011). The methodology depends on the creativity of individual workers, smaller batch sizes, just-in-time production and a similar inventory system, and acceleration of cycle times. The lean startup adopts the same ideas to entrepreneurship where entrepreneurs evaluate their progress different than other types of ventures. Company's product should be considered as all the experiences the customer has with the company.

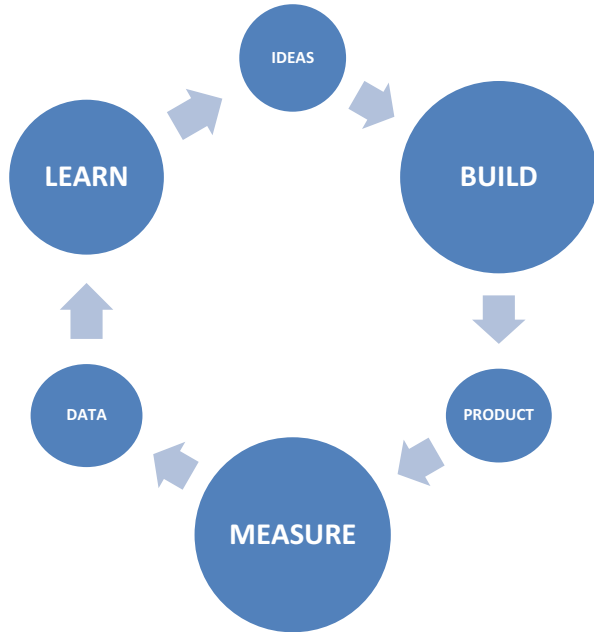
Ries (2011) argues that the way for a company's long-term economic growth lies in building an "innovation factory" for a pipeline of disruptive innovations on a continuous basis. Lean startup methodology has been designed for companies built for creating new products and services under extremely uncertain conditions. In large companies, leadership needs to create an experimentation environment for employees just like in startups.

A startup is described as "a human institution designed to create a new product or service under conditions of extreme uncertainty" (Ries 2011). In this approach, not only small companies but also large companies can utilize from operating under uncertain conditions. Product is viewed in a broader sense, where customer experiences are also considered as a part of the product. Under the broad innovation term, where scientific discoveries use existing technology for new purposes, a new business model and an existing product for new group of customers are all covered.

In new product development, two of the first key questions are what kind of product to build and which features it should have. The ideas of the design or engineering team may be different than what consumers have in mind. The company must find out what works and what does not work. Under conditions of uncertainty, learning is the most important function of the company. A special type of learning, called validated learning, is utilized in lean startup methodology where it is demonstrated that the team discovers valuable information about the current and future business prospects of a startup. Value provides benefit to the customer; all others are considered waste in lean thinking. Therefore, the earlier the startup starts gathering information on what is a benefit for the customer, the better task of eliminating waste will be accomplished. The company must try to understand if the product should be built, because almost any product can be built, but is it worthy for customers to build? Another important point is that if a sustainable business can be built around the product and the features and services that come with it.

An important aspect of lean startup methodology is to start experimenting with the product right way. Compared to focusing on market research which would take much longer time and gather theoretical knowledge, experiment gathers real-life data online which can be acted upon immediately. The product vision needs to be divided into two parts, which are value hypothesis and growth hypothesis. The value hypothesis checks if the product delivers value to customers when they use

Fig. 7 Build-measure-learn feedback loop.
 Source: Ries, E. (2011). *The lean startup: How today’s entrepreneurs use continuous innovation to create radically successful businesses.* Crown Books



it. The growth hypothesis checks how new customers will discover product or service (Fig. 7).

The value hypothesis and the growth hypothesis are very important. Once they are clear, it is necessary to enter the build phase with a minimum viable product (MVP). The MVP is the version of the product which enables a full cycle of build-measure-learn loop with minimum effort and least amount of development time.

The company needs to sell the product to the early adopters before going out for the mass market. Since early adopters are special type of customers, they prefer an 80% solution rather than the full product. Early adopters give valuable feedback about the product, because they like to feel the privilege of being the first to use or adapt the product and fill in what they think is missing in that product.

Entrepreneurs and product development team might sometimes overestimate the features needed in an MVP. Every extra feature is going to be waste and will delay the learning process and cycle time. Early adopters help simplify the MVP and test leap-of-faith assumptions.

Another important issue in new product development is keeping track of the changes being made. The cause and effect relationship between changes and results need to be addressed properly, so that the result a company gets after a specific step must be tied to it. In order to do so, one needs to utilize innovation accounting. The minimum viable product will be used to establish on where the company stands right now. A complete prototype can be built which can test all the assumptions about the products at the same time. Another alternative would be to build separate

MVPs to get feedback one assumption at a time. Even before the product is built, a smoke test can be conducted to learn if customers are interested in trying the product. The MVP provides examples of first milestones like conversion rates, sign-up and usage rates, etc. about customers and their reactions to a product. After the base line is established, the startup can start working on tuning the engine. Incremental improvements can be made on the product. A good design means customer behavior changing for the better, and consequently a poor design will not move the customers in the required direction. If the moves are not affecting the customer according to the company's plans, then it will be right time to pivot.

Using cohort analysis tells a lot about the groups of customers and their contact with the product. Rather than looking at gross numbers like total number of users or total revenue, one needs to concentrate on groups of users who come into contact with the product. Sequences of customer behavior, called customer flows, govern the interaction of customers with products. By this method, the behavior of specific groups of customers can be traced back to changes. In the case that the analysis is not adequate, it is always a good practice to speak with customers to get their feedback.

A startup needs to measure progress on whether a sustainable business can be built around the product. Therefore, optimization of the product or marketing will not yield significant results. The customers' perception of the changes being made must be understood correctly, and if the changes do not matter for the customers, there is no need to insist on making one.

The metrics which need to be used in judging startups must be different from the traditional gross numbers called "vanity metrics" like gross number of customers, and innovation accounting warns practitioners to stay away from them. The alternative is "actionable metrics." Cohort-based metrics can be used to test every new feature. Actionable metrics show the cause and effect relationship clearly, so the team can learn from their actions. The reports on the performance of the actions need to be accessed by the staff easily, so they can be worked on to generate better reports to understand the actions. The data should be traceable back to real customers, so in case the preferences of the customer are not crystal clear, it should be always possible to talk to them. The reports always need to be kept simple.

In the case that progress is considered inadequate, there might be a need for a major course change. The purpose is to pick a new path for growing a sustainable business. The startup must discover ways to achieve same amount of validated learning at lower cost or in a shorter time. The product development team must bring in reports on all previous product optimizations and management would bring all conversations with current and potential customers. After reaching out to early adopters, it is time to seek mainstream customers and their demands can be different than earlier customers. A change in the product, business model, or engine of growth might be necessary. After the pivot, if it turns out to be a wrong turn, the tools can be used to correct the course.

In lean production, small batches are more efficient. The same is valid for lean startups. Rather than working in separate departments, engineers and designers work together to build one feature at a time. When it is finished, new product is

tested by a limited number of customers, the impact is analyzed and what to do next is decided. This way, a company can test more than one feature a day given that these are small changes.

6 Conclusion

The traditional new product and service development processes had deficiencies which led to costly learning curves. The main issue with new product is that the problem it is designated to solve should match that of the customer. The importance of the problem will determine the price of the product and the usage frequency. Since delivering the wrong product to the market would result in loss of time, money, prestige, stock value, and the trust of the existing customers, the company must take the necessary precautions to make it right the first time the product is offered to the masses. The optimal way is to get the feedback of the potential customers so that the specs of the product can be changed before hitting the market. The customer feedback is a crucial element in the new product development process and must be taken into consideration starting from the ideation stage.

Another important point with the established new product or service processes is that the models are almost linear with no feedback loop. This is not the case in real life, where iteration can be necessary if there is a need for amendment along the way. The customer, supplier, or any other relevant stakeholder feedback must be taken into consideration, and after a thorough analysis, relevant steps should be taken to implement the changes. The feedback is a gift for the company, so it must be treated accordingly by aligning the process to include such outside information in the company knowledge base.

Many products are developed in the lab-like environments in the company. The first time new products see the light is when they are offered to the customers for sale. Traditionally, the reality check is done during actual sales, and in the case that there are problems, it would be too late to fix them. Therefore, the product development team should pack their bags and hit the streets, talk to customers and suppliers, and observe the market conditions to try to understand the actual need. This may be time consuming for the design staff at the beginning, but it will surely save time in the long run for the company.

There is no best method for new product or service development. New processes have been designed in the light of needs and shortcomings of existing models. Linear models have been perceived as not representing the actual practices on the field. Depending on the industry or the product, some new product development processes may work more efficiently than the others. Companies may find it necessary to fine tune the existing models in order to adopt industry- or product-specific conditions. In any of the processes the company prefers to use, stakeholder involvement must be taken into consideration.

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Increasing Strategic Competitiveness Through Innovation: The Finance Perspective

Semen Son-Turan

Abstract With the start of the new millenium, marked by the disruptive power of Internet technologies, it is almost commonly acknowledged that innovative firms grow faster and perform financially better than those who fail to rapidly mobilize their social and financial capital resources to discover newer, more efficient, and ingenious ways of doing business and creating alternative sales venues. Thus, if the term innovation has come to refer to “the process of turning ideas into reality, exploiting windows of opportunities, and capturing value from them” in essence, innovation, then, can be regarded as a beneficial and intrinsically “good” phenomenon. This is true especially for the technology and telecommunications industries according to the Thomson Reuters’ 2015 State of Innovation Report, which were ranked the most innovative industries with 30 % and 13 % of patent filings in 2014, respectively (<http://www.businessinsider.com/most-innovative-industries-2015-5>). Evidently though, innovation is not a win-win game for all stakeholders as laid out back in the 1930s by the Schumpeterian “creative destruction” concept portraying a “quasi-Darwinian” and rather pessimistic view of a process that serves mainly capitalistic motivations in the forms of securing monopoly profits and eventually eradicating a wide range of industries. Looking back at the past couple of decades, financial innovation has become one of the most far-reaching types of innovations, in terms of both, scope and its prolonged repercussions. This chapter discusses the concept of financial innovation as a strategically competitive tool.

1 Introduction

As Lawrence White had predicted in 1996 (White 1996), and reaffirmed almost two decades later with his coauthor (Frame and White 2014), technological changes relating to telecommunications and data processing have spurred financial

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innovations. This is especially true for the period starting with the rapid penetration of the Internet into households and small businesses, thereby facilitating communication, easing access to information, and lowering pre-existing barriers to entry toward a globalized and highly networked competition. Financial technologies (“FinTech”), big data, and data mining have become common terminology in the financial services industry. There is now even a whole generation of adults, called Generation Z (“Gen Z”¹), that do not know of the gruesome wait in the bank queue thanks to online banking that today is brought to our fingertips through smart technologies.

Clearly, technology has altered the financial services industry and, with it, its product and service offerings as well as processes. Concurrently, the regulatory landscape changed dramatically. Previously less-important issues, like cybercrime and cyber security, have come to the forefront. Crises, too, have changed the fate of financial services, particularly the last financial crisis of 2008, which was followed by a decline of public trust in the industry. On the other hand, on the rise are issues such as sustainability management, green accounting, responsible investing, and financial inclusion, which are integrated into corporate mission statements, thereby apparently replacing the sheer profit-motivated capitalistic drives of the corporations of the preceding century.

The financial services industry, comprising banking, financial markets and instruments, asset management, insurance, and financial regulation, is, undoubtedly, the engine of growth for every country. It has a critical role in the creation jobs, facilitation of trade, and economic expansion. Financial intermediaries are making “business” possible for almost any type of organization by providing revenue and cost management systems, risk management tools, and tailor-made investment and commercial banking solutions, among others. The term “financial services” became popularized in the USA with The Gramm–Leach–Bliley Act (GLBA),² also known as the Financial Services Modernization Act of 1999, which removed previously established barriers of the Glass–Steagall Act of 1933, as a result of which commercial banks, securities firms, investment banks, and insurance companies were allowed to consolidate.

History has shown us time and time again, that it sometimes takes only a headline scandal in financial services, to create a ripple effect across whole industries and inflict other countries. Mostly because the fragility of its customers, who aggregately invest millions worth of their good day’s work, into a luring chain of sometimes pretentious and exaggerated promises, may, through only a small trigger, lead to abrupt cash flights. If cash is kept under the pillow, it cannot be put to effective use and, inevitably, leads to the shrinkage of whole economic systems in the long run.

¹Individuals born between 1995 and 2012 according to <http://www.socialmarketing.org/newsletter/features/generation3.htm>

²https://en.wikipedia.org/wiki/Financial_services#cite_note-2

One of the most memorable financial crises, both because of its recency and its impact, is the financial crisis of 2008. It is said that since then, global debt has risen by USD 57 trillion, and no major economy has been able to decrease its debt-to-GDP ratio. And while especially government debt remains an important problem to be solved, for corporations, nonbank sources account for nearly all new credit growth since 2008 (McKinsey 2015). Furthermore, global markets overall, allegedly, have lost an approximate USD 15 trillion (WSJ 2012).

Clearly, there are many industries in an economy. However, the financial services industry is one of the most important. According to the Organization for Economic Co-operation and Development (OECD), financial services typically make up 20–30% of total service market revenue and about 20% of the total gross domestic product in developed economies (Oliver Wyman 2015). Moreover, financial intermediaries fill the gap in times of a liquidity crunches and regulatory constraints.

However, the financial services industry is also complex, mostly due to the sophistication and variety of products and services, sales channels, and its hundreds to thousands of customers who have a multitude of risk and return expectations.

2 Literature Review

An increasingly important topic for scholars, financial innovations are among the most important service innovations in that they have offered substantial benefits to consumers, fostered the growth of national economies, and may have sparked the recent financial crisis [of 2008] (Lerner and Tufano 2011; Skiera et al. 2011).

Finance, being an innovation in itself, has brought about numerous reforms, but it has also been the focal point of disaster and tragedy. Not enough can one stress the integral part it plays in societal development, economic progress, and as being the key driver of business activity. Merely the fact that the financial contract has had an indispensable role in human development for at least 7000 years makes it one of mankind's greatest inventions (The Economist 2014).

In the traditional sense, finance deals with everything surrounding the concept of money: how it is obtained and how it is stored and expanded. However, over time, it departed from these tangible objectives, to encompass intangible phenomena, such as swapping expected cash flows or transferring risks through derivative transactions.

With every commercialized innovation, the financial services industry got bigger, the stakes grew larger with the entanglement of masses of stakeholders, and, consequently, the risk of loss became graver for everybody. A rising star while lucrative turned into a taboo, thanks to a series of financial disasters, such as the contagious 2008 financial (also referred to as the “subprime mortgage”) crisis following the bust of the US housing market and leading to the collapse of prestigious investment houses such as Bear Stearns and Lehman Brothers. It was followed by the 2009 European sovereign debt crisis, where the USA, for the first

time in history, saw its credit rating cut. Financial shenanigans as well, staged by nonfinancial institutions, such as Enron, Tyco, and WorldCom, have contributed to the abasement and, in some instances, the repudiation of financial services and its instruments.³

Famous financial historian William Goetzmann (Goetzmann and Rouwenhorst 2005) explains the nature of finance using the analogies of software and hardware. The hardware of finance is constituted by such things as financial contracts, corporations, banks, markets, and monetary and legal systems (“financial architecture”). The author, on an even deeper level, considers finance as being a system of thought—a means of framing and solving complex problems about money, time, and value. In essence, this is the software of the technology.

Scholars, furthermore, tend to distinguish between finance and modern finance which derives its theoretical base from modern portfolio theory (Markowitz 1952), emphasizing the importance of portfolio risk and diversification. Building upon this early work, the core of modern finance can be encapsulated in four components: the efficient market hypothesis (EMH), the trade-off between risk and return encapsulated in the capital asset pricing model (CAPM), the Modigliani–Miller theorem (M&M), and the Black–Scholes–Merton approach to option pricing (Pérez Caldentey and Vernengo 2010).

The term “innovate,” on the other hand, can be traced back to its Latin root “*innovatus*” going back to the 1540s, combining the words “*in*” and “*novus*” meaning “to change into” something “new,” respectively.⁴ Godin (2008), in his attempt to offer preliminary ideas toward the genealogical history of “innovation,” argues that when the term “novation” emerged in the thirteenth century, it was used in reference to renewing contracts. It was in the early nineteenth century that innovation started to be associated with science and technology, however referring to technological invention. The differentiation between invention and innovation is attributed to Schumpeter’s (1939) definition of such. The Austrian economist emphasizes that invention is an act of intellectual creativity that is undertaken without necessarily giving much thought to its possible repercussions, whereas innovation is regarded as inventions crafted by firms to produce constructive changes to their business models.

A multitude of definitions of financial innovation and its possible functions have emerged over time. For instance, Tufano (2003) regards financial innovation as the act of creating and then popularizing new financial instruments as well as new financial technologies, institutions, and markets, whereas Frame and White (2004) define it as “. . . something new that reduces costs, reduces risks or provides an improved product/service/instrument that better satisfies participants’ demands within a financial system.”

Looking at the variations in the definition of financial innovation, it thus seems reasonable to argue that innovation is a time-dependent concept, evolving as

³See Schilit (2010) for further examples of financial shenanigans.

⁴<http://www.etymonline.com/index.php?term=innovate>

society changes and science uncovering new venues to theorize on. Doubtlessly, the speed and scope of financial innovation have accelerated with the increasing pace of technology. And as they do, particularly social media and aspiring Internet entrepreneurs-to-be may be overrating innovation and thereby neglecting to see failures that stem from innovating too much too early in the company's life cycle. Because not in all cases is innovative activity serving toward ultimate financial, societal, or economic progress. Furthermore, the costs of innovating may be outweighing the benefits, which often times last too short to break-even before going bankrupt, given that in nowadays' open-source culture, imitation comes swift.

There has been a flux of argumentative reports and research papers contesting whether financial innovation is good or bad (Litan 2010; Lerner and Tufano 2011; Henderson and Pearson 2011; Johnson and Kwak 2012; Boz and Mendoza 2014; Frame and White 2014; Laeven et al. 2015). This number has increased especially in the aftermath of the 2008 financial crisis, which has had contagious effects on many economies. What was once the mantra of Silicon Valley ("innovate or die") may after all not be as much sung in financial services as in manufacturing or technology industries. Former Fed Chairman Paul Volker is quoted saying the ATM was the only financial innovation he can think of that has improved society (WSJ 2009), whereas Walter Bagehot, editor-in-chief of *The Economist* during 1860–1877, argued that financial panics occur when the "blind capital" of the public floods into unwise speculative investments (The Economist 2014).

So then, is financial innovation "a demon of our own design" (Bookstaber 2007) or the mother of necessity? From a behaviorist perspective, considering the public as being comprised of rather rationally bounded human beings that tend to put greater weight on more recent phenomena and therefore establishing a bias toward latest news ("the availability heuristic"), financial innovation (as embodied by the still-not-forgotten "creative" financial instruments such as CMOs, CDOs, and CDOs-squared that played a major role in the 2008 financial crisis) may be considered a demon of our design.

However, financial innovation may also be a necessity, at least to the many companies who follow Peter Drucker's "innovate or die"⁵ advice. The famous concept of "creative destruction" refers to the replacement of old systems and organizations by new ideas and methods of production. According to Schumpeter (1942), innovation rests on creative destruction, either in the form of a breakthrough or in incremental steps. The traditional Schumpeterian view distinguishes between five types of innovation: (1) new production processes, (2) new materials or resources, (3) new products, (4) new markets, and (5) new forms of organization. Accordingly, for innovation to penetrate into our lives, it needs to gain acceptance and diffuse into the economic system.

Particularly, with the advent of the Internet, financial innovation, too, has moved into the focus of scholars and received its own definitions such as: (1) the creation

⁵<http://www.druckerinstitute.com/link/drucker-apps-81710-innovate-or-die/>

and diffusion of new financial instruments, technologies, institutions, and markets (Allen and Yago 2010; Tufano 2003); (2) any new developments in any elements of the financial system, including markets, institutions, instruments, and regulations, can be regarded as financial innovations, if they are perceived to be new by the end user (Błach 2011); and (3) something new that reduces costs, reduces risks, or provides an improved product/service/instrument that better satisfies financial system participants' demands.

In essence, financial technology is a time machine we have built ourselves. It can't move people through time, but it can move their money (Goetzmann and Rouwenhorst 2005). Despite its central and essential role, this sector has largely been neglected in innovation studies. To some extent, this may be attributed to the fact that innovation is largely hidden, of intangible nature, and hard to visualize in financial industries (Salampasis et al. 2014).

Robert C. Merton's often cited paper (1992) on the relationship between financial innovation and economic performance identifies the following functions delivered by financial systems: (1) moving funds across time and space, (2) the pooling of funds, (3) managing risk, (4) extracting information to support decision-making, (5) addressing moral hazard and asymmetric information problems, and (6) facilitating the sale of purchase of goods and services through a payment system. The Nobel Laureate argues that innovations in financial services and products can improve economic performance by: (1) "completing the markets" through new products that offer expanded opportunities for risk sharing, risk pooling, hedging, and intertemporal or spatial transfers of resources, (2) by lowering transactions costs or increasing liquidity, and (3) by reducing "agency costs" that arise from either "information asymmetries" between trading parties or principals' incomplete monitoring of their agents' performance.

According to Frame and White (2014), financial innovations can be grouped as new products or services, new production processes, or new organizational forms. While for some, financial innovation is about developing new methods and instruments, or improving such, serving toward the ease and cost-efficiency of obtaining loans and transferring money and shifting of risks, for others, it is simply about value creation, integration of markets, enhancing corporate sustainability, contribution to financial inclusion of the underserved, and the democratization of finance.

3 Discussion

The history of money goes back many centuries. Financial institutions, originally established by tradesmen, lend money and make money off of others' monies through commissions and fees by offering various interesting and enticing products and services. Governments collect money from taxpayers in return for providing various goods and services (like health and education) and borrow money from the public and private institutions through creating debt instruments offering safe (relatively low risk) and reasonable returns (interest rates). These traditional roles

and demands of the players in the financial markets have transformed themselves with the proliferation of the Internet that consequently lifted the barriers to entry to a world that had previously been exclusive to the great barons of Wall Street. The expansion of the financial system from prestigious bricks and mortars to anyone with access to the Internet can make an argument in favor of financial inclusion as a first thought, but as soon as the idea of an innovation starts touching lives, it transforms itself. Transformation: to the benefit or detriment of whom? Needless to say, words like “benefit” or “detriment and “good” or “bad” are transient terms that cannot be approached from one single angle and, moreover, need to be analyzed over long time periods for the sake of gaining a broad understanding of such.

Robert Litan (2010) provides a well-defined scoring methodology for measuring net impacts of financial innovations in which he asks three questions: (1) Has it broadened access to financial services? (2) Has it increased productivity/GDP? (3) Has it increased convenience?

According to the World Economic Forum Report (WEF 2012), many financial innovations arrive with special features that determine the size and shape of both positive and negative outcomes. The effects of financial innovation are uncertain and immeasurable and depend upon the interactions of innovators, users, consumers, competitors, etc.

Financial innovation, clearly, needs to be examined through a multitude of lenses if one desires to gain a full-fledged understanding of this phenomenon and its impact on society. As a first step, I suggest asking oneself these preliminary questions:

1. What are the drivers and sources? (For example, is it driven by ICT, the economic and environmental setting, the regulatory framework, or any disruptive competition?)
2. How does it serve the functions of (modern) finance? (For example, is it a new risk-sharing instrument, or does it provide low cost and easily accessible credit?)
3. Who is the audience to this financial innovation? Whom does it serve?
4. Is it a product, process, or organizational/business model innovation? Is it a theoretical (model) innovation?
5. What is its size and scope? (For example, is it absorbed in the economic system, or has it gained broad popularity? Does it have contagious effects upon other systems, sectors, and countries?) Rossignoli and Arnaboldi (2009), for instance, differentiate between radical, revolutionary, or incremental impact on the industry. They argue that radical innovation changed the whole industry, but it has occurred from time to time in banking, whereas revolutionary innovation tend to be less risky than breakthroughs but also less profitable. Incremental innovation, which the authors determine to be far more common

than the former two types, consists of a minor improvement of something already existing and has relatively lower risk and positive payback.

6. What is its pace? (For example, how quickly is the financial innovation accomplished? Does it come in increments or is it a breakthrough?)
7. What is the time period, geography, and cultural setting in which it takes place?
8. What is its duration? (For example, is it sustainable or merely one time?)
9. Can it be considered stand-alone or does it build upon prior innovation?
10. Is it purposive or incidental? For instance, Diaz-Rainey and Ibikunle (2012) provide a good taxonomy of the “the dark side” of financial innovation with a word of caution that one needs to differentiate between (a) predatory schemes, (b) abuse of financial innovation, and (c) unintended consequences of financial innovation.

4 Conclusion

The financial services industry, while trying to keep up with swift changes in technology, is struggling with disruptive forces nowadays. Added to these industry-altering competitors is the fact that soon it will need to be ready to cater to a different clientele: Gen Z customers and investors who, as digital natives, may have much different expectations and demands than the generations before them such as their sensitivity toward social issues.⁶

The concept of disruptive innovation was put forward by Christensen (2013).⁷ Creative destruction’s gentle winds are said to have mutated into cyclones of destruction (Komlos 2014). These days, it is mainly the disruptive forces of FinTech companies, which are using proprietary software and have foremost in mobile payments, peer to peer lending, cryptocurrencies, and consumer finance penetrated into every area of traditional brick and mortar finance institutions.

The digital lending revolution was pioneered by crowdfunding platforms, which are online collective fundraising and investment platforms, that relieve both investors and entrepreneurs from the burdens of the traditional early stage investment process by providing quick, easy, and low-cost access to a variety of projects, in a transparent setting facilitated by a third party (Son-Turan 2015). By 2016, crowdfunding is expected to surpass the venture capital industry. In 2014 the size of crowdfunding industry was USD 16 billion in comparison to VC that invests an average of USD 30 billion a year (Forbes 2016).

Another disruption is led by cryptocurrencies, which represent digital money but are different from digital payments and online payments since they are not regulated through a centralized authority and an oversight mechanism. Among

⁶<http://www.forbes.com/sites/onmarketing/2013/05/28/generation-z-rebels-with-a-cause/#7606ac726aa1>

⁷It describes a process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up the market, eventually displacing established competitors.

cryptocurrencies, Bitcoin is the first recognized and most widely used open-source peer to peer currency since its introduction in 2009. It does not have a physical form (although there are providers of “collectible” coins backed by Bitcoins such as Casascius⁸) and no intermediary financial institution. In that sense it is a disruptive innovation for banks (who fail to collect transaction fees) and even governments’ central banks (who have the only right to issue paper money and coins). This is the advantage of Bitcoins over traditional money; international money transfers are relatively easy and cheap due to the lack of regulation. Furthermore, buyers and sellers of goods can stay anonymous. The creation mechanism of Bitcoins is very interesting; unlike a printing press, “miners” have to solve complex math algorithms to be rewarded Bitcoins; this is how new Bitcoins are offered in the marketplace. Similar to stock exchanges, there are digital Bitcoin exchanges and physical stores where you can exchange your Bitcoins against hard currency or precious metals like gold. There are mixed arguments as to whether it is doomed to be a failure or success story. CoinMarketCap⁹ records the current cryptocurrency total market cap at roughly USD 6.5 billion where, reportedly, “about 40 % of the coins ever added to the site are now inactive due to failing to meet the basic criteria” (Cohen 2015).

“Sustainability” is yet another trend prevalent in the financial services industry. According to the European Commission’s Eco-innovation Action Plan,¹⁰ using a framework of green (or “environmental, sustainability, social”) accounting means that investment decisions are made by comparing the overall private and social costs against the private and social benefits. Using life-cycle assessment (LCA), organizations can make decisions based on calculating environmental impacts at every stage of a product’s life, from raw materials through production, distribution, and final disposal or recycling. Carbon accounting that measures the cost of a company’s activities on the environment and how to reduce negative impacts, while still very new, could also change how companies are assessed. Apart from the strict evaluation of a firm’s impact, green accounting makes it possible to measure its performance and capacities for innovation in the realm of sustainable development. A growing number of firms throughout the world have already adopted these tools.

Bacso et al. (2015) argue that the next wave of the financial technology revolution has started a few years ago following the earlier wave that mostly hit payment transactions, which was an easy area to disrupt but represents only 6 % of global banking-revenue pools. The authors, in their analysis using a database of over 1200 financial technology innovations, find that start-ups are targeting the more lucrative retail banking segment, which accounts for 52 % of total industry revenues. They further show that the two biggest priorities outside payment transactions are retail lending (which has revenues twice as large as payment transactions does across all

⁸<https://www.casascius.com>

⁹<http://coinmarketcap.com>

¹⁰http://ec.europa.eu/environment/ecoap/about-eco-innovation/policies-matters/eu/703_en

segments) and retail savings and investments (with 15 % of global revenues). Consequently, banks should be monitoring innovations from five types of players, business model disruptors, process innovators, technology start-ups outside the financial sector, digital banks, and platform attackers from other industries, such as e-tailing, which they contend might radically reinvent banking.

Innovation, in all areas of society, will continue with human evolution. Inevitably, financial services companies, who devise strategies for competing with disruptive forces but also recognize and adopt to changes in their clientele and reporting standards, most probably will survive during these hard times of reputational loss and increased distrust. However, it rests with all the stakeholders, be it financial institutions, regulatory and supervisory agencies, or consumers, to be prudent and responsible.

Evidently, financial innovation has done and will do some good like contributing toward the democratization of finance. Overall, I agree with Litan (2010) that innovation is a two-edged sword and, thus, advocate “much, but not all, financial innovation.” Like Johnson and Kwak (2012), I find that there is a mix between good and bad financial innovations and that individually and collectively, these innovations have improved access to credit, made life more convenient, and in some cases probably allowed the economy to grow faster. As pointed out by Frame and White (2014), we still know little about how and why financial innovations are initially developed. This remains an important area for further research.

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Economic Growth and Dynamic R&D Investment Behavior

Ozlem Ozturk Cetenak and Gurcem Oransay

Abstract Since the early 1990s, researchers have tried to show through endogenous growth models that the power which creates technological innovation is research and development (henceforth R&D) activities. The importance of R&D activities in the emergence of technological innovation is discussed in those models. Those models also highlight that countries can have strong economies only if they give importance to innovation and R&D activities and that developed countries are considered as technologically developed countries. Those models also emphasize that economic growth is in parallel with technological developments and that technological developments can be realized through investments in R&D. That is why the relation between R&D expenditures and economic growth has been studied over the years and not only the existence of this relationship but also its direction has recently become a hotly debated topic. This study aims to test whether R&D model predictions are valid for 76 countries' economies. The economic methodology used in this study is panel VAR analysis. Values for the GDP per capita variable that is considered to represent economic growth and R&D per capita variable that is considered to represent R&D activities have been obtained from the World Bank Database. The analysis of the annual data between 1996 and 2014 suggests that economic growth Granger-causes R&D spending, but there is no evidence to suggest that R&D spending has an impact on economic growth.

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1 Introduction

The production capacity of an economy is connected to the quantity and quality of its resources and the technological level reached, and economic growth is described as the process of expansion and development of those mentioned above. Economic growth is an important element in ensuring the development of welfare and living standards of communities. However, a process of transformation in many economies is experienced as a result of globalization. In this new economic order, the development and prosperity of countries are affected by not only internal but also external dynamics. Technology and innovation are vital for countries to be successful in economic growth in this global competitive environment that is created by external dynamics. Parallel with that the development level of a country is determined by their level of technological development.

The production and market of goods requiring advanced technology and skills are increasing rapidly. However, the need for information also increases together with technological developments and the new methods and techniques applied in businesses. Application of science and technology-based methods to the production processes ensures economic growth as it changes production systems and resource allocations. The world economy is transforming into a more competitive environment under domination of ever-increasing knowledge and information, and manufacturing technology stands out more in terms of development and global competition. As such, countries are looking for ways to upgrade their technological levels in order to ensure survival in a competitive environment and sustainability.

Raised in the 1980s, “endogenous growth theory” regards technological development as the main determinant of growth and considers R&D activities as the main facilitator of growth. R&D expenses can be considered as an indicator of an economy’s efforts to produce the innovation (Pandit et al. 2014). That is to say through R&D investments, companies’ ability to achieve higher standards in the technologies they produce increases, and this process results in growth and higher income levels (Bilbao-Osorio and Rodríguez-Pose 2004). In addition, a country’s R&D ability, which is also the indicator of its innovative change, contributes highly to that country’s competitive advantage. According to Fagerberg (1988), a country’s ability to compete depends on three factors: (1) their R&D spending and the technical competitiveness rate that is reflected by the number of patent applications, (2) their price competitiveness that is reflected by their foreign trade rate and labor cost per unit, and (3) their output capacity.

A country’s high levels of R&D activities reveal their efforts in technological research. R&D activities are necessary for developing new products and production methods and processes of efficient use and adaptation of current and imported technologies. R&D spending is a mean not only for producing new scientific and technological knowledge to the production of goods and services but also for gaining experience and increasing knowledge that play a significant role in the process of maintaining this kind of superior skills. The basic mechanism of R&D’s contribution to a country’s economy at the macroeconomic level can be explained

as follows: First, the increase in a country's private sector's science and technology innovation ability through R&D investments increases its global competitiveness, thereby increasing its market share which means that the share that country's economy will get from the global growth increases. In addition, such investments will have effects on both cost reduction and enhancing efficiency in all areas of the economic activity and will allow the emergence of a diverse range of new goods and services that has a potential to increase customer welfare. Science and technology innovation through R&D investments will not only contribute to those who create and use those developments but will also indirectly increase social welfare, thanks to the positive externalities that will be created through the spillover effects of the propagation mechanisms in the economy and the society. Furthermore, R&D investments will allow the emergence of new business fields by bringing dynamism to the sectors producing substitute and complementary goods and services. Developments in this field will result in the emergence of new socioeconomic and political structures that will ensure higher added value by demolishing old and inefficient structures. Therefore, economic policies intended to improve R&D investments will, by speeding up the pace of developments in this field, trigger a chain reaction which will increase a country's global competitiveness power, economic growth, and social welfare. Globally, while companies and countries that succeed in innovation-based competition will increase their earnings, others will eventually be dropped out of the market due to not being able to maintain their current positions. For this reason, increasing competitive capacity, supported with innovation-based competitive power, both at the microeconomic (firm-industry) and the macroeconomic (country-governmental) levels is important to ensure long-term sustainable economic growth and improve social welfare (Turanlı and Sarıdoğan 2010).

In addition, a country's total factor productivity increases not only with the capital of that country's domestic R&D but also with foreign R&D capital (Coe and Helpman 1995). According to this assumption, it is possible that the foreign companies transfer a reasonable amount of knowledge advantage to local countries for new capital, thus pushing technological advancement in order to enable the adoption of technologies necessary for easier production of goods (Borensztein et al. 1998).

Countries started paying more attention to R&D due to those effects that it has. However, even though it has positive effects on sustainable growth of countries, the fact that R&D investments have high costs and that their returns are available in the long run can make countries unwilling to invest in this field. Many factors affect the level of R&D spending in a country. These include country's level of development, the economic and industrial structure, the number of large companies in the country, staff's level of technical competence, country's science and technology infrastructure, country's ability to open up to foreign markets, public spending on basic research, and the link between the public and private sector research efforts (OECD 2002). For example, Sylwester (2001) has found a positive relationship between countries' income levels and the resources allocated to R&D. Taking all these factors into account, we can conclude that investments in R&D usually take

place in high-income countries. That is to say, while R&D investments affect economic growth, economic growth nourishes R&D.

On the other hand, according to another view, R&D activities are more often taking place in developing countries, and the most successful companies in R&D are the followers but not the pioneers (Bel 2013). Finally, it is important to note that a model of development based on R&D will have economic as well as social costs. According to Harvey (2011), innovation waves can be devastating even for the capital. This is because yesterday's technology and organizational structures can be discarded even before they can pay off their costs. In addition, the reconstruction process that is experienced in work environments can also disrupt the overall workflow. It is a serious problem that previous investment (machinery, plant and equipment, building and environmental planning, and so on) is devalorized before it can pay off its costs. Similarly, sudden changes in compulsory qualities of labor (such as the use of computers) cause the existing workforce to exceed their capacity which results in stress in the labor market. This forces the social and educational infrastructure to adapt quickly and a worker to retrain on a continuous basis throughout his career which altogether create pressure on public resources and private initiatives.

2 Theoretic Approach

"Economical evolution" is a process which started with innovation according to Schumpeter (1939) who has undertaken the first systematical and comprehensive analysis regarding the relationship between innovation and development. The innovation demand of companies and consumers promotes production and consumption. Thus, industry becomes attractive and increase in number of entrepreneurs and growth is maintained. According to Solow (1956), who is a member of the neoclassical school of economic thought, neutral technological change in an economy leads to increase in production and thus growth.

It has been claimed that in the neoclassical growth model, which assumes that production factor has diminishing returns to scale and that technology is an external variable, growth will eventually follow a stable course. However, this model was not adequate in understanding growth so it was replaced with internal growth models which assume that increasing returns to scale and technology are internal variables. In these internal growth models, technology is internalized with R&D and human capital channels. Romer (1990) was the first person to emphasize the importance of R&D activities as the driving power in growth models based on R&D (Jones 1998). Afterward, this approach was developed further by Grossman and Helpman (1991) and Aghion and Howitt (1992). As a result of this, a wider literature was established which states that R&D expenses play an important role on innovation, efficiency, and economic growth.

Romer (1990) stated that marginal income rate which is increased by technology is the solution to diminishing returns issue. Thus, technology is a must for economic

growth. According to Grossman and Helpman (1991), the world's economic geography is made up of "innovative North" and "imitative South." This theory supports the idea that the development of imitation and technological adaptation lead to a variety of goods and growth in South and accelerating commodity cycle increases innovation and sales of goods originating in North. In short, the innovative drive of North will be strengthened as long as the imitation speed of South increases. Aghion and Howitt (1992) who brought a new understanding to Schumpeter's creative destruction analysis remarked that balanced growth depends on the expectations between those two innovation processes and added that only those who continue innovation can join the league that consists of developed and middle-income countries.

In the equations below, Y represents output, a productivity or information, and K the capital. The labor is represented as the generated output (LY) or the new information that is searched (LA). Equation (1) represents standard production function, and Eq. (2) represents the R&D equation in the R&D-based endogenous growth models:

$$Y = K^{1-\alpha} (AL_y)^\alpha \quad (1)$$

$$\frac{A^*}{A} = \delta L_A \quad (2)$$

The source of scale effects is the R&D equation given in Eq. (2). This equation shows that increase in total factor productivity is proportional to the number of units allocated for R&D (Jones 1995). To sum up the essence of these two models is that they are growth models based on R&D activities. According to these models, having consistent growth effects on the economy in a long term depends on the number of the researchers (scientists, engineers, technical staff) allocated. The higher the amount of such inputs in an economy and the higher the success rate of resources being transferred into R&D sector for development of new products and technologies, the higher the rate of economic growth is (Ates 1998).

3 Literature Review

The effects of R&D, which makes technological change possible, on economic growth have been empirically researched by a great number of scientists after the development of new growth theories and acceptance of technological change being one of the most important factors that would affect economic growth. While many of the models developed predicted a kind of "scale effect" based on internal data, a number of studies treated as an external factor. For example, while Griffiths and Webster (2010) consider the R&D activities as an internal variable in their study, Minniti (2006) treated those activities as a short-term external variable. However, even when they are accepted as external factors due to externalities (Diao

et al. 1999; Watanabe et al. 2004) or imitation (Perez-Sebastian 2007), R&D activities are, in fact, both internal and external factors in the long term, and this externalities and imitation have a positive impact on productivity and ultimately on growth. In other words, as R&D spending increases, it is expected that an economy's growth rate will also increase.

The development of econometric techniques and the diversification of data sources allowed for better analysis to be conducted in this field. In this section, findings of empirical studies investigating the relationship between R&D expenditures and economic growth have been summarized (see Table 1 below). The fact that most studies worked on data from multiple countries resulted in the panel data analysis techniques being used more often than the others.

As can be seen in Table 1, there is no consensus among researchers regarding the relationship between R&D and economic growth. While there is strong evidence for a correlation in several studies, there are also a few studies which show that there is not a correlation between the two. Overall, however, it can be stated that there is causality between economic growth and R&D activities. For this reason, we will try to identify the direction of the relation between these two concepts and whether it is positive or negative.

4 Methodology

In this study the causal relationship between economic growth and R&D expenses is examined by using panel data vector autoregressive models. Panel VAR models have been increasingly used in applied research. Panel VARs have been used to address a variety of issues of interest to applied macroeconomists and policymakers (Canova and Ciccarelli 2013) since this technique combines the traditional VAR approach (Sims 1980), in which all variables are treated as endogenous and interdependent, with the panel data approach, which allows for unobserved individual heterogeneity (Love and Zicchino 2006). In our analysis panel VAR methodology places well with our purposes, because there is not a prior theory regarding the causal relations between the variables, namely, economic growth and R&D expenses. In such a framework, all variables are treated as endogenous in a system of equations, while the short-run dynamics may be identified at a later stage (Drakos and Konstantinou 2011). We specify a panel model with the first order as follows:

$$Y_{i,t} = \alpha i + \Gamma(L)Y_{i,t} + \mu_i + \varepsilon_{i,t} \quad (3)$$

where i ($i = 1, \dots, N$) denotes the country and t ($t = 1, \dots, T$) denotes the year. $Y_{i,t}$ is the vector of endogenous stationary variables (in our analysis growth of GDP per capita (gdppcgr) and growth of R&D expenses per capita (rdpcgr)). $\Gamma(L)$ is a matrix polynomial in the lag operator L , μ_i is the vector of country specific effects, and $\varepsilon_{i,t}$ represents the vector of idiosyncratic errors.

Table 1 Major studies on R&D and economic growth

Study	Study site	Period of study	Result
Lichtenberg (1993)	74 countries	1964–1989	With the private sector-funded R&D expenses that were positive and significant relationship between both growing productivity, a negative impact on public sector-funded R&D spending does not have any impact on economic growth, sometimes growth in economic productivity that has been identified
Goel and Ram (1994)	52 countries (18 developed countries and 34 developing countries)	1960–1980	In the long run, the relation between economic growth and R&D investment is significant, but the direction of causality has not been detected
Freire-Serén (1999)	21 OECD countries	1965–1990	R&D spending is a very strong correlation with the economic growth
Guellec and Van Pottelsberghe (2004)	16 OECD countries	1980–1998	Private sector and public sector R&D activities are carried out by foreign companies and are a significant determinant of growth in productivity in the long term
Zachariadis (2004)	10 OECD countries	1971–1995	The increase in R&D spending has a positive effect on growth rate of efficiency and the output level
Falk (2007)	15 OECD countries	1970–2004	R&D expenditure and high technology (high-tech) for the increase in R&D investment and GDP per person have also reached the conclusion that both have powerful and positive effects on GDP per worker
Samimi and Alerasoul (2009)	30 developing countries	2000–2006	R&D expenditure is negative and insignificant relationship with economic growth
Alene (2010)	52 African countries	1970–2004	The increase in agricultural R&D spending increases overall efficiency
Eid (2012)	17 high-income countries	1981–2006	R&D spending has significant and positive effect on the increase in efficiency
Altın and Kaya (2009)	Turkey	1990–2005	A long-term R&D expenditures are the reason of economic growth for economy. On the other hand, they have no any effect for each other in the short term

(continued)

Table 1 (continued)

Study	Study site	Period of study	Result
Bravo-Ortega and Marin (2011)	65 countries	1965–2005	The increase in R&D spending causes an increase in the long-term total factor productivity
Wang et al. (2013)	23 OECD countries and Taiwan	1991–2006	Especially in the high-tech sector (hi-tech industries), positive impact on national income to the R&D expenditure rises to a level that experienced a boom in the economy
Coe and Helpman (1995)	All countries except New Zealand	1971–1990	Total factor productivity depends not only on domestic R&D capital but also on foreign R&D capital. The estimated rates of return on R&D are very high, both in terms of domestic output and international spillovers
Inekwe (2015)	66 countries (upper middle-income and lower middle-income economies)	2000–2009	The effect of R&D spending on growth is positive for upper middle-income economies while insignificant in lower-income economies. R&D spending has different short- and long-run effects on growth
Inglesi-Lotz et al. (2015)	BRICS countries	1981–2011	There is no causality in any direction between R&D and economic growth for all the BRICS, with the exception of India
Lakicevic (2015)	European Union countries	2005–2011	R&D expenditures have positive and significant effect on economic growth but only in the regions of already well-developed countries. The main finding of this study is that regions of the countries close to the technology frontier experience R&D-induced growth
Sungur et al. (2016)	Turkey	1990–2013	Unilateral causality relation was observed between R&D expenditures and economic growth

In order to estimate panel VAR model, we followed the approach developed by Holtz-Eakin et al. (1988) and used Abrigo and Love's (2015) Stata panel VAR package (pvar.ado). For $Y_{i,t}$ we assume a two-variable vector $\{gdppcgr, rdpcgr\}$ where $gdppcgr$ denotes growth of GDP per capita and our proxy for economic growth and $rdpcgr$ denotes growth of R&D expenses per capita and our proxy for R&D investments.

Abrigo and Love's (2015) Stata panel VAR package estimates a model within generalized method of moments (GMM) framework by using "Helmert procedure." This is because fixed effect estimator in autoregressive panel data models is inconsistent due to lags of the dependent variable fixed effects being correlated with the regressors (Nickell 1981). To specify the causal direction between variables, we performed panel Granger (1969) causality test after estimation of the coefficients.

Furthermore, the impulse response functions are estimated in order to identify a variable's response to the changes of another variable. The impulse response functions describe one variable's reaction in response to changes in another variable in the system, while all other shocks are held equal to zero (Dökmen 2012). In the end, we estimated variance decompositions, which show the share of the variation in a variable that is explained by the shock to another variable, accumulated over time. The variance decompositions display the magnitude of the total effect (Love and Zicchino 2006).

4.1 Data

In order to determine the causal relationship between economic growth and R&D expenses, we collected yearly data from 76 countries between 1996 and 2014. The list of countries that we used in our analysis can be found in Table 5 in Appendix. The time anchor in our sample is 1996 because the earliest R&D expenses data available dated back to that year. The variables that are used in this study are GDP per capita growth, GDP per capita, R&D expenditure (% of GDP), R&D expenditure per capita, and growth of R&D expenditures per capita. The first three data are obtained from World Bank databank and the rest of them are calculated by the authors. The variables used in this study and their descriptive statistics are shown in Table 2. Table 2 also reports the mean and standard deviation for each variable.

In our analysis we used "growth of GDP per capita" (gdppcgr) and "growth of R&D expenses per capita" (rdpcgr) to perform panel VAR estimation. We used "R&D expenses per capita" as a proxy of R&D expenses because R&D expenditure is originally offered as % of GDP by World Bank. This situation may cause miscalculations since our other variable "GDP per capita" is highly related to GDP. To handle this problem, we calculated "R&D expenses per capita" variable by multiplying R&D expenditure (% of GDP) and GDP per capita variables.

4.2 Results

It is essential to verify that all variables are stationary prior to panel VAR model estimation. Therefore, we performed two tests for the existence of unit roots. In recent years a number of tests such as Levin et al. (2002), Im et al. (2003), Maddala

Table 2 Definition of variables, source, and descriptive statistics

Variables	Definition	Source	Mean	SD
GDP per capita growth (annual %)	Annual percentage growth rate of GDP per capita based on constant local currency. Aggregates are based on constant 2005 US dollars. GDP per capita is gross domestic product divided by midyear population	World Bank	2.818	4.763
GDP per capita (current US\$)	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products	World Bank	19,649.7	20,083.58
Research and development expenditure (% of GDP)	Expenditures for research and development are current and capital expenditures (both public and private) on creative work undertaken systematically to increase knowledge, including knowledge of humanity, culture, and society, and the use of knowledge for new applications	World Bank	1.125378	.9677426
Research and development expenditure per capita	This variable was calculated by multiplying research and development expenditure (% of GDP) and GDP per capita variables	Calculated by writers	32,404.91	45,600.44
R&D expenditures per capita growth (annual %)	Annual percentage growth rate of research and development expenditure per capita	Calculated by writers	.0842	.1781

and Wu (1999), and Choi (2001) have been developed to detect unit roots. Because of the unbalanced structure of our sample, we were only able to perform Im et al. (2003) and ADF Fisher tests in our analysis. The results of panel unit root test are reported in Table 6 (see Appendix). As can be seen from Table 6, unit root test results show that all the variables are stationary in levels for all countries. In Table 3 we report estimation results of the system with two variables {gdppcgr, rdpcgr} given in Eq. (3).

According to these results, GDP growth has a positive and significant effect on R&D expenses but R&D expenses has not. The results of the estimated model are based on the system GMM. Since the system GMM approach relies on “instrumental variable” estimation, we basically guide instrument selection based on the Hansen (1982) overidentification test. The estimation results for the Hansen J-statistic show that our model has a valid IV set. Furthermore, we also performed post-estimation for the eigenvalues’ stability condition. Figure 1 (see Appendix)

Table 3 Panel VAR results (system GMM)

	gdppcgrw	rdpcgrw
gdppcgrw _{t-1}	.5374682 (0.000)	.0117882 (0.000)
rdpcgrw _{t-1}	-1.015633 (0.423)	.0372815 (0.608)
Observations	912	
Hansen's $J \chi^2(4)$	4.0268749 (0.402)	

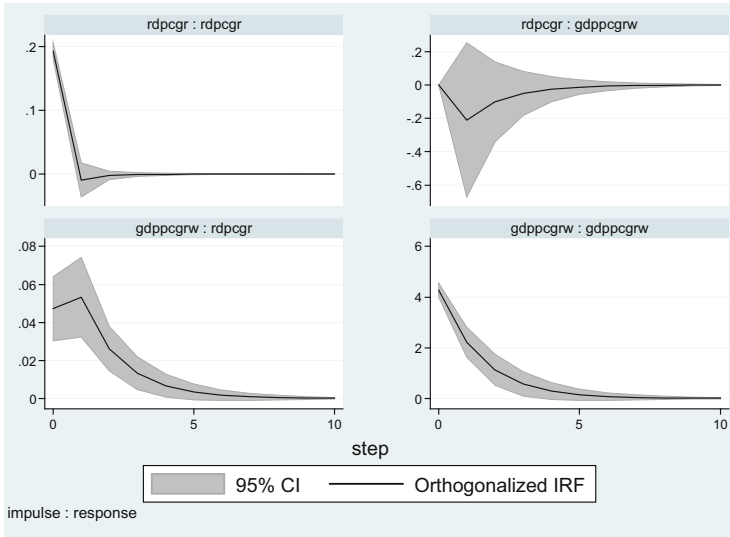


Fig. 1 Impulse response functions

shows the graph of eigenvalues which confirms that moduli of the companion matrix are strictly less than one since all the eigenvalues lie inside the unit circle.

In Table 4 we report panel VAR-Granger causality test results. As deduced from panel VAR results (see Table 3), “GDP pc growth” Granger-causes “R&D expenses pc” at %1 level. However, R&D expenses do not Granger-cause GDP.

Generally, in VAR analysis, the discussion of the results mostly focuses on impulse response functions that are derived from the coefficients which are reported in Table 3. In Fig. 1, we present graphs of the impulse response function and the 5 % error bands generated by Monte Carlo simulation. Additionally, Table 7 (see Appendix) reports the variance decompositions derived from the orthogonalized impulse response coefficient matrices.

According to Fig. 1, response of R&D expenses to one standard deviation shock of GDP is positive. The impact of GDP shock is absorbed within 3–5 years. However, impact of R&D expenses on GDP is not significant since expanse of GDP impact is too wide. This situation pictures why there are several contradictory studies in this subject. It can be seen that the forecast error variance decompositions

Table 4 Panel VAR-Granger causality Wald test

Equation/excluded	χ^2	Prob > χ^2
gdppcgrw	0.641	0.423
rdpcgr	0.641	0.423
All		
rdpcgr	19.794	0.000
gdppcgrw	19.794	0.000
All		

Ho: excluded variable does not Granger-cause equation variable

Ha: excluded variable Granger-causes equation variable

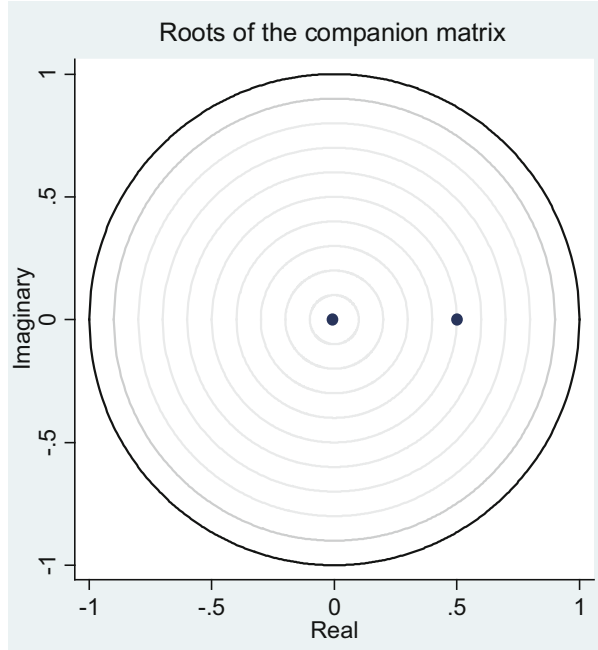
in Table 7 (see Appendix) support the results obtained in this study. Based on estimates, variations in R&D expenses reach up to 16 % of total variation can be explained by GDP growth. On the other hand, almost 99.9 % variation in GDP is based on itself.

5 Conclusion

The long-term sustainability of economic growth is crucial for achieving economic development. This is valid not only for developing countries but also for all of the developed countries. In this context, it is common belief that the R&D activities, which are carried out in order to create innovation in an economy, are effective on many socioeconomic development factors with sustainability of the economic growth being in the top of the list and at the same time those activities are considered to create dynamism in the economy by creating positive externality. The reason for that is the fact that recent endogenous growth theories which study economic growth remark importance of knowledge and technology. In this context, it is believed that there is a correlation between R&D and economic growth. That's the reason why the high degree of importance given to R&D is seen as the key for economic development. As such, it is known that R&D expenditures have a high percentage of GDP. However, the findings of previous studies suggest that there is no consensus on that matter. In a number of studies, causality between R&D and economic development has been found, while a number of them reported unilateral causality. There are also a number of studies in which no causality between these two variables has been found.

This study is intended to test whether the R&D model predictions, reported above, are valid for 76 countries. In this context, panel VAR analysis has been used as the economic methodology. GDP per capita and the variable that represents R&D activities through the R&D expenditure per capita have been obtained from the World Bank Database. The analysis of the annual data between 1996 and 2014 suggests that there is Granger causality between the economic growth and R&D spending, but there is no evidence to suggest that R&D spending has an impact on economic growth.

Fig. 2 Graph of eigenvalues



Appendix

See Fig. 2 and Tables 5, 6, 7.

Table 5 List of countries analyzed

Algeria	Czech Republic	Latvia	Romania
Argentina	Denmark	Lithuania	Russian Federation
Australia	Ecuador	Luxembourg	Saudi Arabia
Austria	Estonia	Macao	Serbia
Azerbaijan	Finland	Macedonia	Seychelles
Belarus	France	Malaysia	Singapore
Belgium	Germany	Malta	Slovak Republic
Bermuda	Greece	Mauritius	Slovenia
Bosnia Herzegovina	Hong Kong	Mexico	South Africa
Brazil	Hungary	Mongolia	Spain
Bulgaria	Iceland	Montenegro	Sweden
Canada	Iran	Netherlands	Switzerland
Chile	Ireland	New Zealand	Thailand
China	Israel	Norway	Trinidad & Tobago
Colombia	Italy	Panama	Tunisia
Costa Rica	Japan	Paraguay	Turkey
Croatia	Kazakhstan	Peru	United Kingdom
Cuba	Korea, Rep.	Poland	United States
Cyprus	Kuwait	Portugal	Uruguay

Table 6 Unit root test results

	<i>Im-Pesaran-Shin</i>		<i>ADF Fisher</i>	
	Intercept	Intercept and trend	Intercept	Intercept and trend
gdppcgrw	-10.0016 (0.000)	-8.7731 (0.000)	631.2117 (0.000)	555.7811 (0.000)
rdpcgrw	-10.7812 (0.000)	-9.0560 (0.000)	649.3789 (0.000)	546.9656 (0.000)

Ho, all panels contain unit roots; Ha, at least one panel is stationary. *p* values are in parenthesis

Table 7 Forecast error variance decomposition

gdppcgrw	gdppcgrw	rdpcgr	rdpcgr	gdppcgrw	rdpcgr
1	1	0	1	0.074707	0.925293
2	0.998493	0.001507	2	0.138588	0.861412
3	0.998105	0.001895	3	0.155761	0.844239
4	0.998006	0.001994	4	0.160211	0.839789
5	0.997981	0.002019	5	0.161373	0.838628
6	0.997974	0.002026	6	0.161677	0.838323
7	0.997973	0.002028	7	0.161757	0.838243
8	0.997972	0.002028	8	0.161778	0.838222
9	0.997972	0.002028	9	0.161783	0.838217
10	0.997972	0.002028	10	0.161785	0.838215

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Part IV
Managing Risks Through
Adaptive Strategies and Decision
Systems During Crisis

Risk Management Practices in Strategic Management

Gökçe Çiçek Ceyhun

Abstract Risk management practices in strategic management are ever increasingly seen as a competition factor at all levels of management. The recent economic turmoil and its continuing reflections have obliged, especially top managers to take precautions in order to avoid the crisis and its strong effects. Numbers of prudent and conscious organizations have started to implement risk management practices while some of the organizations have remained same. In this study, the process of risk management implementations has been examined in terms of strategic management by reviewing the literature. This chapter discusses risk factors and risk management practices in terms of strategic management in order to understand effects of economical fluctuations on the firms and to keep up with the globalization.

1 Introduction

There is no great tradition or heritage for strategic thinking in many organizations; the skill to set and implement strategy is sometimes missing; and there are barriers to strategy. All this makes strategic thinking and action a tough challenge. The first step requires finding the motivation to begin (Tregoe et al. 1989).

Risk management practices have grown significantly in many companies harmoniously with the globalization in recent years. Due to the continuation of economic fluctuations and increasing competition, companies face new risks every day. In order to understand risk management, it's crucial cast a glance to definition of the "risk." According to ISO (International Organization for Standardization) 31000:2009 Risk Management Principles and Guidelines, all types and sizes of companies face internal and external factors and impresses that make it unclear when they will reach their aims. Besides, all operations of a company

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contain risk. The same guideline defines risk management as “coordinated activities to direct and control an organization with regard to risk.”

In other respects, risk is not only about uncertainty but also related with the effects of this uncertainty on the success of a company’s goals. Therefore, risk management practices are connected to the risk’s effects on the firms’ objectives (Alina 2012). There are many external and internal risk factors that companies face today. Besides, if these factors are not managed carefully, they can inhibit long-term strategic goals of companies and their accomplishment. When an institution’s risks cannot be managed effectively, its financial viability may be suffered at the end.

According to Trieschmann and Gustavson (1998), risk management is an administrative operation which requires the managerial practices of planning, organizing, leading, and controlling activities in a company. The risk management process necessitates systematic identification and evaluation of risks, selection and implementation of strategies for managing them, and continuous monitoring and improvement of the risk management program (Trieschmann and Gustavson 1998). Alina (2012) defines risk management as a range of activities that are undertaken to check the strategic and operational risks related with the organization. On the other hand, the aim of this kind of management is to preserve an institution against risks and their effects.

Risk management practices are vital for the firms in the globalizing world and under the current risky economic circumstances. Due to the fact that dense competition in the global stage will continue, the companies need to continuously restructure, reorganize, reassess, and rethink their operations and objectives (Sánchez et al. 2002). Therefore, evaluating risk factors and risk management practices in terms of strategic management is vital for all levels of managers and for all companies that struggle against the competition in the globalizing world.

2 Literature Review

2.1 Risk and Risk Management

Risk is a fundamental factor of strategic management and plays a part prominently in many empirical studies of industries, companies, and performance of business (Bettis and Mahajan 1990). According to Cleden (2009), risk is a result of the lack of knowledge, so that risk can be defined as a gap in the knowledge.

Michael Porter (1985) defines “risk is a function of how poorly a strategy will perform if the ‘wrong’ scenario occurs.” Risk is a precious substantial concept in the management field, and it was traditionally perceived in terms of its role as quantifying and controlling uncertainty (Cooper and Faseruk 2011). Due to the fact that risk is defined as the effect of loss from one’s own actions or decisions, it is

becoming increasingly more crucial in the management field. Understanding risk and risk factors is vital in the competitive landscape.

On the other hand, risk is also related with uncertainty. Therefore, some of the risk management thinkers connect the risk definition with the uncertainty like Cooper et al.'s (2005) definition: risk is exposure to the consequences of uncertainty. Similarly, according to ISO 31000:2009, "Risk is the uncertain effect on the goals." It is a kind of deviation from the expectable results positively or negatively. The aims may have different perspectives such as environmental and financial goals, safety, and health. Moreover, the objectives can be implemented in different levels such as process, product, project, organization wide, and strategic. Risk is usually qualified by reference to possible cases and results or integration of these (Guide 73:2009, definition 1.1).

In order to understand and evaluate risk factors, it is pivotal to know well the meaning of the risk management. Risk management is a range of operations that are undertaken in order to check the strategic and operational risks in the organization. The two key definitions related with the risk management are strategic risks and operational risks. Strategic risks are unclear future cases that have effect in a negative manner on the achievement of the vision and strategic goals. In spite of that, operational risks affect the performance or efficiency of the day-to-day operations negatively (Alina 2012).

According to Frigo and Anderson (2011a, b), strategic risk management is not a new term for the firms. But as the globalization and complexity of commercial activities have continued to develop, risk management has emerged as a new point of view to the firms in order to protect from the risks. Risk management is a procedure of describing, evaluating, and managing risks and uncertainties driven by internal and external events that restrain a firm's ability to reach strategic aims.

Moreover, ISO 31000:2009 defines risk management as "coordinated activities to direct and control an organization with regard to risk, and the risk management framework is embedded within the organization's overall strategic and operational policies and practices" (ISO Guide 73:2009, definition 2.1).

2.2 Strategic Management

Strategic management can be described as the science and art of implementing, formulating, and evaluating cross-functional decisions which provide opportunity to an organization for reaching its aims. According to this definition, strategic management is dealing with marketing, production/operations, finance/accounting, development, information systems, and integrating management. The main aim of strategic management is to exploit and create new and different opportunities for tomorrow; long-range planning, in contrast, tries to optimize for tomorrow the trends of today. The strategic planning concept was born in the 1950s and was very popular between the mid-1960s and the mid-1970s. During these years, it was widely believed that the strategic planning would answer for all problems. In the

1980s, strategic planning was not having big effect on the firms. During the 1990s, strategic planning process was widely implemented and still is being practiced in the business world of today (David 2011). Moreover, strategic planning term is used synonymously with the term of strategic management.

Strategy can be defined as the top management's plans for developing and sustaining competitive advantage (Parnell 2014). Strategic management is a more comprehensive term than strategy with a great deal of aspects. This process involves top management's analysis of environment while planning implementation and controlling of strategy (Parnell 2014).

One of the strategic management descriptions is being the art and the science of formulating, implementing, and evaluating cross-functional decisions in order to success future plans. The target of strategic management is to find out new opportunities for tomorrow (David 2011).

Strategic management is a systematic attitude that defines and makes the required changes and surveys the performance of organization along with the vision. Strategic management is arrangement and applying of strategic plan, strategic measures, and assessment of the results. By virtue of the fact that strategic management is an ongoing process, the managers should be strategic leaders and thinkers of the organization by following strategic management process (Wells 1998).

Deployment involves completing the plan and communicating it to all employees. Implementation involves resourcing the plan, putting it into action, and managing those actions. Measurement and evaluation consist not only of tracking implementation actions but also assessing how the organization is changing as a result of those actions and using that information to update the plan (Wells 1998).

The strategic management process can be summarized in five steps. These are listed as below (Parnell 2014) (Table 1):

- “External Analysis: Analyze the opportunities and threats, or constraints that exist in the organization's external environment, including industry and forces in the external environment.
- Internal Analysis: Analyze the organization's strengths and weaknesses in its internal environment. Consider the context of managerial ethics and corporate social responsibility.
- Strategy Formulation: Formulate strategies that build and sustain competitive advantage by matching the organization's strengths and weaknesses with the environment's opportunities and threats.
- Strategy Execution: Implement the strategies that have been developed.
- Strategic Control: Measure success and make corrections when the strategies are not producing the desired outcomes.”

Table 1 Literature review

Title of study	Author	Key subjects	Method of study
Managing project uncertainty	Cleden (2009)	Risk, risk management	Literature review with quantitative and quality methods
Competitive advantage: Creating and sustaining superior performance	Porter (1985)	Competitive advantage, strategy, risk	Literature review with quantitative and quality methods
Strategic Risk, Risk Perception, and Risk Behavior: Meta Analysis	Cooper and Faseruk (2011)	Strategic risk: Meta-Analysis: Risk perception: Risk behavior	Meta-Analysis
Risk Management: An Integrated Approach to Risk Management and Assessment	Alina (2012)	Risk management, risk assessment, audit universe	Integrated approach and score method with literature review
Strategic Risk Management: A Primer for Directors and Management Teams	Frigo and Anderson (2011a, b)	Risk management, strategic risk management	Literature review
Thirteenth Edition Strategic Management Concepts and Cases	David (2011)	Strategic management, concepts	Case studies with literature review
Strategic Management Theory and Practice	Parnell (2014)	Strategic management, theory	Case studies with literature review
Strategic management for senior leaders a handbook for implementation	Wells (1998)	Strategic management, implementation	Case studies with literature review

2.3 Risk Management Practices in Strategic Management

The latest financial events and economic turmoil of the last decade shifted organizations' attentions to the risks seriously. In order to control the risk factors, the companies have spent more money for personnel and technology to avoid risks. However, most of these investments have become peculiarly related with strategic risk management applications.

Although the description of risk, risk management, and strategic management are well known by the managers, they need to know how to apply these famous theories in their companies. A well-defined risk factors, process, and strategies are the advantages of the firms. But the question is how the firms will turn the well-defined strategies into the results. That's why strategic management thinkers have studied on risk management process and models.

Strategic risk management starts with defining and assessing how a wide range of possible cases and scenarios will impact a business's strategy implementation, including the ultimate impact on the future value of the company (Frigo and Anderson 2011a, b). Before managing the risks, risk management factors should be defined according to companies' future aims.

According to ISO 31000:2009, “risk management process is systematic application of management policies, procedures, and practices to the activities of communicating, consulting, establishing the context, and identifying, analyzing, evaluating, treating, **monitoring**, and reviewing” (ISO Guide 73:2009, definition 3.1). Moreover, systematic application of management procedures, processes policies, and to the tasks of establishing the context, analyzing, communicating, monitoring, identifying, assessing, and treating risks are the components of the risk management (Cooper et al. 2005).

As a process of identifying, assessing, and managing risks, risk management is focused on the most significant risks for the attention of executive management and the directors (Frigo and Anderson 2011a, b). This concept relies on the six principles of strategic risk management (Frigo and Anderson 2011a, b):

- It is a process of defining, evaluating, and managing risk anywhere in the strategy together with the final aim of protecting and constituting the value for shareholder and stakeholder.
- It is a major part and basis of enterprise risk management.
- The boards of directors and management affect it.
- It requires strategic view of risks and evaluation of how scenarios and external and internal events may influence the firm’s ability in order to achieve its goals.
- It requires a company to determine tolerable risk levels or risk desire for giving strategic decisions.
- It is an ongoing process that must be placed in strategy setting and strategic management.

Apart from the mentioned process, Kaplan and Norton defined “Strategy Execution Model” which explains six stages for execution of strategy and provides a framework what can be done while implementing risk management practices (see Fig. 1). The six stages of the model were summarized as below (Kaplan and Norton 2008):

- Stage 1: Develop your strategy: The organization must be sure that it uses all available strategic tools such as mission, vision statements, external analysis tool, Porter’s five forces, and SWOT analysis. In this manner, the firm needs to answer some questions as: “What business are we in and why? What are the key issues we face? How can we best compete?”
- Stage 2: Plan your strategy: The firm must continue to build on the foundation generated by stage 1. In this stage, the company must answer some questions as: “How do we describe our strategy? How do we measure our plan? What action programs does our strategy need? How do we finance our initiatives? Who will lead strategy execution?”
- Stage 3: Align your organization: The company’s strategy must be linked to the strategy of each business unit. For this purpose, the company must answer following questions as: “How can we ensure that all units of work are ordered? How do we range all units together and business strategies? How do we encourage our personnel in order to achieve company’s strategy?”



Fig. 1 Strategy Execution Model (Source: Kaplan and Norton 2008)

- Stage 4: Plan your operations: The firm must establish clear connection between long term strategy and day-to-day operations. Two main questions must be answered in this stage: “Which corporate progresses are most tight for implementing the strategy? How do we connect budgets and operating plans with the strategy?”
- Stage 5: Monitor and learn: The company must orderly monitor the results in order to see how well the organization is managed with the meetings which focus on two key questions as: “Are our activities in hand? Are we managing our strategy fine?”.
- Stage 6: Test and adapt: The firm must go on to test strategic assumptions on an ongoing basis in order to be sure that optimum strategy is being implemented regularly. This stage will start a new period of integrated strategic planning and executing of operational works.

3 Conclusion

The globalization and the increasing competition have forced companies to implement risk management practices in the field of strategic management. The latest economic turmoil and its ongoing reflections attracted the attention of all levels of managers to the strategic risk management. Therefore, this study has discussed risk, risk factors, risk management, strategic management, and the practices of risk management in the field of strategic management.

Actually, as a theoretical level, most managers are aware of the concept related with strategic management. But few are experienced about the application process. This study brings light for the managers in order to understand the practical applications of the risk management. For this purpose, Norton and Kaplan’s “Strategy Execution Model” was summarized in six stages: develop your strategy,

plan your strategy, align your organization, plan your operation, monitor and learn, and test and adapt.

Moreover, risk management is related with identifying, assessing, selecting, and adapting strategies in order to reduce risks. To perform the correct application of risk management, the different levels of risks and different precautions must be defined. It is well known that every risk does not have the same effect on the firms' future plans. While some of the risks are needed to be taken crucial providences, others may be seen negligible. That's why the risk definitions and precautions are the starting point of the risk management practices.

Following of determining the definitions and precautions, the later step is finding out how to apply risk management strategies to the company. In this stage, the matter is turning well-defined strategies into the results in order to avoid possible risks and reach future goals of the firm. Although some methods are used to be implemented theoretically in the risk management field, the question is how some techniques will be adapted to the specific company. The risk-based decision-making requires special abilities and thinking strategies of top level managers by taking high level responsibilities of the strategic decisions.

As a conclusion, risk management practices should take into account all risks factors including economic crisis. However, risk management approach is to be tailored according to company's individual characteristics such as the firm's sector, future plans and goals, and financial and economic environment.

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Reducing Risk Through Strategic Flexibility and Implementation Leadership in High-Velocity Markets

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Abstract Firms operating in dynamic business environments where political instability, high level of market complexity, financial ambiguity, and risk dominate the whole market must develop special capabilities to gain competitive advantage or even survive. Among these capabilities, strategic flexibility enables firms to dynamically manage their resources for adapting to high-velocity environments and reducing risks, and it also helps firms exploit the full potential of their key resource stocks. Strategic flexibility allows firms to respond quickly to unstable environments and act promptly when it is time to halt or reverse existing resource commitments. In order to establish a flexible organization, firms scan environment thoroughly and make their investment decisions and determine their priorities according to existing situations and future environmental precautions. Strategic flexibility can play a critical role for firms to reduce the risk by offering agile and prudent solutions in volatile environments. Yet, implementation of these decisions and objectives is subject to senior management's determination. Therefore, an implementation leadership style can also be vitally important to achieve "risk reduction"-related objectives. Strategic leadership that initiates the alignment of people to strategy may enable the implementation of risk management practices in the firm. This chapter explains the effects of strategic flexibility and implementation leadership on reducing risk in high volatile markets.

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1 Introduction

Global movements which generate open business arenas leading to fully unprotected markets along with the several developments in economic systems and international politics, sudden shifts in the consumption preferences, and the widespread use and diffusion of technology and telecommunication have created a new economy. In this new economy, the existing cutthroat competition has become even more brutal, and the dynamism and risk perception have become higher. In hyper-competitive and turbulent business environments, “firms face smaller decision windows, increased resource specialization, fragmented markets, a lack of predictable resource needs, and a general lack of long-term control” (Lee et al. 2013: 531).

In such a business environment where uncertainty and risks increased, erratic strategic decisions of managers shape the direction of the firm (Mitchell et al. 2011), and traditional management techniques no longer form the basis of competitive advantage (Kor and Mesko 2013). Obviously, given the changing rules in this new arena of business, firms should attentively describe and focus on their unique strategic resources instead of trying to control and manipulate structural forces in their industries.

For Schumpeter (1934: 15), “firm success is not necessarily associated with market power or industry structure, but rather is the result of innovation and new technologies which are critical in influencing the dynamics of external environment and competition.” Similarly, Leibenstein (1966), who introduced the concept of “X-efficiency,” explained the productivity differences between identical factories with intangible “X-factors” such as labor management relations, incentive systems, and selection of workers rather than the specific industry effects or other macro-economic factors. Wernerfelt (1984) theorized that resources were leveraged inside the firm and each firm had a unique resource endowment. From a more dynamic perspective, Helfat et al. (2007) suggest that resource and capability endowments of firms are mainly determined by the nature of the external environment and firms should either reconfigure or alter their resources mix and develop new capabilities to cope with environmental dynamism.

In a similar line, Kearney (2012) states that environmental dynamism may influence the resource base and development of capabilities of the firms. Jansen et al. (2006: 1665) present “frequent changes in industry structure, the instability of market demand, and the probability of environmental and financial shocks” as the most important elements of environmental dynamism. Under these harsh environmental conditions, while the risk of making wrong decisions increases, the possibility of taking the right courses of actions decreases. This situation compels firm to develop new skills and capabilities to reduce risks that emerge as a result of hyper-changing environment. Among these capabilities, flexible mechanisms and effective leadership help firms to take right courses of actions and implement them rapidly on the way of risk reduction. High risk is associated with velocity and volatility, and especially developing countries are described as high-velocity markets where rapid and discontinuous changes are common (Schilke 2014).

2 Developing Countries as High-Velocity Markets

The terms high dynamism, risk, volatility, velocity, and turbulence are generally associated with the market characteristics of developing countries (or emerging markets). The existence and efficiency of a capability has been associated through the dynamic conditions of environment in strategic management literature (Zollo and Winter 2002; Zahra et al. 2006; Schilke 2014), and the capability possession of firms was explained by the environmental factors. Hence, the market and business environment characteristics of developing countries are explained.

2.1 *Market Characteristics of Developing Countries*

In developing countries, firms usually find themselves in a business environment where unprecedented economic growth rates, abrasive political instability, and information asymmetry occur (Cavusgil et al. 2013). Besides, economic fluctuations along with financial volatility and high-risk perception, less transparency and poor legal frameworks allowing opportunism, corruption, and rent shifting dominate the whole market (Hoskisson et al. 2000; Nowak-Lehmann et al. 2007). Business systems are established based on more networking types of relationships or even nepotism compared with developed countries. Strong family ties, traditions, and conservative culture can be the determining factors to continue existent business operations and/or exploit new business opportunities. The dominance of family-owned diversified business groups in developing countries such as Family Groups in Turkey, Guanxi in China, Kwankye in South Korea, and Svyazi in Russia indicates the importance of networking for firm success in the dynamic business landscape (Cavusgil et al. 2013). Since long-term relationships and networking skills are extremely critical for firms to operate their business activities in developing countries, foreign multinationals frequently consider strategic alliances to overcome the entrance barriers for these markets. Referring to the aforementioned environmental characteristics, it would not be difficult to discern the difficulties and extra risks of doing business in the developing countries.

Several theorists (e.g., Chari and David 2012; Cavusgil et al. 2013) claim that consumption patterns of the developing country customers are much more diverse and rapidly changing compared to Western-world customers because cultural and sociological patterns in different regions are not far dissimilar in developed countries. While the same marketing mix can be used across the whole market in developed countries, diversity in regional preferences makes this kind of strategy very hard in developing countries. Divergent and rapidly changing consumption patterns related to culture and social life may shape the resource possessions of the firms as well. The divergent structure in consumption habits may compel firms to have sophisticated market intelligence mechanisms and distribution and supply

chain systems to address this diverse product and service needs and requirements of the consumers.

Similarly, rapidly changing consumption habits facilitated by environmental dynamism can force firms to be innovative in developing countries as well (Hoskisson et al. 2000; Schilke 2014). Due to capricious and changeable consumers, product life cycles may be shortened more in developing countries compared to developed countries (Purkayastha et al. 2012; Cavusgil et al. 2013). Hence, new product development and innovation abilities may be relatively more important in developing countries which are acknowledged high-velocity markets. In parallel to these explanations, previous research (e.g., Hoskisson et al. 2000; Cavusgil et al. 2013; Liu et al. 2013) shows that developing country firms which operate in business environments where high environmental dynamism occurs have acquired different capabilities to reduce business risks and ensure the effectiveness of their operations compared to developed country firms.

2.2 Capability Possession Differences Between Developed and Developing Countries

In terms of capability possession, a noteworthy difference between the developed and developing country firms which are under the influence of turbulent market characteristics is that while routine-based capabilities are more widespread in developed country firms, process-based capabilities are paramount in developing country firms (Drnevic and Kriauciunas 2011; Liu et al. 2013). Several researchers (e.g., Salvato and Rerup 2011; Dionysiou and Tsoukas 2013) suggest that this situation is equated with the requirements of business execution in different country conditions. According to Salvato and Rerup (2011), routines are the repetitive joint actions embedded in firms which regulate and standardize procedures, decisions, solutions, and to some extent the way of doing business of the firms. So, routines offer standard procedures and solutions when firms experience several problems regarding resource wastages (time, money, etc.) and organizational inefficiencies.

Depending on their nature, organizational routines include stable tools and applications in relation to production procedures, new product development processes, quality and inventory management, pricing, or recruitment (Becker 2004). However, as a result of their standard and stable applications, rapid and agile operation and modification and maneuvering capabilities of firms may be restricted.

Moreover, given the chaotic and complex nature of this dynamic environment, leadership behaviors shifted from “relying on simplistic cause-and-effect relationships to embracing a more interdependent view of the world” (Houglum 2012: 29). In high-velocity environments, events may be unpredictable and traditional forms of focused, top-down leadership styles are expected to be ineffective (Schneider and Somers 2006). Therefore, the leadership style should focus on adaptation to complex environments and rapid and thorough strategic decision-making as well as

initiating and implementing them on time through the ambitious contribution of the whole organization.

Several scholars (Weiner 2009; Aarons et al. 2012) have asserted the importance of leadership in terms of “obtaining funding, dispersing resources, and enforcing policies” in support of rapid strategic implementations. In complex and chaotic business environments, leadership may emerge, while interacting with the actors and agents generates adaptive outcomes. Leadership can occur “anywhere within a social system and it needs not be authority or position based, but is instead a complex interactive dynamic sparked by adaptive challenges” (Lichtenstein et al. 2006: 4).

Consequently, in high-velocity business environments where high risks dominate the market as a result of uncertainty and unpredictability, two capabilities, agility and flexibility of a firm and rapid implementation of the strategies initiated by leadership, are crucial to reduce risks and sustain competitive advantages. These capabilities are discussed in the following section.

3 Strategic Flexibility

The focal point of strategy research is the management of strategic resources effectively since a firm’s ability to acquire, bundle, deploy, and develop resources through capabilities is more important than static resource endowments in driving organizational performance (Maritan and Peteraf 2011; Sirmon et al. 2007, 2011). Maritan and Peteraf (2011: 1380) suggest that organizational performance “arises from differential complementarities between a resource and firms’ existing resource portfolio and capabilities.”

In fact, the synergistic and complementary performance effects that emanate from the positive interaction of capabilities and resources have long been formalized in strategy literature (Penrose 1959; Maritan and Peteraf 2011; Sirmon et al. 2011; Huesch 2013). According to Penrose (1959), valuable productive resources may remain unused if firms fail to deploy them. Hence, the resource portfolio of a firm that includes valuable and productive resources should be deployed appropriately, and its resource base should be extended or modified by integrating and reconfiguring the resources and capabilities to create value (Tece et al. 1997; Eisenhardt and Martin 2000).

Since firms compete by deploying bundles of complementary resources, the effectiveness of a resource or a number of resources is contingent on the firms’ capabilities (Sirmon et al. 2007, 2011). Similarly, effectiveness of a capability may also be contingent to another organizational capability (Sirmon et al. 2007; Huesch 2013). Especially in high-velocity environments, effective deployment of productive resources can be achieved through integration of multiple capabilities (Eisenhardt and Martin 2000; Huesch 2013; Peteraf et al. 2013). Zahra et al. (2006) found that the low knowledge transfer capability of firms was the consequence of another low dynamic capability—a deficient problem—solving

capacity in the face of change. Sirmon et al. (2008) state that multiple capabilities are needed to compete effectively and management of scarce resources should be the utmost concern of managers.

From this point of view, performance hinges on the efficiency and effectiveness of a capability interacting with other complementary resources and capabilities (Zhou and Wu 2010; Huesch 2013). Interaction effects of resources and capabilities on performance outcomes may differ due to the contingent effect of context (Sirmon et al. 2008). In high-velocity environments, firms which face rapidly changing technologies, markets, and consumer behavior rely more on the quick-response capabilities to cope with the external conditions and thereby reduce risks and survive.

In this case, strategic flexibility “allows firms to respond quickly to dynamic and unstable environmental changes by committing resources to new courses of action, and recognize and act promptly when it is time to halt or reverse existing resource commitments” (Liu et al. 2013: 82). Strategic flexibility does not only enable firms to dynamically manage their resources for adapting to high-velocity environments, but it can also help firms achieve the full potential of their key resources (Liu et al. 2013; Wei et al. 2014). Strategic flexibility deals with the flexible use of resources and reconfiguration of processes, so, strategic flexibility can be achieved through resource flexibility and coordination flexibility (Matthyssens et al. 2005; Zhou and Wu 2010).

3.1 The Mechanisms of Flexibility

Generally, two mechanisms are very important to create strategic flexibility in organizations: resource flexibility and coordination flexibility (Zhou and Wu 2010). Strategic flexibility may reduce the risks that a firm may encounter and influence organizational performance in different ways. For example, studies (Argote et al. 2003; Garriga et al. 2013) have shown that organizations suffer from several organizational constraints that impede the creation, transfer, integration, and application processes of knowledge.

The resources are not abundant and a firm’s ability to create new knowledge depends on learning from inside and outside sources (Levinthal and March 1993). Without new knowledge and information, the firms cannot understand the needs and requirements of the markets. Besides, potential risks and threats may not be easily detected without thorough knowledge. In this case, the mechanisms of flexibility help firms to address these problems.

3.1.1 Resource Flexibility

Resource flexibility refers to “the capabilities to accumulate flexible resources with multiple uses” (Wei et al. 2014: 835). Given the condition of resource scarcity, the

current resources of firms that are intensely bounded to specified targets make difficult for firms to employ them for other courses of actions (Wei et al. 2014). In this situation where resource flexibility is low, it may be too difficult and costly for firms to find complementary resources.

On the contrary, firms with high resource flexibility can use other resources more easily for new purposes, and the time along with the cost spent for switching one resource to another may decrease (Matthyssens et al. 2005; Wei et al. 2014). For example, a firm that seeks to create new knowledge or exploit existing knowledge to enhance its innovativeness in an ambiguous business environment may be constrained by the lack of appropriate IT-based technological capabilities or highly skilled employees.

As a result, it may need to commit additional resources or change existing investment in exchange for future development of “searching and processing new knowledge beyond the domain of neighborhood knowledge and embarking on a broader level of exploration” (Zhou and Wu 2010: 551). Therefore, knowledge exploration and exploitation capacity of the firm can be increased through the extended resource pool. But, this can only be achieved if the firm has a high level of resource flexibility that facilitates availability of new resources for new knowledge and new technologies at a lower risk and cost during the new product development process (Zhou and Wu 2010; Wei et al. 2014). Flexibility in resource allocations and product designs helps firms to adapt new technologies and increase number of the new product configurations significantly (Worren et al. 2002).

3.1.2 Coordination Flexibility

Coordination flexibility refers to “the capabilities to create new resource combinations through an internal coordination process” (Wei et al. 2014: 835). Apart from ensuring flexibility in resource allocations, strategic flexibility also serves as an “organizing principle for structuring and coordinating various resources and functional units” (Zander and Kogut 1995: 79). Routine and structural inertia were identified as the constraints especially on the transfer, share, and application of knowledge that impact innovation performance negatively (Gilbert 2005; Garriga et al. 2013).

In dynamic product markets, firms may need to reconfigure their production processes quickly, break routine inertia that obliges firms to standardization, and change the hierarchical organizational structure where knowledge transfer across levels is limited and less space is left for employees to be creative (Gilbert 2005; Zhou and Wu 2010; Wei et al. 2011). A high level of coordination flexibility may enable firms to build, transfer, and integrate new resources rapidly by relaxing routine and structural inertia which helps firms break down their knowledge and institutionalized technological processes and explore new alternatives (Gilbert 2005; Wei et al. 2014). In order firms to achieve a high level of flexibility, hierarchical structures which imply less flexibility and more rigidity

(Wei et al. 2011) should be replaced with flatter organizational structures which include business units with self-organizing teams (Zhou and Wu 2010).

Besides, flexible supply chain, logistics, and manufacturing processes with modular product designs (Worren et al. 2002) should be developed, and a supportive and facilitating corporate culture in favor of rapid decision-making and deployment of resources to address requirements of dynamic markets should be maintained (Gilbert 2005; Zhou and Wu 2010).

In this manner, process-based mechanisms just like information technology (IT) skills, enterprise resource planning (ERP), manufacturing resource planning (MRP), electronic data interchange (EDI), and supply chain management (SCM) systems may provide firms sudden resource mobility and enable them to respond to market demands quickly on the way of reducing market risks (Ray et al. 2004, 2013). In high-velocity emerging markets, firms must deal with a number of market segments comprising a high variety of consumption patterns and rapid and discursive consumer shifts resulted in a consequence of divergent income distribution and low education levels of consumers (Cavusgil et al. 2013). Flexibility in resources can increase responsiveness of firms by providing sufficient and valuable intelligence regarding current and future customer needs, competitor strategies and actions, channel requirements, and the broader business environment.

Coupled with such flexible mechanisms, firms are more likely to purposefully create, extend, or modify their resource base enabling firms to process their resources in the most effective way that leads to superior performance in dynamic environments. However, strategic flexibility may not reduce market and financial risks completely and affect a firm's organizational output by itself. Rather, it may enhance the value of existing resources and capabilities when used in combination. In this sense, strategic flexibility can be deemed as a kind of complementary organizational capability that can help firms achieve the full potential of their resource stocks and capabilities resulting in better organizational performance (Zhou and Wu 2010). Strategic decisions regarding the flexible mechanisms and their quick implementations are subject to managerial leadership capabilities.

4 Implementation Leadership

Leadership is crucial for the effective implementation of organizational strategies because leaders can positively or negatively impact the capacity to foster organizational change and adaptation (Waldman et al. 2001; Gumusluoglu and Ilsev 2009) and therefore are instrumental in facilitating a positive climate for change and positive attitudes toward strategic implementation.

In complex and volatile environments, events are not predictable and traditional forms of focused, top-down leadership styles are expected to be ineffective (Schneider and Somers 2006). In other words, the traditional forms of leadership styles that encompass authority-based top-down relationships or over-democratic attitudes framed in a limited vision may lead to slow, insensitive, and rigid

organizations that are unable to adapt to the hyper-changing environmental conditions. However, in high-velocity markets, implementing a new strategic initiative on required time frame is a must, and leadership effectiveness becomes most visible when an organization changes its strategy (O'Reilly et al. 2010).

The fast-changing situations in high-velocity markets bring the necessity of modifications and adjustments in the strategic decisions or even strategic directions of firms. Under these conditions, leadership should include several functions such as “serving as opinion leaders of change, managing implementation projects, fostering organizational learning climates, and obtaining senior management support” (Harvey et al. 2011). But these functions cannot be executed through a single individual and other individuals should act as leaders in this dynamic process.

Moreover, leadership should not only provide conformity of followers, but it should deeply influence them; in this sense, it does not rely on formal authority structures. Leaders at subordinate levels must reinforce them; that is, “they must allocate resources for them, deal effectively with resistance to them, and convince employees that the new initiative is important and in the employees’ interests to support” (O'Reilly et al. 2010: 105). Therefore, implementation leadership does not focus on the specific behaviors of a key single person at the top level but the aggregate effects of leaders at different hierarchical levels.

Within this framework, leadership in unpredictable and volatile markets should incorporate interactions between agents such as decision-makers in every hierarchical level that may occur in multidimensional processes (Avolio et al. 2009; Taylor et al. 2011). The importance of lower-level leader support for successfully implementing a new strategic initiative was illustrated by several studies in the literature (Guth and Macmillan 1986; Wooldridge and Floyd 1990; Houghlum 2012). The effectiveness of implementation leadership can be rooted to the creation of meaning within the organization (Podolny et al. 2005). If these meanings do not offer clear and consistent messages across executive people (or leaders) at different hierarchical levels, implementation of strategic initiatives may be hindered (Cha and Edmondson 2006). These consistent and clear meanings about critical elements in the work environment which influence the alignment of strategic initiatives can be delivered through some mechanisms.

The provision of some compelling directions for the groups by leaders at different levels in the organization may create critical results. The urgent decisions and strategies can be implemented faster and the necessity of change can be addressed easier. Hence, adaptive capacity of the organization can be built. Tetenbaum and Laurence (2011) suggest that the implementation of strategic initiatives can be fostered by creating urgency that disturbs equilibrium in the organization. Through this method, change can also be achieved rapidly. Leaders at different levels may “announce some situation that will be painful to the workers” or may “envision a future so compelling that people want to move in this direction” (Tetenbaum and Laurence 2011: 44). As a result, people can be shifted away from the status quo toward a new state. There are several other processes and behaviors that can support implementation leadership that are ensuring diversity in the discussion, encouraging conflicting perspectives, modeling open

Table 1 Major studies on environmental dynamism, strategic flexibility, and leadership effects on firm performance

Variable	Effects on capability development and firm performance	Studies	Methods
Environmental dynamism	Environmental dynamism compelled firms to develop new skills and resource bundles such as managerial ability, unique customer relationships, efficient supply chain management, marketing capabilities, strategic decision-making and IT skills, knowledge process capabilities, and acquisition and networking skills	Barney and Arian (2001), Jansen et al. (2006), Helfat et al. (2007), Shamsie et al. (2009), Vorhies et al. (2009), Nath et al. (2010), Sirmon et al. (2007, 2011), Mahmood et al. (2011), Maritan and Peteraf (2011), Barney (2012), Chari and David (2012), Peteraf et al. (2013), Schilke (2014)	Survey, archival data, longitudinal study, case study, simulation, meta-analysis
Strategic flexibility	Flexibility in resource allocation, coordination, and manufacturing sustains competitive advantage for firms, and process-based mechanisms may provide sudden resource mobility and enable them to respond market demands quickly on the way of reducing market risks	Worren et al. (2002), Argote et al. (2003), Gilbert (2005), Matthyssens et al. (2005), Zhou and Wu (2010), Wei et al. (2011, 2014), Garriga et al. (2013), Liu et al. (2013), Ray et al. (2004, 2013)	Survey, longitudinal study, case study
Leadership skills	Initiation and implementation of strategic decisions are achieved by effective leadership. Leadership facilitates a positive climate for change and positive attitudes toward strategic implementation	Waldman et al. (2001), Podolny (2005), Cha and Edmondson (2006), Avolio et al. (2009), Gumusluoglu and Ilsev (2009), O'Reilly et al. (2010), Taylor et al. (2011), Tetenbaum and Laurence (2011)	Survey, longitudinal study, meta-analysis, comparative study

and honest discussion, identifying holding environments, framing the issue and keeping the focus, and building trust (Tetenbaum and Laurence 2011). So far, the literature revealed that a complex interaction of capabilities which include flexible mechanisms and leadership skills can result to certain performance outcomes. A review of previous empirical investigations on the topic is outlined in Table 1.

Accordingly, in dynamic markets, to decrease the risk by making quick strategic decisions and taking actions rapidly, and to realize performance gains from a strategic change, both senior and subordinate leaders should effectively communicate and draw plans to ensure their implementations (Lichtenstein et al. 2006;

O'Reilly et al. 2010). O'Reilly et al. (2010: 105) suggest that "if subordinate leaders are not committed to the strategy, implementation is at risk." Namely, consensus within the leadership team that was consisted from different levels of hierarchy about the strategy can help the strategic execution and implementation. In this context, organizational outcomes will be based on complex interactions, rather than "independent" behaviors.

5 Conclusion

Considering our explanations, firms should be aware that a rapid environmental adaptation, a new strategic implementation, or even a drastic organizational change is a function of multitude of factors and cannot be achieved through a single transaction of a resource or a capability. Therefore, lack of a complementary resource or a capability may prevent firms from taking satisfactory courses of actions. Although strategic flexibility was considered as a vital dynamic capability on the way of changing the courses of actions of the firms to reduce unpredictable risks in high volatile markets, it should not be regarded as a universal, one-fits-all solution (Wei et al. 2014).

It should be noted that strategic flexibility of an organization can only be effective and provide the best results as long as it gets the required contribution and support from the suitable leadership capability. Given the divergent and fast-changing consumer attitudes, unstable political and economic environment, and difficult and harsh business conditions in high-velocity markets, leaders of the firms should not only pay attention to establish flexible mechanisms that provide early precautionary signals and agility to respond, but they should also feed these mechanisms through effective leadership capabilities. However, it should be noted that allocation of scarce resources and their optimum deployment is a key managerial challenge. Therefore, priority should be given to the most important resource and/or capability sets.

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Implementing Adaptive Strategies of Decision Support Systems During Crises

Gökhan Silahtaroğlu

Abstract A typical Decision Support System requires data access, a model enhanced with proper machine learning algorithms and a user interface. So, thanks to the development of fast machine learning algorithms and big data, Decision Support Systems may be used as Executive Information Systems in practice to support the decisions of executives. With the improvement of science and technology, it has become more feasible to store large amounts of data both on local and remote databases. New and robust machine learning algorithms are available to process this data and extract information to support decision makers and decision-making processes like future risk management, investment plans, predicting opportunities in the sector, long-term recruitment plans, and employee training programs. In this chapter, decision support systems have been presented in general. Additionally, some details have been given about how to use decision support systems and for what business purposes they may be exploited by the top management.

1 Introduction

Strategic management encompasses two major processes: the formulation and implementation of goals and initiatives and measures taken by the top management of an organization so as to achieve an advantage to compete in the market. Since the strategy is defined as the long-term plans of an enterprise, strategic management is to be long term-formulations and implementations of those initiatives. Strategic management comprises two interrelated perceptions which are [strategic planning](#) and [strategic thinking](#). The top management needs to have the advantage of a strategic thinking environment, skills, and labor in order to achieve strategic planning. Strategic planning includes the steps and procedures to generate data and perform the analytical practice for further strategic thinking. The formulation

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process of strategic management requires analysis of the environment in which the organization runs. The analysis of the environment includes both external and internal surroundings. This is where Decision Support Systems (DSS) engage or draw in. Collecting data and conducting analysis for strategic planning and decision making entail a smart system like DSS. Today, the top managements of organizations favor a system enhanced with machine learning algorithms to process Big Data. Decision Support Systems may be implemented and used to determine:

- The target customer and product/service design
- The geographical range of the business
- Labor, skills, and expertise to be improved within the organization
- The future risks and opportunities of the organization
- Ways to increase the value of the organization and its products or services
- How to increase the strengths and eliminate the weaknesses of the organization
- The possibility of new entrants to the market or the industry
- The bargaining power of customers and suppliers
- Ways to increase the bargaining power of the company
- The possibility of emerging of alternative markets or substitute products and services

As it is seen, most of the concerns mentioned above need strategic understanding and planning. Although the intuitions of the top management are vital for making decisions, they must also be supported by analytical decision making (Sjöberg 2003). Analytical decision making depends on qualitative and quantitative measures. After a series of problem solving processes, the top management usually makes decisions blended with intuitions and analytical findings. However, someone or something is needed to praise the final decision. Today, this is a Decision Support System.

2 Decision Support Systems

As computers have become an inevitable part of our private and business life, the word “computer” is being used for both hardware and software by not only ordinary people but also by professionals. We have started to hear and make sentences like “*It should be analyzed with a computer,*” “*we use computers in production,*” “*I use computers when I make my decisions as a manager,*” and so on. What is meant by the word “computer” in those sentences is a special software running on a digital device. We do not mean the electronic computer device, but a computer program or software system. So, are all software systems alike? The answer is no. They have similar coding systems but different functions and abilities. Although they are called software, applications, or computer programs in daily language, they actually may be totally different from each other in terms of service, function, and management level. Although Decision Support Systems are coming from the same family of computer software, they are totally different from

Transactional Processing Systems and Management Information Systems. Transactional Processing Systems (TPS) handle simple database function like add, delete, and update. In other words, TPS is used for recording all transactions in a business. The job is simple but effective. Management Information Systems (MIS) build reports for managers using the data collected by TPS. These reports are moderate, short-term reports like daily, weekly, quarterly gross sales; average sales amount of each product or product category; employee working hours; raw material usage and stocks; etc. These software systems are not considered to be smart systems. On the other hand, as its name suggests, DSS gives detailed information to support the decision of the middle and top managers.

A decision support system (DSS) is software that produces reports, graphics, rules, and predictions which will help users/managers make decisions about certain issues (Sharda et al. 2014). They are designed and used for different purposes such as medical diagnosis, price adjustment, location choice for plants, player selection for team games like soccer and basketball, capacity planning, logistics management, and so on. As it is seen, all these examples are different from each other. So, there is not a unique software that will meet all of these jobs. For each purpose, objective, field, or job, a different model or software is needed. A typical decision support system software displays information in the format of graphics, dashboards, decision tree statements, If-Else-Then rules, prediction statements, text reports, and so on. Decision support systems may be a single software system or a platform that hosts multiple systems and algorithms. DSS uses artificial intelligence or machine learning algorithms. Both supervised learning and unsupervised learning algorithms may be implemented in a DSS. For prediction, supervised algorithms are used. They may be rule induction, decision tree, artificial neural networks, and statistical-based algorithms. Unsupervised algorithms are used for clustering or profiling.

Decision support systems use prebuilt and designed datasets in order to generate predictions and models to help users or managers make their tactical or strategic decisions. A software system which encompasses the following features may be classified as a DSS.

1. A DSS must be designed in a way to give solutions to typical upper level decision machining processes or problem solving methods. These may address both tactical and strategic decisions. For example, recruitment policy is very important for most of the companies. A good manager would like to see how many people should be working in each department say in 6 months' time. This number, of course, depends on many factors such as production amount, market demand, currency fluctuations, raw material supply, and so on. So, a DSS should scan data related to these subjects and parameters to generate suggestions; meanwhile, it will have produced numbers or predictions for them as well. That means a DSS both uses data to generate solutions to some problems and also makes for the future values of the data it exploits. Nevertheless, this is not a simulation process. It is a learning process.

2. A DSS needs data to generate solutions or help decision-making processes. The data must be received from traditional sources but must be designed in a different format in order that it could be used by machine learning algorithms. This data is called “data warehouse” or “data mart” depending on the size and scope. It may include external data besides corporate database.
3. A DSS must be designed in a simple user interface that can be used by simple computer literate users or managers. Although a DSS runs very complicated algorithms in the background, the user who will benefit from the findings will not be a computer expert to understand the processes running in the kitchen of the system.
4. A DSS or its platform must be flexible enough to be used for different decision-making processes. Some systems may be designed for a single user and single purpose. For example, a special DSS may be built for stock exchange market. It may be a classification model in order to suggest which paper should be transacted or bought and sold and how often transactions should be held. However, most systems are required to be designed to respond to various models and problems. So, a decent DSS is preferred to be flexible enough to fit different situations.

2.1 Types of DSS

In classical understanding, decision support systems are classified in different categories. This classification is done considering how DSS algorithms will be fed with data, what kind of users will use the system, what sort of information will be produced by the system, how the information will be shared, and how it will be exploited by users. Those categories are as follows:

1. **Data-Driven DSS:** A decision support system in this taxonomy has a direct access to a data mart or data warehouse. The data should be structured and it may be either historical or live data. In either case, the system should be founded on the data warehouse and algorithms are chosen and designed for the specific data and data types. The system enables the user to connect with various data warehouses or data marts.
2. **Model-Driven DSS:** Although the data used by the system is very important, the main focus is on the model of the DSS exploitation. Users may add or remove different models such as financial prediction, medical diagnosis, and optimization of production. On the other hand, it may be designed for only a single model.
3. **Knowledge-Driven DSS:** This system aims to extract useful information from large datasets, so it is closely related to data mining. It requires special expertise and skills to use such a system. These areas of expertise and skills are in handling or sorting out different kinds of problems and producing models to solve these problems in a human-to-computer environment. The user should be capable of

building the model, preparing the data set, and choosing the right algorithm to run. Finally s/he should have enough expertise to convert the information into knowledge.

4. **Communication-Driven DSS:** It depends on information sharing and eventually requires the contribution of multiple people rather than that of a single person. Like Google Docs, Dropbox, One Drive, and other cloud data sharing platforms, most of the systems are not ultimately built for the purpose of decision supporting. Communication-driven systems benefit from the facilities served by various data storage and sharing platforms though. Today, much of communication media, like emailing or voice over IP (VoIP) systems, are adopted as communication-driven decision support systems. These systems may be integrated with document-driven decision support systems as well.
5. **Document-Driven DSS:** Documents in electronic formats such as text, video, or audio are used to extract valuable information by this category of decision support systems. This kind of platform organizes and optimizes the data entry with artificial intelligence algorithms and builds “exit ports” such as for marketing, finance, sales, and production to flow information out.

Although we have mentioned five categories, DSS platforms may contain two or more of the architectures mentioned above.

2.2 Main Components of Decision Support Systems

There are three main components of a DSS:

1. Data
2. Model and Algorithms
3. User Interface

Data Any DSS uses data to supply user(s) with information. Depending on the model and algorithms to be applied, the datasets should be cleaned, restructured, and formatted. This is the process that converts data or datasets into a data warehouse. A data warehouse which is also called as Enterprise Data Warehouse (EDW) is a system which hosts an enterprise’s data in an organized way that various algorithms could run and produce information. A data warehouse may be logical or physical. It contains data from various departments of the enterprise such as finance, sales, human resources, etc. A data warehouse should be subject oriented, integrated, time-variant, and nonvolatile (Inmon and Hackathorn 1994). What is understood from being subject oriented is that the system should have an objective or a problem to solve. So, a data warehouse will be designed according to the subject of the problem. Thinking strategically, a data warehouse is often built around multiple subjects and/or objectives. The data stored will come from multiple sources within the enterprise, but also from outside sources, so it is a must to integrate all these data to achieve a usable data repository, i.e., data warehouse. A

data warehouse may be the combination of text, audio, and video files from various sources, yet all files should be integrated. Each record should have a time indicator or timestamp in order to drill down into the history of the data with algorithms. In this way, it will be possible to keep the track and sequence of the transactions. The data is usually grabbed from the enterprise database which is volatile. That means the database is being updated with entries or new records. However, a data warehouse is considered to be isolated from other users so that they could not add or delete any records. It is simply historic data.

Model Depending on the objective of the study, the dynamics of decision-making process, and the enterprise itself, three different models may be applied for a DSS: Passive, active, and cooperative models. Passive model merely displays data in an organized way. This model of DSS does not suggest any solutions to the users; however, it supplies the user with a ready to use data repository. Users may analyze the data analytically and manually; also, they can have the data work with some third party software. Although the other two models include a data repository, this model provides a clearer one which can be read by people rather than by algorithms or machines. An active model DSS is enhanced with machine learning and artificial intelligence algorithms. The system, by using pre-cleaned and transformed data, produces reports and predicts and suggests decision alternatives. Decision tree algorithms, artificial neural networks, and support vector machines are used within the model. With the increase of computer technology and the studies on analytics in recent years, the active model has been widely used. A full active system includes the following features:

- Data preparation and cleaning (including handling missing values).
- Conducting simulations to choose the right sub-model or algorithm to run.
- Deciding on parameters required by the algorithms such as the number of clusters, the minimum number of records in each cluster, criteria pruning for decision trees, and parameter learning for artificial neural networks.
- Running selected algorithms.
- Generating reports, graphics, tables, suggestions for the users.

Cooperative models are the platforms to serve human–computer interaction. Both data and algorithms are available and ready to use in the system. Users decide how to handle the data and which algorithms to run. In this model, human and computer work together to find solutions to specific problems. Mostly, the findings are reviewed and analyzed by humans and put into a report manually.

User Interface The user interface of the information systems is the front-end of the program which interacts between human and computer. For almost all users, it is the program itself. Real users who will eventually benefit from the program are not interested in the hundreds of code lines and the data warehouse model behind the user interface. Perhaps it is more strikingly true for a DSS since its main users are managers and executives. Although there are several types of user interfaces for information systems, today graphical user interface (GUI) and menu user interface

types are widely used for decision support systems. Typical features of a GUI are as follows:

- The main screen is always visible.
- The commands, icons, menu items are on the main screen which is the control panel of the whole system.
- The side screens and pop-up menu items are opened to display reports, dashboards, graphics, data, etc.
- The mouse or stylus pen usage is essential.

A menu user interface consists of menu items; these are mostly nested menu items. The organizing of menu items and the clustering of them in a logical way is very important for the success of a user interface.

Nonetheless, technology aims to produce a user interface that will understand voice commands, semantically interpret the commands, and do what the user wishes. Today, although we are very close to this kind of a system, it is still too early to have a user interface like that. In this system, commands will be like “*What if I install our new plant in location A or location B?*”, “*What are the odds of having customers less than 10,000 a day for the next quarter?*”, “*Give me some suggestions about capacity planning*”, and so on. Yet, as it is mentioned before, we still need to take a lot of steps to achieve a system like this.

3 Recent Studies and Applications of DSS

There are plenty of DSS system applications designed and used for various purposes in the literature. In this part of the chapter, it will be right to mention some of the recent studies and discuss their model and application style.

Decision Support Systems are designed to help middle and higher level managers when they make decisions or find solutions for daily, weekly, or monthly operations and problems. Top managers deal with strategic issues, so a DSS should be designed and built to respond to strategic decision-making processes. Actually, there are not many single-platform DSS tools that will help managers tackle any kind of business problem. Thus, for each business case a new system is built. Looking from the white side, this will be very helpful for researches when those models are examined in order to build a new one. They are unique sources to supply ‘Know How’ to technicians and researchers.

Manufacturing is one of the fields that decision support systems fit into very well, and it is curial to use a DSS for strategical decision making. In this industry, due to low profit margins, strict environmental policies, and increased social awareness conflicts with each other (Vallerio et al. 2015), executives have very hard problems to sort out for the future. When you want to cheaply produce something, you will come across environmental policies. When you truly respect environmental policies and awareness, you will risk your place in a competitive market. Therefore, managers need assistance and new ideas when deciding their

policies as they are squeezed between two objectives. Instead of solving multi-objective problems related to the environment and manufacturing with classical quantitative or stochastic methods, modern managers use the data available through proper machine learning algorithms in order to build a DSS model. Vallerio et al. presented a new multi-objective framework in order to optimize dynamic processes. The framework is based on mathematical models. The framework they introduced includes a numerically efficient strategy to account for parametric uncertainty in various models. It creates solutions by directly minimizing the operational risks arising from uncertainty. The Pareto Browser, which they proposed, is a DSS, is enhanced with a GUI, and is integrated with a Decision Maker. They also tested the framework for reducing operational risks and reactor productivity and energy consumption (Vallerio et al. 2015). Another recent study which deals with multi-objective optimization problems proposes a DSS to assist with managerial decision making processes (Ruiz et al. 2015). Their method exploits NAUTILUS together with characteristics of people related to avoiding trading-off and anchoring bias. In the E-NAUTILUS method, a set of Pareto optimal solutions are calculated in a preprocessing stage before the decision makers take action. The model is given multiple objective functions, and it starts from the worst objective function values. In this phase, a set of points in the objective space are displayed to the user, then the user chooses one as the preferable point. The DSS shows the points that improve all the other objective values when it is started from the point chosen by the user. Thus, the user or the decision maker stays in the solution process. The last post-processing stage guarantees the Pareto optimality for the solution which will be accepted and presented. In the study, a real-life problem also demonstrated how E-NAUTILUS works with real numbers. Scientists study how to avoid global warming in general. The agri-food sector is one of the sectors which affects global warming. Wine production is one of them. Wine production, using fermentation, chemicals, etc., not only affects the environmental system but also is a sector or production process that is affected by environmental changes. Grape maturation depends on complex physicochemical and biochemical reactions which are climate dependent (Perrot et al. 2015). In addition to this, 1 year may be different from another, so wine production mostly depends on predictions or forecasts. Perrot et al. developed a predictive mathematical tool which is a DSS to help managers make their predictions. They used a Dynamic Bayesian Network (DBN) and fuzzy logic as the algorithms of the model and the data of last 10 years. Although the model is designed for grape maturity prediction related to wine production, it may be generalized for other decision support processes, especially the strategic ones. Decision support systems are not only necessary for internal business purposes. Today, in many sectors, interfirm coordination is very important. The automobile sector is one of them. No matter if you are a supplier or automobile brand producer, you should be in coordination with other firms to produce both economically and with a quality level that will satisfy your customers. As automobile manufacturing has become more global, decision making for the top management is becoming more and more challenging. It is very important to coordinate activities happening locally or at different locations away from your plants.

Strategic planning is very important in terms of investing at different locations and getting into business with different firms. Liu et al. proposed an Integrated Decision Support System (IDSS) that may assist managers to make more efficient and more effective decisions both for coordination and strategic management (Liu et al. 2011). The system they proposed contains qualitative and quantitative methods and functions. Their system has got four main components: Global Context Modeller, Multi-Criteria Scoring Modeller, Configurator, and Coordinator Component. The proposed IDSS is supported with a case study within the automotive industry.

Transportation problems, like Heterogeneous Fleet Vehicle Routing Problem (HVRP) and Hinterland Allocation Problem (HAP), in the logistics sector were solved with classical quantitative methods, like the traveler salesman algorithm (Lin and Kernighan 1973), which is an NP Hard problem, or North West Corner (Brucker 1988) or any other dynamic programming algorithm (Jaakkola et al. 1994) in the past. Fazi et al. proposed a mathematical model which is a part of DSS to solve these kinds of problems (Fazi et al. 2015). It is the Metropolis algorithm (Metropolis et al. 1953). Metropolis algorithm is a methodology, and it is similar to Simulated Annealing (SA) and Threshold Acceptance algorithms (Kirkpatrick 1984). Their algorithm holds a greedy procedure and tries a set of temperatures in parallel processes. However, the system is designed and built for a specific sector—the Logistic Sector—and a specific problem. As it was mentioned before, most of decision support systems are tailored for specific business problems. A similar rule-based decision support system (RB-DSS) has been proposed recently. It is tailored to find optimal solutions for routing, scheduling, and assigning in the Hazmat transportation management (Asadi and Ghatee 2015). RB-DSS estimates accident frequency and severity for different scenarios. Solutions are presented in a decision tree structure. The system provides managers with *if-else-then rules* to assist them when they are making decisions. The *if-else-then rules* are also trained by a multilayer perceptron neural network algorithm to increase accuracy. For the coordination and synchronization of logistics operations between the two terminals at tactical and operational decision levels, Fanti et al. proposed a special DSS. The system is a typical decision support system; however, it contains classes, attributes, operations, and compartments which make them different from other decision support systems (Fanti et al. 2015). The system contains four classical components that a DSS should have. They are Data, Model, User Interface, and finally Decision components. This study is a good source to understand the structure of a typical DSS. In order to go around uncertainties of demand and supply, Analytic Hierarchy Process Quality Function Deployment (AFP-QFD) can be implemented as a new model, and it is worth being considered for choosing suppliers and orders optimally (Scott et al. 2015). A similar Model-Driven Decision Support System has been proposed to reallocate supply and orders in uncertain conditions. The system has been developed for ceramic industry, yet it may adapt well to other sectors (Alemany et al. 2015). The DSS is modeled in a way to reassign available homogeneous stock and the planned homogeneous sub-lots to already committed orders under uncertainty. A mathematical programming model

underlies the system. For operational level decision making, a surgery scheduling support system has been developed by Dios et al. The system embeds a number of optimization procedures in order to support decisions related to the assignment of dates and operating rooms available to the interventions of patients in a waiting list (Dios et al. 2015). A medium-term (3–6 months) plan may be supported by the system.

Clinical Decision Support Systems have been popular for a while and every other day, a new system has been developed for specific purposes. In a recent study, researchers designed a DSS for acute lymphoblastic leukemia diagnosis from microscopic blood images (Neoh et al. 2015). Researchers developed their own clustering algorithm for the proposed system. The algorithm employs discriminant measures both within and between cluster variances. They used the discriminant measures with Genetic Algorithms, and they also integrated Multilayer Perceptron, Support Vector Machine, and Dempster-Shaffer Ensemble to their model. Their research shows that a properly designed Clinical Decision Support System may assist clinicians in the diagnosis of acute Umphoblastic Leukemia (Neoh et al. 2015), diagnosis of Allergic Rhinitis which is a common disease and might be confused with other diseases by junior clinicians (Christopher et al. 2015), diagnosis of Lymph Node Metastasis which is an important prognosis factor regarding long-term survival in gastric cancer (Zhao et al. 2015), and classification of Brain MRI (Magnetic Resonance Image) scans (Siddiqui et al. 2015).

3.1 Recent Strategic DSS Models

Forecasting future financial operators are very important for the top management when making strategic plans like asset allocations, investment plans, and recruitment plans. Technology, and especially data available today, makes it very possible to design a system which will generate possible future scenarios based on past data and a statistical model developed on modern fast computers. Beraldi et al. proposed a new strategic decision support system to generate solutions to some future cases based on user requirements. The system collects user requirements and generates various scenarios using a statistical model depending on an economic or financial database. After that, each scenario is optimized within a model chosen by the system itself. Finally, a solution is suggested to the top management (Beraldi et al. 2011). In the process industry, future values of the amount of materials, storage areas, future demands, supply capacity, and facilities are crucial when it comes to strategic decision making. The DSS of Dutta et al., brings a solution for the forecast of those parameters; it is a model enhanced with those figures. The model creates a matrix to forecast parameters like purchase and sale prices of materials and storage capacity at any given time in order to plan strategic issues and increase profits (Dutta et al. 2011). A company management often encounters different ideas or projects. Either employees or people outside the company come up with new ideas or projects. All these ideas should be carefully examined,

assessed, and put into operation. This is necessary to grow and survive under today's competitive, challenging market conditions. Coping with these projects needs strategic thinking, analyzing, and planning; therefore, it requires crunching future numbers. A DSS would be more than helpful in this sort of situation. Lin and Hsieh sorted this out with a fuzzy decision support system. The system they have proposed handles more than one criterion to pick up the most suitable project portfolio, taking advantage of the existing methods by applying the best suitable algorithms. The system also involves the users or management while choosing alternatives or eliminate some of the projects.

4 A Strategic Decision Support System Model: Targeting Financial Risks to Come

Predicting a possible financial risk weeks or months early is the dream of the top management. Besides using digital tools and calculations to predict some parameters and come to a conclusion that a financial crisis will occur, managers read books and articles and follow some online forums to get information and use it with his/her experiences. Finally, they are able to perceive possible financial disasters or catastrophes beforehand. Some may predict well and direct their strategic plans and investments accordingly, as some fail to do so. In this part of the chapter, a DSS model to be used to make predictions about general and local financial failures in the market(s) is presented.

The model consists of four layers:

1. Keywords Extraction and Text Mining Layer
2. Learning Layer
3. Observation Layer
4. Prediction Layer.

The model embraces a Big Data Warehouse (BDW) and Artificial Neural Network (ANN) Model which are integrated with each other. The BDW should consist of traditional database management system data and text data collected from multiple sources. As it is depicted in Fig. 1 text, data sources that may be employed within BDW are specific social media data, international financial data, national financial data, national statistics, specific forum data, and manual user keyword entries. Social media data may include comments about the current financial situation, fear about a possible financial crisis, news, new openings related to predefined corporations, and government bodies. Stock exchange data may be as index rates, ratios, and other economic parameters; values of some certain stocks; and ratios of some international currencies. National market data may include prices of business related goods, services and raw materials, national capacities, new entrants to the market, new threats to the business, opportunities in the market, order and supply statistics, e-commerce retail sales, rivals' situation, and business

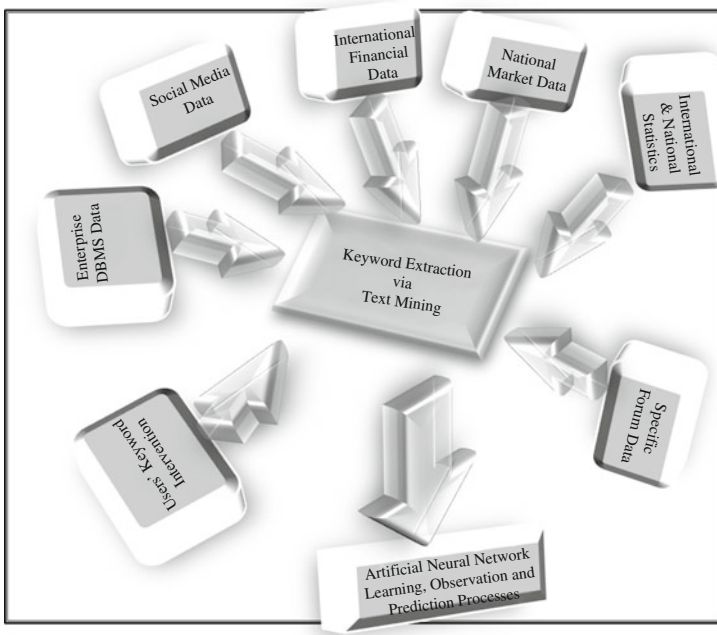


Fig. 1 Big data warehousing and artificial neural networks processes

productivity. National and international statistics may comprise the following data: construction spending, consumer credits, consumer price index, employment cost-index, unemployment situation, existing-home sales, gross domestic product, import/export price indexes, industrial production, jobless claims, new-home sales, nonmanufacturing index, purchasing index, personal income index, producer price index, retail sales index, and wholesale trade sales. The last data source of BDW is specific forum data. On the internet, there are many forums in which users share their ideas, opinions, and news. So, keywords which represent people's opinions are taken and used for BDW as it is done with social media content.

Since all these data must be combined with text data collected from social media and forums, keyword extraction is essential. This is done through text mining algorithms. In this phase of the layer, user intervention may also be required to enter user defined keywords which are necessary for the prediction layer. This may be called as *sprinkling the top managements' intuitions into the model*. Before ANN starts learning process, all these text data should be merged with enterprise database in a timely fashion. That means each record should have at least one timestamp value like date, day of the week, day of the year, the number of the week, month, quarter, season, and year. Constructing and formatting the first layer has got extreme importance for the success of the system. The learning layer depends on historic data, namely BDW. This layer is the baseline of the overall model. ANN runs on the BDW and generates node connection weights to make predictions about

class variable. Although users will have a chance to choose and adjust the class variable, it is often an indicator (or multiple indicators) which signals a financial failure. Some of the parameters that may be chosen as class are currency rates, international stock exchange rates, currency exchange rate deviations, trade balance/GDP in target countries, foreign liabilities/foreign assets and its deviation, ratio of M1, World oil price 12, 9, 6, 3, and 1 month rate change, foreign reserves 12 and 6 month rate change, and government consumption/GDP deviations in target countries (Babecký et al. 2012; Apoteker and Barthélémy 2005). ANN will learn the relations among these and other independent parameters on the BDW. The learning process is done on 70–80 % of all data, and the rest (20–30 %) of data is used for validating or adjusting the error rates when and after learning process is completed. It is assumed and expected that ANN will generate a model within itself to understand the parametric relations of all inputs coming from BDW.

After ANN completes its learning process, decides and adjusts to the learning parameters and error rates, the system switches to the third layer which is called observation. In the observation layer, the system grabs new data which is modeled the very same way as the BDW. The same timestamps are produced, and new and fresh data are extracted from the same data sources. Each of the records is saved on another data warehouse, and when they are ready, all data are sent back to the ANN model for observation. This time, ANN observes and makes predictions about the future values of the parameters. Error rates that are calculated in the learning layer are used to test the current real values. If the new data are flowing into the system within the predicted and calculated error range, observation will continue, or else top management will be informed about the changes at the parameters which have been observed.

The prediction layer is the only layer that has got a proper and user-friendly interface to interact with the top management. Dashboards, graphics, charts, and colored tables are presented to the user, namely to the top management. In this layer, weekly, monthly, and yearly predictions are made about any financial crisis. The system gives percentage values about the probability of a possible catastrophe. A well-designed system will also give suggestions about how much stock to keep, amount of orders to make, balance of account liabilities, and how much cash to hold in each currency.

5 Conclusion

The importance of strategic decisions is increasing thanks to the fast changing world with the speed of the Internet and digital technology. Today's top management understanding requires modern digital tools to analyze changes in business and forecast the right numbers better than was done in the past. With the development of technology, systems which help the top management when making decisions and support their own strategic decisions are getting better as well. Decision support systems do not only support tactical and operational decisions but act like

Executive Information Systems with the help of large datasets available today. In the past, Executive Information Systems were categorized under a different category as they served executives only. Today, fast computer and mobile technology enables software systems to work for multiple purposes, meaning, a software system may include both operational and managerial issues. The Emerging of Big Data also added some to the change of software systems. Now, it is possible to analyze huge datasets and extract not only information but also ideas through a tiny mobile device thanks to high speed Internet and fast machine learning algorithms.

Decision support systems may be developed in multiple formats. For example, they are based on data, model, communication, document, or knowledge only. However, we may encounter eclectic DSS which encompasses multiple drivers. Decision support systems are designed and used for many sectors, aims, and goals. They are used in sectors like tourism, aviation, medicine, sports, and education. Eventually, each sector has its own targets and goals to reach via DSS. Nevertheless, there are common goals that every DSS user may want to reach. For instance, in any sector, a CEO of a business will want to learn the geographical range of his/her business in the upcoming years or s/he will be pleased to learn the bargaining power of customers and suppliers in 1 or 2 years' time. Every CEO is interested in future risks or opportunities in the market that the sector will face in the future. Because of the complexity of the needs and data to analyze, systems are designed for limited purposes and tailored with respect to the desires of the top management. Building a decision support system starts with collecting data or designing a data warehouse. A data warehouse should be formed by strictly considering the subject and type of information which will be extracted. In the past, the enterprise database management system data and some outside data, like currency rates or stock exchange indexes, were used to build a data warehouse. Today, user generated data (UGD) has also gained importance (Vardarlier and Silahtaroglu 2016). UGD is any kind of data in the form of text, image, and sound which is available on the Internet and publicly accessible. This form of data is entered by common Internet users on web sites like forums, blogs, or any kind of social media. UGD should be processed by text mining algorithms so that it could be integrated with other datasets which reside on DBMS in relational or entity relationship models.

It is foreseeable that DSS will be consulted by managers more and more in the very near future. They are almost virtual assistants to executives. Up to now, we have discussed how DSS, as the name suggests, support decisions of the top management; however, in the future, we should expect DSS to challenge or oppose the decisions made by managers. In this case, it would be the management's risk to accept or reject the findings and suggestions which were made by the smart system. Therefore, it goes without saying that management and DSS should be integrated with each other so that they could understand one another. In other words, in the future, we should expect Strategic Decision Systems which will align with the management.

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The Formulation of Strategies to Mitigate Supply Risks

Metehan Feridun Sorkun and Meltem Onay

Abstract The integration of markets through globalization leads to the formation of global supply chains in which supply chain partners and operations disperse to wide geographical areas. Although global supply chains refer to the expansion of markets and the higher production efficiency, they embed higher number of and more serious risks than domestic/traditional supply chains have. For this reason, firms being part of global supply chains need to manage their supply chain risks more elaborately. They need to have systematic approach to identify all supply risks and should be able to prepare the priority list of these supply risks with appropriate tools and techniques. Next, it is imperative for these firms to determine the right strategy so that they are able to both prevent themselves from the destructive negative impacts of risky events and reduce the amount of expenditure made on the actions to mitigate their supply risks.

1 Introduction

The competitiveness of firms depends on the level of service they can provide to their customers. The successful management of the flows of goods, services, and information is highly crucial considering that the satisfaction of customers is directly associated with their getting the product at the right time, place, and form. To accomplish these goals, there needs a good interorganizational structure, which is called “supply chain.” More formally, supply chain can be defined as “the integration of key business processes from end user through original suppliers that

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provides products, services, and information that add value for customers and other stakeholders” (Lambert and Cooper 2000: 66).

The integration of markets with the effect of globalization (the removal of trade barriers and the improvements in transportation and telecommunication) has made tremendous effects on supply chains. The goals of reducing costs and expanding into new markets lead firms to partition their operations and choose their supply chain partners across widely spread geographical areas, covering the borders of different countries. This new configuration caused the global supply chains to have additional risks that local supply chains do not. First, the considerable risk incurs in global supply chains since firms operate in an unfamiliar business context. Besides, the wider geographical area that global supply chains cover implies that goods and services have longer journey till the destination where customers receive them. This situation certainly widens the range of risks and their likelihood of occurrence. Another additional risk pertaining to global supply chains is the differences in regulations enforced by different countries. Since each country is autonomous to set their own rules, any regulation change in one country may affect the entire supply chain.

A good supply chain risk management is not only necessary to diminish the destructive effects of negative occurrences, but it is also critical not to bear too much costs while implementing the risk mitigation strategies. Good supply chain risk management should enable to identify all risks and take proactive action against only highly probable risks that may cause significant negative effects on firms. Thereby, good supply risk management is not the one which makes excessive expenditure on less likely and negligible risks. While the ignorance may be the best act for tiny risky events, taking the right but costly measures against likely and harmful events may be indispensable to protect firms from destructive consequences. Therefore, the systematic risk management approach is important to identify all relevant risks, evaluate their significance, and formulate right strategies in a cost-effective manner. In addition, it is imperative to follow these steps systematically for the secure supply.

This chapter will cover elaborately what kind of strategies firms should follow to mitigate their supply risks because of their being part of a global supply chain. However, it is important to note that the risk management is a holistic approach. Thus, the choice of appropriate strategies to mitigate risks depends on the successful execution of other steps in risk management, which are the identification of supply risks, the assessment of supply risks, and the continuous reevaluation. For this reason, this chapter will also cover the methods utilized at the phases of risk identification and risk assessment. Then, the examples of cases that document the difficulties of firms within global supply chains will take place. Highlighting these firms’ attempts and actions against the risky events will support the understanding that global supply chains contain wide range of interdependent risks; thus, the formulation of right strategies against these risks is vital to mitigate them.

2 Supply Chain Risks

This section first describes supply risk, and then it lists the primary causes of supply chain risks. Finally, the last subsection focuses on the risks related to global supply chains.

2.1 *What Is Supply Risk?*

In line with the concept of bounded rationality (Gigerenzer and Selten 2002), managers do not have an absolute knowledge to foresee any event. This implies that the outcomes of all events in supply chain include uncertainty. Thus, the risk refers to the negative variance from the expected result (March and Shapira 1987). As the risk definition is tailored to the uncertainties in supply chain, supply risk can be defined as anything leading to the disruption of materials and services supplied. Zsidisin (2005: 3) terms the supply risk as “the potential occurrence of an incident or failure to seize opportunities with inbound supply in which its outcomes result in a financial loss for the [purchasing] firm.” By this definition, the severity of supply risks depends on mainly two factors: (1) the probability of the risky event’s occurrence and (2) the business impact of the risky event as the risk materializes (Norrman and Jansson 2004). Accordingly, firms should primarily pay attention to the supply risks which are likely to occur and may cause considerable negative consequences.

2.2 *The Classification of Supply Chain Risks*

There are numerous risks available within supply chains. It is useful to classify and group them to manage these risks more effectively. Previous studies have made the classification of supply risks based on different criteria. Jüttner et al. (2003) identify three types of supply chain risks regarding their sources, which are external risks, internal risks, and network-related risks. Tang and Musa (2011) group risks in relation to the flows of supply chain, which are material flow risks, financial flow risks, and information flow risks. Peck (2005) lists four levels for the sources of supply risk, which are value stream/product or process (level 1), assets and infrastructure dependencies (level 2), organizations and interorganizational networks (level 3), and the environment (level 4). Zsidisin (2003) classifies the upstream supply chain-related risks based on whether these risks incur due to supplier failures or they incur because of the supplier market characteristics. In addition, other studies distinguish risks whether they are sourced from the glitches in operations or they result from disruptions (Kern et al. 2012; Schmitt et al. 2015; Kleindorfer and Saad 2005).

Table 1 Top supply chain risks perceived by companies

Internal	74 %
Product quality issues	34 %
Increased complexity of operations	26 %
Increasing regulatory compliance	22 %
Intellectual property rights	8 %
Partners	50 %
Supplier viability	30 %
Lack of visibility along supply chain	15 %
Outsourcing	14 %
Consumers	49 %
Demand volatility	29 %
Globalization (emerging markets)	22 %
Increasing power of end consumer	6 %
Politics/Economy	25 %
Economic uncertainty	20 %
Geopolitical events	7 %
Nature	22 %
Natural disasters	18 %
Water scarcity	3 %
Energy scarcity	2 %
Security	17 %
Computer security	14 %
Corruption	3 %

Source: Supply Chain Insights LLC, Supply Chain Risk Management Study (July, 2015)

The recent research (Supply Chain Insight 2015) makes a comprehensive supply chain risk classification to find out the major drivers of risks in supply chains. For this purpose, it requests 125 companies to identify their three top supply chain risks. Based on the replies obtained, Table 1 shows the risks that firms have the most concern related to the categories of (1) internal, (2) partners, (3) consumers, (4) politics/economy, (5) nature, and (6) security. For example, 74 % of 125 companies in this survey list their one of three supply chain risks as those caused by internal factors. More specifically, 34 % of 125 companies indicate the “product quality issues” within the internal risk category.

2.3 The Risks in Global Supply Chains

The economic deregulations and the advancements made in communication and transportation induce firms to configure their supply chains on wide geographical area covering the lands of many countries. Such supply chains, called as “global,” enable firms to expand to new emerging markets, access to cheaper

inputs (e.g., labor), and benefit from tax incentives. However, global supply chains bear more risks than domestic supply chains. This is mainly because firms in global supply chains are in a larger network; thus, they are interdependent to higher number of actors. As a result, the risk incurring in one part of the supply chain may have greater impacts on other parts of the supply chain (Manuj and Mentzer 2008a). Also, the long distances coupled with global supply chains increase the lead times as a result of which the concerns escalate on supply security, demand responsiveness, and offer freshness. The geographical distance and the differences in cultures, values, and languages in global supply chains make it more difficult to effectively get actions against supply risks. Braithwaite (2003) lists the additional supply risks attached to global supply chains as below:

- (1) Despite getting access to cheaper inputs through global sourcing, other factors such as transportation, handling, duty, obsolescence, inventory, lost sales, and market blocking may increase the total acquisition cost.
- (2) Considering that global supply chains cannot react as agile as domestic supply chains, there may be lost sales.
- (3) It is more difficult to establish collaborative relationships in global supply chains due to high distance, which may cause quality problems and service failures.
- (4) There is a risk of losing know-how since the vendors in global supply chains are authorized in different markets.
- (5) The distance escalates the concerns on the supply security.

3 Supply Chain Risk Management

Supply chain risk management (SCRM) is the means of minimizing the likelihood of risk events and of mitigating their negative consequences as they occur. Note that supply chain risk management is not a process that one firm can solely conduct. Instead, it is a managerial activity during which the firms within the supply chain should manage supply risks in a cooperative way to reduce the resulting vulnerabilities (Handfield and McCormack 2007).

“Reactive” and “proactive” are two approaches in SCRM to reduce the vulnerability of global supply chains. Whereas the reactive SCRM develops ex-post risk coping strategies that will be followed after the occurrence of risky event, the proactive SCRM develops ex-ante risk coping strategies that should be followed before the occurrence of risky event. For this reason, Wieland and Wallenburg (2012) argue that both proactive and reactive SCRMs are useful. While the former one increases the agility of supply chain, the latter supports the robustness of supply chains. The reactive SCRM provides that supply chain can easily adapt to changing conditions caused by the occurrence of the risky events. For example, the sudden demand increase is an important risk for firms. However, if firms can apply the



Fig. 1 The role of supply chain risk management for supply chain resilience

postponement strategy—the delaying of personalizing the product in accordance with specific customer requirements—they can shift their production lines for products recently highly demanded and thus keep on being able to meet the requirements of customers. On the other side, proactive SCRM ensures that the changing conditions caused by the occurrence of risky events do not make significant impact on the initial configuration of the supply chain. For instance, if one firm has multiple suppliers for the same raw material, the failure of one supplier to provide those raw materials does not affect the firm significantly.

As shown in Fig. 1, global supply chain risk management mainly consists of four steps listed below:

- (1) The risk identification
- (2) The risk assessment
- (3) The strategy formulation to mitigate risks
- (4) The continuous reevaluation of the previous steps to improve the whole process

Figure 1 shows that the negative impacts of risky events decrease if firms (1) can identify the risks threatening to them, (2) can prioritize the ones among these risks which are more likely to occur and have more serious impacts, and (3) formulate the appropriate strategies to mitigate them. Last, (iv) the continuous reevaluation of the aforementioned steps is crucial to ensure that firms are aware of the changing risk factors and get appropriate actions to mitigate them.

The following sections of this chapter will cover the steps of SCRM in detail and will show the tools and strategies used in each of these steps. Below, Table 2 lists these methods and strategies introduced in literature. Furthermore, Table 2 indicates the situations under which these tools and strategies are appropriate to use.

Table 2 The list of methods/strategies followed at the each step of SCRM

The step of SCRM	Author (year)	Method/strategy followed	Appropriate to use when
Risk identification	Ahmed et al. (2007)	• Brainstorming	Different viewpoints are helpful
		• Checklists	The symptoms of risks are regular
		• Delphi technique	Consensus is searched in a free discussion environment
		• Analyzing past events	Actualization of the risky events follows a similar pattern over time
		• Visual tools	The roots of risk factors are complex
		• Process charts	Risks grow because of the problems experienced in other operational activities
Risk assessment	Waters (2011)	• Scenario analysis	Too many scenarios are likely to occur
		• Simulation	There are high quality and reliable data
Risk mitigation	Jüttner et al. (2003)	• Avoidance	Risk is beyond the firm’s capabilities and abilities
		• Control	Risks are likely to have disruptive effects on the operations of a firm
		• Cooperation	Risk threatens many parties simultaneously
		• Flexibility	There is a high dependency on a single source for critical supply
		• Accepting risk	Cost of action to mitigate risk is more than its expected negative consequence

4 The Identification of Supply Chain Risks

As highlighted in Sect. 2.2, studies have made various classifications of supply risks based on different criteria. For example, while some of them make classification based on whether the source of risk is internal or not, the others make this classification based on the flow of supply chain to which the risk is associated. These categorizations are useful in a way that the searching space is divided into parts so that each organizational unit can focus on specific areas to fully explore all uncertainties that may cause supply disruptions.

The identification of risks is the first phase of the supply chain risk management. It is critical to execute this phase successfully, otherwise unidentified risks could catch firms completely unprepared. As a result, once these risks actualize, their negative impacts will be felt by the firm to the full extent.

One way to identify the supply chain risks might rely on the experienced managers’ knowledge. However, the high complexity of the firm’s global network does not make this approach solely trustee because the significant risks can easily be confused with the most observed ones. Besides, these managers may attempt to highlight the particular risks as more important associated with operations they are

responsible. Due to these factors, firms have to devise the ways of identifying their risks systematically.

Some of the ways used to identify supply chain risks systematically are listed as below (Ahmed et al. 2007):

- Brainstorming provides the discussion environment without any prejudice. Such discussions where participants are able to express their ideas freely assist to diagnose all risky factors.
- Checklists hammer the predetermined risk factors home. That is to say, this method regularly checks the existence of the symptoms of risky events identified before, which can make serious negative impacts on the operations of firms.
- Delphi technique searches for the consensus of experts on the problem addressed. Considering that some people may talk too long and others may not express their opinions due to group pressure, this technique first gets the individual opinions of experts through a survey. Then, the sharing of results in an anonymous way ensures that no participant expert is worried to make his own point. Later, each expert is asked if he/she would like to revise his/her replies. These sessions continue until the desired level of consensus is reached (Okoli and Pawlowski 2004).
- Analyzing past events provides the statistics on the causes of events having had negative impacts on firms. Especially, as the Pareto rule 80/20 is considered, only few portions of risky events would result in big negative effects. Therefore, firms can find out the fields they should focus on via the analysis of the past events.
- Visual tools cover the risk identification methods that provide a graphical representation (influence diagrams, cause-and-effect diagrams, and even tree) and a structure (failure mode and effect analysis) to understand the roots of malfunctions and failures that are more likely to create problems in future.
- Process charts analyze the operational stages of supply chains as a series of activities. Managers take notes and make time measurements on each activity to specify the points likely to cause delays and failures in the whole system.

5 The Assessment of Supply Chain Risks

Some of the most common global supply chain risks are the currency, transit time, demand forecast, quality, business disruption, safety, keeping inventory, cultural differences, dependency, opportunism, and fluctuating oil prices (Manuj and Mentzer 2008a). Despite the fact that almost all global supply chains are exposed to these risks, the significance of each varies for the particular supply chain. Considering that firms do not have unlimited resources, the appropriate assessment of supply risks is highly important to accurately determine to which risky events firms should allocate their resources.

Firms should be able to use the techniques and tools that systematically exhibit the likelihood of the risky events and the associated negative impacts as they occur. There are qualitative and quantitative methods for the assessment of supply risks. Although quantitative risk assessment is more precise to specify the likelihoods and impacts of supply risks, the constraints in data quality, time, personnel, or resources make the use of qualitative approaches indispensable (Coleman and Marks 1999). In this regard, the qualitative supply risk assessment is applicable for a higher number of cases. Moreover, the qualitative risk assessment can give more detailed information on the possible consequences of risks. For instance, after the risk materializes, qualitative approach can show the consequences for each stakeholder and the relation of the risk in question with other risks. In addition, the quantitative approaches require the probability and the possible impact for each risky event; however, determining the exact value is impossible when their values change depending on the perception, which requires a subjective opinion of experts.

Quantitative approach is superior as the likelihood and impact of risks can be specified objectively. It simply attempts to find the significance of each risky event by multiplying their probabilities with their impacts as shown in Table 3. Hence, managers can use these information to categorize and order the supply risks, and then they use these results to formulate the adequate supply risk mitigation strategy.

The categorization of risky events regarding their likelihood and severity can be done through the following three ways: (1) the use of knowledge for the risky event, (2) the analysis of historical data, and (3) the exploitation of the opinions of experts (Waters 2011). Although it is clear that the use of historical data indicates the likelihood of risky events in future, the difference between the first and third ways may be confusing. The use of knowledge refers to the available number of information related to risky event to assess its probability and severity. Instead, the third way refers to the expertise of a person on a risky situation. For example, one person may be expert on currency exchange rates, but he may not have the adequate knowledge on one country’s dynamics affecting the value of its currency. Therefore, the ideal way to determine the probabilities and severity of risky events is to combine the aforementioned three ways. The following risk analysis methods, which are scenario analysis and simulation, seem to be more appropriate in this regard (Waters 2011).

Scenario analysis generates the possible future states by creating scenarios. In the scenario analysis, supply chain managers first specify the boundaries of the supply risk analysis by considering the time frame covered and the solution

Table 3 The risk level based on the likelihood occurrence and impact of risky events

	Negligible consequences	Moderate consequences	Significant consequences
High probability	Considerable risk	Serious risk	Maximum risk
Moderate probability	Few risk	Considerable risk	Serious risk
Low probability	No risk at all	Few Risk	Considerable risk

addressed. Then, they choose the relevant participants who may be experts in field or stakeholders like customers and/or government agencies. After explicitly and briefly transmitting what is known to these participants, new uncertainties are expected to be introduced by participants to the known picture. This kind of collaborative work helps to understand which possible future states are more plausible (Miller and Waller 2003). As a result, the filtration of few scenarios out of myriads of scenarios allows to assess the significance of all risk factors.

Simulation, imitating both the operations of firms and the acts of other actors in the respective ecosystem, makes use of more quantitative analysis than scenario analysis uses. Getting its computational power from computers, the simulation model allows managers to see how the whole system would be affected if the events identified as risky occurred. For example, when one firm considers its single sourcing policy as risky, managers can easily simulate the respective consequences in case the respective supplier cannot provide the supply requested. Hence, simulation allows firms to assess the significance of their risks cheaply. However, the accuracy of results depends on the degree to which data used to run the simulation have high quality; in other words, the distribution of probabilities given to simulation events should conform to reality. Hence, the insights of managers play a critical role at this point in setting up a realistic model by providing a relevant and reliable input data.

6 Strategies to Mitigate Supply Chain Risks

The assessment of all supply chain risks through the methods introduced in the previous section signals the priority of each risk. These signals are the input for the formulation of right strategy to respond to these risks. Whereas insufficient response to serious risks may have dramatic negative consequences on firms, any response to tiny risks may refer to cost only. Therefore, another important task of manager is to select the appropriate strategy for each risk, which minimizes the negative effects of risky events in a cost-effective way. These strategies may range from accepting the risk without getting no action to changing the environment where the risk exists.

If possible, the actions taken against risky events should be proactive; therefore, they ideally prevent risky events from happening. The second most preferable actions are those that eliminate the negative consequences of risky events after their occurrences. If these two are not feasible, the supply risk mitigation strategy followed should at least help to quickly minimize the negative effects caused by the occurrence of risky events. Note that the choice of getting no action may also sometimes be the best strategy.

Based on the classification of Jüttner et al. (2003), there are five generic strategies that firms can follow for their supply chain risks, which are (1) avoidance; (2) control; (3) cooperation; (4) flexibility; and (5) accepting/ignoring risk without any remedial action.

The most radical strategy against supply risks is the “avoidance” referring to that the firm cuts off all links getting them exposed to the risky event. The avoidance is the most suitable mitigation strategy when coping with the risk in question is beyond the firm’s capabilities and abilities. For example, when the specific geographical area is the source of risks due to its being war zone, firms probably drop the relationships with their suppliers locating in that geography because they do not have enough power to stop the war. The recent conflict between Russia and Ukraine is a good example at this point. Ukraine is a part of many global supply chains including those of EU and US companies. The escalating tension between Russia and Ukraine enforces global supply chain managers to rethink their supply chain configuration. The quote of Rosemary Coates, president of Blue Silk Consulting (a Silicon Valley firm) summarizes why the avoidance is sometimes the best strategy:

“Assessing risks is complex because politics sets the agenda. If you have a factory in Ukraine, you may have to shift production, and that could have a significant impact on the place that you leave” (Bulkeley 2014).

The second supply chain risk mitigation strategy is “control” that encompasses a set of actions keeping the sources of risk under control so as to resume the smoothness of operations. At this point, it is important to provide the control on suppliers to ensure secure supply to match the demand. The case study of Zsidisin and Smith (2005b) on the supplier (The Aerospace Division of Rolls-Royce) of critical components in the aerospace industry shows that if firms provide control on their suppliers starting from an early product design stage (early supplier involvement), they can (1) reduce outcome uncertainty of the component sourced, (2) provide task programmability with suppliers, (3) create goal congruency with suppliers, (4) avoid the problems of adverse selection and moral hazard, and (5) monitor supplier performance more effectively.

The next strategy to mitigate supply chain risks is “cooperation” which includes the joint activities such as product development, demand forecasting, production planning, and vendor-managed inventory. These cooperative activities establish the confidence across supply chain partners. The existence of confidence is an important factor to increase the supply chain visibility; therefore, firms can align their strategies and operations at the macro-scope for the supply risks that might have destructive consequences (Christopher and Lee 2004). The reaction of the firms within the British beef industry during 1980s is a very good example about how the cooperation is a strong weapon to mitigate supply risks (Fearne 1998). Bovine Spongiform Encephalopathy (BSE), also known as mad cow disease, incurred great risk to whole beef industry because it was found transmissible to humans when consumed those diseased meats. To ensure consumers that the meat they purchased did not contain (BCE), all firms established a system jointly on which consumer can trace the origins of the animals and each process until these meats were served to them. For sure, the establishment of such systems was possible because each firm within the supply chain stage was willing to coordinate greatly to make their operations traceable on the system.

“Flexibility” is another supply chain risk mitigation strategy which enhances the responsiveness of supply chain instead of attempting to decrease the probability of risky events. For example, instead of making an effort to increase the robustness of suppliers, flexibility provisions the multiple sourcing in case one supplier fails to provide the products. The experience of Ericsson, one of the leading communications technology provider, is a good case at this point. This case shows why supply chains need to be flexible for coping with risky events. Ericsson had made \$200 million lost just because the only ten-minute fire at its sub-supplier’s facility disrupted the supply of Ericsson’s one critical component (radio-frequency chips) (Norrman and Jansson 2004). If Ericsson had had a back-up supplier for that component or had had other contingency plans, the negative impacts could have been reduced.

Increasing stock levels and possessing resources that have additional capacity are other ways of being flexible to respond to the unexpected events. The mismatch between demand and supply can be listed as the most common supply chain risk. Keeping the inventory, despite its cost, might be a way to obtain flexibility for coping with demand fluctuations. The development of modular products can be another strategy providing flexibility against high demand volatility. Chiou et al. (2002) show that Taiwanese IT firms, specialized as the electronic world’s OEM partners, devise modular product architecture and use postponement in labeling and packaging to pool the risk incurred by high demand variety. That is to say, “flexibility,” as a risk mitigation strategy, makes contingency plans to specify the alternative ways that ensure the seamless supply.

The last supply chain risk mitigation strategy this chapter covers is “accepting/ignoring risk” without any remedial action. It may become the best strategy when neither the probability nor the potential impact of risky event is at considerable level. For instance, the democratic countries make elections regularly, and hence there is always possibility that the governments can change, hence the new governments’ economic policies too. However, it would be very extraordinary, if these changes forced the firm’s supplier to close its plant at that country. Even if such few probabilities incur a risk, would it be justifiable to get action against this risk? Alternatively, is there any feasible alternative solution to this risk such as finding other supplier from another country where no election is made? If the answers are no, the admission of this risk without any remedial action would be the best strategy unless the country in question has a bad record on these issues in the past. Furthermore, when the cost of action required to eliminate the risk is more than the expected cost, firms may ignore the risk. For example, multiple-sourcing seems safer than single sourcing. However, if a firm had a good long relationship with the supplier keeping the most of the world reserves of the materials sourced, it would not be good strategy for this firm to damage the existing profitable relationship with this supplier by dealing with other supplier for the purpose of avoiding the risk of single sourcing.

7 Summary

The integration of firms into the global supply (value) chains enables them to expand to new markets and obtain the operational efficiencies. However, the uncertainties have never been so high and interdependent for these firms before. Hence, there is a need for a good supply chain risk management, otherwise undesirable outcomes inevitably come about such as the disruption of goods/services, the development of defective and hazardous products, failing to match supply with demand, and the leakage of critical information to other parties. To provide a guidance what good supply risk management should be, this chapter covers the steps of supply chain risk management. The first phase, supply risk identification, indicates that firms should be equipped to identify all risks in their ecosystems, otherwise they cannot even find any opportunity of getting an action to mitigate them. Subsequently, the assessment of risks correctly is important to determine supply chain risks worth being given an attention. Considering that firms have limited resources, firms should be able to measure the threats attached to each risk identified. Then, the supply risk mitigation strategy formulated should prevent risks from occurring if possible. If not, the appropriate supply risk mitigation strategy should be chosen to minimize the negative occurrence of the risky event in a cost-effective manner. Therefore, depending on the nature of risk, the supply chain risk mitigation strategies may range from getting no remedial action to leaving the environment where the risk exists.

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Part V
Evaluation of Firm Performance, Financial
Efficiency and Managerial Control

Applying Data Envelopment Analysis to Evaluate Firm Performance

Emine Ebru Aksoy and Ayse Yildiz

Abstract The purpose of this study is to evaluate the performance of Turkish firms listed in corporate governance index using some financial variables and corporate governance. The research involves 31 nonfinancial firms listed in Borsa Istanbul (BIST), and the data are obtained from the firms' financial statements in 2015. For this purpose, the firms' performance was evaluated by conducting the Data Envelopment Analysis (DEA), which is a Multicriteria Decision-Making (MCDM) method. In this study, the analysis was conducted in two steps. In the first step, the DEA model was built using total assets and total equity as inputs with sales and profit as outputs. In the second step, the same DEA model was repeated by adding corporate governance rating as a new input only. Then, it was observed that the efficiency of the firms increased significantly in almost every aspect. This increase indicates that it was required to use corporate governance rating to get an appropriate firm performance as well as financial values.

1 Introduction

The scarcity of resources and the unlimited needs necessitate the efficient utilization of these resources. Therefore, firms seek to improve their business performance through getting the most output with the least input. The purpose of improving firm performance combines firms' shareholders and managers with a common goal. As a result of the high performance of firms, managers are regarded as successful and shareholders' value can be increased. The evaluation of the firms' performance has different aspects such as financial and nonfinancial indicators. Because nonfinancial indicators are difficult to obtain or untrustworthy, financial indicators are generally used as a performance indicator. There are several methods to assess firms' performance. The most commonly used method is ratio analysis. Return on assets

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(ROAs), return on equity (ROE), stock return rate, profit margin, gross margin ratio, return on sales, operating income, etc. are utilized as the firms' performance indicator ratios. The evaluation of firm performance with ratio analysis constitutes the basis of many studies.

While firms' performance is assessed, many financial ratios such as liquidity ratio, risk ratio, capital structure ratio, earning-to-price ratio, book-to-market ratio, etc. can be employed. Basu (1977) studied the relationship between earning-to-price ratio and performance. Tehrani et al. (2012) used liquidity, activities, leverage, and economic added value as inputs and profitability ratios as outputs with Data Envelopment Analysis (DEA) Model. Babacan et al. (2015) aimed to measure the performance of firms registered in BIST, and the firms' liquidity ratios and capital structure ratios were used as input.

Financial ratios are not enough to evaluate firms' performance. For this purpose, many other researchers focused on the relationship between corporate governance and firm performance. Corporate governance is a management system of firms. This management system interests not only shareholders but also [stakeholders](#). In other words, corporate governance involves shareholders, managers, customers, suppliers, financiers, government, and the community. The distribution of rights and responsibilities among stakeholders is determined by corporate governance, and it also shows and includes the rules to make decisions in the firm's issues. Theoretically, it is expected that the corporate governance practice improves firms' performance. Because of the importance of corporate governance, it has been subjected to many studies. One of the studies about the relationship between firms' performance and corporate governance score was written by Maher and Anderson (1999). They investigated the corporate governance and its effect on corporate performance and economic performance. In the same way, Black et al. (2003) studied corporate governance and its effect on corporate performance. In their study, they found that corporate governance was an important factor in explaining the market value of Korean public companies. Kyereboah-Coleman (2008) used both market- and accounting-based performance measures and examined the effect of corporate governance on the performance of firms in Africa. Their study indicated that the direction and the extent of the impact of the governance depended on the performance measures used. Unlike other studies, Hermalin (2008) found that strong governance and performance were positively correlated, but the former did not drive the latter. Similarly, Gupta et al. (2009) examined the relationship between the composite or subcategory corporate governance scores and firm value, but they didn't find any relationship.

There are many studies about BIST in terms of firm corporate governance and firm performance. Sakarya (2012) studied the relations between the rating score announcement of companies and the return on their stocks. It was found that a positive correlation exists between the announcement of a favorable corporate governance rating score and stock returns. İlhan et al. (2013) evaluated the financial performance of the firms in corporate governance index. They wanted to rank the companies by using TOPSIS method results and compared this result with corporate governance scores. Their result showed that the rankings which had been

acquired from performance score and corporate governance score did not move accordingly. Similarly, this current study investigates the financial performance of the firms that are also included in corporate governance index. In this sense, the firms' financial performance results are analyzed with financial variables and corporate governance score. Furthermore, Data Envelopment Analysis (DEA)-multi criteria decision analysis method is used. The examination of the firms' performance allowed us to determine the extent of the effects of total assets, total equity, and corporate governance score. Unlike other studies, not only financial variables but also corporate governance score is used together as input; sales and operating profit are used as output in DEA. Therefore, this application creates a chance to show their effects together. The rest of the study is organized as follows: Sect. 2 includes method, Sect. 3 incorporates data analysis, and Sect. 4 gives analysis results. Section 5 is the conclusion.

2 Method

In this study, DEA model is preferred to evaluate the firm performance. This model is based upon the linear programming method used for measuring the relative efficiency of any homogeneous (use similar inputs and outputs under similar technology) Decision-Making Units (DMUs) where multiple input and output exist, making the comparisons difficult. Thus, the model is advantageous over any other performance methods such as ratio analysis or parametric methods obtaining composite of inputs and outputs with relative efficiency.

2.1 DEA Model

DEA model is based on mathematical programming to evaluate the relative performance of peer units such as bank branches, hospitals, and schools, e.g., in terms of multiple performance measures. These peer units are called decision-making units (DMUs). The performance of DMUs is measured based upon a set of selected performance measures which are classified as "inputs" and "outputs" in DEA (Zhu 2014).

In Fig. 1, the dotted line going through the "middle" of the data points shows the regression line under the least squares principle. The degree of excellence or inferiority of the data points can be measured by the magnitude of the deviation from the fitted line. On the other hand, the frontier line based on the best performance which is DMU (B) measures the efficiency of other DMUs by deviations from it. Thus, there is a fundamental difference between statistical regression analysis and DEA. The former reflects "average" or "central tendency" behavior of the observations, while the latter deals with best performance and evaluates all performances by deviations from the frontier line. As a result, these different

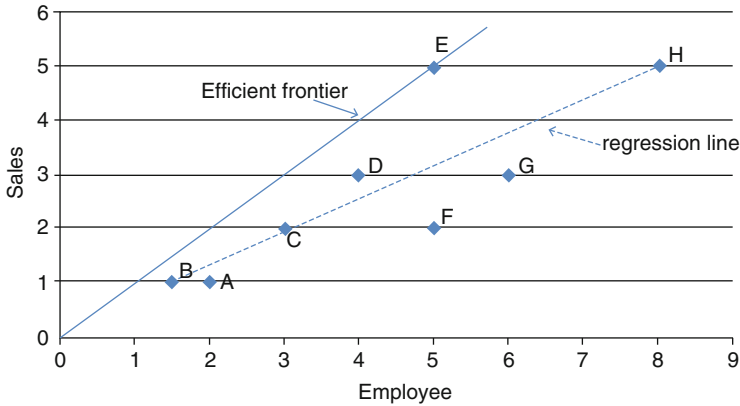


Fig. 1 Regression line and Frontier line (Cooper et al. 2000, p. 4)

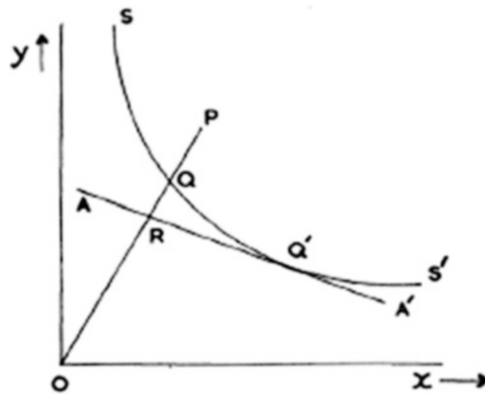


Fig. 2 Farrell technical efficiency (Farrell 1957, p. 254)

approaches provide different improvement solutions. DEA identifies a point like B to seek improvements as a benchmark. On the other hand, the regression suggests average observations rather than best observation (Cooper et al. 2000).

DEA models are based on technical efficiency by Farrell (1957). According to Farrell, if efficient production is known, technical efficiency can be explained simply by using Fig. 2.

In Fig. 2, the point P represents the inputs of the two factors for per unit of output used by the firm. The iso-quant SS' represents different combinations of the two factors to produce unit output, while the point Q symbolizes an efficient firm using the two factors in the same ratio as P. It can be seen that it produces the same output as P using only a fraction OQ/OP . Farrell defined OQ/OP as the technical efficiency of firms.

Farrell also point out that this ratio takes the value unity for a perfectly efficient firm. Moreover, so long as SS' has negative slope, an increase in the input per unit output of one factor will, ceteris paribus, lower technical efficiency (Farrell 1957).

Owing to the flexibility of DEA, new DEA models are developed to evaluate business operations and processes under a variety of contexts. In this study, however, only the models applied in the analysis are explained as well as the basic DEA models.

2.2 Constant Returns to Scale Model: CCR Model

The best way to introduce DEA is via the ratio form. The efficiency for each DMU is defined as the ratio of weighted sums of the outputs to the weighted sums of the inputs.

$$\text{The efficiency of } j \text{ DMU} = \frac{u_1y_{1j} + u_2y_{2j} + \dots + u_ny_{nj}}{v_1x_{1j} + v_2x_{2j} + \dots + v_mx_{kj}} \tag{1}$$

This efficiency can be converted to fractional programming developed by Charnes et al. (1978), and this programming is known as CCR model. Based on this statement, the proposed measure of efficiency of any DMU is obtained as the maximum of a ratio of weighted outputs to weighted inputs subject to the constraint under the similar ratios for every DMU be less than or equal to unity. In a more precise form:

$$\max h_o = \frac{\sum_{r=1}^s u_r y_{rjo}}{\sum_{i=1}^m v_i x_{ij_o}} \tag{2}$$

Subject to (s.t)

$$\frac{\sum_{r=1}^s u_r y_{rj}}{\sum_{i=1}^m v_i x_{ij}} \leq 1; j = 1, 2 \dots n \tag{3}$$

$$u_r \geq 0, v_i \geq 0; \tag{4}$$

- x_{ij} observed value of input i for company j
- y_{rj} observed value of output r for company j
- u_r $v_i \geq 0$ are the variable weights to be determined by the solution of this problem
- x_{io}, y_{ro} inputs and outputs of the particular company under the evaluation

To obtain a scalar measure of efficiency, the weightings in the above model are determined directly from observation data subject to only the constraint sets. No other weights under these observations and constraints give a more favorable rating relative to the reference set. However, this particular ratio formulation has a problem of yielding infinite number of solutions. A solution for this problem is to impose the constraint $v_1x_{1j} + v_2x_{2j} + \dots + v_mx_{mj} = 1$.

CCR then developed an ordinary linear output-oriented multiplier programming, which is shown in the equation below:

$$\max ho = \sum_{r=1}^s u_r y_{rjo} \tag{5}$$

s.t.

$$\sum_{i=1}^m v_i x_{ijo} = 1 \quad (\text{normalization constraint}) \tag{6}$$

$$\sum_{r=1}^s u_r y_{rj} - \sum_{i=1}^m v_i x_{ij} \leq 0, j = 1, 2, \dots, n \tag{7}$$

$$u_r > 0, v_i > 0 \tag{8}$$

Like every linear programming model, the DEA model (multiplier) has also a dual model associated with it. The optimal solution of the DEA dual model, which is called the envelopment model, can be deduced from that of the original DEA model, known as the primal model. The envelopment DEA model provides crucial insights in terms of the implicit values of the resources.

A DEA model formulation involves the concept of a composite unit. The term “envelopment” emphasizes the fact that a composite unit is a combination of efficient units enveloping an inefficient unit. The following equation shows the output-oriented CRS envelopment model:

$$\text{Max } ho \tag{9}$$

s.t.

$$\sum_{j=1}^n x_{ij} \lambda_j \leq x_{io}, \quad i = 1, 2, \dots, m \text{ inputs}, \tag{10}$$

$$\sum_{j=1}^n y_{rj} \lambda_j \geq h_o y_{rjo}, \quad r = 1, 2, \dots, s \text{ outputs} \tag{11}$$

$$\sum_{j=1}^n \lambda_j \geq 0 \tag{12}$$

$j = 1, 2..n$ corresponding to each DMU.
 λ_j = set of unknown weights.

The left-hand side of the envelopment models is usually called the “reference set,” and the right-hand side represents a specific DMU under evaluation. The nonzero optimal λ_j represents the benchmarks for a specific DMU under evaluation. The reference set provides coefficients to define the hypothetical efficient DMU. The reference set gives opportunity for inefficient DMUs to see how much they can decrease their inputs and increase their outputs to make the DMU under evaluation efficient (Zhu 2014).

Output-oriented models are used to obtain the efficiency score to test if a DMU under evaluation can increase its outputs while keeping the inputs at their current levels. Thus, a unit is considered to be technically inefficient if some other units, or some convex combinations of units, cannot use any more resource input and produce at least the same amount of outputs with less inputs. Conversely, a unit is said to be technically efficient in the context of output augmentation if the above statement is not possible.

2.3 Variable Returns to Scale Model: BCC Model

The CRS assumption is appropriate only when all firms are operating on an optimal scale. When all firms are not operating at the optimal scale, the use of CRS model results in measures of technical efficiency constrained by scale efficiencies. To avoid these scale efficiency effects, the use of the Variable Returns to Scale (VRS) model permits the calculation of technical efficiency independent from scale efficiency.

To illustrate the scale efficiency effect, the variable returns to scale frontier is shown in Fig. 3. Banker et al. (1984) state the Most Productive Scale Size (MPSS) point. MPSS is a unit (point) on the efficient frontier that maximizes the average productivity for its given output–input mix. In Fig. 3, DMU C shows MPSS point. Banker et al. (1984) show that the addition of a convexity constraint to the CCR model results in a DEA model that allows increasing, constant, and decreasing returns to scale based on MPSS point. This new model is called BCC model and developed as:

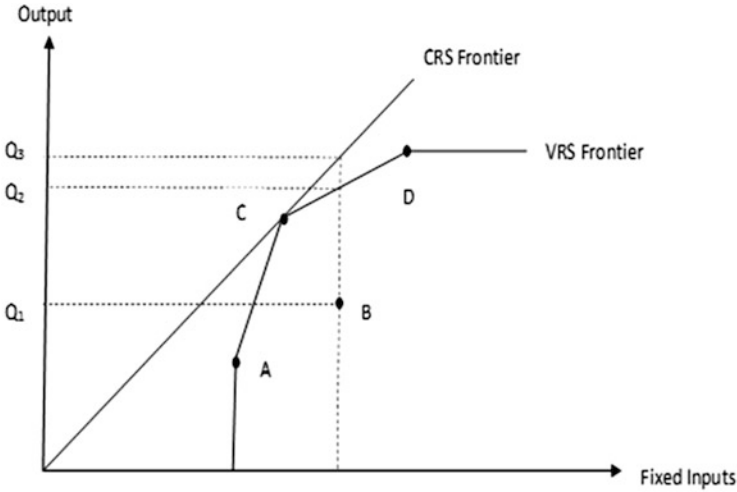


Fig. 3 Variable returns to scale model (Cooper et al. 2000)

$$\text{Max } h_o \tag{13}$$

s.t.

$$\sum_{j=1}^n x_{ij}\lambda_j \leq x_{io} \tag{14}$$

$$\sum_{j=1}^n y_{rj}\lambda_j \geq h_o y_{rjo} \tag{15}$$

$$\sum_{j=1}^n \lambda_j = 1 \tag{16}$$

This model differs from the CRS model only in that it includes $\sum_{i=1}^n \lambda_i = 1$ constraint called the convexity constraint. This constraint indicates that each composite unit is a convex combination of its reference units. The convexity constraint prevents any interpolation point by scaling up or down to form a referent point for efficiency measurement since such scaling is not permissible under the VRS model (Thannassaoulis 2001).

The constraint on $\sum_{i=1}^n \lambda_i$ in the model actually determines the return to scale type of an efficient frontier. According to this:

If $\sum_{i=1}^n \lambda_i \leq 1$, then increasing returns to scale (IRS) prevails, meaning that a radial increase in input levels (i.e., keeping input mix constant) leads to a more than proportionate radial increase in output levels, and DMUo is below MPSS point.

If $\sum_{i=1}^n \lambda_i \geq 1$, then decreasing returns to scale (DRS) prevails, meaning that the radial increase in output levels is less than proportionate, and DMUo is above the MPSS point.

If $\sum_{j=1}^n \lambda_j = 1$, then constant returns to scale (CRS) prevails and MPSS point exists.

In addition, BCC provides a decomposition of CCR efficiency into scale and technical parts. This decomposition allows to investigate the sources of inefficiency for inefficient DMUs. This inefficiency might occur because of the inefficiency of operation of the DMUs itself or DMUs might be operating under some disadvantageous conditions. For this purpose, comparisons of the CCR and BCC scores provide extra information about the causes of inefficiency. The CCR model assumes that radial (proportional) expansion and reduction of all observed DMUs and their nonnegative combinations are possible. On the other hand, the BCC model assumes that the efficient frontier is the convex combinations of the observed DMUs. If a DMU is fully efficient (100 %) in both CCR and BCC scores, it operates in the most productive scale size. If a DMU has the full BCC efficiency, but a low CCR score, then it operates inefficiently due to the scale size of the DMU. Thus, the scale efficiency (SE) of a DMU can be defined by the ratio of the two scores as shown below (Cooper et al. 2000):

$$SE = \theta^*_{CCR} / \theta^*_{BCC}$$

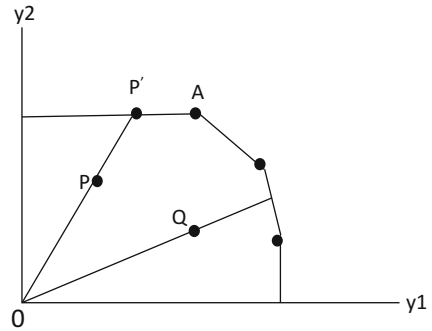
SE is not greater than one. The CCR score does not take account the scale effect. On the other hand, BCC expresses pure technical efficiency under variable returns to scale circumstances.

2.4 Slacks in DEA Models

In the previous models, the inputs or outputs change in the same proportion (efficiency score) to reach the frontier. Afterwards, however, some of the individual inputs can still be reduced or some outputs can be increased. These potential decreases or increases are called slack variables. A two-output example of an output-oriented DEA could be represented by a piecewise linear production possibility curve, as depicted in Fig. 4. The figure shows how some DMUs on the efficient frontier can be weakly efficient.

For example, the point P is projected to the point P', which is on the frontier obtained by a radial expansion in outputs but not on the efficient frontier, because the production of y_1 could be increased by the amount of AP' without using any more inputs. That is, there is output slack in this case of AP' in output y_1 (Coelli 2016). To find out the slacks, DEA models are usually calculated in a two-stage process:

Fig. 4 Slack-based output-oriented DEA (Coelli 2016, p. 23)



- (1) Find the efficiency score, ignoring the slack values.
- (2) Then, the slack model (with the efficiency score fixed) is developed to get an optimal set of slack values.

These models are developed as follows:

- *The first stage:*

$$\text{Max } h_o \tag{17}$$

s.t.

$$\sum_{j=1}^n x_{ij}\lambda_j \leq x_{io}, \quad i = 1, 2 \dots m \tag{18}$$

$$\sum_{j=1}^n y_{rj}\lambda_j \geq h_o y_{rjo} \quad r = 1, 2 \dots s \tag{19}$$

$$\sum_{j=1}^n \lambda_j = 1 \quad j = 1, 2 \dots n \tag{20}$$

- *The second stage:*

$$\text{Max } h_o \sum_{r=1}^s s_r^+ + \sum_{i=1}^m s_i^- \tag{21}$$

s.t

$$\sum_{j=1}^n x_{ij}\lambda_j + s_i^- = x_{ijo} \quad i = 1, 2 \dots m \tag{22}$$

$$\sum_{j=1}^n y_{rj}\lambda_j - s_r^+ = y_{jo}h_o \quad r = 1, 2, \dots, s \quad (23)$$

$$\sum_{j=1}^n \lambda_j \geq 0 \quad j = 1, 2, \dots, n \quad (24)$$

$$\sum_{j=1}^n \lambda_j \geq 0 \quad (25)$$

$$s_i^- \geq 0, s_r^+ \geq 0, \lambda_j \geq 0 \quad (26)$$

$$s_i^- = x_{ijo} - \sum_{j=1}^n x_{ij}\lambda_j \quad \text{for input reduction} \quad (27)$$

$$s_r^+ = \sum_{j=1}^n y_{rj}\lambda_j - y_{rjo}h_o \quad \text{for output increase} \quad (28)$$

Based on the DEA approach, DEA efficiency can be identified if and only if the efficient score is one and zero slack value. On the other hand, if the efficiency score is 1, but some nonzero slack values exist in the model, then it can be said that weakly efficiency exists.

2.5 Undesirable Measures in the DEA Model

The conventional DEA models assume that outputs should be increased, and the inputs should be decreased to improve the performance or to reach the best-practice frontier. However, in some situations, some inputs should be increased or some outputs should be decreased to improve the performance. If the undesirable outputs such as the number of defective products are treated as inputs to reduce the bad outputs, the resulting DEA model does not reflect the true production process.

Therefore, other approaches are developed to treat undesirable input/outputs in the VRS envelopment models to use the DEA classification invariant for the data transformation (Zhu 2014).

3 Data Analysis

The sample of the study was selected from BIST Corporate Governance Index, the goal of which is to measure the price and return performances of companies traded on Borsa Istanbul Markets with a corporate governance rating of minimum 7–10 as a whole and minimum of 6.5 for each main section. The inputs and outputs of the firms were obtained from the website of BIST. In DEA model, the positive data was

required, so profitable firms were selected by eliminating the loses firms to analyze. This study used the 2015 data only to evaluate the firms because of the lack data. With these restrictions, to demonstrate the use of DEA for the firm performance, 31 firms having corporate governance rating were evaluated based on their financial data as well as corporate governance rates.

Unlike other studies, rather than financial ratios, the financial values were preferred for the ease of interpretation. In this study, total assets, total equity, and corporate governance score were used as inputs, and sales and operating profit were as outputs.

Although corporate governance score was considered as input, in the conventional DEA model the inputs should be decreased, but in reality the firms are willing to increase their rating. Therefore, in this study, the original rating value was transformed into small values making “(100-rating value calculation)” to get appropriate efficiency result.

4 Results

The analyses were conducted in two steps. In the first step, DEA model was developed using total assets and total equity as inputs and operating profit and sales as outputs. The efficiency of the firms using these inputs and outputs was calculated by the computer program. The obtained results are shown in Table 1.

The second and the third columns of Table 1 show the firms' efficiency under constant returns to scale (CRS) and variable returns to scale (VRS). Five firms with a mean of 0.556 and ten firms with a mean of 0.687 were found to be technically efficient under CRS circumstances and VRS circumstances, respectively. The most referred firm was Firm 29.

Then the scale efficiency was found as the ratios of CRS technical efficiency to VRS technical efficiency (Table 1, the fourth column). This result indicates whether the firms operated at the optimal size increase or decrease returns to scale. The firms with IRS should decrease their scale and the firms with DRS should increase their scale to get scale efficient score, indicating that DMU_o is operating at an optimal size. The fifth and sixth columns demonstrate the reference firms and weights, respectively, for inefficient firms to get the technical efficiency.

The second DEA model was analyzed by adding corporate ratings to existing first DEA model to see the impact of this new input on the firm performance. The results regarding the efficiency and reference are shown in Table 2.

Ten firms with a mean of 0.691 and 12 firms with a mean of 0.746 were found efficient under CRS circumstances and VRS circumstances, respectively (Table 2). The reference set was changed by adding Firm 7, besides Firm 29. This result indicates that the corporate governance as input for Firm 7 markedly improved the firm's performance.

Table 1 The first DEA results

Efficiency results				Reference results		
DMUs (Firms)	CRSTE	VRSTE	Scale	Reference set	Weights	Counts
1	0.248	0.264	0.939 (DRS)	29 7	1.000	2
2	0.613	0.732	0.837 (DRS)	18 29	1.000	2
3	0.550	0.551	–	7 29 31	0.002 0.148 0.697 0.152	–
4	0.211	0.611	0.344 (DRS)	18 24	0.867 0.133	–
5	0.599	0.603	0.994 (IRS)	31 29	0.972 0.028	–
6	0.410	0.416	0.987 (IRS)	7 29 15 31	0.710 0.002 0.007 0.280	–
7	1.000	1.000	–	7	1.000	9
8	0.297	0.367	0.809 (DRS)	7 29	0.998 0.002	–
9	0.424	0.430	0.985 (IRS)	29 15 31	0.008 0.017 0.976	–
10	0.445	0.453	0.983 (IRS)	29 15 31	0.007 0.012 0.980	–
11	0.061	0.156	0.389 (DRS)	29 18	0.850 0.150	–
12	0.249	0.443	0.564 (DRS)	29 2 1	0.403 0.012 0.585	–
13	0.135	0.568	0.568 (DRS)	29 7	0.129 0.871	–
14	0.835	0.958	0.913 (DRS)	29 7	0.122 0.878	–
15	1.000	1.000	–	–	1.000	5
16	1.000	1.000	–	–	1.000	3
17	0.967	1.000	0.967 (DRS)	–	1.000	–
18	0.510	1.000	0.510 (DRS)	–	1.000	2
19	0.562	0.733	0.766 (DRS)	29 7	0.257 0.743	–
20	0.939	0.960	0.410 (DRS)	29 18	0.628 0.372	–
21	0.451	0.742	0.607 (DRS)	29 7	0.437 0.563	–
22	0.666	1.000	0.666 (DRS)	–	1.000	1
23	0.250	0.250	–	29 15	0.180 0.820	–
24	0.299	1.000	0.299 (DRS)	–	1.000	1
25	0.844	0.904	0.933 (DRS)	–	1.000	2
26	0.536	0.550	0.975 (DRS)	29 16 22 7	0.002 0.440 0.001 0.556	–
27	0.083	0.085	0.972 (IRS)	25 29 15	0.442 0.526 0.032	–
28	1.000	1.000	–	–	1.000	–
29	1.000	1.000	–	–	1.000	16
30	0.698	0.840	0.830 (DRS)	29 7 16	0.010 0.403 0.586	–
31	0.856	1.000	0.856 (IRS)	–	1.000	4
Mean	0.556	0.687	0.810			

Because this study focuses on corporate governance rating other than the other inputs, we can show potential improvement for this input. This improvement value can be seen in the last column in Table 2. The results show that 21 firms got the optimal rating value, but the rest of them should increase their rating at least five point to get the efficiency.

The comparison of these two tables shows us the significant changes in the results as well. These changes are summarized in Table 3.

Table 2 The second DEA results

Efficiency results				Reference results			Potential rating improvement
DMUs	CRSTE	VRSTE	Scale	Reference set	Weights	Counts	
1	0.727	1.000	(IRS)	–	1.000	2	–
2	1.000	1.000	–	–	1.000	2	–
3	0.558	0.885	(IRS)	29 1 16 25	0.002 0.148 0.697 0.152	–	–
4	0.820	0.927	(IRS)	2 24	0.867 0.133	–	–
5	0.599	0.603	(IRS)	7 31	0.972 0.028	–	5.8
6	0.410	0.426	(IRS)	7 29 15 31	0.710 0.002 0.007 0.280	–	–
7	1.000	1.000	–	7	1.000	9	–
8	0.356	0.367	(DRS)	7 29	0.998 0.002	–	5.8
9	0.424	0.430	(IRS)	29 15 31	0.008 0.017 0.976	–	–
10	0.445	0.453	(IRS)	29 15 31	0.007 0.012 0.980	–	6.4
11	0.122	0.156	(DRS)	29 18	0.850 0.150	–	9.2
12	0.443	0.464	(IRS)	29 2 1	0.403 0.012 0.585	–	–
13	0.232	0.238	(DRS)	29 7	0.129 0.871	–	6.2
14	0.954	0.958	(DRS)	29 7	0.122 0.878	–	6.2
15	1.000	1.000	–	–	1.000	5	–
16	1.000	1.000	–	–	1.000	3	–
17	1.000	1.000	–	–	1.000	–	–
18	1.000	1.000	–	–	1.000	2	–
19	0.732	0.733	(DRS)	29 7	0.257 0.743	–	6.6
20	0.905	0.960	(DRS)	29 18	0.628 0.372	–	9.3
21	0.742	0.742	–	29 7	0.437 0.563	–	7.2
22	1.000	1.000	–	–	1.000	1	–
23	0.250	0.250	–	29 15	0.180 0.820	–	–
24	1.000	1.000	–	–	1.000	1	–
25	0.844	1.000	(IRS)	–	1.000	2	–
26	0.536	0.550	(DRS)	29 16 22 7	0.002 0.440 0.001 0.556	–	5.6
27	0.086	0.086	–	25 29 15	0.442 0.526 0.032	–	–
28	1.000	1.000	–	–	1.000	–	–
29	1.000	1.000	–	–	1.000	16	–
30	0.844	0.891	(IRS)	29 7 16	0.010 0.403 0.586	–	–
31	0.856	1.000	(IRS)	–	1.000	4	–
Mean	0.691	0.746	0.963				

Table 3 The comparison of two different DEA results

Results	No. of efficient firms with mean under CRS	No. of efficient firms with mean under VRS	No. of firms under scale efficiency
Without Corporate Governance rating	0.161 (0.556)	0.322 (0.687)	7 optimal size (0.810)
With Corporate Governance rating	0.322 (0.691)	0.387 (0.746)	13 optimal size (0.963)

All the efficiency scores increase when corporate governance rating is added to the model (Table 3). As a result, it can be said that corporate governance rating has a positive effect on firm performance, and corporate governance rating is an important input for performance evaluation.

5 Conclusion

The evaluation of firm performance is a crucial and strategic issue in business environments. Therefore, many theoretical and practical studies and attempts exist. DEA model is known as the best practice on this issue. This model can be used to provide crucial information about the financial conditions and managerial performance of the firms for the managers and stock investors.

Based on the results, we conclude that the firms listed in the index should increase their ratings, and the firms not listed should attempt to be in the index to get better efficient results. Moreover, obtaining two different results also demonstrates that corporate governance rating should be taken into account in calculating firm performance to get appropriate efficient result because using different models may bring about different results.

As an extension of this study, the dynamic perspective, which is a time-based approach, such as Malmquist index might be used to see the effect of time on firm performance. In addition, for each firm, this method can be adjusted for the computer system to use as a decision support system. Thus, the firm can use this system to meet the needs of firm performance automatically and easily by changing the model parameters such as inputs/outputs or DMUs or time period. This method also provides sectorial competitive performance doing sector-based analysis.

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Efficiency and Managerial Control in Financial Institutions

Mehmet Fatih Acar, Aziz Bakay, and Taptuk Emre Erkoç

Abstract Studies measuring the efficiency levels of financial institutions including the banks and insurance companies have dramatically boosted in the efficiency and productivity analysis literature especially during the last two decades. The undesirable output sets that are under the control of managerial bodies in the financial institutions stimulate researchers to explain the potential relationship between the managerial control and inefficient usage of resources in this particular industry. Besides, the risks occurred throughout the decision-making process within the financial institutions started to be integrated into the efficiency analysis of financial sector. The primary goal of this chapter is to summarize and critically review the theoretical and empirical literature on the efficiency and managerial control in the financial institutions as well as to put forward a set of arguments about this specific discussion. Secondly, recent efficiency literature leans towards to the inefficiency of foreign-owned financial institutions (i.e. banks) in regards to performance. Estimated efficiency frontiers of foreign-based banks compared to domestic banks are found to be lower; therefore, international consolidation efforts are argued to be slow in this industry. On the other hand, the international diversification has still been on the agenda of the mainstream portfolio prescriptions. Considering these arguments, this chapter also seeks to highlight the recent empirical works aiming to continue this intellectual conversation.

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1 Introduction

To measure the efficiencies of firms, mathematical programming and the econometric estimation method have been developed by researchers. Mathematical programming approach was introduced by Charnes et al. (1978) to the efficiency literature and eventually became Data Envelopment Analysis (DEA). DEA converts multiple outputs and inputs into a single output-input form through which efficiency scores are obtained after required steps are taken with linear programming. Even though DEA is commonly used in efficiency analysis, its non-stochastic nature does not allow researchers to differentiate the inefficiency term from the stochastic error. Therefore, econometric approach or stochastic frontier analysis started to be preferred due to its analytic property to distinguish the impact of variation in technical efficiency from external stochastic error on the firm's output.

In the management of financial sector literature, the efficiency performances of multinational and local banks operating within a same country is an attractive research area as well as the efficiency analysis of foreign and domestic banks in a comparative perspective (Lensink et al. 2008). Yet, the current literature has not given an evident answer to clarify that which type of bank has a superiority towards the other concerning the efficiency performance. Although there are some reasons why domestic banks are more efficient than foreign banks in a country, this situation may be observed differently in other countries (Lensink et al. 2008). This chapter helps to understand this problem by focusing on the impact of ownership specifically over to the efficiency differences between foreign versus domestic and state versus private financial institutions. Finally, the chapter follows the discussion on efficiency in regards to managerial control from stakeholder perspective and international diversification strategies.

2 Theoretical Framework on Efficiency¹

In market economies in which markets exercise power on the behaviours of firms and individuals, they are expected to achieve the theoretical maximum either in production and/or consumption. The failure of firms to produce at the “best-practicing” frontier that can be called as production inefficiency has been elaborated by researchers (Debreu 1951; Farrell 1957; Leibenstein 1966) on the basis of different approaches. Hicks (1935) argued that monopolistic firms do not feel any market restraint on them to become fully efficient as enjoying benefits of monopoly. In a similar vein, Debreu (1951) and Farrell (1957) proposed that lack of market power on managers in certain cases might cause inefficiencies among the firms.

¹This section is drawn upon Taptuk Emre Erkoç's dissertation research (Erkoç 2014) at Keele University.

The most controversial argument in explaining the inefficiencies of firms is Leibenstein’s X-inefficiency approach that contradicts with neoclassical microeconomics theory. According to Leibenstein (1966), the failure of firms to produce on the efficient frontier is by and large motivated by following set of reasons including inadequate motivation, incomplete contracts, asymmetric information, agency problems, and attendant monitoring difficulties which are lumped together and form X-inefficiency. Stigler (1976) objected to this approach and put forward that all sources of inefficiency according to Leibenstein can be shown as the evidence for incomplete production model in which whole set of relevant variables are failed to be incorporated.

2.1 Mathematical Formulation for Efficiency

The pioneering work of Koopmans (1951) provided the earliest formal definition of technical efficiency as: “A producer is technically efficient if, and only if, it is impossible to produce more of any output without producing less of some other output or using more of some input”. Subsequently, Debreu (1951) and Farrell (1957) developed a slightly different definition of technical efficiency by ruling out the slack units: “one minus the maximum equiproportionate (radial) reduction in all inputs that is feasible with given technology and output” (Fried et al. 2008, 20).

To be able to examine those aforementioned means of measurement, it might be appropriate to introduce some certain notations and formulations:

$$\text{Level Set : } L(y) = \{x : (y, x) \text{ is producible}\} \tag{1}$$

the production function is derived from input isoquant function to produce y

$$I(y) = \{x : x \in L(y), \lambda x \notin L(y) \text{ if } \lambda < 1\} \tag{2}$$

and the efficient input subset is defined as:

$$\text{ES}(y) = \{x : x \in L(y), x' \notin L(y), x' < x\} \tag{3}$$

eventually, interrelation between these three subsets can be represented as:

$$\text{ES}(y) \subseteq I(y) \subseteq L(y) \tag{4}$$

The Debreu–Farrell input-oriented technical efficiency can be formulated relying on the production function:

$$\text{TE}_{\text{DF}}(y, x) = \min \{ \theta : x \in L(y) \} \tag{5}$$

Shephard's (1953) input distance function is another apparatus that has been used to figure out the technical efficiency of firms from a relatively different perspective. Shephard formulated the distance function (based on input measurements) as indicated below:

$$D_S(y, x) = \max \{ \lambda : [1/\lambda] x \in L(y) \} \quad (6)$$

It is obvious that, Debreu–Farrell radial contradiction process of inputs is the inverse iteration of Shephard's input distance function. Therefore, (4) and (5) can be related to each other as:

$$TE_{DF}(y, x) = 1/D_S(y, x) \quad (7)$$

According to Debreu–Farrell, the first and foremost requirement of being technically efficient is to be situated exactly on the isoquant curve $I(y)$. However, Koopmans stipulates the “absence of coordinate-wise improvements” which means “a simultaneous membership in both efficient subsets (Fried et al. 2008, 25)”.

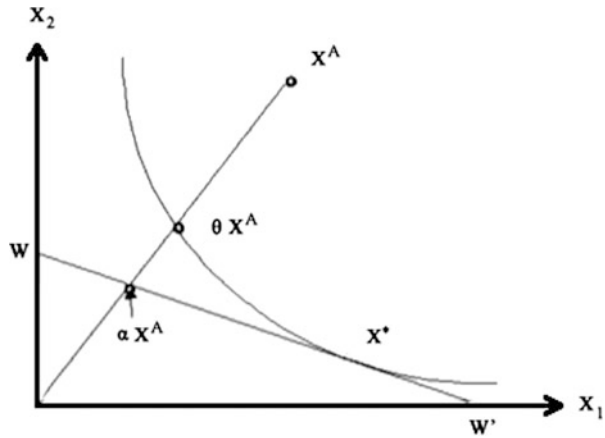
In efficiency analysis, Farrell (1957) puts forward two components as fundamentals of efficiency comprising technical efficiency (TE) and allocative efficiency (AE). While the former one arises when outputs fall short from ideal production given input level, the latter is the result of inappropriate input choices concerning certain input prices and output level. As indicated in Fig. 1, producer utilises two inputs (X_1 and X_2) in order to produce a specific output. At the input bundle of X^A , this producer has the capability to decrease the amount of inputs all the points in “level set” back to isoquant curve until reaching to the point θX^A . That is to say, the input choices at X^A can be radially contradicted with the “absence of coordinate-wise improvements” up to the point θX^A . Therefore, relying on both Koopmans and Debreu–Farrell definitions, technical efficiency of this firm at the point X^A is calculated as:

$$TE = \frac{O \theta X^A}{O X^A} \quad (8)$$

where X^A denotes the observed input levels, and θX^A represents the combination of technically efficient amounts of inputs.

To have an economically efficient production set, TE is not sufficient alone. The input combination should be selected appropriately on the basis of their prices. The best-practicing mixture of inputs concerning the prices is the intersection point of isoquant and isocost curves where technically feasible production units are produced at the lowest cost. According to the Fig. 1, allocative efficiency at X^A is:

Fig. 1 Technical and allocative inefficiency



$$AE = \frac{O \alpha X^A}{O \theta X^A} \tag{9}$$

where θX^A represents the combination of technically efficient amounts of inputs, and αX^A refers to the mixture of inputs that has the lowest cost given this output and technology.

In order to convert production efficiency to cost efficiency (particularly for the multiple output cases), assume that producer faces input prices $w = \{w_1, w_2 \dots w_n\}$ and aims to minimise costs. For this case, cost frontier can be narrated as:

$$c(y, w) = \min_x \{ w^T x : D_s(y, x) \geq 1 \} \tag{10}$$

if the inputs are freely disposable and the level sets $L(y)$ are convex and closed, the cost frontier above is the dual function of input distance function proposed by Shephard (1953). Therefore:

$$D_s(y, x) = \min_w \{ w^T x : c(y, w) \geq 1 \} \tag{11}$$

cost efficiency can be calculated as the ratio of minimum cost to actual cost:

$$CE(y, x, w) = c(y, w) / w^T x \tag{12}$$

regarding to the points shown in Fig. 1, cost efficiency at X^A is:

$$CE = \frac{O \alpha X^A}{O X^A} \tag{13}$$

As being easily inferred from Fig. 1, cost-efficiency has two components that are allocative and technical efficiency. Whereas $\frac{O \theta X^A}{O X^A}$ corresponds to the technical side

of it, $\frac{O \alpha X^A}{O \theta X^A}$ is indicating the allocative component. The product of them gives the value of cost-efficiency.

$$CE = \frac{O \theta X^A}{O X^A} \cdot x \frac{O \alpha X^A}{O \theta X^A} = \frac{O \alpha X^A}{O X^A} \quad (14)$$

2.2 Estimation of Efficiency

So as to measure the efficiency levels of firms, two separate methods have been developed by researchers under the rubric of mathematical programming approach and the econometric approach. Charnes et al. (1978) originated mathematical programming approach that is also known as Data Envelopment Analysis (DEA). In DEA, multiple outputs and inputs are reduced into a single output–input form in which efficiency measure is yielded after necessary calculations are completed with linear programming. Although DEA is frequently used in efficiency analysis, its non-stochastic nature prevents researchers to attain comprehensive and sustainable results in many cases. Therefore, econometric approach or stochastic frontier analysis became preferable owing to its ability to distinguish the impact of variation in technical efficiency from external stochastic error on the firm’s output. In the following sections, data envelopment and stochastic frontier analysis are examined subsequently.

2.2.1 Data Envelopment Analysis (DEA)

One of the mainstream methods of efficiency analysis is called as DEA that does not presume any functional form for production. It basically “involves the use of linear programming methods to construct a non-parametric piecewise surface (or frontier) over the data” (Coelli et al. 2005: 162). Therefore, efficiency of each decision-making unit (DMU hereafter) that might be a bank, hospital, university and so forth is calculated regarding the “best-practising” producer. In other words, DEA is based upon a comparative analysis of observed producers to their counterparts. The comprehensive literature of this methodology can be reached in Seiford and Thrall (1990), Thanassoulis (2001) and Cooper et al. (2007).

Data Envelopment Analysis was first coined by Charnes et al. (1978) that had an input-oriented model with constant return to scale (CRS). This method that is currently known as basic DEA was an extension of “Farrell’s measure to multiple—input multiple—output situations and operationalised it using mathematical programming” (Emrouznejad and Thanassoulis 2001:17). In subsequent researches, Färe et al. (1983) and Banker et al. (1984), variable returns to scale (VRS) models were developed and introduced to the DEA literature. Furthermore, to capture the statistical error and separate it from efficiency term, two-sided deviation was

brought in by Varian (1985) and besides “chance-constrained” efficiency analysis was integrated to the DEA models. And eventually, this efficiency estimation methodology is being used in the wide range of areas including management, operations research and economics.

2.2.2 Stochastic Frontier Analysis (SFA)

As Greene (1997) figured out, in general, frontier production function can be described as “an extension of the familiar regression model based on the micro-economic premise that a production function represents some sort of ideal, the maximum output attainable given a set of inputs”. In recent researches, to measure the efficiency level of a firm/organisation, distance between estimated production frontier and observed one is computed. Prior to current analysis, different approaches have been developed for efficiency measurement in an econometric way by researchers (Farrell 1957; Aigner and Chu 1968).

In two independent papers by Aigner et al. (1977) and Meeusen and van den Broeck (1977), stochastic frontier function for Cobb–Douglas case was specified as following:

$$\ln y_i = \beta_0 + \sum_{n=1}^N \beta_n \ln X_{ni} + \varepsilon_i \quad (15)$$

where $\ln y_i$ represents the logarithm of observed output, X_{ni} is the vector of given inputs and β_n is a vector of unknown parameters. Accordingly, ε_i is specified as:

$$\varepsilon_i = v_i - u_i, \quad u_i \geq 0 \quad (16)$$

First error component v_i is independently and identically distributed as $v_i \sim N(0, \sigma_v^2)$ and captures the effects of statistical noise such as random effects of measurement error and external shocks out of firm’s control, while u_i is independently and identically half-normal distributed $u_i \sim N^+(0, \sigma_u^2)$ and intended to capture technical inefficiency which can be measured as the deficiency in output away from the maximum possible output given by the stochastic production frontier:

$$\ln y_i = f(x_i, \beta) + v_i \quad (17)$$

The property that $u_i \geq 0$ ensures all the observed outputs should lie below or on the stochastic frontier. Any deviation from the aforementioned frontier will be treated as the result of factors controlled by firm that named as technical and economic inefficiency (Aigner et al. 1977). Eventually, technical efficiency of the i th firm can be depicted as:

$$TE_i = \frac{y_i}{\exp(f(x_i, \beta) + v_i)} = \frac{\exp(f(x_i, \beta) + v_i - u_i)}{\exp(f(x_i, \beta) + v_i)} = \exp(-u_i) \quad (18)$$

3 Efficiency and Managerial Control

Theoretically, the supervision and monitoring activities of the shareholders are supposed to align the executives and managerial activities towards the best interest of all stakeholders and specifically leveraged organisational performance and shareholder value.² Renneboog (2000) states that the influence of the mechanisms offered by the corporate governance of financial institutions is not as strong as it is of industrial companies. The power balance across the board members in financial institutions can be argued to be in favour of the managers and executives allowing them to move freer and possess higher control. Even though the executive compensation can't be directly explained by the company's performance (Gomez-Mejia et al. 1987), the relationship between the nature of the stakeholder and executive compensation is clear. Historically, managerial ownership of publicly traded companies in the US has risen substantially. It is noteworthy that the "mean percentage of common stock held by a firm's officers and directors as a group rose from 13 % to 21 %" (Holderness et al. 1999, p. 436) during 60 years from 1935 to 1995 in the US. Specifically, the mean ownership in 1995 (17.4 %) of the financial sector (Finance, Insurance, Real estate; SIC 60–70) is slightly more than twice of what it was then in 1935 (8.4 %) for the same sector. On the other hand, the owner-controlled companies as opposed to management-controlled ones have more role and intervention in executive retention/replacement decisions showing to what extent managerial control is bound. On the other hand, in the absence of strong institutional stakeholders, the management-controlled firms' managerial control is more connected and intertwined with the performance of the company. Thus, executives will be more fragile to the performance fluctuations; therefore, efficiency of firm stays as the utmost criteria for executive retention/replacement decisions. Therefore, since this assertion is involved with the assumption that the performance is associated with efficiency, future research shall open new venues and explore more into the interplay and convoluted (i.e. non-linear) relationship between the efficiency levels (i.e. low efficiency) of financial institutions and managerial control (Gomez-Mejia et al. 1987).

Tucker and Parker (2013) noted that using institutional logics entities react to the stakeholder pressures by engaging into predefined managerial control systems that are well established in the for-profit sector. The convergence of the use of managerial control across entities through mimetic, coercive and normative perspectives are now observed; however, the existing evidence is not enough in convincing

²For a review on corporate objective see discussion in Sundaram and Inkpen (2004).

whether the transplanted managerial control will enable entity to outperform. It is interesting to observe that strategy formulation and implementation as well as managerial control systems are becoming more and more similar today at both for-profit and non-for-profit organisations.

3.1 Efficiency and International Diversification

The recent change in the market volatility considering the advancements in financial instruments including derivatives can be argued as the fundamental push factor for the change in the ownership structure of firms. The availability of options and hedging instruments as well as the reduction of the transaction costs related to the internal equity ownership (Holderness et al. 1999) presents opportunities of diversification. International diversification in both portfolio and multinational enterprise presence terms then surface as two strategic approaches for managers to understand and calibrate firm's long-term planning, investment decisions and thus appropriate innovation experience (Hitt et al. 1997). Thereby, firm strategy can be then proactive and market forces can be better absorbed. From strategic management perspective, the firms can take the advantages from accessing resources outside of their home country and applying and advancing their competencies abroad (Bakay et al. 2011). Even though some costs of international diversification are pronounced (i.e. political uncertainty, regulatory frameworks, exchange rate fluctuations, inflation), the *internalisation* of international markets generate advantages related to economies of scale, scope and learning that overcome its costs (Ma et al. 2016). While this assumption hold true in the strategic management and growth strategy literature, particularly different patterns of performance–international diversification relation has been extracted and defined for service firms. Capar and Kotabe (2003) empirically showed that U-shaped relation asserts that the initial or experimental international experience do harm the service firm performance while its performance implications become visible after the benefits of economies of scope are realised rather than economies of scope. The argument of accumulation of the benefits associated with economies of scope requires further attention in regard to operational consideration, however. At this junction, the expectation that the financial firms' international diversification can follow similar untraditional pattern has been repeatedly indicated (Berger et al. 2001). As such,

“we find that domestic banks in these countries have both higher cost efficiency and higher profit efficiency than foreign banks operating in that country—a result that is consistent with most of the findings in the extant literature, where it has been interpreted as supporting the home field advantage hypothesis” (Berger et al. 2001: 66)

Due to the argument that financial firms produce intangible services that are highly sensitive to customer preference, taste and cultural environment at large, international diversification or consolidation is not closely associated with short-term realisation of performance improvement in financial sector. The financial

institutions with competencies built with the local values matter more efficiency-wise and performance-wise than the transplantation of global know-how and best practices through financial consolidation and mergers and acquisitions.

Globalisation, international commerce and financial system feed each other (Berger et al. 2001) in a cyclical loop with respect to the expansion and deepening due to the two-way causality (Bakay 2014). Even though the benefits associated with investment diversification internationally prevails, the evidence suggests that it has been on a decline globally (Christoffersen et al. 2012). However, the diversification potentials are found to be significantly higher in emerging markets than those of in developed markets due to the nature of equity crises which are country specific, despite their frequency. Equity crises themselves are found to offer utility gains for investors. The policymakers and regulatory framework are directed to grease the way for financial institutions (i.e. pension funds) to be well globally diversified especially in foreign emerging markets by lessening the investment restrictions (Vermeulen 2013).

3.2 Efficiency and Ownership

In last years, research about the efficiency of domestic versus foreign and state versus private banks are popular topics for academia. This part reviews some of the main research in the literature about these issues. The importance of the ownership status as domestic and foreign or state and private as well as the reasons of why any type of banks are more efficient rather than other one(s) is discussed in this research. The definition of foreign bank is a bank which non-domestic person (s) have more than 50 % of its shares. However, multinational and foreign banks do not refer the same meanings; like Ziraat Bank is a multinational corporation both in Turkey and UK. Therefore, the efficiency analysis between multinational and local banks which operate within only one country is also an interesting research area for management literature as well as the efficiency analysis between foreign and domestic banks (Lensink et al. 2008).

The current literature has not given a certain answer about which of them are more efficient. Although there are some reasons why domestic banks are more efficient than foreign banks in a country, this situation may be observed differently in other countries (Lensink et al. 2008). This research aims to investigate this problem with focusing the impact of ownership structure on the efficiency differences between foreign versus domestic and state versus private financial institutions.

3.2.1 Private Versus State

In the literature, discussion of the efficiency in financial institutions has been an interesting area for researchers. Ownership and governance structure are critical

points for efficiency and productivity analysis. In the planned economies or not fully open markets, state ownership of banks is widespread, and they can have control over the financial sectors (Jiang et al. 2013). Governments can promote the different sectors and projects with considering not only high returns but also social welfare, industrialisation and development of its country. This situation is a kind of benevolent behaviour for politics or bureaucrats. So, state ownership banks can play an important role for developing countries (Megginson 2005).

However, state ownership cannot always be efficient everywhere. One of the most important reasons of inefficiency is agent-principal problem. It is a significant question and can easily appear in the bureaucracy. If the management control and ownership are separated, managers mean agents can consider their own benefits before those of owners (principals) that causes inefficiency (Beale and Means 1932; Jiang et al. 2013). Tiemann et al. (2012) interpret the agency theory from the perspective of agents. For instance, the owners of private organisations may consider profits as the measure of manager's success and additionally, the income of can depend on firm's financial performance. However, in public organisations, the income of workers and managers generally are not based on the profit. Therefore, private institutions are more prone to be efficient in their operations than public ones.

Furthermore, free rider is also a substantial problem. Theoretically, all citizens are owners of state ownership corporations; however, most of them has no right to manage or control them except politics and bureaucrats. Governments can design the activities of state ownership banks with populist policy to prioritise their benefits (Huibers 2005; Jiang et al. 2013). Furthermore, soft-budget means to be depending on country's treasury can cause inefficiency for state corporations. To increase the satisfaction in society, state banks can use their budget inefficiently because of the considering political issues rather than social welfare. However, bureaucrats or politics can close the financial deficit of public institutions using country's treasury (Jiang et al. 2013).

Moreover, in the literature, there are different perspectives such as; property-rights theory and public choice theory to discuss the relationship between ownership and efficiency. These theories suggest different perspectives with a common argument to the superiority of private ownership to public ownership in terms of efficiency (Tiemann et al. 2012).

According to the property-rights theory, there are mainly two advantages of owning a firm, the controlling of the management and getting the profits (Tiemann et al. 2012). The controlling of financial surplus for the benefits of organisations or not is the main difference between private and public organisations. Financial surplus can be shared out as an incentive to the workers and managers in private organisations, so this action increases the higher self-motivation for employees. Therefore, compared to public institutions, private organisations' performance level can be better in terms of efficiency (Hansmann 1988; Jacobs 1974; Clarkson 1972; cited by Tiemann et al. 2012). In addition, the property-rights theory proposes that potential conflicts between owners and managers in private organisations are lower because owners can easily change top managers of organisations in order

to increase profit and efficiency or to prevent bankruptcy. According to public choice theory, politicians want to apply their politics on public organisations to gain votes; therefore, these objectives prevent them earning more profit and being more efficient (Cuervo and Villalonga 2000; Tiemann et al. 2012).

There is some research that exhibit the lower performance of state-owned banks in relation to private peers (e.g. Fries and Taci 2005; Yao et al. 2007). State-owned banks can be used for different political goals by governments (La Porta et al. 2002) Furthermore, the probability of facing banking crises for state-owned banks is higher (e.g. Caprio and Peria 2000).

For some politics, the preventing solution of inefficiency in state-owned banks is privatisation. In developing countries, privatisation has been seriously considered by governments to solve the agent-principal problems with establishing new governance structure (Jiang et al. 2013). Some research shows the improvement in efficiency after privatisation (Berger et al. 2005; Williams and Nguyen 2005). For privatisation, there are two major methods for state-owned banks, going public and selling the shares to local or foreign investors. It is expected from the foreign investor to transfer the advanced technology, know-how and modern banking techniques as well as capital (Jiang et al. 2013).

Joint venture and becoming partner to domestic banks' share are different methods for foreign investors. With these ways, foreigners can get knowledge of local partners' experiences and network. In the literature, there is some research that indicates the efficiency of foreign-owned banks is higher (Hasan and Marton 2003; Fries and Taci 2005). Meanwhile, it cannot be said that private banks do not have any problems. Managers of those banks can face budget constraint problem and feel pressure to improve efficiency from top management (Jiang et al. 2013).

3.2.2 Foreign Versus Domestic

The ownership status as foreign or local can play an important role for financial institutions. The relative efficiency between foreign and domestic is related with host and home country rules. Foreign banks in transition and developing countries have higher efficiency than domestic institutions. However, in developed countries, foreign ones show lower efficiency when compared to domestically owned banks (Demirgüç-Kunt and Huizinga 2000). In contrast to this, Berger et al. (2001) give the empirical evidence of foreign banks being lower efficient in developed areas. In this research, the efficiency of banks is considered in France, Germany, Spain, United Kingdom and the USA. Findings show that the domestically-owned banks are generally more efficient in comparison to foreign banks. Similarly, they emphasize the importance of host and home country's environment for efficiency comparison.

What are the reasons of difference in efficiency between foreign and domestic banks? Some scholars (e.g. Demirgüç-Kunt and Huizinga 2000) proposes two reasons about the different efficiency situation of foreign banks when compared to local ones. Firstly, restriction of government rules about credits for domestic

banks are more than that of foreign banks. Secondly, foreign banks have informational disadvantages in comparison to domestic institutions.

Which or what type of regulations affect the efficiency of banks in host countries? There are some indigenous specialties of foreign banks which cause the lower efficiency in performance when compared to local ones. The effects can be classified as home and global field advantages (Berger et al. 2001).

The global advantage implies that foreign-owned banks has some competitive advantages relative to domestic banks. They can use more advanced technologies related to market competition in home country. Moreover, foreign banks can have more qualified employees because of high competitiveness and this provides the using new technologies in their organizations (Berger et al. 2001; Lensink et al. 2008).

In contrast to global advantage, the home field advantage suggests that foreign-owned banks can face with some disadvantages relative to domestic peers. According to this view, foreign banks might have higher costs when compared to domestically owned ones. In addition to this, because of being unfamiliar about the host country's economy, language, laws and politics, foreign banks may have some disadvantages. Furthermore, the attitudes of governments, bureaucrats, suppliers and consumers to foreign and domestic banks may differ in different places. Therefore, domestically owned banks can gain competitive advantages in their home countries (Hymer 1976; Berger et al. 2001; Lensink et al. 2008). Furthermore, Mian (2006) emphasises the disadvantages of foreign banks in host countries sourced from the operating of activities in different environments. According to this view, "working in an environment with a different corporate culture, legal environment or regulatory framework might increase the asymmetry in information and make it more difficult for the CEO of a foreign bank to design policies that are specifically tailored for the developing country" (Mian 2006, p. 1470).

In addition to these, the evaluation of entering strategy to the new markets is a crucial point, and becoming failure in host countries is an undesirable situation for foreign banks. Which entry mode is the best, or what are the possible advantages or disadvantages in the host country are the essential questions for organisations. Typically, there are three different strategies to start in the new country's market: acquiring a local bank, joint venture or Greenfield investment. Lensink et al. (2008) suggest that a joint venture can have the most advantages under the strict government rules for foreign banks. Naaborg (2007) gives the literature review about the optimal entry modes or strategies especially in Central and Eastern Europe for foreign-owned banks (Lensink et al. 2008).

In conclusion, there is no any certain situation for the relative efficiency between foreign and domestic financial institutions, and which type of banks, foreign-owned or domestic, is more efficient is an arguable topic (Jiang et al. 2013). The comparison results can differ from country to country based on special circumstances.

3.3 *Further Discussion*

There are also different papers which compare the efficiency of more than two types of banks. Similarly, the relative efficiency among banks changes under different circumstances. For instance, in developing nations, many research find that foreign banks are more efficient or approximately equally efficient to private local banks. In addition to this, both groups are significantly more efficient than public ones (Berger et al. 2009). Moreover, foreign banks are the most efficient, followed by private domestic ones, and lastly state-owned banks in transition nations of Eastern Europe (Bonin et al. 2005). Delfino (2003) finds that foreign and private domestic banks are equally efficient and perform better than public organisations in Argentina (Berger et al. 2009). Nevertheless, different results can be seen in the literature. For example, in the study of Yildirim and Philippatos (2007), foreign banks are more cost-efficient, but private domestic and public organisations are more profit efficient. Bhattacharya et al. (1997) show that publicly owned banks are the most efficient followed by foreign banks and private domestic ones in India.

4 Conclusion

To date, the efficiency literature has addressed numerous issues regarding financial institutions. In this chapter, latest theoretical framework on efficiency with methodological details is provided. The ownership structure and governance of such institutions referring to recent literature are discussed in relation to their efficiency and performance implications. Country-specific economic environment coupled with regulatory framework presents challenges and opportunities for financial institutions. The ownership status, both state versus private and foreign versus domestic, does matter in regard to efficiency and performance of the financial institutions considering the macro factors. Evidence regarding to the level of efficiency of foreign and domestically owned banks is however mixed. The efficiency literature has to be linked with the strategic management literature considering the financial consolidation and international diversification findings. Intellectual conversation so far has not converged upon a one size fits all type of diagnosis; therefore, this chapter raises the importance of calling further scholarly interest on the interplay of efficiency, ownership structure, international diversification and consolidation efforts of financial institutions.

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Examining Financial Innovation and Performance in Financial Sector: A Comprehensive Review of Emerging Markets

Melisa Erdilek Karabay and Gülcan Çağıl

Abstract Today, the competitiveness of organizations depends on the adaptation to the changes and moving in line with changing needs and demands of customers. Innovation is a critical determinant of increasing the organizational outcomes in emerging markets as they integrate various types of innovations like product, service, process, organizational, marketing, and financial innovation. Financial innovation has become a major type of innovation in various industries. In this respect, it is critical to apply innovation policy as a part of core business. The purpose of this study is to examine the concept of innovation and to review the given literature of financial innovation and financial performance relationship in financial sector, particularly in emerging markets. The study is intended to contribute to literature by providing a comprehensive review of conceptual relationship between financial innovation and performance.

1 Introduction

Innovation has become one of the major strategies in business. Despite it is a process that include risks and uncertainty, it has significant benefits like providing growth, profitability, and competitiveness through knowledge, skills, financial, and human resources (Saatçioğlu and Özmen 2010). It also empowers the social well-being, quality of life, and competitive advantage for the countries (Tutar et al. 2007; Satı and Işık 2011). Innovation, today, promotes organizations developing and shaping their entire managerial and operational policies within the changing global conditions (Lawson and Samson 2001). One of the reasons for innovation being one of the most discussed topics in business is that innovation is now critical for organizations, industries, and countries due to high competitiveness of homogeneous products and services (Satı and Işık 2011). Therefore, corporations

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renew their products, services, and production methods. This can be implemented by adopting innovation in designing products and services and also process dimensions throughout an organization (Krahmer and Regerr 1999). From market point of view, innovation is a powerful strategy of acquiring product and process improvements that helps firms to survive, grow more quickly, be more efficient, and ultimately be more profitable than non-innovators (Atalay et al. 2013). Therefore, emerging markets have become the catalysts for new product and service innovation since they present a unique profile of geopolitical, regulatory, financial, currency, and governance risks (Deloitte 2007).

One of the main reasons behind this study is to define “innovation,” discuss financial innovation and financial performance relationship, and reveal its importance in financial sector, particularly in emerging markets. An examination of the relationship between the firm’s innovations and the firm’s performance will provide important managerial insights into impacting the firm’s performance (Uzkurt et al. 2013). The rationale that prompted us for studying the relationship between the organizational culture, firm performance, and the innovations in the organization is because we believe that innovation and firm performance are critical characteristics which can contribute to a developing economy’s growth and competitiveness. Another assumption is that innovation is critical in financial sector because the sector is quite dynamic and that innovation is often associated with efforts on R&D investments. This argument is also true for Turkish financial services. However, there are few studies in the literature on the relationship between financial innovation and financial performance, especially in financial sector.

The theoretical and empirical gap in the literature is also true for the relationship between financial innovation and financial performance in emerging markets. Therefore, this study aims to fill this gap in the literature by providing a comprehensive review through the recent researches. In this regard, the study is organized as follows: Following the introduction, the conceptual framework of innovation, performance, and financial innovation are presented in the second section. The literature review is given in the third section. Fourth section includes the evaluation of the relationship between financial innovation and financial performance within the emerging markets. Last section presents the conclusion of the study.

2 Conceptual Framework

2.1 Innovation

The word “innovation” comes from a Latin term “innovatus” that concerns establishing new methods (Tutar et al. 2007; Karagöz 2009; Çelikleş 2008). Despite various studies have provided several definitions of innovation (Kılıç and Keklik 2012), a clear and comprehensive framework does not yet exist (Lawson and

Samson 2001). This is because the concept lacks a single definition and a measure (Adams et al. 2006; Çeliktaş 2008). Innovation was used as a term by German economist and political scientist Schumpeter (1934) (Penning and Kim 2009; Atalay et al. 2013). Since then, it has evolved significantly over the last 40 years.

Drucker (2002) defines innovation as “The tools that allow entrepreneurs make changes to reveal a different business or service” (Coşkun et al. 2013). Damanpour (1991) states that innovation can be a new product or service innovation; a new production technology; a new management structure or system; as well as a new plan or program comprising organization members. Örucü et al. (2011) define it as “Creation of new and useful products and the process involving the use of information concerning the presentation the goods or services to the market.” Even though literature highlight various definitions, it is hard to provide a clear consensus on types of innovation (Özmen et al. 2010). Schumpeter (1934) has gone to five classifications such as introduction of new products, new production methods, access to new markets, development of new sources or supply of raw materials and other inputs, as well as the creation of new market structures. Lööf and Heshmati (2006) state that “Innovations of goods and services can be both: (i) new or substantially improved to the market and (ii) new or substantially improved only to the firm. In this respect, innovation mostly comprises developing new products, services, organizational, process, and marketing innovation (Oslo 2005; Trott 2005; Ertürk 2014). In this study, financial innovation (Silber 1975) is also accepted as a type of innovation that is critical for organizations.

- **Product innovation:** This type of innovation is the introduction of a good or service that is new or significantly presented in market (Yavuz 2010; Atasoy 2007). Product-based innovation can be the part of the technical system of an organization (sometimes called as technical innovation) and is directly related to the primary work activity of the organization. A technical innovation can be the implementation of an idea for a new product or a new service or the introduction of new elements in an organization’s production process or service operation (Damanpour and Evan 1984).
- **Process innovation:** A process innovation is the implementation of a new or significantly improved production or delivery method (Yavuz 2010; Atalay et al. 2013). It can be exploring new ideas to life by developing products, services, or methods of doing business (process) that is related to organizations’ life cycle (Satı and Işık 2011). Innovation, as a process, appears as a result of many different stages. Beginning of this process depends on establishing new ideas (Örucü et al. 2011). Innovation, in this context, is a constant activity (Vatan 2010).
- **Marketing innovation:** This type of innovation is part of business method innovations (Chen 2004) and the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion, or pricing (Tüfekçi and Tüfekçi 2014). Such innovations focus on differentiation of the interactions with potential customers throughout the buying process (Yavuz 2010).

- **Organizational innovation:** Organizational innovation is the implementation of a new organizational method in firms' business practices (Oslo Manual 2005, www.oecd.org/berlin/44120491.pdf). Innovations at the organizational level may involve the implementation of a new technical idea or a new administrative idea. The adoption of a new idea in an organization can be expected to result in an organizational change that might affect the performance of that organization (Damanpour and Evan 1984).

As illustrated in Fig. 1, it can be indicated that innovation policies of large firms and SMEs in various countries differ in types of innovation (e.g., products, services, process, marketing, and organizational innovation).

- **Administrative Innovation:** Administrative innovations comprise innovations mostly in organizational structure and in the management of people that is related with the social system of an organization. It can be the introduction of a new management system, administrative process, or staff development program. Practices of administrative innovations are: automated personnel records and skills systems, formalized strategic planning process, management by objectives, staff continuing-education programs, job rotation, incentive or reward systems for the staff, etc. (Damanpour and Evan 1984).
- **Financial Innovation:** Financial innovation is the act of creating and promoting new financial instruments as well as new financial technologies, institutions, and markets (Tufano 2003). It can be a type of innovation that reduces costs, reduces risks, or provides an improved product/service/instrument that better satisfies participants' demands (Lawrence 2010) such as new products (e.g., adjustable-rate mortgages, exchange-traded index funds); new services (e.g., online securities trading, internet banking); new "production" processes (e.g., electronic record keeping for securities, credit scoring); or new organizational forms (e.g., a new type of electronic exchange for trading securities, internet only banks) (Frame and White 2004).

Within innovation philosophy, we can stress that if a new intermediate product or service is created and used by firms in financial services, it may then become part of a new financial production process. Since better financial power can encourage more saving and investment, it can encourage better (more productive) investment decisions, financial innovation, and add further to its value for an economy (Frame and White 2004). Therefore, improvements in the financial sector through innovation will have direct positive outcomes for organizations and the industries.

2.2 Innovation and Performance

Today, organizations undergo changes to meet the new environmental conditions, especially where there is a need to change the structure, processes, etc. (Çalipınar and Baç 2007). Innovative organizations not only adapt to the environmental change, but also use their resources and skills to create new environmental

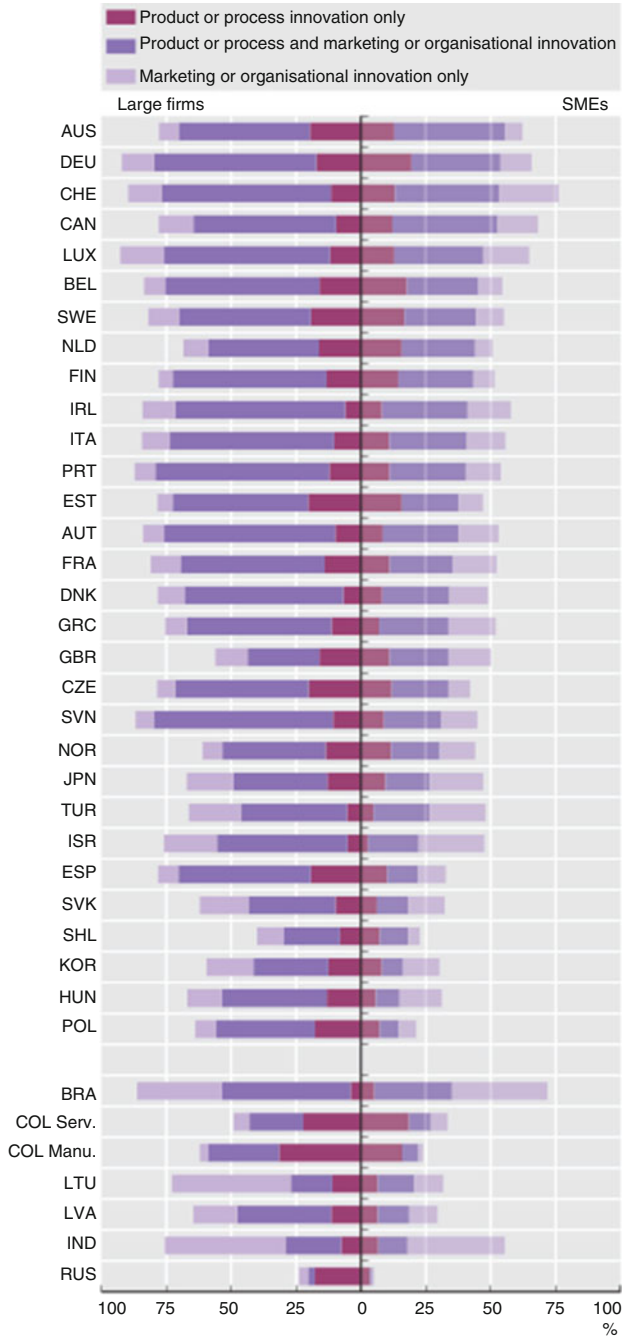


Fig. 1 Innovation types by firm size, 2010–12 (As a percentage of all SMEs and large firms within the scope of national innovation surveys). Source: OECD (2015a). Community Innovation Survey (CIS-2012) and national data sources

conditions, e.g., by introducing new products or services never offered previously (Damanpour and Evan 1984). Businesses have started to take an interest in the subject of innovation because they are not able to compete with traditional products and services (Örücü et al. 2011).

Innovations are means of providing these internal or external changes and are, therefore, a means of maintaining or improving organizational performance (Damanpour and Evan 1984). In this context, the prerequisite for being able to survive depends on whether businesses are capable of positioning innovative strategies and rapidly adapting to environmental conditions (Yavuz 2010). However, this requires a strong R&D infrastructure within the organization and acquiring sufficient financial support (Satı and Işık 2011). Large enterprises take advantage of having strong capital structure and investing in R&D activities which allow allocating more resources to innovation (Örücü et al. 2011). Firms investing in R&D are more likely to introduce innovations. In 2015, 28 OECD countries have used R&D tax incentives to support business R&D while its support accounted for nearly USD 50 billion in 2013 (OECD 2015a).

Taking into consideration the core goal of business (such as profitability), the organization tend to increase their innovative capabilities to improve the financial performance, to gain a competitive advantage, and therefore being a stronger, successful and sustainable (Yavuz 2010). According to Damanpour and Evan (1984), organizational performance is a direct function of the balance between the social and technical systems. That, if organizational lag reaches a threshold value, it would have a retarding effect on organizational performance. Organizational performance refers to an indicator of success, determined by different factors, including both cyclical and integrated performance of the organization (Yavuz 2010). As the impact of innovation activities on firm performance is also emphasized in Oslo Manual (Oslo 2005), we acknowledge that one of the well-known innovations in the financial sector is financial innovation which is defined as the act of creating and then using new financial instruments as well as new financial technologies, institutions, and markets (Lerner and Tufano 2011). Profit-seeking enterprises and individuals are constantly seeking new and improved products, processes, and organizational structures that will reduce their costs of production, better satisfy customer demands, and yield greater profits (Frame and White 2004).

2.3 Financial Innovation and Financial Performance

In the literature, the innovation comprises product, service, process, and organizational innovation as stated in previous section (Öncü et al. 2013). When the financial innovation is considered, it has some features in terms of organization and the industry. First characteristic is that, it reduces costs to the customer by increasing the possibility of risk-sharing. This leads to an increase in the efficiency of transactions. Financial innovation, on the other hand, reduces problems of asymmetric information which may help to increase the efficiency. Another important

feature of financial innovation is that it can ease the formation of perfect competition in the markets. However, these features can reveal greater risks if they are not adequately assessed even if they aim to reduce the risk. Emergence of various financial instruments can decrease transaction costs which enable payments at any time or the possibility to provide liquidity (Kaplan 1999).

Organizations strive to maintain or improve their level of performance. To accomplish this goal, they introduce changes in their structure and processes (Damanpour and Evan 1984). Firm performance consists of four elements which are customer-focused performance, financial and market performance, human resource performance, and organizational effectiveness (Cherotich et al. 2015). Several innovations applied in business (product, process, marketing, and organizational) can improve business performance in several respects, affect directly the performance of the enterprises, and be measured by performance indicators (Yavuz 2010).

The performance indicator can be measured in financial and nonfinancial terms. Financial performance is related to measurements of changes in the degree of implementation by organization (Carton and Hofer 2006). Several firms apply commonly used financial indicators such as return on assets, average annual occupancy rate, net profit after tax, and return on investment. In addition, other common measures related to financial performance are profitability, productivity, growth, stakeholder satisfaction, market share, and competitive position (Cherotich et al. 2015). Within the framework of realization of innovations, satisfaction of the employees, the quality of the innovations, and creation of value in the view of customers can be important indicators of financial performance (Yavuz 2010). An effective performance measurement is significantly important for the competitiveness of a company. Corporations, therefore, should be aware of the factors that influence the performance.

3 Literature Review

3.1 *Innovation and Performance*

Literature shows that there is a positive relationship between innovation and firm performance. The studies on a broad range of disciplines and considerable literature reveal this argument, which is widely seen as the basis of a competitive economy (Adams et al. 2006). The major assumption of this study relies on the Schumpeter (1934) argument that innovative new products when first introduced to the market face limited direct competition. This, as a result, allows firms to benefit from relatively high profits, which is highly associated with performance.

Despite interest on topic among scholars, the literature presents limited number of studies (Löf and Heshmati 2006; Darroch 2005; Jansen et al. 2006; Tseng et al. 2008; Van Auken et al. 2008; Marques and Ferreira 2009; Pérez-Luño

et al. 2014; Damanpour and Evan 1984) highlighting the relation between innovation and performance. Some scholars have explored the significant effect of innovation on performance. Rosenbusch et al. (2011) examined innovation–performance relationship on SMEs through meta-analyses techniques. As they reached critical results: the findings showed that innovation has a positive effect on the performance of SMEs. Factors such as the age of the firm, the type of innovation, and the cultural context affect the impact of innovation on firm performance to a large extent. The results also revealed that innovation process outcomes lead to a greater increase in SME performance compared to innovation process inputs (e.g., R&D spending). Bigliardi (2013) examined the effect of innovation of SMEs on their financial performance, as well as the effect of firm size on the impact of innovation. In the study, 98 SMEs belonging to the food machinery industry were analyzed using a regression-based analysis. The study resulted that an increase in the innovation level increased financial performance. Atalay et al. (2013) conducted their study on top level managers of 113 firms operating in the automotive supplier industry. Analysis results demonstrated that product and process innovation has significant and positive impact on firm performance, but no evidence was found for a significant and positive relationship between organizational and marketing innovation and firm performance. Damanpour and Evan (1984) explained the basic benefits of innovation on performance. The impact of product/process innovation on performance can be increased by introducing an administrative innovation, such as recruiting librarians who are multilingual or ethnically and racially similar to the patrons. Thus, a balanced adoption of types of innovation would boost performance, even though there is not a one-to-one relationship between the adoption of technical and administrative innovations. Yavuz (2010) in his study revealed that organizational innovation has a stimulating effect on other types of innovation by affecting organizational performance positively.

3.2 Financial Innovation and Financial Performance in Financial Industry

From a theoretical standpoint, innovation can be considered as critical determinants of financial performance, particularly in emerging markets. Innovation provides different services much cheaper for customers, minimizes risk, as well as enables organizations to achieve a long-run sustainable market performance (Mishra 2008). It is well known that there is a positive relationship between innovation and measures of firm financial performance from the early period of research. Despite innovation's importance and various studies contributing to the innovation and performance as stated previously, the literature highlighting the relation between financial innovation and financial performance particularly for emerging markets is unclear providing an adequate discussion for the scholars or corporations. According to the related literature, financial innovation generally seems to have

positive effects in increasing financial performance (Cherotich et al. 2015; Gunday et al. 2011; Zahra and Das 1993). However, few studies have addressed this point in the literature. Cherotich et al. (2015) in their studies examined the effect of financial innovations on financial performance of 44 commercial banks in Kenya. The study revealed that there is a strong relationship between financial innovations and financial performance, and financial innovations positively affect financial performance. Gunday et al. (2011) tested identifying the relationship between innovation and firm performance through an integrated innovation–performance analysis covering 184 manufacturing firms in Turkey. The results indicated that there are positive effects of innovations on firm performance in manufacturing industries. Crepon et al. (1998) used a four-equation model, to link the innovation decision of firms to their performance through the impact of innovation input on innovation output and the innovation output on productivity and better performance. Their findings confirm the positive relationship between innovation activities and productivity at the firm level and provide further evidence on the relationship between size and innovation activities. Zahra and Das (1993) examined two models of the association between manufacturing companies' innovation strategy and their financial performance by using 149 manufacturing companies' data. The results supported the importance of innovation strategy as a determinant of company financial performance.

4 The Importance of Financial Innovation and Financial Performance in Emerging Markets

4.1 The Effect of Financial Innovations on Financial Performance in Financial Industry

Today the strategies of corporations need to be created through innovative behavior (Erdem et al. 2011; Satı and Işık 2011). Innovation provides entry into new markets and enlargement of the existing market, while increasing the productivity and profitability for the companies. Innovation, in this sense, makes a major contribution to the survival of organizations. This is mostly valid for the financial sector because of its role as a service provider of the economy. As one of the major competitive tools, the most important question for how to create and maintain competitive advantage through financial innovation has become one of the main strategic concerns of the organizations today.

Innovation is clearly an important phenomenon in any sector of a modern economy especially for the financial services sector. The financial industry in general is known as one of the most innovative sectors in the world (Frame and White 2004). With the impact of globalization, the restructuring of the markets requires the new entry of domestic and foreign banks and other financial institutions, since the concerns of the firms continue to increase regarding the protection

of their market shares. Today, the firms that offer the fastest and best service to customers at the lowest cost anticipate and meet the needs of the evolving economic environment are likely to remain alive. At this point, the financial reform of innovation emerges as a defining element of the competitive process. The major impetus for financial innovation has been globalization of financial systems, deregulation, and great advances in technologies. Increasingly integrated financial systems lead to higher volatilities, more competition, and wide varieties of risks (Cherotich et al. 2015).

Financial innovation has not only opened up new opportunities for the sector participants but also increased new market players arising with a range of new and innovative products in the financial market (Ignazio 2007). Financial innovation, as stated previously, range from new products such as securities, over new processes, credit scoring, new financial markets, or institutions (e.g., internet banks) (Beck et al. 2014; Delimatsis 2012).

The banking sector is highly dynamic with its nature and considered as an influential engine of the economy. Banks are intensive users of both financial and IT technologies, and the rapid rate of financial innovation over the past few decades is widely recognized as a stylized fact (Beck et al. 2014; Tufano 2003; Frame and White 2004). Financial innovation is used by banks to improve banks' performance and to maintain banks' effectiveness on the financial market as a competition tool. A successful financial innovation process can give a bank a competitive advantage and lead to a superior financial performance (Roberts and Amit 2003). However, despite the increasing importance of innovation on financial performance, there is a lack of understanding about the drivers of innovation and innovation's impact on financial performance (Muiruri and Ngari 2014).

Besides banking services, insurance sector plays an active role in the economy and is one of the most emerging industries in financial services. In industrialized economies, the elasticity of demand for insurance and significant shift of the fund to this sector has attracted attention to the financial industry. Research and development activities appear to be one of the most important activities required for innovation, especially technological innovation in the financial system included insurance sector (Tsai 2005).

These arguments have been recently claimed by some researchers in the literature. Benfratello et al. (2008) investigated the effect of local banking development on firms' innovative activities, using a rich data set on innovation for a large number of Italian firms over the 1990s. According to the findings, the probability of introducing a process or product innovation is significantly and positively associated both with firm size and with the degree of banking development. The evidence for product innovation is weaker. Uchupalanan (2000) examined the dynamic relationships between competitive strategy and information technology (IT)-based products and process innovation in financial services, particularly for the Thai banking industry from the mid-1960s. The results indicated the limitations of the Reverse Product Cycle model approach, and an alternative conceptual framework and a country-specific innovation model are proposed.

4.2 Exploring the Relationship Between Financial Innovation and Financial Performance in Emerging Markets

Globalization brings opportunities for firms in emerging market economies to innovate and improve their competitive position. Financial innovation leads to a reduction in the cost of capital and improvement in the financial intermediation process without increasing financial risks. The benefits of financial innovation to emerging capital markets can be measured such as lower pricing, reduced cost of capital, mitigated risk exposures, broader access to capital, and increased liquidity. In addition, the integration of capital markets across borders enables it easier for savings arising in developed economies to be used to finance higher return investments in economies with higher growth (Mishra 2008). The rapid diffusion to emerging markets of new financial instruments like derivatives and asset-backed securities as well as the entry of new investors like hedge funds and private equity raise questions to which extent policy and regulatory responses are required in these countries (German development Institute 2008). The aim of financial innovation is to make different services such as loans, deposits, fund units, debt instruments, shares, etc. offered by financial system cheaper and more available for clients and to increase their quality and financial performance, which are assumptions for a long-run sustainable growth of emerging market economies (Mishra 2008).

Companies need to invest the resources required to gain a deep understanding of the requirements of customers in emerging markets. Each country is different, and the needs within a single country can vary widely. Meeting the needs of emerging markets depends on a company getting close to its customers and then integrating this knowledge with its R&D efforts (Deloitte 2007). R&D is an activity often associated with a higher likelihood and degree of novelty of innovations. However, not all innovative companies perform R&D and not all companies that perform R&D necessarily introduce new products or process to the market. Researches show that performing R&D is more likely to introduce new or significantly improved products (OECD 2015b). R&D capabilities also follow markets for technology-enabled products. Automobiles are a good example, since the major manufacturers have R&D operations around the world (Battelle 2013). As with other types of investment, expenditures in R&D and innovation are pro-cyclical—they are positively related to an economy's level of activity. R&D financed by the business sector is particularly affected by the business cycle and reflects changes in financing constraints and aggregate demand (OECD 2015c).

Emerging markets have newly begun to compete effectively in the global economy, since these markets have not been benefited from new technology recently (Tejinder and Jackson 2010). While 2013 R&D investment growth was minimal in the USA and Europe, growth in most Asian countries—especially China—continued (Battelle 2013). Emerging countries with similar aspirations for innovation-based growth require a diversity of talent, capabilities, and markets—and the will to invest. With the world's fourth-largest GDP, India is a

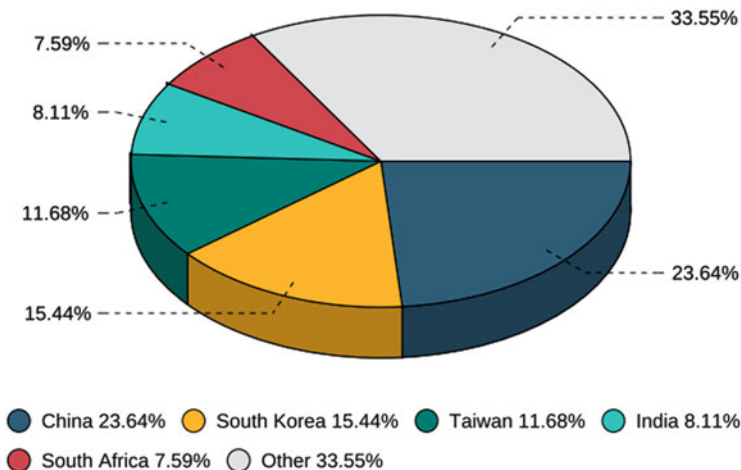


Fig. 2 Country weight of emerging markets. Source: The MSCI Emerging Markets Index, 2016

good example. It has significant academic infrastructure, large population, and global connectivity, but social and political priorities draw investment away from R&D (Battelle 2013).

As illustrated in Fig. 2, countries in emerging markets exhibit similar levels of engagement in international coauthorships; highly innovative economies such as Japan, Korea, and the United States present different levels of co-patenting, with Asian inventors being relatively more engaged in within-country collaboration.

Figure 3 shows the industry weight in emerging economies. A view seen from the chart financials has the highest weight rate in emerging markets. This is the one of the indication that how financial innovation is important in the emerging markets.

4.3 Turkey

Theoretical and empirical literature has shown that investments in R&D expenditures are very important for economic growth (Bozkurt 2015). Turkey has long been and continues to be an advocate of raising science and technology to new heights and has recently been engaged in a significant science, technology, and innovation (STI) impetus with the vision to contribute to new knowledge and develop innovative technologies to improve the quality of life by transforming the former into products, processes, and services for the benefit of the country and humanity (Tubitak 2010).

Banking is the most innovative and competitive sector in Turkey. Product-based financial innovations (e.g., interest and currency swaps, interest rates and future markets, global life insurances, investment accounts) are developed due to changes

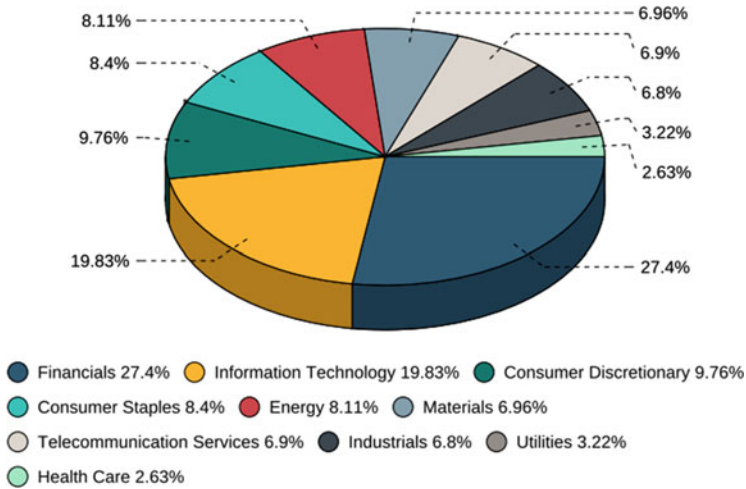


Fig. 3 Industry weight in emerging markets. Source: The MSCI Emerging Markets Index, 2016

in general economic conditions. When innovations are considered within process, ATMs (Automatic Teller Machine) and EFT (Electronic Funds Transfer) are the leading ones due to their natural attribute of reducing the fund transfer costs along with its fastness and secure transactions in especially the countries which have high inflation. POS (Point of Sale), SWIFT (Society for Worldwide Interbank Financial Telecommunication), credit cards, internet, home, and office banking can be counted as other innovative financial products. In the last phase of the innovations which are the subject of this article, Electronic Money can be inferred (e-money). (Büyükkakın et al. 2011).

There are specific reasons that promote banks to innovate. One of them is the intense competition. Turkey is known as with its subsidiaries within various banking groups in the world. Domestic banking groups also play critical role in continual development of effective competition. On the other hand, a fact that hardens the innovation rise in Turkey is the changing consumer trends in Turkey. There is still a considerable population among consumers that still do not use banking transactions. Younger population using banking transactions intensively through digital channels affects the purchasing attitudes of customers. All these factors cause the change in demand and require innovation in bank products, services, and process.

5 Conclusion and Discussion

Innovation is a key determinant of organizational success in today’s business environment, since increased competition between corporations forces them to focus on differentiating products and processes to be able to make innovations.

This is due to the fact that traditional strategies have begun to lose their significance in rivalry. Inevitably, innovation has become a major tool of competition. Emerging markets are becoming the catalysts for new product and service innovation. Globalization brings opportunities for domestic firms in emerging market economies to improve their competitive position. In recent years, innovation especially R&D has been cited as important drivers of competitive positioning of a company. Financial innovation that is concerned with the development and the creation of new financial instruments and creation of a stable financial system with new regulatory structure is essential for the development of the financial system.

It is known that there is a positive relationship between innovation and performance from previous studies. However, there is a theoretical and empirical gap in the literature about the relationship between financial innovation and financial performance. This study aims to fill this gap in the literature by providing a comprehensive review through the recent researches. However, despite literature presents some studies that support evidence with regard to relation between innovation and performance, there is a scarcity of empirical evidence concerning financial innovation and financial performance, particularly in emerging markets. This can be claimed as the major limitations of the study. Another limitation is that, both theoretically and empirically, it is critical to measure the stimulating effect of innovation on performance to obtain a comprehensive market point of view. On the other hand, this study contributes to the related literature because it examines and surveys the relation between innovation and performance, since significant importance of innovation both in micro- and macro-point of view has been acknowledged by numerous scholars.

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The Impact of Selected Firm Features on Sales Growth: Empirical Evidence from S&P500

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Abstract Firm growth is an important research topic in the academic arena and accepted as a leading indicator of firm's health. However, the debate as to the determinants of growth has not yet been fully solved. Many studies concocted in developed and developing economies, already attempted to identify the driving forces that spur firm growth. This study investigates how selected factors influence sales growth of firms by employing 22 years of consecutive data on a sample of 243 nonfinancial Standard and Poor's 500 (S&P500) companies. The empirical findings of panel data analysis demonstrate significant influence of previous year sales growth, average growth rate of relevant industry, firm size, and change in profitability level on the selected proxy of firm growth. Additionally, financial leverage, market-to-book ratio, price-to-earnings ratio, and plowback ratio are not found to have any significant relationship with the growth rate of the firm. A crucial result to emphasize is that the market in which firms operate is the major force that spurs growth, and this impact is captured by the industry growth variable.

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1 Introduction

Firm growth is a subject of ever-lasting debate in finance. Without a reasonable growth, financial problems may emerge, and the firm is not expected to survive in the long run. Given the importance of growth for the firm, many researches have already attempted to reveal important factors affecting it. Majority of these prior studies are focused on size, age effects, and the effect of former growth on current growth. The findings of these studies are divergent and not in consent. For instance, some of these studies found that current size of the firm is an important factor on the current growth rate of the firm (Simon 1964, Geroski et al. 1997, Hall 1987). Contrarily, some other studies found that size does not have any impact on the growth rate (Evans 1987a, b, Damodaran 2008). What drives the growth rate of a firm is still not a fully answered question in finance. Considering these prior studies on the field, this study attempts to find what is important and what is trivial on the growth of the firm. The study considered majority of the factors that are believed to be important on the growth of the firm. This study used a dataset of 243 companies with 22 years of observations. Compared to all of the prior studies, this study used the longest observation period. It is believed that longer panels will have more reliable results compared to shorter panels, especially on a study of determinants of firm growth.

2 Literature Review

Gibrat's Law or "Law of Proportionate Effect" postulates that a firm's growth is independent of its size. Simon (1964), Geroski et al. (1997), and Hall (1987) found little relation between size of firm and growth rate and confirmed the validity of Gibrat's law. Geroski et al. (1997), also, found a relation between growth and changes in the market value of firms. In other words, market value reflects discounted future cash generation which inherently comprises growth. However, in a study which measured firm size with employment level, a contradicting result to "Law of Proportionate Effect" is found by Evans (1987a, b)). The study revealed that firm growth decreases with firm age and firm size. The inverse growth-age relationship may possibly be attributed to the theory on industry stages, which entails relatively faster growth during introduction and growth stages compared to subsequent maturity and decline stages. But the nonlinear inverse growth-size relationship uncovered by this study contradicts Gibrat's law.

In the ordinary course of business, as firms get larger, revenues and earnings growth are expected to slow down since there will be market limitations coming onto the stage. Delivering high growth rates becomes difficult once the firm is already big. Secondly, success of one company attracts competition from others. Successful larger firms face more competition than smaller firms (Damodaran 2008). It is unlikely to sustain high growth levels for the smaller firms. Firms will

become big firms over time. Despite these factors, Damodaran's (2008) findings suggested only a vague relationship between size and growth.

Larger companies can sustain high growth rates mainly by acquiring other companies or businesses. Sustainability of current level of return on these investments is not certain. Some companies choose diversification for growing, when they see no further growth opportunity in their current business. Success of diversification depends on the expertise of top management (Ollinger 1994). Firms may successfully grow into related markets by duplicating existing skills. However, when firm grows into an unrelated field, managers may have little expertise on these new fields, then, these new investments is likely to fail unless lacked skills are, somehow maintained or outsourced.

Evans (1987a, b) claims that the rate of growth and the variability of growth decrease as the firm ages. Generally, young technology firms operating in dynamic industries, where promising opportunities exist, invest sufficiently to maximize present values. Conversely, managers of mature corporations overinvest as predicted by "Agency theory." Managers of these firms grow their firms for their own benefit without enhancing the wealth of their shareholders. Jensen (1986) contends that growth increases managers' power by increasing the resources under their control, and more importantly, firm growth and managers' compensations are positively related. Thus, the managers are better off by growing their firm regardless of whether this growth benefits shareholders or not. The shareholders of mature firms would apparently benefit from higher payouts (dividends) instead of investments which are not augmenting the shareholder value. In addition to that, Grabowski and Mueller (1975) argue that the overall efficiency of the economy would be boosted if some of these squandered funds are transferred to non-mature firms and industries.

By studying fast growing British companies, Little (1962) found no relationship between the growth levels of two consecutive 5-year periods. He summarized his results in the famous article "*Higgledy Piggledy Growth*." In a similar study, Damodaran (2012) confirmed Little's findings and found no evidence of growth persistence in publicly traded US companies.

Although Penrose (1955) suggests that the size attained at any time have no corresponding advantage for the succeeding growth, she also supports the idea that growth breeds growth, as the expansion itself creates opportunities for further expansion. Penrose defines management as the major factor that limits growth of a firm. The existing capacities of managers limit the rate at which a firm can grow in a given period of time. Consequently, a fast-growing firm is likely to slow down in the subsequent period because of limitations on its management capacity. Her proposition was probably more relevant in a postwar period, when the demand for industrial goods was very high, competition is lower, and availability of capable managers was limited. The proposition which a firm is not likely to achieve high growth consecutively, due to limitations in management capacity, is generally known as the "*Penrose effect*" in the literature. The firm has to expand its management capacity in line with the expansion in size in order to fully utilize the growth opportunities available. However, in today's business environment in which the

mobility of managers increased, this effect should be less effective on the growth rates. Gander (1991) argues that “Penrose Hypothesis” implicitly states that, in general, managerial resources will grow at least at the same rate of the size of the firm. But it generally grows at a faster pace. This implies that there are decreasing returns to managerial resources.

Management capability is an important factor in determining the magnitude of firm growth. As Penrose proposes, firms have to increase their management skills and capacity as they grow. But management capacity generally tends to increase faster than the size of the company. The management efficiency starts to decrease beyond a certain size of the firm. In response, companies tend to organize into divisions or holding companies in order to overcome this management efficiency trap. They divide company into more manageable business units, which act rather independently at arm’s length distance with sister companies.

Penrose’s reasoning that expansion of companies brings new opportunities for further expansion is confirmed by Bottazzi and Secchi (2006) which showed the probability that a given firm obtains new opportunities depends on the number of opportunities already caught. They explained the overall effect as the emergence of a sort of “*attracting force*” between the prospects. The skills that are durable and difficult to imitate give rise to persistent competitive advantages which lead to persistent profit differences between firms in the same industry (Geroski 2005). A firm that possesses real and substantial core competencies should be able to outgrow its rivals. However, firms grow fast in 1 year, but rarely in the subsequent 3- or 4-year period. Because particular competencies only generate value in certain market settings when these market settings change over time, then growth driven by these competencies also changes.

General economy or the growth rate of GDP significantly affects firms’ growth rate (Chan et al. 2003). Only a small percentage of the firms achieve extraordinary growth, above the general economic growth rate. Probably, the effect of the economic growth on a specific industry plays even a more vital role in determination of the growth rate of the firm.

Funds retained in the company, when reinvested, are expected to contribute to the growth of the company. The plowbacks are considered to be to the benefit of individual investors. However, Baumol et al. (1970) have shown that “plowbacks” have no or limited effect on growth. Besides, how you finance your growth, actually does not matter. No major difference between marginal rates of return earned on investment financed by external and internal equity exists (Friend and Husic 1973). Increase on both the investment rate and the rate of return on the investment increases systematic risk (Fewings 1975). New investments is a cash outflow against the expectation of higher earnings, so the systematic risk of the company increases in order bring volatility to the earning expectation of the firm.

The debate with respect to the determinants of growth has not yet been solved and is a significant area of research in today’s academic work. In their recent study, Coad et al. (2016) focus on the moderating role of firm age on the relationship between innovation and firm growth. Three models are utilized on a dataset of Spanish manufacturing and service firms for the period between 2004 and 2012.

Each model uses an alternative growth indicator, namely, growth of employment, sales, and productivity in evaluating how R&D affects the growth of young and old firms. The findings show that the influence of R&D on firm growth increases across the quantiles for younger firms, whereas the influence is more stable for old firms. The authors conclude that investment in R&D by young firms is riskier with returns being unevenly distributed in comparison to older firms that have more predictable R&D efforts. Another recent study associated with innovation and growth is that of Subrahmanya (2015), who attempts to discover whether innovative firms that are younger and smaller achieve higher growth in comparison to non-innovative firms that are older and younger as a part of the analyses. The model is estimated on a total of 197 SMEs with 141 being innovative and 56 being non-innovative. The results demonstrate that sales growth performance is affected negatively by firm size and age, providing evidence that smaller and younger firms grow faster in comparison to their counterparts. Innovation is found to insert a positive influence on firm growth as understood by the higher sales growth achieved by innovative firms.

Moreno and Castillo (2011) focus on Spanish firms in examining firm-specific factors that influence growth. Panel data analysis for the years between 1996 and 2001 demonstrate a U-shaped relationship for the youngest and oldest firms and an inverted U-shaped relationship for firms of intermediate age in explaining corporate growth. The findings on an additional variable generated by the interaction of firm age and sales demonstrate the impact of sales on growth to be stronger for older firms and the impact of age on growth to increase as sales level increases. Another study that utilizes a concurrent research period, namely, 1997 and 2000, on Spanish tourism firms, is that of Rufín (2007). Sales growth is selected to be the proxy for corporate growth, and the study mainly focuses on the metric's relationship with firm size, whereby size is proxied with numerous quantitative and qualitative measures. The findings show a negative relationship with firm size and growth for firms above a threshold size.

Thus, the effect of size on firm growth is not robust. There are studies with contradicting results. The studies which found some relation suggest an inverse relation. Growth rate is generally expected to decrease with size of the firm. Sustainability of high growth is a real question mark. Companies growing fast in one period may be growing relatively slower in the next period. The financing method has little or no impact on the growth rate as suggested by plowbacks having no effect on growth.

3 The Data and Methodology

This study aims to find the factors that are effective on the growth rate of a firm. Prior studies are concentrated on the factors of firm size, firm age, the financing of growth, economic growth, plowback, preceding growth, growth anticipated by the market, profit level, and found ambiguous results. This study trailing the previous

researches on the field, attempted to explain some of the determinants firm growth. Some of the proxies used are different from the former studies. Most of the former studies attempted to measure the effect of preceding growth rate by examining longer term average growth rate such as 5-year average growth rate (Little 1962; Damodaran 2012). However, this study concentrated on short-term effect of previous sales growth on the current growth rate and employed only one period lag variable to measure this effect. Chan et al. (2003) utilized GDP increase as a variable to capture the effect of economic expansion on the growth rate. This research used the average growth rate of relevant industry to measure this effect. Similar to most of the studies on the field, logarithm of sales is used to capture the effect of size on the growth rate of the firm. As it may be claimed that high financial leverage may hinder financing of the growth, debt ratio is used as a proxy to measure the impact of financial leverage on the growth rate. The change in the net profit ratio is used to catch the impact of profits on sales growth. Market-to-book and price-to-earnings ratios are used to capture the effect of market anticipated future growth rate on the realized growth rate. Plowback ratio is used to measure the impact of funds retained in the company on the growth rate of the firm.

For this study, longitudinal balanced annual data of 243 firms is collected for 22 years (between 1993 and 2014) via Bloomberg Database. The firms used in this study are selected from Standard Poor's 500 companies (S&P500). The sample includes only nonfinancial firms which have 22 years of consecutive data available. No other selection criteria are applied to admit firms into the sample. Since in the calculation of some variables year-end figures are utilized, 5103 full year observations are employed in the study. Regressions are run without the outliers (with extreme levels of data) of each observation period.

As the collected data have the same cross-sectional units (firms) surveyed for more than two decades, panel data methodology is adopted for the analysis.

In Table 1, dependent and independent variables employed in the study are given.

Table 1 Variables used in the study

Variable	Definition of the variable
Dependent	
<i>SALESGRW</i>	$(Net\ Sales_{it} - Net\ Sales_{i,t-1}) / Net\ sales_{i,t-1}$
Independent	
<i>SALESGRW(-1)</i>	$(Net\ Sales_{i,t-1} - Net\ Sales_{i,t-2}) / Net\ sales_{i,t-2}$
<i>INDGRW</i>	Average sales growth in an industry within a year
<i>SIZE</i>	$Log(Sales_{it})$
<i>LEV</i>	$Total\ Debt_{it} / Total\ Assets_{it}$
<i>CH_PROF</i>	$\left(\frac{Net\ Profits_{it}}{Net\ Sales_{it}} \right) - \left(\frac{Net\ Profits_{i,t-1}}{Net\ Sales_{i,t-1}} \right)$
<i>ME_BE</i>	$Market\ Value\ of\ Equity_{it} / Book\ Value\ of\ Equity_{it}$
<i>PE_RATIO</i>	$Market\ Value\ of\ Equity_{it} / Net\ Earnings_{it}$
<i>PLWBCK_RATIO</i>	$1 - (Dividends_{it} / Net\ Earnings_{i,t-1})$

4 Empirical Findings

As multicollinearity problem may distort estimated coefficients of independent variables, correlations between the independent variables are examined in Table 2. Highest correlation observed, 0.27, is between *LEV* and *SIZE*. Suggesting that as the size of the firm expands, debt level seems to increase. Other correlations between the explanatory variables are rather low. Although correlations will have some impact on the estimated coefficients, extend of the effect will be limited.

Table 3 below demonstrates the descriptive statistics of variables used in the model. Some of the features displayed in the table are worth to emphasize. The mean and median values for our growth measure labeled as *SALESGRW* are 0.1185 and 0.0796, respectively. As can be seen by the standard deviation of 32.09 %, there is significant dispersion in the growth rates of observed firms. Therefore, the detected outliers are removed from the initial sample. The proxy that captures market growth, which is denoted by *INDGRW*, displays mean and median values of 0.1185 and 0.1027, respectively, with a standard deviation of 10.68 %. The sales figure of the firms that is used to capture firm size has a maximum and minimum of 485,651 and 0.8820 million dollars, respectively, suggesting that our sample consists of both big and small firms. However, it has to be noted that logarithm of sales, not sales in million dollars, is used in the model to control for firm size. Outliers are also detected in our financial leverage proxy measure. *LEV* has a maximum value of 1.8356, whereas the minimum value is calculated to be 0.0663. Other variables with high standard deviations are detected to be *ME_BE*, *PE_RATIO*, and *PLWBCK_RATIO* that proxy for market-to-book, price-to-earnings, and plowback ratio, respectively. Accordingly, outliers in the initial sample with respect to these variables are eliminated as well. Additionally, as this research is only interested in positive sales growth, observations of sales revenue decreases are taken out of the sample. Only observations with positive sales growth rate are included in the panel regressions.

Before choosing the suitable panel regression method to analyze the dataset, several tests are employed (Table 4). Breusch–Pagan Test (Breusch and Pagan 1980) provided evidence for the model's error terms not being independently and identically distributed (Table 4). Thus, pooled OLS regression is not appropriate for the analysis of our data. Consequently, GLS (generalized least squares) estimation is better fitting to our sample which assumes the presence of heteroskedasticity. Hausman Test (Hausman and Taylor 1981) implied a correlation between random effects and regressors (Table 4), suggesting that Fixed Effects Model is better fitting to our dataset in comparisons to Random Effects Model. Redundant Fixed Effects Likelihood Test suggested that two-way effects are observable in the dataset. *F*-test and Chi-square tests rejected the null hypothesis that both time and cross-section effects are redundant. However, cross-section effects are significantly stronger compared to time effects. Firms' growth is better explained by the cross-sectional variation rather than the periodic market conditions.

Table 2 Pearson correlations

	SALESGRW (-1)	INDGRW	SIZE	LEV	CH_PROF	ME_BE	PE_RATIO	PLWBCK_RATIO
SALESGRW (-1)	1.0000	0.1011	-0.12590	-0.11060	0.0303	-0.0064	-0.0174	0.0177
INDGRW	0.1011	1.0000	-0.15170	-0.07310	0.0517	0.0012	0.0297	0.0145
SIZE	-0.1259	-0.1517	1.00000	0.26801	0.0027	-0.0036	-0.0186	-0.0069
LEV	-0.1106	-0.0731	0.26801	1.00000	0.0593	0.0153	-0.0182	-0.0178
CH_PROF	0.0303	0.0517	0.00269	0.05933	1.000	-0.0523	-0.0062	-0.0040
ME_BE	-0.0064	0.0012	-0.00360	0.01529	-0.0523	1.0000	0.0064	-0.0026
PE_RATIO	-0.0174	0.0297	-0.01860	-0.01820	0.0062	0.0064	1.0000	-0.0099
PLWBCK_RATIO	0.0177	0.0145	-0.00690	-0.01780	-0.0040	-0.0026	-0.0099	1.0000

Table 3 Descriptive statistics for the main variables

	Mean	Median	Maximum	Minimum	Std. dev.
SALESGRW (-1)	0.1185	0.0796	8.9889	-0.8329	0.3209
INDGRW	0.1185	0.1027	0.7450	-0.2632	0.1068
SIZE	17,029.01	7075.44	485,651.00	0.8820	35,453.77
LEV	0.5704	0.5762	1.8356	0.0663	0.1873
CH_PROF	0.0037	0.0019	16.0832	-11.2371	0.3516
ME_BE	4.0063	2.8604	1,333.2460	-189.3493	20.3202
PE_RATIO	23.9350	17.8103	10,469.1300	-5431.6080	245.1559
PLWBCL_RATIO	0.5972	0.7450	25.8399	-201.1715	3.9233

Applied tests pointed to fixed cross-section effects model as the suitable panel model to analyze the data. Assuming the presence of cross-section heteroskedasticity, in the analysis, FGLS (Feasible Generalized Least Squares) with fixed cross-sectional effects model is used as the estimation method.

The regression equation estimated is as follows:

$$\begin{aligned}
 SALESGRW_{it} = & \beta_0 + \beta_1 SALESGRW(-1)_{it} + \beta_2 INDGRW_{it} + \beta_3 SIZE_{it} \\
 & + \beta_4 LEV_{it} + \beta_5 CH_{PROF_{it}} + \beta_6 ME_{BE_{it}} + \beta_7 PE_{RATIO_{it}} \\
 & + \beta_8 PLWBCK_{RATIO_{it}} + \varepsilon_{it}
 \end{aligned}
 \tag{1}$$

The model explained 37% of the annual growth in sales as suggested by the adjusted R^2 value (Table 4). Previous year’s growth rate has only 10% positive impact on the current year. We can interpret this finding as that firms’ growth cycles continue (if any exists) at least for 2 years but at a diminishing pace. Firms growing fast in 1 year do not generally slowdown in the subsequent year. As expected, firms’ major driving force for growth is the market they operate in. Market growth is proxied in our model with the industry’s average growth (*INDGRW*). In the dataset, 36% of firms’ growth appears to solely stem from the expansion in the specific market which they operate in. The study also validates that growth decreases with the size of the firm in line with the findings of Rufin (2007), Coad et al. (2016), and Subrahmanya (2015). The dataset included a wide range of company sizes. Reaching high growth rates seems to be more difficult for bigger firms as also suggested by Damodaran (2008).

Capital structure or debt level, which is represented by *LEV* in the model, seems to be immaterial in the determination of growth rate. In other words, firms in S&P500 find sufficient funds without difficulty to grow whenever the growth opportunity emerges. This interpretation is also confirmed by the insignificance of the plowback ratio (*PLWBCK_RATIO*) and in line with the findings of Baumol et al. (1970) and Friend and Husic (1973). Growth rate being independent of how much dividend is paid out to the shareholders also confirms the Modigliani and Miller’s irrelevance of dividends. Modigliani and Miller (Miller and Modigliani 1961) hypothesize that dividends are irrelevant in value determination under perfect market conditions. Accordingly, dividends have to be irrelevant in determination of

Table 4 Results of panel regressions

	Fixed effects (cross-section)	Fixed effects (time)	Fixed effects FGLS (with cross-section weights)	FGLS (cross-section random effects)	FGLS (time random effects)
Dependent variable					
SALESGRW					
Independent variables					
C	0.169626*	0.245358***	0.257207***	0.255224***	0.250227***
SALESGRW (-1)	0.086713**	0.138013***	0.10194***	0.118814***	0.136415***
INDGRW	0.621169***	0.739684***	0.359315***	0.643459***	0.679849***
SIZE	-0.013969	-0.017585***	-0.016191***	-0.017366***	-0.016909***
LEV	0.047287	-0.073429***	-0.015097	-0.06572***	-0.076688***
CH_PROF	0.142945***	0.167817***	0.108085***	0.16232***	0.169072***
ME_BE	-0.00015	-0.000667**	3.41E-05	-0.000422	-0.000625*
PE_RATIO	0.0000725	0.0000616	0.0000362	0.0000558	0.0000558
PLOWBCK_RATIO	-0.002097	0.002797	-0.001849	0.001628	0.002905
Adjusted R-squared	0.326685	0.254908	0.36786	0.226483	0.23897
F Statistics	8.36***	49.05***	9.83***	138.49***	148.53***
Hausman Test, X^2 (prefers fixed effects)				199.21563***	16.25658**
Breusch-Pagan (LM test)				273.2688***	13.1518***
Both sides				286.4207***	
Redundant FE effects likelihood				658.554***	42.755***
Cross-section and time (cross-section effects stronger)				702.545***	

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

the growth rate which is one of the leading value generators in the firm. Change in the profitability level leads to higher growth, as expected. Increase in profitability level generally stems from high market demand which leads to both volume and price increases and eventually to higher profit levels. Higher market growth also means higher growth for the firm.

5 Summary and Conclusion

With 22 years data (between 1993 and 2014) of S&P500 companies, the study attempted to reveal the factors effective on the growth rate of the firm. The study revealed that market growth, increase in profits, and the firm's previous year growth rate positively influenced the current growth rate. Contrarily, it was found that firm's growth rate decreased with the size of the firm. Higher profits retained in the company or market's future growth anticipation (as measured by market-to-book and price-to-earnings ratios) did not apparently translate into higher sales growth, suggesting that the firms in our sample (S&P500 firms) did not face difficulty in financing their growth, and the investors' growth forecast into the future and the realizations are not linked.

Market is the single most important factor of firm growth. Only by operating in a specific industry, firm is already securing more than 1/3 of its growth. Further growth depends on improvements on the profitability level. Thus, profits also play significant role in the determination of the growth rate. In the absence of increase in the profits in the line with the increase in sales revenues, growth will not be sustainable in the long run. Less celebrated, however, is the link between previous year's growth rate and the current year growth rate. It is documented that previous year's growth was positively associated with higher current sales growth, suggesting that growth cycles endures at least for 2 years on average. The study also found a slight negative relationship between size and the growth rate. Apparently, as the firms gets bigger it becomes more difficult to sustain the growth rate. Possibly, bigger companies find it difficult to orchestrate the complex set of components that stimulates growth.

How to achieve higher growth in the firm and what factors are effective on it still remain to be a question. Although we examined it in detail with dataset of more than 200 firms for 22 years, we still do not have a comprehensive answer. We have only explained 37 % of the variation in our data. But for firms that are fortunate to operate in a fast growing market and have the necessary resources to exploit in such an environment, we have identified basic factors that surge growth of the firm. These focused factors that are found to be significant on growth probably constitute a small sample of many possible factors that are effective in reality. Although it is difficult to attribute firm's growth to any one variable, such as the market growth, it is undeniably the leading driver of firm growth. Thus, more important than the overall growth rate in an economy is the growth it triggers in a specific industry.

Accordingly, the most important factor that creates growth for the firm is the existence of growth opportunities in the specific market operated.

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Determinants of Working Capital in Emerging Markets: Do Economic Developments Matter?

Emin Hüseyin Çetenak, Gamze Vural, and A. Gökhan Sökmen

Abstract Previous literature established on the effects of working capital management on firm's profitability or firm value and focused mostly on firm-level determinants of working capital. In this study, we aimed to examine the determinants of working capital management not only at firm level but also industry-country level. Our sample consists of 1253 manufacturing firms across 13 industries from 14 emerging markets between year 2000 and 2014. Our findings indicate that at firm-level variables, return on asset has a negative relationship with working capital while Tobin Q and Altman Z-score have a positive. At industry-country level variables, HH index, exchange rate, Lerner index, and rule of law have a positive relationship with working capital levels while credit from private sector variable has a negative relationship with working capital levels.

1 Introduction

Working capital management plays an important role in the firm's success or failure. This is because there is a significant relationship between corporate strategy and working capital management. Firms with sound working capital policies are in a better position to finance their operating investment, predate on their competitors, and improve their competitiveness. This is especially true for firms operating in economies with inefficient capital markets (Preve and Sarria-Allende 2010).

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Because of the global financial crisis, working capital management has grown in importance. According to International Monetary Fund (IMF), growth in emerging markets and developing economies is projected to increase from 4 % in 2015 to 4.3 and 4.7 % in 2016 and 2017, respectively. In the 3 years following the start of the global financial crises, the largest global economies experienced strong rebound in sales growth.

As mentioned in Price Waterhouse Cooper (PwC) annual working capital survey 2014, since 2011, this growth has decreased considerably, indicating that a return to consistent growth will be harder to achieve in coming years. Although there are many local and global factors affecting a company's ability to growth, both cash and investments are essential to sustaining this growth. Relative to sales, working capital performance has stagnated the period 2008–2014. PwC 2014 annual working capital survey shows that a sample of the largest companies in the world have had to find an additional 500 billion Euros of cash to fund increases in working capital over the last 4 years, meaning that instead of being able to invest in fixed assets, companies have had to invest in working capital.

Much of the previous literature is based on the effects of working capital management on the firm's profitability or value at the firm level. However, macro-economic factors can also influence the efficiency of working capital management. This chapter therefore aims to examine the determinants of working capital management at the firm, industry, and country level. At the firm level, three working capital variables, Return on Asset (ROA), Tobin Q, and Altman Z-score, are examined. At the industry and country level, the variables are Herfindahl index (HH) used as proxy for industry level, Lerner index, inflation rate, credit from private sector, and rule of law index used as proxy for country level.

Our findings indicate that there is a negative relationship between return on assets and working capital. This implies that working capital levels are lower when return on assets is higher. Our results also show that other firm-level determinants, Tobin Q and Altman Z-score, have a positive relationship with working capital. This implies that increases in growth opportunities and distance from bankruptcy will result in firms requiring higher levels of working capital. Our results for the HH index show that HH index has a positive relationship with working capital, which implies that in competitive industries firms have lower working capital levels. Country-level variables, rule of law, exchange rate, inflation rate, and Lerner index, have a positive relationship with working capital levels, while credit from private sector is negatively related to working capital levels. These results imply that higher inflation, higher exchange rates, higher Lerner index, and higher rule of law index will result in higher levels of working capital, while higher credit from the private sector will result in lower working capital levels. Overall, our findings indicate that in addition to firm-level determinants, industry- and country-level determinants influence firm's working capital levels as well.

The remainder of this chapter is laid out as follows: Sect. 2 presents the empirical literature; Sect. 3 presents the research methodology, data, and discusses the result from the analysis; and finally, Sect. 4 concludes.

2 Literature

Firms need to invest in current assets as well as long-term assets in order to start and continue their operations. Working capital is defined as current assets minus current liabilities (Preve and Sarria-Allende 2010). It is the net position of a firm's liquid assets. In another way, it is the portion of current assets that is financed with long-term funds. In this regard, the financing of working capital is obtained via higher cost long-term funds rather than short-term funds. The firm is required to tie some of its higher cost long-term funds to current assets to establish liquidity and financial strength, even though this results in a slight decrease of profitability. Therefore, operating at the optimum working capital level becomes crucial for obtaining the poise among liquidity–risk–profitability and composes a healthy balance sheet.

It is also important to account for the changes in working capital needs stemming from increased fixed investment as a result of a firm's strategic plans. The feasibility of additional fixed investment should only be considered after taking into account the balance-sheet effect of additional funding required for operations and its costs. Consequently, management should foresee the financial requirements of a proposed operational strategy accurately, i.e., determine the level of working capital that is required for the expected growth and corresponding investment in operational assets (Preve and Sarria-Allende 2010, p. 116). At the same time, the given objective of matching asset and liability maturities implies that the firm should estimate the permanent increase in financial needs for operations and find a way to increase its working capital. Remembering that the additional working capital financing should come from long-terms funds, access to capital markets and hence the level of financial markets' development in the country in which the firm operates becomes very important. Unfortunately, due to the lack of efficient financial markets with enough liquidity in some countries, firms have difficulty achieving the targeted working capital level and have to pass on some feasible strategic investments or plans (Preve and Sarria-Allende 2010, p. 118–119). In this respect, a link between strategic targets, working capital management, and financial market development can be established.

In the real world, especially in inefficient markets, access to financial sources harbors asymmetric information problems. Lowering of the asymmetries in the information possessed by investors and borrowers and increasing of the efficiencies and liquidity in the financial markets should lead to better access to long-term funds for all firms. Sound working capital policies become increasingly important in markets where access to capital markets is limited. Therefore, the level of development of the financial markets in the economy in which the firm operates constitutes an important base for attaining the optimum working capital level.

As the level of development of financial markets' increase, access to funds should become easier, i.e., financing constraints should decrease. In the face of financing constraints, external funds, albeit obtainable, may come with high transaction costs, agency problems, and asymmetric information problems, rendering

such funds costlier than internal funds (Fazzari and Petersen 1993, p. 328–329). Efficient working capital management, leading up to internal funds available for investment, should also lower the burden of financing constraint on fixed investments (Ding et al. 2013).

Caballero et al. (2009) said that in the face of financing constraints, working capital investment starts to compete with fixed investments for the available pool of finance. They also determined that efficient working capital management depends on bargaining power, availability of internal funds, cost of financing, and access to capital markets.

Eisner and Strotz (1963) argued that investment smoothing should be the preferred firm behavior because the marginal cost of raising capital increases as the rate of investment increases. Evidence from small but economically important estimates suggests that firms would prefer to invest steadily. Financing constraints will make it more difficult to fund the variability in cash flows via external funds at moderate costs and hinder firms from investment smoothing. When faced with financing constraints, firms tend to correct the shocks in cash flow resulting from fixed investment through adjustments in working capital.

It should also be noted that macroeconomic conditions affect the firm's working capital requirements and its way of financing these needs, as well. For example, under monetary constraints the asymmetries in the financial markets tend to increase, and larger firms may enjoy a greater access to financing compared to smaller firms. Firms with better access to financing may have an incentive to offer trade credit and gain competitive advantage. Firms with market power may squeeze suppliers for longer payment terms, which would decrease their financing need for operations. Essentially, monetary conditions affect both the operational funding needs and working capital (Preve and Sarria-Allende 2010, p. 136).

Previous studies on working capital management have focused mostly on the relationship between working capital management and firm performance (e.g., Deloof 2003; Gill et al. 2010; Shin and Soenen 1998; Uyar 2009; Al-Mwalla 2012; Eljelly 2004; Falope and Ajilore 2009; Lazaridis and Tryfonidis 2006; Teruel and Solano 2007). Several studies have examined the effect of factors on working capital management (e.g., Pandey and Parera 1997; Chiou et al. 2006; Mongrut et al. 2007; Nazir and Afza 2009; Lotfinia et al. 2012; Abbadi and Abbadi 2013).

Pandey and Parera (1997) using Sri Lanka data to examine working capital in private sector manufacturing companies found that private sector Sri Lankan manufacturing companies have informal working capital policies and that firm size is a major determinant of working capital management.

Chiou et al. (2006) use factors affecting working capital management at the firm, industry, and country levels to investigate determinants of working capital management during the period 2000–2005. They find that leverage and operating cash flow are significantly related to working capital requirement and that industry, growth opportunity, firm performance, and firm size have no effect on working capital management.

Nazir and Afza (2009) studied on Pakistani firms. They examined internal and external factors that affect working capital levels. They found that operating cycle, leverage, ROA and Tobin's Q are the internal factors which are influencing the working capital requirements significantly.

Abbadı and Abbadı (2013) studied on 11 industrial companies for 8 years (2004–2011) in Palestine. It is found that the cash conversion cycle, return on asset, and operating cash flow are significant determinants and positively related to the working capital requirements. They found negative relationship between leverage and firm size with working capital requirements. Economic variables such as interest rate and real GDP growth rate have no significant impact on the working capital. It is mentioned that the results are consistent with previous studies for other countries such as Jordan, Brazil, Pakistan, India, Greece, Thailand, Cyprus, and Sri Lanka.

Mongrut et al. (2007) studied on nonfinancial companies from Argentina, Brazil, Chile, Mexico, and Peru for the period 1996–2008. Results show that the industry cash conversion cycle, the company market power, its future sales, and country risk have an influence on the way Latin American companies manage their working capital with significant differences among countries in the region.

Mättö and Niskanen (2014) focused on whether the rule of law or capital market development can explain observed differences in working capital levels in small- and medium-sized enterprises (SMEs) from 13 EU countries. Their findings indicate that the legal score has a negative impact on working capital measured with the cash conversion cycle, working capital to total assets, and accounts receivable. They found that countries with safer legal systems have lower working capital levels. They also found that firms operating in a market-based capital system as opposed to bank-based system have better opportunities to manage their working capital.

Firms operating in countries with larger and more stable financial systems have a lower incentive to keep higher level of working capital, but firms located in countries with inefficient capital markets will finance current assets with short-term debt. This poses the risk that at some point the amount of funds required would become larger than the level allowed by the bank, which could lead the firm into financial distress or even bankruptcy (Preve and Sarria-Allende 2010).

As we discussed in the literature above, several studies have focused on determinants of working capital management at both firm level and industry-country level in developing countries. There is a gap in the working capital literature analyzing the industry-country level factors such as HH index, exchange rates, Lerner Index, inflation rate, credit from private sector, and rule of law which are affecting the working capital levels of nonfinancial firms in developing countries. This chapter contributes to literature by analyzing the working capital management and its determinants at both firm level and industry-country level in developing countries.

3 Methodology

3.1 Data, Sample, and Descriptive Statistics

Our initial sample consisted of 2456 nonfinancial firms from 14 emerging markets between the years 2000 and 2014. Details of the initial sample can be seen in Appendix (Table 3). Because of heterogeneity problems arising from industrial diversity, we focused only on manufacturing firms, whose SIC codes range between 2000 and 3900. As a result, the data we used in our analyses ended up consisting of 1253 firms, nested across 13 industries from 14 emerging countries. Owing to dataset's nested structure, we used multilevel mixed-effects linear regression model procedure in Stata, by controlling for firm, industry, and country level characteristics. This type of multilevel data structure may cause several violations when using standard OLS regression (Kayo and Kimura 2011: 363) such as correlated errors, biased estimates of coefficient standard errors, and wrongfully interpreting the results and significance of the predictor variables (Mihet 2013). In finance literature, dummy variables are often used in order to cope with these violations and control the effect of multilevel classes such as country or industry. But few studies have investigated multilevel determinants of dependent variables that characterize rather than classify (Kayo and Kimura 2011).

Within multilevel framework, Multilevel Mixed Models allow to test multilevel (industry or country level) theories simultaneously. In addition, with multilevel models we can control unbalanced data easily. For example, if the number of firms varies widely across industries or countries, with multilevel fixed model approach we can detect all of those multilevel effects separately. Furthermore, via multilevel mixed models we can add cross-level interactions into a model, and by doing so, we can see not only firm, industry, or country effects but also their cross-level interactions (Mihet 2013).

In this study, we analyze two levels of working capital determinants in 14 emerging economies. The first level in our study is the "firm," while the second level is "industry-country" combination. We used industry and country classifications in the same level because it is reasonable to suppose that firms operating in the same industry-country have similar behavior regarding working capital application. On the other hand, time ("year") is both at the fixed part of our model and in the nested part within industry-country cluster with random slope. By doing so, we assume that "year" has both fixed and random effects with respect to industry-country level. We didn't add "year" as a third level into the model because the effects of the sum of country-industry variables might be very similar to those of the "year." Our model has basically random intercept. We also assumed that all of our firm-level variables have random slope which are affected by industry-country factors. The basic model we fit in this study is shown below:

$$\begin{aligned} \text{WORKING CAPITAL}_{i,j} = & \beta_0 + \beta_{1i}\text{ROA}_{i,j} + \beta_{2i}\text{TOBQ}_{i,j} + \beta_{3i}\text{ALTMAN} - Z_{i,j} \\ & + \beta_{4i}\text{YEAR}_{i,j} + \beta_5\text{HH}_{i,j} + \beta_6\text{EXRATE}_{i,j} + \beta_7\text{LERNER}_{i,j} \\ & + \beta_8\text{INFLATION}_{i,j} + \beta_9\text{CREDIT}_{i,j} + \beta_9\text{ROL}_{i,j} + u_i + e_{i,j} \end{aligned}$$

where i denotes industry–country combination and j denotes firm. Additionally, u_i , and $e_{i,j}$, random error terms represent the variance, respectively, across industry–country and firm–industry–country, which are normally distributed with zero mean and σ^2 variance. Our dependent variable is working capital, while return on assets, Tobin’s Q ratio, and Altman’s Z-score are the firm-level determinants of working capital. While Herfindahl index is industry-level determinant, exchange rate, Lerner index, inflation rate, and credit provided from financial sector are country-level determinants.

Based on the literature review presented in the previous section, we will test the following hypotheses:

- H_1 : Firms’ profitability effects firm’s working capital level.
- H_2 : Firms’ growth opportunities affect firms’ working capital level
- H_3 : Firms’ risk or distance from bankruptcy effects their working capital investment
- H_4 : Competition in the industry effects firms’ working capital level
- H_5 : Exchange rate effects firms’ working capital level
- H_6 : Competition in the banking industry effects firms’ working capital investment
- H_7 : Inflation ratio effects firms’ working capital investment level
- H_8 : There is a relationship between credit markets’ activities and firms’ working capital investment behavior
- H_9 : Efficiency of legal system effects firms’ working capital investment behavior by favoring contracting.

The data used in the analysis are given in Table 1. In order to calculate firm-level variables, income statement and balance sheet items were used. Firm-level variables and HH index were calculated by the authors of this chapter. Macroeconomic variables were obtained directly from World Bank. Income statement and balance sheet items are taken from Datastream database. Table 1 also presents definition, source, and descriptive statistics of each variable used.

3.2 Results

Table 2 shows the results of our two-level model with random slope and random intercept. Except “intercept” and “year” variables, all of our independent variables are significant. The firm-level variables “return on assets” and “one-lag return on assets” both have a negative relationship with working capital and both of them are significant at 1% level. Our findings indicate that there is a negative relationship between return on assets and working capital. This implies that working capital

Table 1 Definition of variables and descriptive statistics

Variables	Description	Source	Mean	SD
Dependent variable				
Working capital	Working capital was calculated by dividing the difference between a firm's current assets and account payable to the firm's total asset	Datastream	0.388	0.211
Firm-level variables				
Return on asset	Profitability of the firm was calculated by dividing EBIT to total assets	Datastream	0.070	0.501
Tobin Q	Firm's growth opportunity was calculated by dividing sum of firm's market value and total debt to the firm's total assets	Datastream	1.726	3.80
Altman Z-score	Risk or distance from bankruptcy score was calculated by following Mackie-Mason's (1990) modified Altman's Z-score formula where $Z = 3.3(\text{EBIT}/\text{Total Assets}) + 1.0(\text{Sales}/\text{Total Assets}) + 1.4(\text{Retained Earnings}/\text{Total Assets}) + 1.2(\text{Working Capital}/\text{Total Assets})$	Datastream	1.815	1.638
Industry-level variables				
HH index	Herfindahl index (also known as Herfindahl–Hirschman Index), namely, competition ratio, was calculated as the sum of the squares of the firms' market shares within each industry	Datastream	0.174	0.094
Country-level variables				
Exchange rate	Official exchange rate (Local Currency per US \$, period average)	World Bank	1167.5	3101.4
Lerner index	Measure of market power in the banking market. It is defined as the difference between output prices and marginal costs (relative to prices). Higher values of the Lerner index indicate less bank competition	World Bank	0.255	0.154
Inflation rate	Inflation, consumer prices (annual %)	World Bank	6.591	8.760
Credit from private sector	Domestic credit provided by the financial sector includes all credit to various sectors on a gross basis (% of GDP)	World Bank	86.032	42.80
Rule of law index	Rule of law index captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular, the quality of contract enforcement, property rights, the police, and the courts	World Bank	0.136	0.535

levels are lower when return on assets is higher. Tobin Q and Altman Z-score have positive coefficients and are significant, respectively, at 5 % level and 1 % level. This implies that increases in growth opportunities and distance from bankruptcy will result in firms requiring higher levels of working capital. Industry-level competition HH variable also has a positive and significant relationship with working capital.

Country-level variables “rule of law,” “exchange rate,” “inflation rate,” and Lerner index have positive coefficients, while “credit from private sector” variable

Table 2 Determinants of working capital investment

Variables	Working capital
Intercept	0.8367 (0.430)
Year	-0.00027 (0.602)
<i>Firm-level variables</i>	
Return on assets	-0.1247 (0.000)
Return on assets L1	-0.0050 (0.010)
Tobin Q	0.0090 (0.041)
Altman Z-score	0.0642 (0.000)
<i>Industry-level variables</i>	
HH index	0.0793 (0.000)
<i>Country-level variables</i>	
Exchange rate	0.000837 (0.049)
Lerner index	0.0271 (0.016)
Inflation rate	0.0009 (0.004)
Credit from private sector	-0.0004 (0.001)
Rule of law index	0.07511 (0.000)
<i>Random-effect parameters</i>	
indcountry: Independent	Estimate/Std. Err.
sd(roa)	0.14997/0.03035
sd(q)	0.01911/0.00435
sd(z)	0.04149/0.00595
sd(year)	3.89e-08/1.35e-07
sd(_cons)	0.10331/0.01464
id: Identity	
sd(_cons)	0.135651/0.004322
sd(Residual)	0.095628/0.0010357
<i>LR test vs. linear regression:</i>	chi2(6) = 4898.47/Prob > chi2 = 0.0000
<i>Number of obs</i>	15.253
<i>Wald chi2(11)</i>	138.90 (0.000)

Note: Dependent variable is working capital; independent variables, year, roa, to bq, and z, have both fixed and random coefficients according to industry-country level; *p* values are in parenthesis

has negative. These results imply that higher inflation, higher exchange rates, higher Lerner index, and higher rule of law index will result in higher levels of working capital, while higher credit from the private sector will result in lower working capital levels.

4 Conclusion

The aim of this study is to determine the factors that affect working capital levels in developing countries. Firms which are located in developing countries have more opportunity to sort out any deviation in the gap between FNOs and working capital,

and thus have a lower incentive to keep high levels of working capital for precautionary reasons (Preve and Sarria-Allende 2010). Firms which are located in developing countries with inefficient capital markets will most likely use short-term debt to finance the gap between FNOs and working capital. The amount of funds raised by the short-term debt can be larger than the level allowed by the banks, and this can cause financial distress or even bankruptcy for the firm.

In this study, determinants of working capital were examined both at the firm level and the industry-country level. At firm level, results show that there is a negative relationship between ROA and working capital levels. This implies that firms with higher ROA will need less working capital. Increase in the asset yield could allow companies to continue to operate with less working capital due to more stable cash flow and a more flexible liquidity position.

Another firm-level variable, Tobin Q, which is the proxy of growth opportunities, has a positive relationship with working capital level. This implies that firms with higher growth opportunities will need higher level of working capital for the future. The last firm-level variable for this study is the Altman Z-score of the firms, which is a proxy of financial distress. Higher Altman Z-score implies a lower probability of insolvency. There is a positive relationship between Altman Z-score and working capital level. This implies that higher Altman Z-score will lead to higher levels of working capital or vice versa.

At industry level, only Herfindahl index variable was analyzed to obtain the effect of competition in the industry on working capital levels. We found a positive relationship between HH index and working capital level. This translates into higher level of competition leading to lower level of working capital. HH index ranges from 0 to 1. Increases in the index generally indicate a decrease in competition and an increase of market power, whereas decreases indicate the opposite. Based on our results, we can conclude that, in competitive industries, firms make less working capital investments. This indicates that they cannot make extra profit by using working capital management tools; thus, they prefer to operate at optimal working capital level.

At country level, we analyzed five variables. The first country-level variable is exchange rate. We found a positive relationship between exchange rate and working capital level. This can be interpreted as such: increase in the value of a dollar against local currency will increase working capital levels of the firms. There can be two reasons for this. One is increase in the dollar's value against local currency can lead to a higher inflation rate. The other is increase in the dollar's value causes an increase in export sales resulting in an increase in current assets for firms with high levels of export. Second, the country-level variable is inflation, and it has a positive relationship with the working capital level. This suggests that working capital levels of firms will increase when higher inflation rate occurs.

The third country-level variable is "credit from private (financial) sector" as a percentage of GDP. We found a negative relationship between credit from financial sector and working capital levels. This implies that a decrease of credit from the financial sector will lead to increased levels of working capital for the firms because firms will have to finance each other via trade receivables. Our results suggest that there is a substitution between credit from financial institutions and sale credits.

When financial institutions don't support manufacturing firms, manufacturing firms substitute credit from financial institutions with trade credit and make more trade credit agreements between the parties. These agreements lead to an increase in working capital levels. Firms get more flexibility in funding when there is an increase in lending from the finance sector. This kind of flexibility would cause a significant drop at firms' current assets.

Fourth country-level variable is Lerner Index, which shows the market power in the banking market. Higher level of Lerner Index means less competition or excessive profit in banking market. We found a positive relationship between Lerner Index and working capital level. Excessive profits in banking sector are an evidence of inefficient financial markets. Results of Lerner index also point out the substitution mentioned above. In the case of excessive banking profits, companies turn to alternatives other than bank loans. As a result, it is expected to lead to an increase in trade credits and also working capital.

Last country-level variable is rule of law index. Rule of law index reflects quality and power of the legal system in a country. We found a positive relationship between the rule of law index and working capital level. This result basically implies that a higher rule of law index will lead to higher levels of working capital for the firms. If the legal system is working well, companies will be able to make more agreements among themselves safely, and this will lead to more working capital investment.

Appendix

Table 3 Country list analyzed and initial observation per country

Country	Observation
Argentina	59
Brazil	119
Chile	111
Egypt	108
Greece	143
Indonesia	275
Israel	218
Malaysia	537
Mexico	73
Philippines	115
Poland	289
Romania	48
South Africa	156
Turkey	205
Total	2456

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Liquidity Position and Working Capital Adequacy of Companies in Turkey: Outlook from Industry Financial Statements

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Abstract This chapter aims to give detailed information especially about liquidity and working capital positions of Turkish companies. In addition to the liquidity, detailed analysis about profitability and debt structure is conducted. The adequacy of a company's working capital depends on the industry in which it competes and its relationship with its customers, suppliers, and the macroeconomic environment the company operates in.

Due to the need of industrial view, differently from the other studies which generally focus on listed companies, this study uses industry financial statements released by Central Bank of Turkey. The data belong to the period between 2009 and 2014.

In short, in this study the importance of liquidity is addressed and also the relationship between the liquidity and working capital adequacy is highlighted from an industrial perspective.

The results indicate poor liquidity, receivable dependence, predomination of debt, inconstant net working capital turnover, and low profitability especially in the crisis period. Thereto this, manufacturing-related industries have higher liquidity and profitability.

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1 Introduction

Analysis of companies' financial positions has a critical importance in financial management. Especially liquidity and working capital standings play the major role in the decomposition. The reason of the analysis is crude that the company will be solvent if it is value creating and will encounter solvency problems if it is a value destroying (Vernimmen et al. 2009).

Working capital management focuses both on current assets and current liabilities. The size of those accounts varies from firm to firm due to type of business or from industry to industry due to industry standards. Some companies have to hold large size of inventory such as hotels and retailers. But, large investment in inventory, account receivable, or cash creates opportunity cost due to the fact that those sources could be used more effectively in other investments (Berk and DeMarzo 2007).

This study aims at interpreting the current financial position of the all industries whose financial data have been collected by the Central Bank of Turkey with a special emphasis on liquidity and working capital.

The contributions of the paper are twofold:

The first section gives information about previous studies, second section explains data and findings, and the last section concludes.

2 Previous Studies

Working capital is a vital indicator for the liquidity, solvency, efficiency, and overall performance of the company. Working capital has a direct relation with profitability, so does the value of the company (Smith 1980). The finance literature mainly concentrates on the relationship between liquidity and profitability. Shin and Soenen (1998), Deloof (2003), Eljelly (2004), Lazaridis and Tryfonidis (2006), Rahemen and Nasr (2007), Rahemen et al. (2010), Gill et al. (2010), Sharma and Kumar (2011), and Saleem and Rehman (2011) investigated a negative relationship between liquidity and profitability. In their study, Shin and Soenen (1998) found a strong negative relation between the length of the company's net trading cycle and profitability measures by using a large sample of American firms during 1975–1994. They also included the effects of different liquidity levels on profitability. Deloof (2003) conducted a study on a sample of 1009 Belgian firms for the period 1992–1996 and determined a negative relationship between the gross operating income and the number of days accounts receivable, inventories, and accounts payable as the indicators of trade credit and inventory policies. Eljelly (2004) examined the relationship between liquidity and profitability in terms of current ratio and cash conversion cycle by using correlation and regression analysis on Saudi Arabia companies. He found a negative relationship and emphasized that cash conversion cycle is a more important measure for liquidity than the current

ratio. Lazaridis and Tryfonidis conducted their study on 131 listed companies in Athens Stock Exchange and found a significant relationship between profitability and working capital management. Their observations showed that lower gross operating profit is related with an increase in the number of days for accounts payable. They also suggested that accounts receivable, accounts payable, and inventory should be carried to an optimum level in order to generate higher profits. Rahemen and Nasr (2007) selected 94 Pakistani firms listed on Karachi Stock Exchange as a sample during the years 1999–2004. They have determined their main variables as average collection period, inventory turnover in days, average payment period, cash conversion cycle, current ratio, and searched their effects on net operating profitability by using Pearson's correlation, pooled least square, and general least square. Their control variables are debt ratio, size of the company, and financial assets/total assets ratio. They found a significant negative relationship between liquidity and profitability, and also between debt used and profitability, while a positive relationship between size (natural logarithm of sales) and profitability. Gill et al. (2010) repeated the studies of Lazaridis and Tryfonidis (2006) and Rahemen and Nasr (2007) by using a sample of 88 firms listed on New York Stock Exchange for the period 2005–2007. They also found a significant relationship between the cash conversion cycle and profitability. In another study, Rahemen et al. (2010) analyzed the effect of working capital management on firm performance on a sample of 204 Pakistani firms listed on Karachi Stock Exchange for the period 1998–2007. Their results indicated that cash conversion cycle, net trade cycle, and inventory turnover in days had a significant effect on firm performance. They also determined that financial leverage, sales growth, and company size had a significant effect on profitability. They suggested that effective policies should be generated for each component of working capital. In contrast to all of the above studies, Sharma and Kumar (2011) investigated a positive relationship between working capital and profitability through the data achieved from Bombay Stock Exchange on a sample of 263 nonfinancial firms for the period 2000–2008 by using OLS multiple regression. Their results indicated a negative relationship between number of days for inventory, accounts payable and profitability but a positive relationship with accounts receivable and cash conversion cycle. Saleem and Rehman (2011) investigated the relationship between liquidity and profitability through the analysis of the effect of liquidity ratios on ROA, ROE, and ROI. Their results demonstrated a significant effect only on ROA.

Different operations in different industries require different degrees of liquidity achieved through working capital (Mueller 1953). There are limited studies in the literature that investigated the relationship between working capital and profitability with an industry perspective. Chu et al. (1991) compared the hospitals' financial ratios with the other industrial firms and found a significant difference between ratios. Weinraub and Visscher (1998) investigated 10 different industries and highlighted the relationship between aggressive and conservative working capital policies. They stated that there is a significant difference between industries. Wang (2002) examined the relationship between liquidity and operating performance for Japan and Taiwan companies. The results showed a negative relationship between

cash conversion cycle and ROA-ROE which are found to be sensitive to industry factors. Filbeck and Krueger (2005) analyzed 32 nonfinancial industries in USA and found significant differences in working capital practices across time between industries. Afza and Nazir (2008) examined the relationship between aggressive and conservative working capital policies for 17 industrial groups within a sample of 263 companies listed in Karachi Stock Exchange for the period 1998–2003 by using ANOVA and LSD tests. They found significant differences among industries in their working capital and financing policies. Şen and Oruç (2009) conducted a different study in Istanbul Stock Exchange and concentrated on the relationship between efficiency level of working capital management and return on total assets only. They only found a significant relationship in chemistry and textile sectors.

All of the above studies emphasize the importance of liquidity, working capital management, and the profitability. In the following part, an empirical study will be conducted in order to provide an industrial perspective for working capital issues.

3 Analysis and Empirical Findings

3.1 Data and Methodology

The main object of this investigation is to deeply analyze the financial position of the sectors with a special emphasis on liquidity and working capital for the period from 2009 to 2014. Those are the industries whose financial statements have been collected by the Central Bank of Turkey (CBRT) every year regularly. Although the CBRT has started collecting financial statements since 1990s, the sector names and classification were slightly different before 2009. Thus, the analysis covers the period after 2009 in order to have a completely and correctly comparable data and finishes in 2014 which is the latest year on the web site.

CBRT collects financial statements of various companies from 18 industries. These are agriculture, forestry, fishing (1); mining and stone reserves (2); manufacturing (3); production and distribution of electricity, gas, vaporization, and climatization (4); water procurement, sewage, waste management, and amendment activities (5); construction (6); wholesale and retail trade repair of vehicles and motorcycles (7); transportation and storage (8); accommodation and food service activities (9); information and telecommunication (10); activities of holding companies (11); real estate activities (12); occupational, scientific, and technical activities (13); administrative and supporting service activities (14); education (15); health and social service activities (16); culture, art, entertainment, leisure and sport (17); and other service activities (18). CBRT prepares consolidated financial statements of each sector combining collected data of all companies in each sector.

Consolidated financial statements are employed for ratio calculation. Basically, eleven financial ratios indicating especially liquidity and working capital position are used (Table 1).

Table 1 Financial position indicators

Ratio 1	Current assets/current liabilities
Ratio 2	(Current assets-inventory)/current liabilities
Ratio 3	(Cash and cash equivalents + marketable securities)/current liabilities
Ratio 4	Account receivables/current assets
Ratio 5	Account receivables/total assets
Ratio 6	Total liabilities/total assets
Ratio 7	Equity/total liabilities
Ratio 8	Net sales/working capital
Ratio 9	Net sales/net working capital
Ratio 10	Net income/equity
Ratio 11	Net income/total assets

3.2 Analysis on Year Basis

Descriptive statistics are given in Table 2. Inferences are explained hereafter under specific headlines.

3.2.1 Liquidity

Ratio 1 Current assets are greater than current liabilities at mean in all years, but unfortunately lower than the critical foregone value “2.” The highest range and standard deviation values are recorded in 2012, showing the existence of great difference between liquidity positions of the industries. Maximum values are generally higher than “2,” which indicates the inefficient use of current assets. On the other hand, minimum values are lower than 1, and this is an indicator of insolvency.

Ratio 2 Mean values are equal or very close to “1” in all years except year 2013. Similar to the Ratio 1, this ratio signals poor liquidity position especially for the period between 2011 and 2013. Although the largest range is recorded 2011, the highest standard deviation belongs to 2009, indicating the presence of the highest differentiation among industries.

Ratio 3 Cash ratio is the most unaided liquidity ratio that shows the payment ability of the company in case of not being able to collecting receivables and selling inventories. The industries are able only covering less than 50 % of their current liabilities without their receivables and inventory, and their payment ability has been decreasing gradually in 2011, 2012, and 2013. According to the table, all industries can pay only 26.4 % of their current liabilities, if they face any difficulty related to conversion of receivables or inventory into cash. The lowest and highest differentiations among industries are seen in 2014 and 2009, respectively. Another striking inference is decreasing standard deviation values in the last 3-year period,

Table 2 Descriptive statistics

		Range	Min.	Max.	Mean	Std. Dev.
Ratio 1	2009	128.10	84.20	212.30	133.8833	36.55245
	2010	156.80	96.40	253.20	143.3944	42.01692
	2011	178.80	91.20	270.00	141.0944	42.33197
	2012	201.80	83.10	284.90	130.5833	43.96653
	2013	156.50	85.20	241.70	127.4611	35.32137
	2014	114.30	85.40	199.70	124.9778	27.14184
Ratio 2	2009	130.10	70.30	200.40	113.1222	42.30537
	2010	127.10	62.90	190.00	108.4167	39.89711
	2011	143.20	55.70	198.90	95.7389	33.75612
	2012	117.10	53.00	170.10	92.2444	28.35656
	2013	78.00	66.30	144.30	90.2500	21.82347
	2014	129.50	55.60	185.10	104.4056	38.45862
Ratio 3	2009	100.60	6.70	107.30	36.7389	29.94218
	2010	111.20	9.40	120.60	42.8056	35.26068
	2011	92.20	11.20	103.40	38.7500	30.61974
	2012	79.40	13.80	93.20	31.8611	20.00439
	2013	45.40	14.20	59.60	29.5500	11.60082
	2014	39.60	12.60	52.20	26.4389	10.46294
Ratio 4	2009	62.50	23.70	86.20	44.8389	15.36011
	2010	62.60	19.30	81.90	43.6111	16.72898
	2011	43.40	26.20	69.60	43.0000	13.28312
	2012	48.10	23.90	72.00	45.2722	12.36484
	2013	38.80	25.00	63.80	44.0389	11.06617
	2014	41.30	26.20	67.50	46.3500	10.57974
Ratio 5	2009	47.80	2.80	50.60	19.2278	11.24146
	2010	43.90	2.70	46.60	18.7389	10.73593
	2011	27.40	3.60	31.00	17.8111	8.48153
	2012	22.80	9.20	32.00	18.0444	6.77410
	2013	24.60	8.30	32.90	17.8278	5.82255
	2014	25.60	7.80	33.40	18.8778	5.82344
Ratio 6	2009	60.30	19.20	79.50	52.5222	18.72999
	2010	67.30	16.30	83.60	52.2722	19.21886
	2011	76.70	15.00	91.70	54.3611	20.81357
	2012	51.90	26.70	78.60	54.7500	17.48227
	2013	52.90	31.10	84.00	58.9167	17.23120
	2014	48.60	36.50	85.10	61.4444	15.72343
Ratio 7	2009	395.70	25.70	421.40	126.0111	113.67930
	2010	495.30	19.60	514.90	130.8000	125.74301
	2011	556.10	9.00	565.10	127.8500	137.59948
	2012	247.60	27.30	274.90	108.5944	88.55807
	2013	202.10	19.10	221.20	88.6444	70.23172
	2014	156.00	17.60	173.60	75.2722	52.82187

(continued)

Table 2 (continued)

		Range	Min.	Max.	Mean	Std. Dev.
Ratio 8	2009	2.60	0.30	2.90	1.6000	0.73003
	2010	2.90	0.20	3.10	1.6000	0.81746
	2011	3.00	0.10	3.10	1.7167	0.80677
	2012	2.80	0.20	3.00	1.7944	0.85782
	2013	2.60	0.10	2.70	1.6389	0.75704
	2014	2.90	0.10	3.00	1.7278	0.81588
Ratio 9	2009	93.10	-9.50	83.60	20.4500	28.51137
	2010	85.20	-53.00	32.20	4.8800	22.23300
	2011	172.50	-18.30	154.20	20.7900	47.87420
	2012	178.40	-79.80	98.60	13.5400	44.51792
	2013	30.10	5.70	35.80	12.8700	9.30711
	2014	91.60	5.60	97.20	19.4400	27.62846
Ratio 10	2009	26.00	-11.40	14.60	4.8389	6.16862
	2010	37.40	-17.50	19.90	5.4778	7.86553
	2011	120.20	-95.90	24.30	-3.6056	24.82035
	2012	36.90	-12.90	24.00	7.6889	7.94406
	2013	36.10	-19.10	17.00	3.4667	8.10548
	2014	35.80	-10.60	25.20	4.9333	7.81394
Ratio 11	2009	11.00	-2.30	8.70	2.3944	2.80073
	2010	17.10	-2.90	14.20	3.1000	3.66285
	2011	25.40	-8.00	17.40	1.0222	5.34642
	2012	20.00	-5.70	14.30	3.2111	3.97949
	2013	18.70	-7.30	11.40	1.6944	4.00036
	2014	10.10	-3.50	6.60	1.5333	2.51794

which indicates that cash ratio levels of the industries have been getting closer, and there are no noteworthy differences among industries in terms of cash positions.

Ratio 4 Roughly 50% of current assets are short-term receivables in the mean. Current assets heavily depend on receivables. Accordingly, any drawback in conversion of receivables into cash puts the company to trump. Minimum and maximum values infer that at least 20% of current assets are short-term receivables, and there are some industries whose 70 or 80% recomprised from short-term receivables. High dependence of current assets on short-term receivables is a damaging liquidity indicator.

Ratio 5 Approximately, 20% of total assets are short-term receivables. No big fluctuations are observed during the analysis period. Standard deviation and range both have the highest value in 2009, most probably because of the world financial crisis and difficulty of receivable collection. Furthermore, the minimum values prove that some industries heavily make sale for cash, and receivables are not that much substantial.

3.2.2 Debt Structure

Ratio 6 At least 50 % of assets in observed industries are financed by outsources (debt), not by company's own resources. Mean values have been rising after 2010 by increasing the dependence of companies and industries on debt. The year 2011 witnessed the highest alteration among industries with the highest standard deviation level.

Ratio 7 Mean values are in a downward trend, although the highest mean is observed in 2010. Maximum and minimum values indicate the existence of different industries with close-to-the-ground debt and equity level. Downward trend of standard deviation values refer the convergence of the ratio among analyzed industries.

3.2.3 Activity

Ratio 8–9 These ratios give information about how effectively the company utilizes its working capital. Effectiveness of the industries is quite stable for the analysis period. Capturing the lowest values in 2009 and 2010 is not a surprise as those are global financial crisis years. Industries used their working capital most effectively in 2012.

Interestingly, the highest net working capital turnover rate is recorded in 2011 and 2009. On the other hand, the lowest rate is seen in 2010. Mean values are unsteady. All maximum values are positive, and only the last 2 years' minimum values are positive. Negative values in the minimum column are remarkable especially for the after-crisis period. The striking point is the exorbitant range values in 2011 and 2012.

3.2.4 Profitability

Ratio 10 All mean values are positive except 2011. The highest and lowest ROE is caught in 2012 and 2011, respectively. Mean values are very close to each other. Range and standard deviation are at the maximum in the year 2011, indicating the great unsteadiness.

Ratio 11 Mean values are positive and close to each other, and the highest and the lowest values are observed in 2012 and 2011 as well, respectively. Similar to ROE, all minimum values are negative showing the net loss position of some industries. Standard deviation levels are quite similar though standard deviation in 2011 is the highest.

Table 3 Sector rankings

Ratio 1	2009	10	2	11	5	3	7	8	1	15	12	16	6	14	13	18	4	17	9
	2010	2	10	11	5	12	3	1	8	7	15	13	6	16	18	14	4	9	17
	2011	2	10	11	5	8	3	7	12	1	15	4	6	17	18	13	16	14	9
	2012	2	4	5	3	10	7	8	11	6	1	18	12	13	14	9	15	16	17
	2013	2	5	10	3	4	8	1	7	8	7	11	13	18	9	16	14	12	17
Ratio 2	2014	2	13	3	10	6	1	7	8	5	18	4	9	12	11	16	14	17	15
	2009	10	2	11	5	8	15	4	3	6	17	7	16	13	18	14	1	12	9
	2010	2	11	10	5	8	15	4	18	6	3	13	7	17	16	12	14	9	1
	2011	2	10	11	5	8	17	4	15	18	13	6	3	7	16	14	9	1	12
	2012	2	4	11	5	10	8	6	18	13	3	7	15	16	9	1	14	17	12
Ratio 3	2013	2	4	11	10	8	13	5	6	3	16	7	9	15	1	17	18	14	12
	2014	2	13	10	11	6	8	4	3	7	9	5	16	1	15	18	12	14	17
	2009	10	11	2	5	15	3	12	7	8	9	1	13	18	14	18	6	17	4
	2010	11	2	10	15	5	12	9	3	7	1	13	13	7	8	14	6	17	4
	2011	11	10	2	15	5	18	5	10	12	1	3	13	7	8	14	4	16	17
Ratio 4	2012	2	11	15	9	18	5	10	3	13	8	1	7	12	6	4	16	17	14
	2013	2	15	11	9	5	13	8	10	3	16	4	1	18	17	7	6	12	14
	2014	13	15	9	2	11	10	3	8	1	16	12	7	18	17	4	6	14	5
	2009	4	8	18	16	13	11	5	14	7	3	17	2	15	9	10	1	6	12
	2010	4	8	16	18	5	13	7	14	3	9	15	10	11	2	17	1	6	12
Ratio 5	2011	4	16	18	8	14	13	5	7	3	9	11	10	2	15	1	17	6	12
	2012	4	16	17	13	8	5	10	11	14	7	18	3	9	15	2	12	1	6
	2013	4	11	8	16	13	10	17	14	7	5	3	2	9	12	1	18	15	6
	2014	11	4	16	5	10	17	8	14	7	2	13	3	9	18	1	12	15	6
	2009	4	18	8	7	13	3	16	14	2	1	6	15	17	5	11	10	9	12
2010	4	7	8	18	13	16	3	14	2	6	1	5	10	15	11	17	9	12	
2011	4	7	18	3	14	16	8	13	2	6	1	10	11	17	9	5	15	12	

(continued)

Table 3 (continued)

	2012	7	4	18	14	3	8	2	16	1	17	13	6	5	10	11	15	12	9
	2013	7	3	14	4	2	18	8	1	16	13	10	6	17	5	11	12	9	15
	2014	7	14	3	18	2	1	11	16	10	5	8	17	6	13	4	12	9	15
Ratio 6	2009	17	6	4	13	14	7	16	1	18	9	8	3	12	15	2	10	11	5
	2010	17	6	13	14	4	7	16	9	18	1	3	8	12	10	15	2	11	5
	2011	17	6	13	14	16	7	9	4	1	3	18	8	12	10	2	15	11	5
	2012	18	13	14	6	7	16	12	1	9	3	17	8	4	15	10	11	5	2
	2013	13	18	14	16	6	7	12	9	3	1	17	4	8	15	2	11	5	10
	2014	13	18	14	16	6	7	12	9	17	1	3	4	8	15	11	2	10	5
Ratio 7	2009	5	11	10	2	15	12	3	8	9	18	1	16	7	14	13	4	6	17
	2010	5	11	2	15	10	12	8	3	1	18	9	16	7	4	14	13	6	17
	2011	5	11	15	2	10	12	8	18	3	1	4	9	7	16	14	13	6	17
	2012	2	5	11	10	15	4	8	17	3	9	1	12	16	7	6	14	13	18
	2013	10	5	11	2	15	8	4	17	1	3	9	12	7	6	16	14	18	13
	2014	5	10	2	11	15	8	4	3	1	17	9	12	7	6	16	14	18	13
Ratio 8	2009	14	7	18	13	16	3	9	17	10	15	1	8	12	2	5	4	6	11
	2010	14	7	18	13	16	3	17	9	5	15	10	1	8	2	4	12	6	11
	2011	7	18	14	8	5	16	13	3	9	17	15	4	1	10	2	12	6	11
	2012	18	7	14	16	8	5	17	13	3	10	9	4	15	1	2	6	12	11
	2013	7	14	8	16	5	18	13	17	10	3	4	15	9	1	2	6	12	11
	2014	5	7	8	16	14	4	17	18	13	3	10	15	9	1	2	6	12	11
Ratio 9	2009	4	18	13	14	16	7	15	12	3	1	8	6	10	5	2	11	9	17
	2010	14	18	16	4	13	7	15	3	8	1	5	10	6	2	12	11	17	9
	2011	14	16	18	13	7	17	4	8	15	3	5	1	12	6	10	2	11	9
	2012	9	14	13	18	7	8	12	5	10	3	1	4	6	2	11	17	15	16
	2013	16	9	18	13	7	8	5	10	3	4	1	6	2	11	12	15	17	14
	2014	16	4	5	18	7	8	9	10	13	3	1	12	2	11	6	15	17	14

Ratio 10	2009	8	2	6	7	15	3	4	18	14	12	1	11	9	16	13	5	10	17
	2010	2	18	7	4	3	6	15	11	1	14	5	12	9	8	16	10	13	17
	2011	2	18	3	7	5	13	11	10	15	4	6	1	12	9	8	14	16	17
	2012	13	2	6	18	3	16	9	5	1	7	11	14	4	8	12	15	10	17
	2013	2	18	5	11	6	3	14	15	1	7	13	4	8	12	10	16	9	17
	2014	13	3	2	18	6	1	9	14	11	7	15	5	8	16	12	10	4	17
Ratio 11	2009	2	8	15	3	7	11	12	18	6	4	1	14	9	16	13	10	5	17
	2010	2	11	15	18	3	7	4	1	5	6	12	14	9	8	16	10	13	17
	2011	2	18	5	3	11	7	10	13	15	4	6	1	12	9	14	8	16	17
	2012	2	5	13	11	3	9	6	1	16	4	18	7	8	14	12	15	10	17
	2013	2	5	11	3	18	15	6	14	1	7	4	13	8	12	16	10	9	17
	2014	2	3	13	11	1	6	15	9	18	5	7	14	8	16	12	10	4	17

3.3 *Analysis on Industry Basis*

After determining characteristics of data with annual descriptive statistics in terms of each ratio, ranking and correlation methods are utilized for further analysis. First of all, sectors are ranked from highest to lowest year by year for each ratio in order to interpret financial positions of the sectors and compare them with the rest. In the second part, correlation of annual sector rankings with base year ranking is analyzed for all calculated ratios separately. Results of the first step are shown in Table 3.

Mining and stone reserves has the highest current ratio in almost all years except 2009. Information and telecommunication and activities of holding companies are the other industries with high liquidity. On the other hand, culture, art, entertainment, leisure and sport; accommodation and food service activities; and education are the industries with the lowest current ratio which might live liquidity problem.

Acid-test results are similar with current ratio. Mining and Stone Reserves has the highest ratio in all years other than 2009, and it is followed by Information and Telecommunication and activities of holding companies. Divergently, real estate activities industry has the lowest ratio, which is followed by administrative and supporting service activities and accommodation and food service activities.

Top three industries in cash ratio are activities of holding companies; mining and stone reserves; and information and telecommunication. The higher the cash ratio is, the lower the payment difficulty is. The industries with the lowest cash ratios and at the same time the industries in illiquid position are culture, art, entertainment, leisure and sport; administrative and supporting service activities; and construction.

Production and distribution of electricity, gas, vaporization, and climatization industry highly depends on receivables according to the highest account receivables-to-current-assets. Health and social service activities; activities of holding companies; and transportation and storage are also the other industries with high dependence on receivables. On the other side, construction and real estate activities are the industries in safe in terms of receivable dependence.

Production and distribution of electricity, gas, vaporization, and climatization and wholesale and retail trade repair of vehicles and motorcycles have the highest Account Receivable-to-Total Asset ratio. The industries whose total assets do not highly depend on receivables are real estate activities, accommodation and food service activities, and education.

Culture, art, entertainment, leisure and sport; occupational, scientific, and technical activities; and other service activities precipitously finance their companies with debt. But, water procurement, sewage, waste management and amendment activities; activities of holding companies; information and telecommunication; and mining and stone reserves are financed by equity.

Administrative and supporting service activities; wholesale and retail trade-repair of vehicles and motorcycles; and other service activities have higher working capital ratios which indicate the efficient use of working capital in sales generation.

Contrarily, activities of holding companies industry is the industry with the lowest efficiency, and that is followed by construction; and real estate activities.

Administrative and supporting service activities; and health and social service activities have the highest efficiency in terms of net working capital. As distinct from working capital, the industries having low efficiency are accommodation and food service activities; administrative and supporting service activities; and culture, art, entertainment, leisure and sport. The most striking change is seen in administrative and supporting service activities industry; it has dramatically decreased its efficiency especially in 2013 and 2014.

Mining and stone reserves and occupational, scientific, and technical activities have the highest ROE. Any change in the industry with the lowest has not been observed, the tail ender is the culture, art, entertainment, leisure and sport industry.

Ranking is stable for the industries having the highest and lowest ROA. Mining and stone reserves industry is the most profitable in terms of assets and unfortunately culture, art, entertainment, leisure and sport industry is the least profitable.

3.4 Ranking Correlations

Ranking correlations give information about stability of the ranking among industries and besides indicate the stability of such financial policies as liquidity, debt, and working capital (Table 4).

The highest stability is seen in current ratio rankings of the industries. There are significant correlations among annual rankings of the industries. None of the ranking correlations are significant for acid-test ratio. Only rankings of 2010 and 2011, and 2013 and 2014 for cash ratio are significantly correlated. 2009 and 2010, 2009 and 2012, and 2011 and 2012 rankings of accounts-receivable-to-current-assets are significantly correlated. Accounts-receivable-to-total-assets ranking correlations for 2010 and 2011 and 2013 and 2014 are significant. Rankings of debt structure ratios for the years 2010 and 2014, 2011 and 2012, 2011 and 2013, and 2012 and 2013 are significant. Working capital turnover ratios for 2009 and 2010, 2009 and 2012, 2010 and 2012, 2012 and 2014, and 2013 and 2014 are statistically significantly correlated. Correlations between 2009 and 2012, 2010 and 2012, 2010 and 2013, 2012 and 2013, 2012 and 2014, and 2013 and 2014 are significant for net working capital turnover. For ROE, only correlations between 2010 and 2013, and 2011 and 2013 are significant. On the other hand, ranking correlations between 2009 and 2013, 2009 and 2014, 2010 and 2012, and 2012 and 2014 are statistically significant.

Table 4 Nonparametric correlation analysis

		2009	2010	2011	2012	2013	2014
Ratio 1	2009	1.000					
	2010	0.404*	1.000				
	2011	0.121	0.567**	1.000			
	2012	0.207	0.348	0.311	1.000		
	2013	0.461*	0.517**	0.432*	0.631***	1.000	
	2014	0.168	0.470**	0.703***	0.220	0.472**	1.000
Ratio 2	2009	1.000					
	2010	0.020	1.000				
	2011	0.133	0.342	1.000			
	2012	-0.092	0.368	-0.015	1.000		
	2013	0.205	0.115	-0.009	0.123	1.000	
	2014	0.276	-0.112	0.135	-0.061	0.284	1.000
Ratio 3	2009	1.000					
	2010	0.181	1.000				
	2011	-0.125	0.416*	1.000			
	2012	0.154	-0.148	-0.201	1.000		
	2013	0.084	-0.127	0.123	0.156	1.000	
	2014	0.273	0.102	0.187	-0.079	0.540**	1.000
Ratio 4	2009	1.000					
	2010	0.676***	1.000				
	2011	0.096	-0.115	1.000			
	2012	0.428*	0.026	0.457*	1.000		
	2013	-0.018	-0.296	0.249	0.232	1.000	
	2014	0.280	-0.185	0.366	0.253	0.377	1.000
Ratio 5	2009	1.000					
	2010	0.042	1.000				
	2011	0.183	0.416*	1.000			
	2012	-0.319	0.337	0.115	1.000		
	2013	-0.350	-0.121	0.015	0.018	1.000	
	2014	0.319	0.115	-0.257	0.013	-0.465*	1.000
Ratio 6	2009	1.000***					
	2010	0.362	1.000***				
	2011	0.335	-0.108	1.000			
	2012	0.234	0.168	0.408*	1.000		
	2013	0.110	-0.005	0.544**	0.488**	1.000	
	2014	0.313	0.732***	-0.127	0.269	0.377	1.000
Ratio 7	2009	1.000					
	2010	0.362	1.000				
	2011	0.335	-0.108	1.000			
	2012	0.234	0.168	0.408*	1.000		
	2013	0.110	-0.005	0.544**	0.488**	1.000	
	2014	0.313	0.732***	-0.127	0.269	0.377	1.000

(continued)

Table 4 (continued)

		2009	2010	2011	2012	2013	2014
Ratio 8	2009	1.000					
	2010	0.624***	1.000				
	2011	-0.226	0.253	1.000			
	2012	0.585**	0.701***	-0.055	1.000		
	2013	0.143	-0.148	-0.003	0.282	1.000	
	2014	0.379	0.218	-0.307	0.408*	0.595***	1.000
Ratio 9	2009	1.000					
	2010	0.379	1.000				
	2011	0.125	0.300	1.000			
	2012	0.503**	0.540**	0.354	1.000		
	2013	0.191	0.422*	0.294	0.626***	1.000	
	2014	0.034	0.110	0.005	0.531**	0.579**	1.000
Ratio 10	2009	1.000					
	2010	0.049	1.000				
	2011	-0.036	0.368	1.000			
	2012	-0.183	0.061	-0.100	1.000		
	2013	-0.067	0.618***	0.484**	0.100	1.000	
	2014	0.362	-0.141	-0.028	0.309	0.360	1.000
Ratio 11	2009	1.000					
	2010	0.090	1.000				
	2011	0.257	0.015	1.000			
	2012	0.055	0.593***	0.137	1.000		
	2013	0.690***	0.119	0.205	-0.042	1.000	
	2014	0.558**	0.315	0.079	0.585**	0.063	1.000

***, **, and * denote 1, 5, and 10 % statistically significance, respectively

4 Conclusion

This study tries to determine especially liquidity and working capital structure of the industries whose financial statements have been collected by CBRT. In order to analyze the financial position of those industries, eleven ratios indicating liquidity, debt structure, activity, and profitability are taken into consideration.

The analysis has been conducted in a tripod methodology: the analysis on year basis, the analysis on industry basis, and correlation analysis. The results indicate that liquidity position according to the mean values is poor, and unfortunately it has been getting worse gradually. Another liquidity finding is receivable dependence. Hence, the industries might face insolvency in case of receivable collection problems. The industries generally prefer debt financing instead of equity. Additionally, the weight of debt has been increasing. Working capital turnover rates are stable, as though they are very low especially during the crisis period. On the other hand, net working capital turnover rate is unsteady. 2012 is positively a remarkable year according to the profitability indicators. Furthermore, mining and stone reserves industry is the most striking industry with the highest liquidity and profitability measures.

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Determinants of Corporate Cash Holdings: Firm Level Evidence from Emerging Markets

Elif Akben-Selcuk and Ayse Altiok-Yilmaz

Abstract The objective of this chapter is to investigate the factors affecting corporate cash holdings in five emerging markets, namely Brazil, Indonesia, Mexico, Russia, and Turkey. The sample consists of 1991 firms listed on the major stock exchange of their countries and covers the period between 2009 and 2015. The model is estimated by Arellano–Bond dynamic generalized method of moments. Results show that firms which use higher leverage in their capital structure hold more cash. More profitable firms are shown to have higher levels of cash holdings. Another variable which has a positive effect on the level of cash holdings in any given period is the level of cash holdings in the previous period as shown by the positive and significant coefficient of the lagged dependent variable in the model. Liquidity and firm size have a negative and statistically significant impact on the level of corporate cash holdings. Firms with higher level of capital expenditures are also shown to hold less cash. Finally, growth opportunities do not have a significant impact on the level of cash holdings for the firms in the emerging markets analyzed.

1 Introduction

The reasons why companies choose to hold cash received growing attention in the finance literature over the last years because holding cash is costly. In a world without information asymmetry, taxes, transaction, and agency costs, the amount of cash holdings would not have an impact on firm value or shareholder wealth since firms can easily borrow from the capital markets any time when they need funds to

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finance their projects (Opler et al. 1999; Stiglitz 1974). Yet, several studies document that firms throughout the world choose to allocate a sizeable amount of their assets to cash and cash equivalents (Saddour 2006). A high level of cash may indicate agency problems between a firm's managers and shareholders. Jensen (1986) argues that excess free cash flow may generate agency costs, in case management does not act in the interest of shareholders because managers may hold excess cash in order to be more flexible to pursue their own objectives. Firms may hold cash to meet future opportunities but meanwhile, they may have to trade off positive NPV projects. Thus, large investment in cash may cause agency problems between a firm's management and shareholders and may decrease firm value (Al-Najjar 2013; Jensen 1986). Therefore, the specific reasons why companies hold cash need close examination.

The majority of the earlier studies on the determinants of cash holdings have focused on developed countries. This chapter attempts to contribute to the literature by investigating the factors affecting cash levels in a sample of companies from five emerging markets, namely, Brazil, Indonesia, Mexico, Russia, and Turkey. Investigating the topic in emerging markets is important because firms' financial decisions depend on their institutional context (Coase 1937). In contrast to developed countries such as USA or UK, emerging market countries suffer from a variety of market failures and inefficiencies which give rise to agency problems or higher bankruptcy costs (Khanna and Palepu 2000). These factors have a significant impact on companies' cash holding decisions; hence, it is important to test the validity of previously obtained empirical findings in the context of emerging markets.

The rest of the chapter continues as follows. Section 2 provides an overview of the theoretical and empirical literature on the factors affecting cash holdings in both developed and developing countries. The estimation methodology is elaborated in Sect. 3. Results are presented in Sect. 4. The final section concludes.

2 Literature Review

In this section, we first focus on two theories to explain the determinants of cash holdings, on which we base our research questions in the following section. Next, empirical studies related to the factors affecting cash holdings in several developed and developing countries are discussed.

2.1 *Theoretical Background*

The theories related to corporate cash holdings are generally traced back to Miller and Orr (1966) who developed "the trade-off theory" which basically suggests that optimal level of cash holdings is determined by a trade-off between the marginal

costs and marginal benefits of holding cash. Liquid assets reduce the risk, minimize the transaction costs, but at the same time they have lower return. The benefits of holding cash basically depend on two motives: minimizing the transaction costs and precautionary motives (Opler et al. 1999). Related to the transaction costs, the theory suggests firms hold cash because raising funds from outside sources and capital markets is costlier compared to the existing cash (Ozkan and Ozkan 2004). Also transaction costs are even higher for the firms that have less access to capital markets and that are not closely monitored (Opler et al. 1999). The precautionary motive suggests that even if companies have an access to capital markets, they still may not choose to raise funds from capital markets because of the market issues and underlines the effect information asymmetry in raising funds (Al-Najjar 2013). Also as another benefit of holding cash in terms of risk reduction is mentioned by Ferreira and Vilela (2004). They argue that probability of financial distress because of unexpected losses decreases by the increase in cash holdings. The ability of the trade-off theory in explaining the cash holding decision of the companies has been empirically tested in both developed countries and emerging markets (Al-Najjar and Belghitar 2011; Demirgüç-Kunt and Maksimovic 2001; Ferreira and Vilela 2004; Opler et al. 1999; Ozkan and Ozkan 2004). The researchers try to explain the cash holding decisions with the variables of leverage, firm size, dividend policy, liquidity, and risk.

The trade-off model of cash holdings (Miller and Orr 1966) is typically opposed to the pecking order theory by Myers and Majluf (1984), which argues that there is no optimal level of cash holdings for the company (Myers 1984; Myers and Majluf 1984). The theory suggests that firms finance their new investments first with internal cash, then debt and lastly with equity in order to minimize costs related to asymmetric information (Myers and Majluf 1984). In this theory, cash is considered as a low cost financing for the companies. Different variables have been used by researchers as determinants of cash holdings to test this theory. Al-Najjar and Belghitar (2011) use leverage and profitability whereas Ferreira and Vilela (2004) use size and cash flow to empirically test this theory.

2.2 Empirical Studies

The amount and determinants of cash holdings have been one of the mostly researched topics in the empirical finance literature especially after 1990s. The majority of previous studies consider the data from developed countries. Most of the studies are conducted by using the USA data (Bates et al. 2009; Dittmar and Mahrt-Smith 2007; Foley et al. 2007; Martinez-Sola et al. 2013; Opler et al. 1999; Tong 2011).

Opler et al. (1999) by using the US publicly traded firms' data between 1971 and 1994 investigate the determinants and implications of cash holdings of cash and marketable securities by using the time-series and cross-section tests. They find

evidence supportive of a static tradeoff model of cash holdings. Dittmar and Maht-Smith (2007), by using the data of US publicly traded firms from 1990 to 2003, investigate the effect of corporate governance on firm value through its impact on cash policy. They find that corporate governance has an important impact on firm value through its impact on cash policy. Foley et al. (2007) with the sample of firms over the period 1982–2004 find a negative relationship between the firm's tax rate and its cash holdings. Tong (2011) studies the effect of firm diversification on the value of corporate cash holdings. Bates et al. (2009) argue that the US firms average cash ratio doubled from 1980 to 2006. They find a positive relationship between the riskiness of cash flows and the cash ratios, whereas they find no evidence supporting that an agency conflict leads to an increase in the cash balances.

Ozkan and Ozkan (2004) examine the determinants of cash holdings, and Al-Najjar and Belghitar (2011) investigate the relationship between dividend policy and cash holdings by using the UK data, whereas Ferreira and Vilela (2004) conducted their study within an EMU data. Garcia-Teruel and Martinez-Solano (2008) in their study related to the cash holdings use Spanish SMEs data.

The studies which use data from multiple countries include those by Dittmar et al. (2003), Guney et al. (2003), and Ramirez and Tadesse (2009). Dittmar et al. (2003) use an international sample of 45 countries. They include Brazil and India but not China or Russia in their sample in analyzing the corporate governance impact on cash holdings. Ramirez and Tadesse (2009) aim to develop a cross-sectional times series model across 49 countries to investigate the extent to which culture impacts cash holdings. Guney et al. (2003) examine cash holdings in different countries including Japan, France, Germany, and the USA. They show that firms with strong shareholder protection are in a better position to hold lower levels of cash.

Determinants of the corporate cash holdings are one of the mostly discussed subjects in these empirical studies and the independent variables that are used in these studies are mainly:

Firm Size Miller and Orr (1966) argue that economies of scale in cash management lead larger firms to hold less cash than smaller firms. Researchers generally find a negative relationship between the firm size and cash holdings (D'Mello et al. 2008; Fazzari and Petersen 1993; Ferreira and Vilela 2004; Kim et al. 1998; Opler et al. 1999; Ozkan and Ozkan 2004; Rajan and Zingales 1995). The explanation for this negative relationship in the literature is either the better access of larger firms to capital markets (Fazzari and Petersen 1993; Kim et al. 1998; Ozkan and Ozkan 2004) or the diversification of larger firms making them less vulnerable to financial distress (Rajan and Zingales 1995; Titman and Wessels 1988).

Leverage There are different findings related to the relationship leverage and cash holdings in the literature. Some scholars, such as Ferreira and Vilela (2004), who find a positive relationship argue that highly levered companies hold more cash because of the higher default risk. The researchers who find a negative relationship argue that there is a negative relationship between leverage and cash holdings because leverage can be used as a bonding mechanism to decrease the agency

costs caused by the free cash flow problem (Bates et al. 2009; D'Mello et al. 2008; Hardin et al. 2009; Kim et al. 1998; Opler et al. 1999; Ozkan and Ozkan 2004).

Liquidity In the literature generally findings suggest a negative relationship between liquidity and firm's cash holdings (Ferreira and Vilela 2004; Hardin et al. 2009; Ozkan and Ozkan 2004). Firms having more noncash liquid assets tend to hold less cash.

Dividend Policy There are contradictory findings for the dividend and cash holding relationship. There are results with positive relationship (Opler et al. 1999), negative relationship (Bates et al. 2009), and with no significant relationship (Al-Najjar and Belghitar 2011; Ferreira and Vilela 2004; Ozkan and Ozkan 2004).

Investment Opportunities Most previous empirical studies suggest that there is a positive relationship between investment opportunities and cash holdings (Bates et al. 2009; Ferreira and Vilela 2004; Hardin et al. 2009; Kim et al. 1998; Opler et al. 1999; Ozkan and Ozkan 2004). This can be explained by the precautionary motive concept in trade-off theory (Bates et al. 2009; Hardin et al. 2009; Ozkan and Ozkan 2004).

Capital Expenditures There are contradictory findings related to the capital expenditure effect on the cash holdings. Bates et al. (2009) found a negative relationship between capital expenditures and cash holdings whereas Opler et al. (1999) and Riddick and Whited (2009) suggest that firms with higher capital expenditure tend to hold more cash.

3 Methodology

3.1 Sample Selection

Bloomberg is used as the primary database for the analyses. The countries of interest are the ones classified as "emerging and growth leading economies (EAGLEs)" by the *Banco Bilbao Vizcaya Argentaria (BBVA)* research. This classification is chosen because of its dynamic nature in that countries included in the classification are required to have expected incremental GDPs greater than the average for the G6 economies. China and India are eliminated from the sample since the database contains a disproportionately high number of companies from these countries and results would dominate the entire sample. The remaining countries are Brazil, Indonesia, Mexico, Russia, and Turkey. The period of analysis spans from 2009 to 2015.

The major stock exchanges that we use for these five countries are Bovespa, Jakarta, Mexican, Moscow, and Istanbul stock exchanges. We base our analysis on companies listed on these exchanges, and financial companies are excluded due to the distinct nature of their financial statements. The final dataset includes

Table 1 Distribution of the companies in the sample

Year	Brazil	Indonesia	Mexico	Russia	Turkey	Total
2009	252	343	93	597	235	1521
2010	208	361	96	590	253	1508
2011	208	376	98	586	273	1541
2012	211	381	98	598	303	1591
2013	209	381	99	706	306	1701
2014	216	381	101	717	304	1719
2015	210	375	98	599	303	1585

319 companies from Brazil, 386 companies from Indonesia, 114 companies from Mexico, 850 companies from Russia, and 322 companies from Turkey. Due to missing observations for some companies, firms which stop being listed on the major stock exchange of their country, or firms newly becoming public, the data is unbalanced. The distribution of the sample according to the years and countries is summarized on Table 1 below. As can be seen, the highest number of observations was achieved in 2014 with 1719 companies while the lowest number was recorded in 2010 with 1508 companies.

3.2 Variables

Given the objective of the study, cash ratio (CASH) computed as the ratio of a company's cash and cash equivalents to its total assets is employed as the dependent variable in our analyses. Based on previous literature, the following variables are included as potential determinants of cash holdings. First, we include the leverage ratio (LEV) calculated as the ratio of total debt to total assets. Profitability is measured by the return on assets (ROA) computed as the ratio of net income to total assets. We also include a company's liquidity ratio (LIQ) calculated by dividing its most liquid assets to its current liabilities. Growth opportunities are captured by the Tobin's Q (TQ) which is measured as the market value of equity plus the book value of debt, divided by the book value of assets. The level of investments is proxied by the ratio of capital expenditures to net sales (CAPEX). The final variable which is included into the analysis is firm size (SIZE) measured by the natural logarithm of total assets.

Based on previous literature, we expect the independent variables to have the following signs: Regarding the effect of leverage, the pecking order theory suggests a negative relationship between debt levels and cash holdings simply because as firms' internal funds increase, their leverage falls. The prediction of the trade-off theory is inconclusive: On the one hand, the firm's current leverage ratio acts as a proxy for its ability to borrow in the future. Hence, highly leveraged firms will hold less cash. On the other hand, debt increases the probability of bankruptcy, so firms with more debt will have a higher level of cash holdings. Based on these, the

direction of the association between leverage and cash holdings cannot be assessed a priori.

According to pecking order theory, less profitable firms hold less cash and use debt for financing. Hence, we anticipate a positive association between ROA and cash holdings. Firms with more liquid assets can easily convert these assets into cash. This is also in line with the trade-off theory which suggests that other liquid assets are substitutes for cash. Therefore, we expect a negative relationship between liquidity and cash holdings. Regarding growth opportunities, both the trade-off theory and the pecking order theory suggest that firms with more growth opportunities are more likely to hold cash. Hence, we anticipate a positive association between Tobin's Q and CASH variables. The sign of the CAPEX variable cannot be assessed a priori. According to trade-off theory, a positive relationship between cash holdings and investments is expected because firms hold cash to avoid the costs of external borrowing and be able to undertake profitable projects. However, under the pecking order theory, firms use their accumulated cash to finance their investments so that as the level of investments increases cash holdings decrease.

We also do not predict the sign of the association between firm size and cash holdings. The trade-off theory suggests a negative relation between these two variables. Small firms tend to hold more cash because the cost of external borrowing is higher and they face a higher probability of financial distress. Moreover, larger firms need less cash due to economies of scale. On the other hand, the pecking order theory suggests a positive relationship between firm size and cash holdings simply because larger firms have a higher scale of operations and thus have more cash.

3.3 Estimation

Using the variables introduced in the previous section, the following model will be estimated to investigate the determinants of corporate cash holdings.

$$\begin{aligned} \text{CASH}_{it} = & \beta_0 + \beta_1 \text{CASH}_{it-1} + \beta_2 \text{LEV}_{it} + \beta_3 \text{ROA}_{it} + \beta_4 \text{LIQ}_{it} + \beta_5 \text{TQ}_{it} \\ & + \beta_6 \text{CAPEX}_{it} + \beta_7 \text{SIZE}_{it} + \varepsilon_{it} \end{aligned} \quad (1)$$

where CASH_{it} , LEV_{it} , ROA_{it} , LIQ_{it} , TQ_{it} , CAPEX_{it} , and SIZE_{it} denote the cash ratio, leverage ratio, return on assets, liquidity ratio, Tobin's Q, and size for firm i in year t , respectively, CASH_{it-1} denotes the lagged value of the dependent variable, while ε_{it} denotes the error term.

Since the lagged value of the dependent variable is included among the regressors, ordinary least squares estimates will be inconsistent due to correlation between CASH_{it-1} and the error term. In addition, potential endogeneity problems may arise if factors which affect cash holdings also affect some of the independent

Table 2 Correlation matrix

	LEV	ROA	LIQ	TQ	CAPEX	SIZE
LEV	1					
ROA	-0.3286	1				
LIQ	-0.4052	0.2553	1			
TQ	-0.1129	0.2808	0.0879	1		
CAPEX	0.1044	-0.0235	-0.0318	0.0036	1	
SIZE	0.0736	0.1916	-0.0789	0.0755	0.0296	1

variables. For these reasons, we estimate the model by applying the Arellano–Bond (1991) generalized method of moments (Bigelli and Sánchez-Vidal 2012).

To control for industry effects and different macroeconomic conditions, industry dummies and country dummies are included in the model. To control for outliers, we winsorize all the variables at the 5th and 95th percent for their distributions (Campbell et al. 2008). To address potential heteroscedasticity, robust standard errors developed by White (1980) will be reported. Table 2 shows the correlation matrix among the independent variables. As can be seen, all correlations are below 0.7; hence, multicollinearity is not a concern (Lehmann et al. 1988).

4 Results

The descriptive statistics on our variables for each country and for the total sample are displayed in Table 3 below. According to these statistics, companies in our sample have relatively low levels of cash holdings as represented by 8% of total assets in Brazil, 9% in Indonesia, 7% in Mexico, 4% in Russia, and 8% in Turkey. Cash holdings as a percentage of total assets record a mean value of 7% for the entire sample.

Estimation results which are displayed in Table 4 below show that several firm-specific factors significantly affect corporate cash holdings. First, firms which use higher leverage in their capital structure hold more cash. Second, the positive and statistically significant coefficient of the ROA variable indicates that more profitable firms have higher levels of cash holdings. Another finding that emerges from our analysis is that firms having higher amounts of alternative liquid assets have less cash and cash equivalents. Investments and firm size also have a negative and statistically significant impact on the level of cash holdings. Finally, the level of cash holdings is positively related to its value in the previous period as given by the positive and statistically significant coefficient of the lagged dependent variable. Growth opportunities measured by Tobin's Q do not have a statistically significant impact on the level of cash holdings.

Table 3 Descriptive statistics

Variable	Obs	Mean	Std. dev.	Min	Max	Obs	Mean	Std. dev.	Min	Max	
	Brazil										
CASH	1442	0.0785	0.0770	0.0006	0.2734	2414	0.0942	0.0872	0.0006	0.2734	
LEV	1430	0.2804	0.1833	0.0000	0.6453	2394	0.2525	0.1972	0.0000	0.6453	
ROA	1441	0.0320	0.0752	-0.1329	0.1874	2393	0.0445	0.0751	-0.1329	0.1874	
LIQ	1442	1.8305	1.3422	0.4012	7.0955	2401	1.9603	1.6624	0.4012	7.0955	
TQ	1297	1.4893	0.8241	0.6267	3.7432	1906	1.5911	0.9203	0.6267	3.7432	
CAPEX	1318	0.0877	0.1062	0.0008	0.3960	2367	0.1012	0.1202	0.0008	0.3960	
SIZE	1385	7.1641	1.8270	3.1769	12.7286	2368	11.5873	3.7534	3.1769	14.9788	
	Russia										
CASH	678	0.0742	0.0633	0.0006	0.2734	4078	0.0435	0.0617	0.0006	0.2734	
LEV	671	0.2593	0.1719	0.0000	0.6453	3986	0.2239	0.2126	0.0000	0.6453	
ROA	679	0.0335	0.0609	-0.1329	0.1874	4079	0.0319	0.0773	-0.1329	0.1874	
LIQ	679	2.0071	1.4054	0.4012	7.0955	4076	2.0873	1.7872	0.4012	7.0955	
TQ	581	1.5422	0.6795	0.6267	3.7432	1154	1.1367	0.6134	0.6267	3.7432	
CAPEX	669	0.0758	0.0924	0.0008	0.3960	3143	0.0676	0.0877	0.0008	0.3960	
SIZE	678	9.1887	1.7923	3.1769	13.7037	4039	8.0285	2.0513	3.1769	14.9788	
	Total sample										
	Turkey										
CASH	1879	0.0812	0.0850	0.0006	0.2734	10491	0.0687	0.077683	0.0006	0.2734	
LEV	1864	0.2216	0.1898	0.0000	0.6453	10345	0.2402	0.199776	0	0.6453	
ROA	1877	0.0291	0.0768	-0.1329	0.1874	10469	0.0344	0.075655	-0.133	0.1874	
LIQ	1880	2.0767	1.7030	0.4012	7.0955	10478	2.0158	1.667089	0.4012	7.0955	
TQ	1732	1.4068	0.7429	0.6267	3.7432	6670	1.4406	0.80407	0.6267	3.7432	
CAPEX	1758	0.0781	0.1022	0.0008	0.3960	9255	0.0817	0.103359	0.0008	0.396	
SIZE	1861	5.3432	1.7537	3.1769	11.1529	10331	8.3207	3.22332	3.1769	14.979	

Table 4 Empirical results

	Coef.	Std. err.	<i>z</i>	Sign.	[95 % conf. interval]	
CASH _{<i>t</i>-1}	0.3752	0.0361	10.39	***	0.3044	0.4460
LEV	0.0444	0.0131	3.4	***	0.0188	0.0700
ROA	0.0630	0.0197	3.2	***	0.0244	0.1016
LIQ	-0.0130	0.0012	-11.08	***	-0.0153	-0.0107
TQ	0.0014	0.0024	0.59		-0.0033	0.0061
CAPEX	-0.0586	0.0141	-4.17	***	-0.0861	-0.0311
SIZE	-0.0050	0.0031	-1.64	*	-0.0110	0.0010
Constant	0.0599	0.0284	2.11	**	0.0042	0.1157
<i>N</i>	4156					
Wald chi ² (7)	304.09					
Prob > chi ²	0					

***, **, and * denote significance at 1, 5, and 10 %, respectively

5 Conclusion

The objective of this chapter was to investigate the determinants of corporate cash holdings five emerging markets, namely Brazil, Indonesia, Mexico, Russia, and Turkey. We used data from 1991 public firms for the period between 2009 and 2015. The model was estimated by Arellano–Bond dynamic generalized method of moments, and estimations results showed that several firm-specific factors significantly affect corporate cash holdings and that both the trade-off and pecking order theories play a significant role in explaining the cash holdings for firms in emerging markets.

First, firms which use higher leverage in their capital structure hold more cash. This is in line with the trade-off theory and suggests that highly leveraged firms may choose to hold high amounts of cash in order to avoid potential bankruptcy costs which are even higher in the case of emerging markets. Second, in line with pecking order theory, more profitable firms are shown to have higher levels of cash holdings. As anticipated, another finding that emerges from our analysis is that firms having higher amounts of alternative liquid assets have less cash and cash equivalents. Investments have a negative effect on cash holdings. In line with pecking order theory, this finding suggest that firms use their accumulated cash to finance their investments so that as the level of investments increases cash holdings decrease. Our results also point to a negative association between firm size and cash levels. This is consistent with the trade-off theory which suggests that small firms tend to hold more cash because the cost of external borrowing is higher and they face a higher probability of financial distress. Finally, the level of cash holdings is positively related to its value in the previous period as given by the positive and statistically significant coefficient of the lagged dependent variable. Growth opportunities measured by Tobin's Q do not have a statistically significant impact on the level of cash holdings, contrary to the majority of previous studies in the literature.

Although this study provided insight about the factors affecting cash holdings in emerging markets, it also suffers from a number of limitations. First, it considered only internal firm-specific determinants of cash holdings. Second, some variables including dividends, taxes, or ownership could not be incorporated due to data or scope limitations. In addition to addressing those limitations, future studies could also investigate the issue in a larger sample and a longer period of a time.

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