Edited by
Rajagopal · Ramesh Behl

Innovation, Technology, and Market Ecosystems

Managing Industrial Growth in Emerging Markets

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Preface

The concept of Internet of things (IoT) has given new directions to industrial development and performance. The top-management of business houses has driven enthusiasm on IoT revolution aiming at a significant shift at the conventional industry models. A growing number of manufacturers have shown remarkable competitiveness while moving beyond Industry 4.0 buzzwords and focusing on valuable, business-specific applications. The current trend of automation, electronic data interchange, and Big Data analytics in manufacturing and business industries have significantly contributed to the industrial and economic growth in the region. This trend has raised the fourth generation of industrial revolution in global and regional business environment. Such digital revolution includes cyber-physical systems, the Internet of Things, cloud computing, and cognitive computing business models applied in emerging markets. Industry 4.0 is commonly referred to as the age of automation of industrial designs and operations for delivering high consumer value and enhanced productivity. This revolution empowers industries, irrespective of their sizes, to adapt to the new age of logical frameworks. The use of computers and automation has paved hybrid way in business, connecting robotics and human excellence. This forms the competitive edge for businesses in the marketplace.

The society today is largely founded on the business environment, which integrates industrial values with the societal values from developed to emerging market segments. The changes in the international business governance not only affect the societal and economic development of the region, but also develop new mindsets and behaviors among emerging entrepreneurs, collaborators, and stakeholders at the grassroots level.

Many start-up industries are aiming to grow as ancillary suppliers to large industries to meet the Industry 4.0 challenges. This new revolution has driven the challenge of unifying human elements and digitization for achieving the new generation business growth and economic development. In the manufacturing sector, the fourth industrial revolution includes interoperability, which explains extensively involving machines, devices, sensors, and people to connect and communicate within and outside the organization. Information transparency, and decentralization in decision-making, prompts managers to make simple decision by reducing the hierarchical chains and working with the effective cyber-physical systems. Industry 4.0 broadly consists of Big Data analytics, robotics in manufacturing and business, simulations and system integration, Internet of things, cloud operations, cybersecurity, additive manufacturing, and augmented reality.

New trends in manufacturing, financial, management, marketing, and supply chain management in the twenty-first century have caused a drastic drift in business practices across the global and local markets. The extended version of Industry 4.0 revolution encourages production sharing and reverse innovation tools to grow a cost-effective and transparent business protected with cyber security. Nevertheless, challenges lie in the development and governance of the technology. Therefore, the Industry 4.0 is yet to be tested for its efficiency and economic worth in context of automation, digitization, and robotic modelling. Digital literacy plays a significant role in imparting education to people about the use of digital technology, and the associated ethical norms, to adopt digital practices. New public policies for integrating digital literacies and digital ethics into societal sustainability are emerging in many developing countries. This involves architecting digital space for evolving sustainability in the ethical awareness, and digital skills in managing business and society. Hence, the governance in business through public policies intervention has become a significant management concern in the global marketplace today.

With the emergence of Industry 4.0, the transformation of capital-intensive industries into social innovation, affordable technology, and sustainable market ecosystems have taken place across geo-demographic segments. The new industrial frameworks use digital integration and intelligent engineering as a giant leap towards the evolution of next-generation industry at the local-global platform. Most commercial systems today are equipped with machine learning; automation has become a priority; and thus, another industrial revolution has evidently set in. The concept of

Industry 4.0 is knitted around innovation, technology, macro-economic factors, trends in financial management, human resources strategies, and marketing perspectives. Such interdisciplinary convergence represents the adoption of techniques and processes allowed by digitization, cloud computing, the Internet of things, and Big Data, by industrial companies to gain competitive advantages in domestic and global markets. However, one of the challenges in the developing economies lies with the adaptation to Industry 4.0 standards supported by the macro-economic factors in the country. The analysis of technology and industrial growth index of developing countries shows that digital infrastructure needs to be combined with analytical capabilities to deal with Big Data, which is required for countries to adopt Industry 4.0 and stay competitive in the marketplace. The scope of Industry 4.0 can be simulated to a real-time production line to understand its functionality and help in resolving the bottlenecks. Virtual reality application in Industry 4.0 allows companies to decrease design- and production-costs, maintain product quality, and reduce the time needed to go from product concept to production.

Industry 4.0, driven by innovation and technology, is considered as a new industrial stage, in which integration of vertical and horizontal manufacturing processes and product connectivity can help companies to achieve higher industrial performance. However, little is known about how emerging industries are adapting to Industry 4.0 and related technologies to augment performance in emerging countries. This edited volume aims at bringing together international insights to start rich discussion on industrial growth in the twenty-first century with focus on Industry 4.0 drive in the global marketplace, which is driven by innovations, technology, and digital drives.

This book is divided into five sections comprising industry and technology management, corporate financial management, macro-economic and social factors, human resource management, and marketing management and enterprise effectiveness. The conceptual and empirical research studies are included in these sections. In all, this volume consists of 20 chapters including research studies conducted in India, Mexico, and Africa. This book delineates multiple impacts of digitization, automation, and seamless operations as a part of Industry 4.0 revolution on business-to-business, on business-to-consumers, the global-local business imperatives, and on the national economy. The anthology of articles in this book critically analyzes the convergence of technology, business practices, public policies, political ideologies, and consumer values for improving business performance at

the global-local paradigm in the context of Industry 4.0 developments. This contribution will enrich knowledge and skills on contemporary business strategies towards automation and digitization process in manufacturing, services, and marketing organizations. The discussions across the chapters contemplate on developing new visions and business perspectives to match the changing priorities of industries in the emerging markets.

Principal audiences of this book are managers, researchers, and students of business economics, business strategy, product development, innovation management, and international trade. The book covers varied studies on industrial management, automation, and technology impact across various economic sectors. Hence, this book would serve as a managerial guide and think tank for the researchers, management students, and working managers. This would also be an inspiring book for emerging enterprises, market analysts, and business consultants engaged in local-global business ventures.

Mexico City, Mexico — Rajagopal
Bhubaneswar, India — Ramesh Behl
May 15, 2019

Contents

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List of Figures

List of Tables

CHAPTER 1

Convergence of Local Enterprises with Large Corporations: Bridging Industry 4.0 Functions on Broader Business Canvass

Rajagopal

Introduction

Local enterprises, along with large industries, play a significant role in social and economic development of the region by providing backward linkages. However, due to resource limitations and lack of adaptation to appropriate technology, they often contribute marginally to the growth of local developmental economics. Several studies have highlighted the effects of convergence of local companies with large companies within the industry, which serves as feeder source of industrial input to large business establishments. The network of local enterprises including start-up enterprises commonly serves as digital assistant to the large manufacturing and marketing companies striking a balance between socio-economic and business growth (Proikaki et al., 2018).

The emphasis on co-creation of innovation and managing innovation business projects in partnership with the local companies is gradually gen-

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erating technological breakthroughs, allowing emerging companies to reduce the time to bring innovative products and services to the market. The recent trend of carrying out innovation in the business-to-consumer and business-to-business segments by companies exhibits different ways of deploying price and volume advantages in global competition. Large companies practice outsourcing innovation, collaborating with start-up enterprises, investing in open innovation, and engaging in driving public-private partnerships. For example, large companies from emerging markets such as Lenovo Group Ltd. (China) and Godrej Consumer Products (India) and Internet players such as Tencent Inc. (China) are pioneering new ways of industrializing innovation. These companies are engaged in simultaneous engineering by leveraging quick launch, test, and improve (LTI) cycles combining vertical hierarchy for effective control of manufacturing systems with horizontal flexibility. These companies allow autonomy among the innovation teams to steer the new insights and experiments within peer groups (Rajagopal, 2016).

Penetration of multinational enterprises (MNEs) in local markets reduces the survival rate of local firms and drives the local companies to serve as ancillaries or merge with the multinational enterprises. However, this effect diminishes over time as the local firms receive political patronage to support their technology-led growth. Local firms are better able to confront the negative impact of MNEs' entry with a broader knowledge search over time (Wu, Lao, Wan, & Li, 2019). Most companies grow as learning organizations with openness to new ideas for driving differentiation in order to match innovation and market dynamics. Learning organizations accelerate continuous innovation across a wide range of industries reaching economies of scale at relatively low costs and acceptable quality to ensure value for money to the consumers. Innovative business projects catering to the emerging market demand and consumer needs are often risky and might not ensure breakthroughs in the market. However, successful implementation of innovative business projects has potential to powerfully disrupt the profit models of competitors and make space in the market for the innovation to grow over the period. Industry 4.0 revolution is enforced automation of operations and use of radical innovation to gain strategic competitive advantage. In this process, reducing transaction costs to facilitate innovation has appeared to be a major challenge. Hence, entrepreneurs and investors seek to develop alliance with larger business organizations to build a safer market and reduce their transaction cost. Distributed, decentralized, and diversified open innovation-based local

enterprises grow faster in a competitive marketplace (Dey, Gupta, & Singh, 2019).

Top quartile organizations are more mature in enterprise architecture (EA), while small and medium enterprises in emerging countries use more EA designs in IT investment decision-making within the niche markets. However, enterprise architecture adds value to emerging enterprises toward making investment decisions on adapting to new technologies (van den Berg, Slot, van Steenbergen, Faasse, & van Vliet, 2019). For managing innovative business projects efficiently, companies need to reengineer their internal innovation processes based on the principles of vertical and horizontal management approaches, by focusing on time-bound projects involving local partners or workforce (Williamson & Yin, 2014). Many structural and organizational features reduce perceived innovation barriers of firms in developing economies. Interactions between enterprise resources and decision-making among entrepreneurs in small emerging economies are generally characterized by financial and market limitations, weak institutional framework, and low innovation performance. Firms face more obstacles across all the different levels of innovation activity as the size of the company decreases. While considering small firms, relationship between size of the firm and engagement in innovation activities reveals continuous learning dynamics based on one's own innovation effort and experience, which contributes to overcoming difficulties in the long term (de-Oliveira & Rodil-Marzábal, 2019).

Continuous growth in innovation and technologies is the principal stimulant for companies to gain competitive differentiation and leadership in the global markets and gain high brand equity to drive consumers toward new buying preferences and explore new market segments. However, it is often hard for consumers to adopt innovations, gain confidence in deriving values appropriately, and derive competitive advantages from the innovative offerings over the existing and predetermined products and services. Companies growing in a competitive marketplace monitor both new and incremental innovations to explore their influence on firms' survival and growth. In addition, the market orientation, firm's size, its international dimension, and age of the business leader at entry are the control variables most influential on survival (Ortiz-Villajos & Sotoca, 2018).

Consumer perceptions on the innovative products and technologies are largely influenced by social and informal networks. Such interconnections among consumers and companies are so strong that a new product's adoption by one player often depends on its systematic adoption by other

players. Traditionally, companies launch innovative products by targeting unique customer segments or developing compelling value propositions. However, companies engaged in continuous innovations orchestrate a change of behavior among consumers across market segments in order to expand its market outreach. Companies engaged in innovation and competitive gains in the marketplace should explore new market segments, develop and implement strategies that maximize the chances of getting competitive advantage, complement power players, and position the innovation as an enhancement to products or services.

Small companies exploit user innovation for crowdsourcing-based marketing initiatives. The three key activities, by which companies facilitate the outcomes from the crowdsourcing initiative, include the development of opportunities for user innovation, the planning of user innovation activities, and the implementation and assessment of the outcomes. The importance of technical features that support innovation marketing enables socializing of innovation and derives support of active consumers. Such innovation marketing process not only attracts large industries toward innovations at niche level but also creates social consumption experience (Pacauskas, Rajala, Westerlund, & Mäntymäki, 2018). The innovation and technology companies tend to offer coordinated switching incentives to the players (social media, retailer, and salespeople) who add to the innovation's benefits the players that act as channels to ensure the value of the products and services (Chakravorti, 2004). The elements of business scenario in a destination market are intertwined around various macroeconomic factors comprising political, social, economic, technological, and legal factors besides the micro-economic factors within the company.

Developing Entrepreneurial Projects

Innovation is a continuous process, and it helps organizations grow. Growth is often measured in terms of business performance, turnover, and profit contributed by the products and services. Performance of innovative products is measured in reference to the generated competitive differentiation in marketplace, consumer experience, quality of products, and values and marketing efficiency. Innovation is the process of making changes to something established by introducing something new. Innovation can be radical or incremental that can be applied to products, processes, or services, and in any organization. Nurturing innovation projects is a complex process for the small, medium, and start-up organizations.

Most innovative projects suffer from internal and external financial constraints that affect the commercialization of innovations during the concept stage (García-Quevedo, Segarra-Blasco, & Teruel, 2018).

Innovation in small and micro enterprises is explored at all levels in the marketplace by generating consumer involvement in the projects of new product or services development. In view of the fast-growing market competition, more and more companies are recognizing innovation as the business opportunity is visualized in sustainability and environmental management sector. Such shift in thinking in many companies and industries, where learning-organization principles are being applied to create sustainable business models, has evidenced change in organizational culture and improvement in the core competencies (Rajagopal, 2016). Small firms differ in assessing the cost, benefit, and risk (CBR) effects during the manufacturing to marketing process as compared to large partnering firms engaged in innovation across destinations. However, strategic alliances between small and large companies toward innovation sharing, and coopetition in building marketing strategies can provide these firms an appropriate CBR measure. In this process, small and large firms evaluate benefits and risks associated in developing strategic alliances for acquisition and commercialization of innovations of small firms. It has been observed in previous research studies that small firms are less reluctant on alliance project than large firms, especially if the cooperation for managing competition (coopetition) allows them to reduce their costs and optimize long-term benefits. The innovation alliances between small and large companies help in developing design-to-market and time-to-market strategies (Chiambaretto, Bengtsson, Fernandez, & Näsholm, 2019).

Small innovation-led firms grow as learning organizations. They become inspirational, energetic places to work, where even relationships with customers and suppliers improve. However, a more integrated view will enable companies to innovate for long-term profitability and sustainability. There are three core competencies that learning organizations must master to profit from sustainability: encourage systemic thinking; convene strategic market players and customers toward changing conventional thinking; and take the lead in reshaping economic, political, and societal forces that baffle change (Senge & Carstedt, 2001).

Often companies select innovative business projects considering their potential for commercialization and gaining high market share in the competitive marketplace. A single company is seldom capable of generating successful diffusion for commercialization of an innovation. Success of innovative products and services often requires cooperation between market

players, organizations, and stakeholders in marketing through conventional and digital platforms. Thus, the networking aspect of commercialization is crucial for any innovation, especially in the mass and bottom-of-the-pyramid market segments. Broadly, customers and users, distributors, investors, associations, public organizations, and policy makers and regulators can support commercialization by facilitating innovation, adoption, and diffusion process within the existing market, or help in creating new markets (Aarikka-Stenroos, Sandberg, & Lehtimäki, 2014).

Such strategic thinking helps companies carry out innovations and business projects beyond commoditization, and fend off disruptive competitive threats to pave the path to enter new markets successfully. Innovative business projects lead to transformational growth by engaging with customers and market players. Companies develop innovation projects with unique concepts to attain higher profit, brand image, and customer value to customers. Companies can successfully explore innovative business projects in the following manner (Rajagopal, 2016):

- Identifying the right innovative growth opportunities that could serve the latent demand in the market (where consumers are in need of the product, but products are not available) by exploring a hidden or new customer need with a completely new business model that builds the competitive advantage.
- Co-creating innovation projects by engaging customers and designing new business models to achieve desired project outcome efficiently and profitably.
- Creating new systems to support innovative business projects and set new rules and metrics that enable companies to undertake innovations successfully.

Innovation auditing is a well-established practice used by managers to identify strengths and weaknesses in innovation and to explore new opportunities. Innovation audit in the companies needs to be conducted following the contemporary trends that exhibit market and consumer behaviors toward the innovative products and services. Innovations led by the trends tend to transform the market and consumers' landscape. These trends include shifts from closed to transparent and open models of innovation (openness), shifts from providing only physical products to industrial product-services combination (servitization), and moving from conventional manufacturing and marketing paradigms to industry 4.0 business

philosophy (automation). Innovation audit, thus, helps managers to identify strengths and weaknesses in innovation and guides them to develop an appropriate commercialization strategy (Frishammar, Richtnér, Brattström, Magnusson, & Björk, 2019).

Industry 4.0 is an evolution of a new industrial stage in which several emerging technologies converge to provide digital solutions. However, there is lack of understanding of how companies implement these technologies. Most companies depend on start-up enterprises to develop digital solutions in the areas of manufacturing and marketing. The micro-, small-, and medium-scale industries are thus growing as ancillary industries to large manufacturing and marketing companies in developing economies. The adoption patterns of Industry 4.0 technologies in manufacturing firms can be divided into front-end and base technologies. Front-end technologies have been spread across four dimensions, which include smart manufacturing, smart products, smart supply chain, and smart working. Base technologies consider the elements pertaining to Internet of things, cloud services, big data, and analytics. Conceptually, Industry 4.0 tends to function as a systemic adoption of the front-end technologies in which smart manufacturing plays a central role, while implementation of the base technologies like big data and analytics takes place at slow pace (Frank, Dalenogare, & Ayala, 2019).

Implementation of Industry 4.0 is required to develop future initiatives since traditional manufacturing business models do not fit in with the emerging technologies related to IT security, reliability, and stability needed for critical machine-to-machine communication. There is a need to maintain the integrity of production processes, enhance industrial knowhow, improve the managerial skills, and reduce the general reluctance of stakeholders toward mechanically controlled processes for improving market competitiveness. Transformation of conventional industrial systems to Industry 4.0 can be facilitated by refining and elaborating the strategies supported by the local governments to build economic and social systems. Such initiative flexibly responds to changes and involves participation of micro-, small-, and medium-scale industries in the process. However, local companies can serve as feeder agencies in establishing the digitized operational system to maximize the industry attractiveness. The transformational initiatives and policies in the industrial segments develop concrete and workable action plans toward economic and social systems that can accommodate innovative changes (Sung, 2018).

Innovative business projects are fundamentally an approach to reorient business around consumer needs by realigning corporate resources, processes, and profit formula with this new value proposition. Project management approaches for innovative products and services in small firms are evolving to be more flexible and adaptive to meet the challenges associated with an increasingly complex and dynamic environment (Nguyen, Killen, Kock, & Gemünden, 2018). Companies should not pick up innovative business projects emotionally and impulsively. They should be evaluated at the foreground in reference to management capabilities and their potential for commercialization. Innovation projects often fail as they have a kick-start with loosely, or sometimes ambiguously, defined objectives, and project managers realize in the mid-stream of project process that it is going astray.

Most start-up enterprises tend to define innovation projects as experimental and exploratory; they seldom follow loose linear guidelines and suffer serious setbacks over the project stages. As innovation projects generally need to be sold to project sponsors and funding committees, project teams should be more involved and responsible while carrying out the projects. Innovation business projects are largely laid on multi-task and multi-decision process that is susceptible to risks and uncertainties between the project stages, unless a well-developed set of criteria for the project has been developed in advance. Innovation projects should be time bound to reduce the risk of commercialization and adaptation among consumers. However, sometime they are dragged on and on with endless tweaks, and companies struggle to make adjustments to finish the project and launch the innovation in the market. Start-up and small firms either lean at the large firms for sponsoring their innovation projects and incubating them for commercialization or obtain long-term debt from private or government sources. Start-up firms with better performance prospects are more likely to use business debt or soft loans spread over a long time. Compared to all-equity firms, infant companies using debt in the initial years of operations make themselves significantly capable to survive and generate desired profit (Cole & Sokolyk, 2018).

Consumer involvement in innovative business projects helps in faster launch and adoption of innovations. Hence, the current trend of identifying innovation projects in the companies is largely driven by stimulating consumer involvement through various approaches of crowdsourcing. The objectives of crowdsourcing could be to generate brand awareness, demand validation, customer- or citizen-engagement, user-centered product devel-

opment, building an eco-system of innovators, and managing unsolved problems. LEGO has co-created several educational toys for children through crowdsourcing platforms. Through these platforms, users were able to submit ideas for new LEGO sets, vote, and provide feedback on those submitted by others. The fully functional LEGO sets with retractable wheel drive have been the outcome of crowdsourced ideas, which made the company competitive in the toys industry and the global marketplace. Unilever developed plan for "Sustainable Living Plan" in 2010, aimed at reducing the company's environmental impact and improving public health, well-being, and livelihoods of people around the world. The company had launched The Unilever Foundry, which allowed start-ups and innovators to respond to community concerns with low-cost technology such as developing a "connected ice cream cabinet" project. In this platform, the company aimed at exploring new start-up partners with new technologies or innovations that could bring the product portfolio of the company to life. This platform has driven high product awareness and tended to support conversion for either in-store solutions or unique experiences relating to the ice cream category. The crowdsourced solutions on this platform are screened for scalability in order to allow implementation of local innovation and ambidextrous marketing strategy and cater to both the urban and rural markets. Such experiment has evidenced that instead of relying solely on internal abilities, large companies need micro business alliances to get connected to a large community of engineers, start-ups, and other partners. This also helps them circumvent the restrictions of limited resources and knowledge; and thinking outside the box can help the innovative business projects perform successfully (Saldanha, Prado, Cohendet, & Pozzebon, 2014). The symbiotic relations of company and stakeholders in co-creating innovation are illustrated in Fig. 1.1.

Ideally, exploring innovative business projects is neither emotional nor a peer-review exercise for the companies. Most companies follow a predetermined path to explore the potential innovation to be carried out through standard project management process. In order to choose a product or services innovation, companies should analyze the macro- and micro-economic factors, market demand, and consumption patterns. After identifying the innovation to be carried out, companies need to identify their internal capabilities and competencies in managing innovation process, funding, and sponsorship, and develop statement of work and project charter. Figure 1.1 illustrates that collective creativity offers new consumer-centric ideas to companies and nurtures innovation on both small and

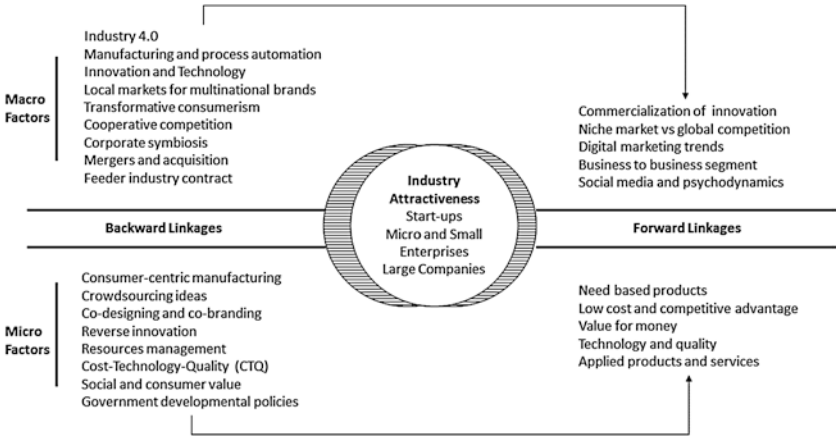

Fig. 1.1 Interdependence of firms on macro and micro attributes within industry (Source: Author)

large business companies symbiotically. Implementing ambidexterity in creativity methods increases the firm's propensity to innovate and to introduce a market novelty. However, the effect of ambidexterity on firm's turnover is not always clear. In addition, ambidexterity is more effective in large firms having high investment in research and development and operating in manufacturing sectors (Revilla & Rodríguez-Prado, 2018).

The backward linkages as exhibited in Fig. 1.1 explain that in the initial stage crowdsourcing of ideas, understanding customer needs and preferences, determining the importance of the innovation, and evaluating the expectation of consumers are reviewed by the companies to undertake innovative business projects. The estimated cost of the innovation, its market potential for commercialization, and search for the right sponsor to undertake the innovation project are the major forward linkages to initialize such projects. After seeking initial approval to the project by examining the various elements at the initiation stage, the innovative project enters into the real project management stage, which demands formation of project teams, training team members, developing project leadership, and analyzing challenges in the innovative business projects. These activities form the backward linkages. Setting the project mission, goal, objectives, and task management strategies constitute the forward linkages besides time and cost management and developing work breakdown structure.

Customer-centric companies develop innovation project designs that could generate high consumer use value, competitive differentiation, long and sustainable product life cycle, and charter of serviceability of innovative products, as discussed in Fig. 1.1. While exploring the innovations to create competitive differentiation, most companies face the challenge of diffusion of knowledge about the innovation and of inducing adaptability among consumers. It is necessary for the companies also to identify the scope of incremental innovation to carry out further improvements on the innovation, in order to develop consumer loyalty and augment market share and profit contribution of the innovation. Companies build market value through continuous innovation, which is derived by exploring new and incremental innovation business projects, connecting the links between many singular ideas and crowdsourced ideas into one big platform innovation, and fully scaling it to maximize potential benefits. Good innovative business projects should exhibit the potential to generate *me too* feeling upon its commercialization. Research proves that companies that successfully apply a structured process to innovation project management reduce risks in the business process and increase the results of innovation. The criteria associated with a strong innovation should be to develop influencing, ambitious, high-perceived use value, and adaptive innovations in the marketplace with unique adaptable propositions.

Organizational culture largely determines the ways of achieving outcomes of innovative business projects in reference to the local and global markets. Social interactions on innovation need to coordinate local innovation project teams, market players, and consumers to explore the marketability of the innovation products. In addition, possible market life cycle of innovative products needs to be determined so that the process of incremental innovation and prospects of next generation of innovation can be derived. The impact of innovation work must be redefined to include more than reporting on the data that demonstrates outcomes. Impact includes the entire process of innovating business project management and actions that leads innovation adaptation among consumers. Organizational learning, innovation, and commercialization are based on the cultural platforms of a company. Large companies with team culture and workplace autonomy have been successful in acquiring, managing, and marketing innovations by linking them to social or industrial needs. Culture types make differences in how organizations implement low-cost or reverse innovations acquired from small firms in the local markets. Large companies tend to explore compatibility of innovations on four types of organizational cul-

ture defined in the competing values framework spread across hierarchy, clan, market, and adhocracy culture. Besides, commercializing, managing radical, incremental, and component-architectural innovations is always an uphill task for companies as laying social or business justification for such innovations are difficult (Reyes-Santiago, Sánchez-Medina, & Díaz-Pichardo, 2017).

Skills, tools, metrics, processes, platforms, incentives, managerial roles, and values can help in attaining the innovation breakthroughs. Innovative business projects are taken up by the companies not only to achieve market leadership through competitive differentiation but also to overcome conventional business practices existing within the company for a long period. As markets tend to grow manifold and stay dynamic, managerial and operational models in any company lean to converge with the current practices over time. Innovation ideas emerge effectively within the company provided the managers stay attentive to the market development and shifts in consumer preferences. In their quest to overturn industry rules, they learn how to distinguish between the needed change in business practice of the company and conventional beliefs. Despite the public policies and entrepreneurial initiatives among the local enterprises, only a limited number of the SM and Industry 4.0 roadmaps, maturity models, frameworks, and readiness assessments available today reflect the specific requirements and challenges of micro, small and medium enterprises (MSME). Transition of these enterprises from the new base level, "level 0", to the current standard "level 1", requires significant effort including a mindset change. MSMEs need to develop their own unique smart manufacturing or Industry 4.0 vision and roadmap to connect with large industries and diffuse innovation to support digitization (Mittal, Khan, Romero, & Wuest, 2018).

A business project for carrying out an innovation could be successful provided the company is able to harness the latent demand among the target consumer segments and drive the innovation to meet the underappreciated trends. Innovators, start-up enterprises, and companies pay attention to the changing consumer preferences and consumption patterns. Understanding consumer behavior helps them to explore the right opportunity for developing a new innovative product following the standard project management process. To bring a successful innovation to the marketplace, companies need to take a long-term perspective than a myopic approach and develop appropriate business model for launching and managing the innovation in the competitive marketplace.

As competition in the global marketplace is increasing, more and more companies are recognizing that their experience about competitive products with consumers across geo-demographic segments are value additions, which help them develop new capabilities within an organization for carrying out innovations. However, managing global innovation project in the same conventional style of single-location projects would be a very difficult proposition for the companies in reference to size, resources, and contingencies. Single-location projects draw on a tacit knowledge and shared experience. Hence, the biggest management challenge is to replicate the positive developing "experience innovation" across geo-demographic segments while harnessing the opportunities of innovation dispersion.

The recent trend among large companies, to explore new innovation insights, is analyzing the innovation tactics and management practices with local enterprises in emerging markets. Digging deep into the enterprises at the bottom-of-the-pyramid, the multinationals are starting to catch on to the logic of reverse innovation, in which products are designed first for consumers in low-income geo-demographic segments, and then adapted into disruptive offerings for developed markets. However, only few companies have managed to do it successfully until recently. It has been observed in various studies that the main problem in carrying out the reverse innovation is the mindset of innovators and sponsoring companies. One of the major challenges in the reverse innovation is matching the segments to existing products, lowering the price, reducing the mismatch of technical requirements, convincing the stakeholders, and agreeing to develop low-cost innovation products for low-income markets (Winter & Govindarajan, 2015).

Technology-Marketing Grid

The company-consumer interlocking, through effecting diffusion strategies of innovative products, works efficiently through interpersonal communication on social networks and direct marketing approaches. Firms can use technology-led innovation to build relationships with co-creative business partners to explore new opportunities to unveil innovations among consumers. Firms face challenges in the new competitive environments to drive consistency in consumption of innovative products. However, companies need to identify the key barriers preventing innovation and present specific strategies that can stimulate the adaptation

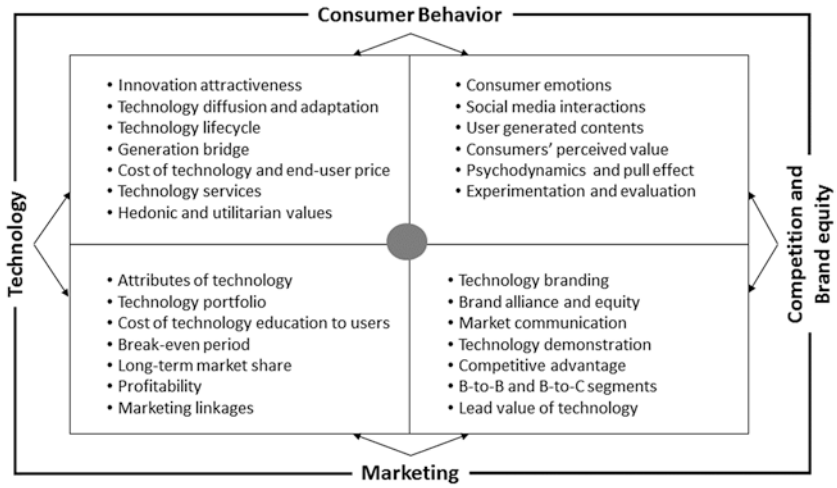

Fig. 1.2 Technology-marketing grid (Source: Author)

process for new products. Companies may face various challenges that include finding the right partners to engage with, forming relationships with consumers, building high-performing innovation dissemination networks to build synergy between the growth of innovation and technology approaches, and diffusion of innovation strategies (Birkinshaw, Bessant, & Delbridge, 2007).

Marketing of new technologies is complex. Consumers reserve their preferences to use technology-led products in view of the life cycle of the technology, utilitarian perspectives, and value for money. Various factors affect marketing of technology-led products as illustrated in Fig. 1.2, and often make it difficult for firms to manage them in the competitive marketplace.

Technology marketing has four distinctive facets comprising attributes of technology, marketing strategy variables, competition and brand equity, and consumer behavior as exhibited in Fig. 1.2. Before buying technology-led products and services, consumers evaluate the innovation attractiveness, the estimated technology life cycle, and the quality of diffusion of technology in the market, which prompts consumers to adapt to it. The product and services with prolonged and sustainability-linked technologies appeal to consumers faster than the conventionally embedded technologies. Consumers also look for secured utility bridge between the previous and new generations of technologies associated with the products. However, cost of technology, end-user price, technology services,

and hedonic or utilitarian values of technology-led products also affect the consumer behavior.

Successful marketing of technology-based products depends on the attributes of technology; cost of consumer education on the technology advances; breakeven period of marketing technology; the associated government, societal, and industrial marketing linkages; and specialty institutions like pharmaceutical research, social innovation research, and consumer technology research. Marketability of technology is also driven by anticipated market share of technology products in the long term, and their contribution to profit of marketing organizations. As the technology grows faster than its adaptability among consumers, there exists higher competition in the technology market. Therefore, branding of technology (like Intel-computer processors), and achieving brand equity, is a complex phenomenon. A strong alliance with the global brand could help the companies on marketability of emerging technology. Consumers demand clear market communication for technology products emphasizing the competitive advantage, and their effectiveness in business-to-business and business-to-consumers market segments. It is also important for marketers to know about the lead value of the technology against the competing technology brands.

Marketing of technologies to consumers is associated with the emotions and social consciousness, which are shared through the digital networks. People are increasingly purchasing tangible products like food, medicines and apparel, and technology-based virtual products like movies and video games online. Conventionally, the sensory interaction has mostly been limited to visual inputs, and less to auditory inputs. However, other sensory interfaces (e.g., including touch screens, together with a range of virtual, and augmented solutions) are increasingly being made available to people to interact online. This expansion will likely coincide with an increasing engagement with the consumer's more emotional senses like touch or haptics, and possibly even olfaction. Forward-thinking marketers and researchers will therefore need to appropriate the latest tools and technologies in order to deliver richer virtual experiences for the next-generation consumers (Petit, Velasco, & Spence, 2019). Social media interactions and user-generated contents influence consumer emotions for adapting to new technology-led products and create perceived use value. Positive emotions among consumers create pull effect and develop attitude toward experimentation and evaluation of new products.

Marketing of innovative products and technology solutions along with a bundle of services is a priority in today's increasingly competitive markets.

However, companies are not always structured and capable of making such integration in their products and services offerings in the market to gain competitive advantage. Thus, most companies prefer to engage in price competition rather than delivering customer value through integrated products and services. Customer-centric companies such as Cisco Systems have developed customer satisfaction matrix and laid policies that support incentives in rewarding customer-focused cooperation. Organizations, who want to deliver customer-focused solutions, require a mix of employees to be generalists instead of specialists. Teams offering customer-focused solutions require experience with more than one product or service, deep knowledge of customer needs, and the ability to traverse internal boundaries. By combining the above attributes, companies can create cost-effective, high-value solutions and stand out in a competitive market (Gulati, 2007; Rajagopal, 2016). Innovative products marketing is related not only to products, new product development, and technological development but also to marketing-mix strategies and decisions. Marketing innovation and technology-led products are very specific to the context and needs of the small and medium enterprises (O'Dwyer, Gilmore, & Carson, 2009).

Market orientation strategy and customer-centric marketing approaches together have significant impact on the performance of new products and technologies of the company. Managers should integrate the market orientation and customer services strategies to enhance the customer value. One of the many challenges to the dealer firms is to incorporate preferences of the customer into the overall performance and services in order to maximize the customer value. An augmented and sustainable customer value builds loyalty toward the product and the brand. Market orientation strategy for innovative and technology-led products needs to generate thorough awareness among the consumers about the utilitarian and hedonic aspects of products. Successful technology-marketing companies such as Apple, Samsung, and IBM adhere to the ACCA process of marketing (Rajagopal, 2019). ACCA paradigm encompasses four elements built around the communication strategy as explained:

- Sharing knowledge and experience to generate *awareness among consumers*
- Providing *comprehension* on products, services, societal value and lifestyle, and hedonic and utilitarian perspectives to consumers
- Developing *conviction* by stimulating purchase intention
- Driving *action* among consumers

Consumers search online for technology-led products, which have perceived risk of accuracy in information. Therefore, searching for innovative products and services online reveals functional and emotional risks that influence ongoing and pre-purchase search. The functional risk affects the existing preferences of consumers negatively, whereas emotional perspectives drive purchase intentions positively. The effect of functional risk on pre-purchase search is not significant, and the effect of emotional risk on pre-purchase search is positive (Zhang & Hou, 2017).

Traditional approaches to innovation strategy of both start-up enterprises and large companies assume that the world is relatively stable and predictable. But globalization, new technologies, and greater transparency have combined to overturn the business environment. Such shift in the business environment has generated more risk and vulnerability among companies in engaging with new innovative projects. Companies that thrive to follow the integrated innovation strategies, as discussed above, can alter the consumer behavior quickly and manage the market demand. Companies need to experiment rapidly and frequently with not only products and services but also business models, processes, and strategies to achieve a sustainable market for innovative product. It is also necessary for the innovation-driven companies to acquire the skills to manage complex multi-stakeholder systems in an increasingly interconnected world of consumers (Reeves & Deimler, 2011).

Innovation Management

Innovation entrepreneurship is a convergence of start-up enterprises and the sponsoring companies, which moves from the stage of initiation to systematic project management to commercialization, and finally developing sustainable innovation through incremental innovations. Companies need to invest substantial resources toward consumer education in order to create consumer demand. Besides, they also have to carry out product demonstrations such as “do-it-yourself” and adaptive customization by allowing consumers to use the new products for a reasonable period and perceive value for money associated with the products. However, the opportunities for open innovation, incremental innovation, and enhancement of the use value of innovative products over the stages of product life cycle finally take the innovation business projects to the initiation stage of the next-generation innovative products.

Companies must grow innovative new businesses to become competitive. Given the nature of their decision-making environment, entrepreneurs sometimes need to effectuate, be cognitively adaptable, and learn from failure. The effectuation process in enterprise development starts with what one has, who they are, what they know, and whom they know. Accordingly, enterprises select among possible outcomes emerging out of the effectuation process. The entrepreneurial behavior in general is responsive to subjective decisions under uncertainties. Most entrepreneurs think casually to start an enterprise with desired outcome and focus on the means to generate that outcome.

Most start-up enterprises in local markets are highly fragile due to risk, contingencies, cost, and time overrun in managing new product tasks. Entrepreneurs are not strong enough to face the loss and uncertainties in the innovation, as they are not often disciplined in managing the innovation projects. Although, some start-up enterprises, who are prepared to explore the potential opportunities and have the capacity to absorb the risk of failure, might foresee outsized rewards and manifold benefits of commercializing the innovation. The critical success factor in entrepreneurship is embedded in effectively managing the uncertainty while trying something new, independent of its eco-system. However, believing that every contingency can be anticipated and innovation can be managed without risk, might be a wrong concept held by the entrepreneurs. A disciplined approach of entrepreneurship requires constituting an innovation team; gathering awareness about the innovation; finding its eco-system; estimating cost, time, risk, and marketability of the new innovative product; and finally, exploring for a sponsor to work on an innovating business project. Accordingly, an entrepreneur formulates a working hypothesis about an opportunity, assembles the resources to test the hypothesis, and finally designs and runs real-world experiments. Depending on the experimentation results, entrepreneurs may revise the project and run other alternatives to harness the market potential of the new innovative product (Sull, 2004).

Entrepreneurs are largely driven by a vision to create value to customers and earn profit through their applied entrepreneurial skills and customer-centric marketing actions. Entrepreneurship and marketing theories share some commonality, as both disciplines focus on identifying opportunities and transforming resources into value-creation or co-creation for consumers (Sarasvathy, 2001). Entrepreneurs pursue continuous efforts to improve customer value with applied perspectives than the traditional market

theories. This attribute exhibits a better fit between external market conditions and the internal environment, in which the market decisions are made. Most enterprises adapt to modern market behavior by analyzing the cognitive dimensions of consumers.

Doing business for small enterprises is a process to strike a balance between marketing and manufacturing. In principal, innovation and marketing opportunities are identified through market-specific competition analyses. However, it is a complex task for enterprises to perform efficiently and streamline the value-creating process in business as well (Hills, Hansen, & Hultman, 2005). Entrepreneurial activities are an important part of today's business world, and this should be reflected in how we teach and research marketing. The interface between entrepreneurship and marketing creates prolific business developments for marketing such as opportunity recognition processes, decision-making and implementation, and strategic marketing (Hultman & Hills, 2011). Market entrepreneurship today has developed in regional markets because of the increasing global competition, and is aimed at introducing novelty, innovation, or improvement into the production and technology exchange processes within the industry. Thus, the governments of developing countries stimulate productive entrepreneurship and make enterprises practical and operational through various public policies.

Consumer Preferences

The technological changes are the main impetus behind new market opportunities. The strategic choices have wide-ranging ripple effects through the organization that determine the key success factors and growth performance. Some companies would be making right strategic choices by improving the implementation process of competitive advantages. These companies are guided by the shared strategic vision and are driven by the responsive attitude toward the market requirements. They emphasize the continuous strive to satisfy the customers. A strategic vision in managing markets may be understood as the guiding theme that explains the nature of business and the future projections thereof. These projections or business intentions depend on the collective analysis of the environment that determines the need for new developments or diversifications. The vision of managing new markets should be commissioned on a concrete understanding of the business and ability to manage market competition. The vision will motivate the organization for collaborative business planning and implementation. The

powerful visions are also the statements of intent that create an obsession with winning throughout the organization (Day, 1990).

Product strategies specify market needs that may be served by different product offerings. The product strategies of the company are duly related to market strategies that eventually come to dominate both the overall strategy and the spirit of the company. Product strategies deal with matters such as number and diversity of products, product innovations, product scope, and product design. In many companies, product strategy decisions are made by top management to achieve proper coordination among diverse business units. In some companies, the overall scope of product strategy is laid out at the corporate level, whereas actual design is left to business units. Such alternative is more desirable than other arrangements because it is difficult for top management to deal with the details of product strategy.

Each strategy is examined from the point of view of a business unit or profit center. The term positioning refers to placing a brand in that part of the market where it will receive a favorable reception compared to the competing products. The market is heterogeneous; hence one brand cannot make an impact on the entire market. As a matter of strategy, therefore, a product should be matched with the consumer segment of the market in which it is most likely to succeed. The product should be positioned so that it stands apart from competing brands. Positioning tells what the product stands for, what it is, and how customers should evaluate it. Positioning is achieved by using marketing-mix variables, especially design and communication. Although differentiation through positioning is more visible in consumer goods, it is equally true for industrial goods. With some products, positioning can be achieved on the basis of tangible differences (e.g., product features); with many others, intangibles are used to differentiate and position products.

Product choice among consumers is difficult when products have marginal differentiation in reference to attributes, price, and use value, as compared to competing products available in the market. Hence, many manufacturing and technology-marketing firms provide default options to consumers in order to make their buying process easy. Well-designed defaults benefit both company and consumer by simplifying buying decision process of consumers, enhancing level of satisfaction, reducing risk in purchases, and driving profitable purchases. On the contrary, misconceived options to choose products can leave money on the table, fuel consumer backlashes, put customers at risk, and trigger lawsuits, thus costing compa-

nies dearly (Goldstein, Cialdini, & Griskevicius, 2008). As the competition among companies manufacturing consumer goods and the number of routes to market are increasing, customers today are being forced with an overwhelming array of choices. Thus, companies should stop creating new brands and product extensions to alleviate customer frustration and consolidate product and service functions by following a four R approach comprising replace, repackage, reposition, and replenish. In the race of acquiring and retaining strategies tested by the companies, customers are rapidly becoming smarter than the companies that pretend to serve them (Locke, 2000).

Innovative and new products, when launched in the market, possess common life cycle comprising introduction, growth, maturity, and decline in the context of market behavior. However, the attributes of commercialization of the innovative products in different stages vary from the product or organization life cycles to some extent. The innovative products cannot be determined as consumer-driven in general, as they differ in reference to the types of innovation and their projected growth under varied market conditions and across geo-demographic segments. Drivers of commercialization for innovative products delivered by innovation projects at the start-up enterprises level, or at large commercial organizations, constitute the backward and forward linkages, unique propositions, innovation value, and high investment made to carry out product innovation during the introduction stage of the innovation life cycle. Companies, taking the challenge of commercializing innovative products, foster the strategies of 4 As: awareness, acceptance, availability, and affordability, to strengthen the product, to reduce the market risk, and to gain competitive advantage of the new product in the marketplace. As innovative products move to the growth stage, firms put more impetus on sales by refining the marketing-mix strategies in reference to the following elements consisting of 11 Ps (Rajagopal, 2012):

- Product (uniqueness and associated attributes that distinguish the product from the existing products in a given marketplace)
- Price (low-end or premium market pricing)
- Place (developing strategies on distribution management and routes to market in reference to make the product available at the convenience of consumers)
- Promotion (developing promotion packages, advertisement and communication strategies, and building product opinions among consumers and market players)

- Packaging
- Pace (competitive dynamics)
- People (front line employees of an organization engaged in selling product)
- Performance (product performance and consumer experience)
- Psychodynamics (consumers engaged in social media to share their experience on innovative product)
- Posture (corporate image)
- Proliferation (expansion into manufacturing and launching complimentary products to augment the use value of the innovation)

Innovation-led products turn sustainable as they gain desired market share and get positioned strategically in the market competition with long-term goals. Accordingly, both the consumer value and brand equity for the innovation-led products and services increase. However, as the technology grows and consumer preferences for the products change, the products turn obsolete over the period, their market share decreases, and the substitution risk increases, depending on the life cycle of the innovation. Hence, firms should be engaged in continuous improvement or innovation process to develop next-generation products at the edge of the mature stage and should avoid falling in to the decline stage. Products, which fall into the decline stage, are difficult to revive as the dynamic market forces weaken the product significance and turn them idle in the marketplace. Investing on the products trapped in the decline stage does not often yield expected returns and turns into sunk cost that cannot be recovered. However, firms often observe the threats of value disruption due to negative word-of-mouth and competitive tactics in the market against the product that increases the risk of substitution and consumer defection. Innovation-led products are also susceptible to imitations by infringement of intellectual property rights and disruptive technologies with the increase of market competition against the innovative product. Most firms invest in building product and brands to inculcate confidence among the consumers and augment their loyalty toward the product and company.

Product innovation and marketing cycle is also affected by innovation diffusion cycle spread across the same stages as of product innovation cycle. In the introduction cycle, often, the diffusion of information is low as firms do not put adequate resources in generating awareness on the innovation. Firms invite lead users in this stage to test the innovated product and influence early adopters on the usage of product. Lead users form a small group but act as powerful referral and brand carriers. Firms spend

adequate resources in the growth stage to diffuse product innovation attributes through direct communication on one-on-one basis to drive intensive effect on the innovation-led products among early adopters. Consumers in this group are strong followers of lead users and stand as effective opinion leaders to influence the early majority of consumers. Most companies deploy enormous resources in advertising, communication, and social media involvement during the late growth and maturity stage to drive customers who are less affluent, less educated, but ready to experiment the innovative products. The early majority consumer segment constitutes relatively larger segment than the previous consumer segments but is confined to niche. However, the following stage is of late majority, which is a very large segment and often represents about half of the total number of consumers in a given market area. This consumer segment exhibits high adaptability to the innovative products and derives satisfactory value for money that makes them frequent buyers. Consumers in this segment are price sensitive and pose the threat of defection when more attractive substitute products penetrate in the market. However, a small number of (about 20 percent) of consumers in each market segment are hard to drive for buying any innovative product as they are indecisive and difficult to convince. Such segment of consumers is found in all stages of growth of innovative products but is apparently huge in number during the decline stage of the product life cycle.

Consumer perceptions play a key role in the life cycle of a brand. The role varies according to the stage in the life cycle, market situation, and competitive scenario. A company should invest in appealing communication strategies for creating awareness and may need to influence the decision of consumers toward buying the brands they have not tested before. Systematically explored concepts in the field of customer value and market-driven approach toward new products are beneficial for a company to derive long-term profit optimization strategy over the period. On a tactical level, managers need to consider the optimum spread of customers on a matrix of product attractiveness and market coverage. Managing stakeholder value in a market-driven approach needs careful attention and application of managerial judgment and experience to measure the customer-value-driven performance. Marketing innovative products of micro, small, and medium enterprises through the retail stores needs to be considered by improving store layouts, product displays supported with comprehensive point-of-sales information, brand information, and other parameters affecting the loyalty of consumers.

Customer value in terms of satisfaction, use value, retailing practices, price, quality, and media appreciation, is one of the indicators for building brand value for non-conventional products and unfamiliar brands of a firm. Customer value concepts may be applied by firms to evaluate the product performance of an innovative product in the given market and determine the approach for gaining competitive advantage over the traditional products. In order to gain long-term returns on aggregate customer value, firms may need to methodically estimate the profitability associated thereof in terms of product attractiveness, volume of buying and market share while introducing the new products in a competitive market environment. The study proposes framework for future research in measuring the customer value in specific reference to the non-conventional products.

One of the challenges for the marketing manager of a firm is to incorporate the preferences of the customer into the design of new products and services in order to maximize the customer value. An augmented and sustainable customer value builds loyalty toward the product and the brand. Systematically explored concepts in the field of customer value and market-driven approach toward new products are beneficial for a company to derive long-term profit optimization strategy. Hence, a comprehensive framework for estimating both the value of a customer and profit optimization needs to be developed. On a tactical level, managers need to consider the optimum spread of customers on a matrix of product attractiveness and market coverage. This needs careful attention and application of managerial judgment and experience to measure the value-driven performance of the product of the firm. It is necessary for managers to understand that customer value is context dependent and there exists a whole value network, not just a value chain, to measure. Appropriate promotional strategies considering the economic and relational variables discussed in the study may be developed upon measuring the intensity of leisure shopping and the scope of expanding the tenure of leisure shopping in view of optimizing customer values and profit of the firm.

Summing-Up

Understanding market scenarios is a superior way of visualizing a business project in order to help managers see how the business environment offers better strategic choices in carrying out innovative projects. Illustrating the experiences of various multinational companies, this chapter maps scenario for exploring innovative business projects in business-to-consumers and business-to-business sectors and offers ways to define the need for innovative

differentiation. It is argued in the chapter that analyzing socio-political determinants and critically examining the micro- and macro-economic factors would help managers develop competitive business projects within the existing business environment in a given marketplace. Organizational learning among local-global companies enhances executive competencies, broadens project management perspectives, and helps everyone involved in the innovative business projects in planning and implementing projects in a complex and nonlinear business environment. The attributes of various decision drivers in reference to changing organizational cultures have also been discussed in this chapter.

For many companies, innovation is a sprawling collection of initiatives, energetic but uncoordinated, and managed with vacillating strategies. Hence, it is necessary for companies to set up innovative business projects infusing a systematic process. In order to capitalize on current and future market opportunities, global, regional, and local companies are investing substantial tine and resources in developing innovative business projects that could create sustainable competitive differentiation. The chapter discusses basic entrepreneurial attributes required to develop and implement innovative business projects and guides the process of managing resources and project cost rationally. It is a precondition for building and implementing innovative business projects to create a right and sustainable market to absorb the thrust of innovative products. This chapter discusses ways for market creation and developing leadership. The most challenging issues in developing non-conventional business projects include tangible and intangible organizational factors like market change management, improvement in the products and services, enhancing customer values, and building task reporting, monitoring, and evaluation approaches.

For most companies, developing project design for innovation in business is neither a science nor an art but a routine managerial task. Such generalized approach cannot fit into managing all types of business projects. Although most managers can sense when their project designs are not working well, few take meaningful action, partly because they lack a practical framework to guide them. This chapter discusses several ways to identify and define qualitative attributes of a good project and describes qualitative process to carry out the innovative business projects successfully to gain competitive advantage in the marketplace. As companies begin implementing business projects, operational process turns complex in case of new product development, information technology, and many other non-conventional products or services. Under such conditions companies tend to switch to lean management techniques to reduce costs and stay price competitive in the market.

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PART I

Industry and Technology Management

CHAPTER 2

Validation and Modeling of Drivers and Barriers for Multivendor ATM Technology in India from the Perspectives of Banks

Jyotiranjan Hota and Saboohi Nasim

Introduction

Multivendor ATM technology has brought a paradigm shift in ATM industry around the globe. Though adoption of this technology is matured in developed countries, a lot of opportunities exist in developing countries like India. This technology provides a uniform experience across the ATM network as a single software is installed in the entire ATM network (Arnfield, 2014; Hota, 2012). Personalized features and third-party advertising interaction experiences are quite comfortable for usage by customers. In a single-vendor environment, banks cannot decouple their pur-

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chasing decision to purchase hardware and software. Here, monitoring and applications are less complex. Once a bank adopts multivendor ATM technology, it is possible to purchase hardware and software from multiple vendors. Here, central monitoring of ATMs and single software application in the entire ATM network facilitate banks to provide a consistent experience to customers. This process also puts a competitive pressure on multivendor ATM vendors to cut down cost on ATM software and hardware purchases. Multivendor ATM technology is an extension of ATM technology with many added features. Channel convergence in banks provides scope for expansion of this ATM market in India. This research work under consideration is an effort to explore the domain of multivendor ATM technology adoption from the perspectives of banks in India. For this factors driving and obstructing the adoption of this technology, identified from the literature, were validated by top officials of banks for the context of India, using an expert survey method. Further, these validated drivers and barriers have been modeled to study their interrelationships using a qualitative technique called TISM (total interpretive structural modeling). Such an analysis would provide greater insights about the issues and challenges of adoption of this new ATM technology. A comprehensive literature review on drivers and barriers to adopt multivendor ATM technology undertaken by researchers, with an objective of identifying these barriers and drivers, resulted in drivers and barriers (Hota & Nasim, 2015).

Validation of Drivers and Barriers: Banks' Perspective

Ten drivers and five barriers were finally identified and shortlisted for further analysis (Hota & Nasim, 2015). The select drivers of multivendor ATM technology for bankers are perceived ease of use, new technology, cost control, vendor independence, network unification, increased security, analytics capabilities, real-time ATM monitoring, standardization of management and maintenance, and simplified ATM purchase. The select barriers of multivendor ATM technology for bankers are regulatory issues, complexity in working with ATM suppliers, lack of overall control, telecom infrastructures issue, and power availability issue. These drivers and barriers are listed in Table 2.1 along with their brief description.

These identified drivers and barriers have been further validated by domain experts for the Indian context (Hota & Nasim, 2015).

Table 2.1 Description of drivers and barriers of multivendor ATM technology of banks

S no.	*Drivers of adoption*	*Explanation*	*References*
Drivers of multivendor ATM technology adoption			
1	Perceived ease of use	Perceived ease of use facilitates smooth functioning of ATM services of the bank	Kadir, Rahmani, & Masinaei, 2011; Race, 2010, 2011; Wollenhaupt, 2010
2	New technology	The concept of card recycling, biometrics, integration effort with other banking channels, the concept of contactless card and coin handling are few of the new technology introductions into the market.	Wollenhaupt, 2010; Slawsky, 2013
3	Cost control	Multivendor ATM environment is relatively less costly than that of single-vendor environment	Wollenhaupt, 2010; Slawsky, 2013
4	Vendor independence	Due to the impact of this construct, banks can decouple their purchasing decisions due to vendor independence as they are not locked-in with a single vendor for both hardware and software purchasing	Slawsky, 2013; RBR, 2010; Race, 2010; Wollenhaupt, 2010
5	Network unification	Banks can provide consistent customer experience due to network unification	Cluckey, 2013; Hota, 2012; Slawsky, 2013
6	Increased security	Increased security is one the drivers for changing the existing ATM software to multivendor ATM due to introduction of remote key concept, Biometrics, 3DES and EMV (Europay, MasterCard, and Visa)	Race, 2011; Slawsky, 2013
7	Analytics capabilities	Predictive analytics improves ATM monitoring, determines mean failure, reduces operating cost of banks, and boosts the uptime of ATMs in banks	Greengard, 2009
8	Real-time ATM monitoring	Complete status of the multivendor ATM network and individual ATM monitoring is accomplished easily. Frequent visits to individual ATMs by the site engineers are reduced	Race, 2011; Slawsky, 2013; Hota, 2012

(*continued*)

Table 2.1 (continued)

S no.	*Drivers of adoption*	*Explanation*	*References*
9	Standardization of management and maintenance	Updates are distributed automatically from head office. First-level administrators' burden of work is reduced and automation increases with less human resource	Yili, 2011; Kal, 2011
10	Simplified ATM purchase	Much flexibility and choices are there for ATM purchase in case of multivendor ATM technology. Responsibilities of bank and suppliers are quite transparent	Yili, 2011; Arnfield, 2014
Barriers to multivendor ATM technology adoption			
1	Regulatory issues	Business logic and flow of operations of banks vary from country to country	Kal, 2010
2	Complexity in working with ATM suppliers	Banks face difficulty in organization levels to work with third-party suppliers and ATM manufacturers	Slawsky, 2013; RBR, 2010
3	Lack of overall control	Maintaining consistency among operating systems, ATM application, ATM monitoring, ATM hardware, and ATM networks is a challenge for banks	ATMmarketplace, 2014; Slawsky, 2013; RBR, 2010
4	Telecom infrastructures issue	Now, there is a trend of rising telecom tower companies. In rural areas, both telecom and power issues are prevailing	Slawsky, 2011; Ghosh, 2013
5	Power availability issue	One of the major barriers is the availability of power in India. Solar power is used in few places. The expansion of multivendor with solar powered ATMs in India will further develop ATM Industry in India	Kumar, 2013; Jetley, 2014

Modeling of Drivers and Barriers from Bankers' Perspective

After validating the drivers and barriers that influence adoption of multivendor ATM technology in banks for Indian context, it is imperative to delve deeper into the interrelationship among them. For this, the drivers and barriers for multivendor ATM technology adoption by banks in India

are hierarchically modeled using TISM (total interpretive structural modeling) technique. An introduction to the methodology of TISM, and the structural model and the interpretation for the study is discussed in the following subsections.

Identification of a structure within a system, that is, identifying relationships among the variables can be of great value in dealing effectively with the system and better decision making. Hence, a qualitative tool called total interpretive structural modeling (TISM), which is an improved version of interpretive structural modeling (ISM), has been used to model the drivers and barriers for multivendor ATM technology adoption by banks in India.

Expert's inputs about the possible relationship among the factors have been taken to develop the model. Nine professionals from banks in India (HDFC, SBI, ICICI, IndusInd, and Axis) were selected for interview using judgmental sampling method. Most of these subject matter experts were prominent people in the decision process when their respective bank switched to multivendor ATM technology. The interview with them was on the interpretive logic–knowledge base of the experts are as follows:

- Professionals in banks in India with considerable knowledge and expertise on multivendor ATM technology.
- Professionals who have implemented multivendor ATM technology in the past.

The TISM technique (Nasim, 2011; Prasad & Suri, 2011; Sushil, 2005a, 2005b, 2009, 2012) has been used to interpret the links in the interpretive structural models using the tool of the interpretive matrix (Nasim, 2011; Sushil, 2005a). A brief description of the step-by-step process in the TISM methodology is described as follows (Nasim, 2011; Sushil, 2009, 2012).

Step I: Identify and Define Elements

The first step in a structural modeling process is to identify and define the elements whose relationships are to be modeled. In the context of this chapter, the drivers and barriers to adoption of multivendor ATM technology in India are the elements which are identified from the literature and validated through a questionnaire sent to domain experts in banks. The list of elements (drivers and barriers) along with their code used in modeling is presented in Table 2.2.

Table 2.2 Elements, contextual relationship, and interpretation for multivendor ATM technology adoption from banks' perspective

Element no.	*Elements*	*Contextual relation*	*Interpretation*
Drivers of multivendor ATM technology adoption from banks' perspective (TISM-I)			
D01	Perceived ease of use	Driver: D01 will influence/enhance Driver D02	How or in what way will DriverD01 influence/ enhance Driver D02?
D02	New technology		
D03	Cost control in banks		
D04	Vendor independence of banks		
D05	Network unification of banking network		
D06	Increased security in banks		
D07	Analytics capabilities of banks		
D08	Real-time ATM monitoring in banks		
D09	Simplified ATM purchase for banks		
D10	Standardization of management and maintenance in banks		
Barriers of multivendor ATM technology adoption from banks' perspective (TISM-II)			
B01	Regulatory issues	Barrier: B01 will influence/enhance Barrier B02	How or in what way will Barrier B01 influence/ enhance Barrier B02?
B02	Complexity in working with ATM suppliers		
B03	Lack of overall control		
B04	Power availability issues		
B05	Telecom infrastructures issues		

Step II: Define Contextual Relationships

For development of the model, it is vital to state the contextual relationship between the elements. The contextual relationship is dependent on the type of structure we are dealing with, such as intent, priority, attribute enhancement, process, or mathematical dependence. For example, the contextual relationships between different elements (drivers and barriers) as identified for the study are 'Driver (D1) influence/enhance driver (D2)' and 'Barrier (B1) influence/enhance barrier (B2)'. Such contextual relationships are captured using a TISM template eliciting response from the domain experts, in this case top-level officials from leading banks in India.

Step III: Interpretation of Relationship

Traditional ISM remains silent to interpret how that relationship really works. In order to interpret the ISM further to make it TISM, it is advisable to clarify the interpretation of the relationship. So, we better understand by asking the question 'In what way a driver will influence/enhance another driver?' The answer to this question provides a unique interpretation of the relationship between the factors so as to make the implicit knowledge explicit. The TISM template used provides for capturing the logic as well from the experts interviewed.

Step IV: Interpretive Logic of Pair-Wise Comparison

In ISM, the elements are compared to develop Structural Self-Interaction Matrix (SSIM). The only interpretation that is made here relates to the direction of the relationship. In order to upgrade it to TISM, it was proposed to make use of the concept of the interpretive matrix so as to fully interpret each paired comparison in terms of how that directional relationship operates in the system under consideration by answering the interpretive query as mentioned in step III (Sushil, 2005a). For each link in the knowledge base, the entry could be 'Yes (Y)' or 'No (N)' and if it was 'Yes', then it was further interpreted. So, this unearthed the interpretative logic of the paired relationships in the form of 'Interpretive logic-Knowledge Base'. This is illustrated in the Appendix (Tables 2.7 and 2.8).

Step V: Reachability Matrix and Transitivity Check

The paired comparisons in the interpretive logic–knowledge base are translated in the form of reachability matrix. Here, reachability matrix was made by making entry 1, if the corresponding entry in knowledge base was 'Y', or else it was entered as 0 for the corresponding entry 'N' in the knowledge base. The matrix was checked for the transitivity rule and updated until full transitivity was established. For each new transitive link, the knowledge base was updated. The 'No' entry was changed to 'Yes' and in the interpretation column 'Transitive was entered'. If the transitive relationship can be meaningfully explained, then the logic is written along with the 'Transitive' entry or else it is left as it is. A semi-structured questionnaire has been administered to the domain experts of multivendor ATMs in banks and their responses were further applied to develop reach-

ability matrix and for pair-wise comparison. To make a perfect distinction and decision for the cut-off for the reachability matrix, if 60% response is given as favorable, that is, 'Y', then the response is taken as 1, otherwise 0. During the transitivity check, if responses are more than 50%, then the transitivity was taken as significant transitivity, otherwise transitive.

Step VI: Level Partition on Reachability Matrix

The level partition is carried out similar to ISM to know the placement of elements level-wise (Saxena, Sushil, & Vrat, 2006; Warfield, 1974) and determine the reachability and antecedent sets for all the elements. The intersection of the reachability set and the antecedent set will be the same as the reachability set in case of the elements in a particular level. The top-level elements satisfying the above condition should be removed from the element set and the exercise is to be repeated iteratively till all the levels are determined.

Step VII: Developing Diagraph

The elements are arranged graphically in levels, and the directed links are drawn as per the relationships shown in the reachability matrix. A simpler version of the initial digraph is obtained by eliminating the transitive relationships step-by-step by examining their interpretation from the knowledge base. Only those transitive relationships may be retained whose interpretation is crucial.

Step VIII: Interaction Matrix

The final digraph is translated into a binary interaction matrix form and interaction matrix and is interpreted by picking the relevant interpretation from the knowledge base in the form of interpretive matrix. The interpretive matrix for bank (drivers) and barriers are exhibited in Tables 2.3 and 2.4.

Step IX: Prepare TISM

The connective and interpretive information contained in the interpretive direct interaction matrix and digraph is used to derive the TISM. The list of drivers and barriers along with their levels are listed (Table 2.5 for drivers and Table 2.6 for barriers).

Table 2.3 Interpretive matrix for bank (drivers)

	D01	*D02*	*D03*	*D04*	*D05*	*D06*	*D07*	*D08*	*D09*	*D010*
D01		0	0	0	0	0	Easy accessibility	0	0	0
D02	Facilitate user friendliness		Decision decoupling for banks	Separate hardware and software purchase	Single software in entire ATM network	Addition of features, i.e. EVM, remote keys and biometrics	historical transactions can analyze trends	Management efficiency of ATM channel	Increased automation in bank head office	Adoption of MVS ATM
D03	0	0		0	0	0	0	0	Transparent operations	0
D04	0	0	Supplier selection without lock-in		0	0	0	0	0	Bargaining power of banks increased
D05	0	0	Transitive	0		0	0	0	Reduce interoperability issues	0
D06	0	0	0	0	0		Transitive	Open architecture based on TCP/IP	0	0
D07	0	0	0	0	0	0		0	0	0
D08	Hassle-free operations	0	0	0	0	0	Single view of customers and operation		0	0
D09	0	0	Cost reduction for HW management and maintenance of vendors and first line administrators	0	0	0	0	0		0
D010	0	0	0	0	0	0	0	0	0	

Table 2.4 Interpretive matrix for barriers (bank)

	B01	*B02*	*B03*	*B04*	*B05*
B01		Hassle-free operating environment	Transitive	0	0
B02	0		Challenges in controlling multivendor ATMEnvironment	0	0
B03	0	Issues of updates for old/new ATM hardware/software		0	0
B04	0	Transitive	Decision to scale and reduce cost of transactions		Issue of connecting telecom tower with power source
B05	0	Transitive	Lack of alternative power sources	0	

Table 2.5 List of drivers and their levels in TISM

Driver code	*Drivers*	*Levels in TISM*
D01	Perceived ease of use	II
D02	New technology	V
D03	Cost control	I
D04	Vendor independence	II
D05	Network unification	II
D06	Increased security	IV
D07	Analytics capability	I
D08	Real-time ATM monitoring	III
D09	Standardization of management and maintenance	I
D010	Simplified ATM purchase	I

Table 2.6 List of barriers and their levels in TISM

Barrier code	*Barriers*	*Levels in TISM*
B01	Regulatory issues	II
B02	Complexity in working with ATM suppliers	I
B03	Lack of overall control	I
B04	Telecom infrastructures issue	III
B05	Power availability issues	II

The nodes in the digraph are replaced by the interaction factors placed in the boxes. The interpretation in the cells of the interpretive direct interaction matrix is depicted by the side of the respective links in the structural model. This leads to a total interpretation of the structural model in terms of the interpretation of its nodes as well as links (see Fig. 2.1 for Drivers and Fig. 2.2 for barriers).

Interpretation of the Model for Drivers of Multivendor ATM Technology Adoption by Banks

The contextual relationship among the drivers along with the interpretative logic was captured by conducting a discussion with experts from banks in India based on which a TISM model is developed (Fig. 2.1). The systematic process of the TISM methodology has been outlined in the previous section.

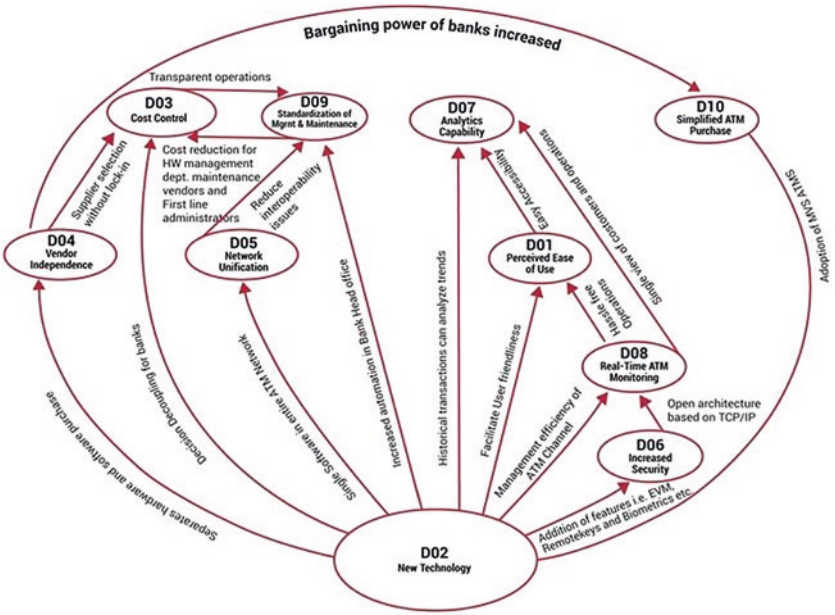

Fig. 2.1 TISM for drivers of multivendor technology adoption by banks

- Based on the feedback from experts, the ten drivers were partitioned into five levels. Support of 'New technology' is found to be the key primary driver with direct influence on all the other remaining nine drivers 'Increased security', 'Perceived ease of use', 'Cost control', 'Vendor independence', 'Network unification', 'Analytics capability', 'Real-time ATM monitoring', 'Standardization of management and maintenance', and 'Simplified ATM purchase'.
- Perceived advantages of this 'New technology' emerged as the most important driving force from both software and hardware perspectives in multivendor ATMs, facilitating smooth adoption among banks.
- 'New technology' as a key driver leads to 'Increased security' as it provides for addition of important features like EMV, remote key, and biometrics to access the ATMs, which further facilitates 'Real-time ATM monitoring' enhancing the efficiency of the banks along with cost reduction.
- The driver 'New technology' also enhances the 'Perceived ease of use' due to its user-friendly features and facilitates the banks to perform 'Data analytics' conducting trend analysis based on historical transactions of customers to improve its services. 'Real-time monitoring' facility provided by the suppliers of ATMs can facilitate to know the entire status of ATM network. Status monitoring of ATMs, monitoring of ATM modules, tracking of ATM maintenance, cash replenishment report, administrative privileges, event management, report generation, and customized alerts facilities are the important features provided by the ATM suppliers. So, site engineers need not frequently visit to the ATM terminals and many faults can be resolved remotely.
- Multivendor ATM technology further drives 'network unification' as a single software is installed in the entire network, thus reducing the interoperability issues resulting in 'standardized management and maintenance' of ATMs. Such technical ease enhances the transparency in ATM operations and leads to 'Cost control'.
- Finally, given the technical benefits of this new technology, banks are able to decouple hardware and software purchases resulting in 'Vendor independence' and 'Simplified ATM purchases'. Hence this is now encouraging Indian banks to switch to multivendor ATM installation as they are not bound to purchase both hardware and software from a single supplier as before.

Interpretation of the Model for Barriers of Multivendor ATM Technology Adoption by Banks

The contextual relationship among the barriers along with the interpretative logic was captured by conducting a discussion with experts from banks in India based on which a TISM model was developed. The step-by-step process of the TISM methodology has been outlined in the previous section. Based on the feedback from experts, five barriers were partitioned into three levels. The model for barriers of multivendor ATM technology adoption by banks can be explained through the following attributes:

- 'Telecom infrastructure issue' is the primary barrier for banks which affects 'Power management issue' as there are operational hassles in connecting telecom tower with power sources.
- 'Power management issues' directly impact 'lack of overall control' of multivendor ATM environment. 'Regulatory issues' directly impact 'Complexity in working with ATM suppliers'.
- Further, 'Lack of overall control' and 'Complexity in working with ATM suppliers' directly impact each other. 'Lack of overall control' of the multivendor ATM environment issues happens due to 'complexity of working with multiple suppliers'. Here, there are challenges for multiple suppliers to control the multivendor environment with proper coordination (Fig. 2.2).

Conclusions

This chapter discusses and elicits a summary on drivers and barriers to adoption of multivendor ATM technology in India and illustrates the use of TISM as a qualitative technique to model these drivers and enablers for a deeper understanding of the interplay of these forces. The TISM process involved subject matter experts to make the interpretive logic of the directional relation articulated for each paired comparison. This model building provides insight to industry experts. This research will also help ATM industry practitioners in identifying areas of importance of enablers and barriers to multivendor technology.

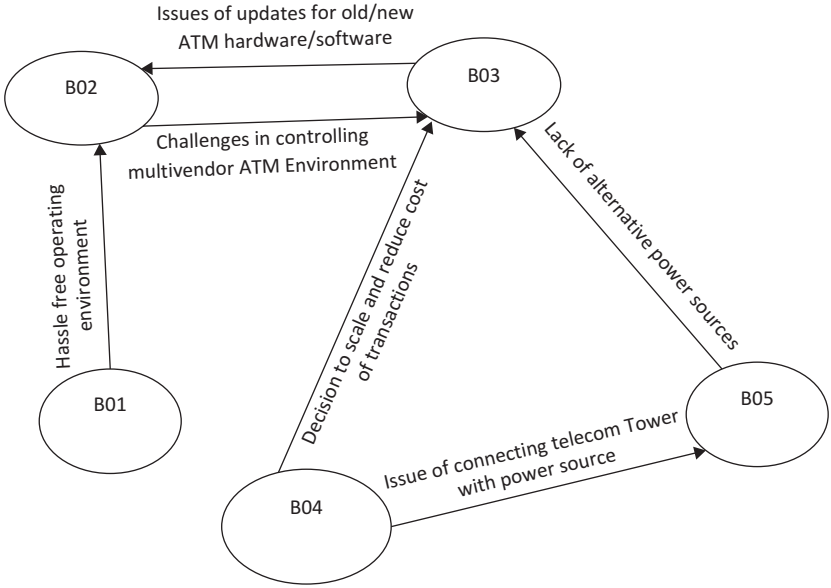

Fig. 2.2 TISM for barriers of multivendor technology adoption by banks

Major Recommendations

Based on the findings of both the TISM analysis of drivers and barriers to adoption by banks, the major recommendations have been delineated and are listed as follows:

- Advantages of multivendor ATM technology have been found to be more pronounced than barriers. Significant benefits like 'cost control', 'standardization of management and maintenance', and 'vendor independence' directly influence 'simplified ATM purchases', and hence banks should leverage these advantages.
- Efforts should be made to overcome barriers seeking government support by networking well with suppliers. Apart from this, bankers can brainstorm to find other amicable solution to such issues.
- Banks should take innovative steps to resolve telecommunication infrastructure issues. Telecom tower companies should plan to connect towers to the ATMs so that both communication capabilities and power can be provided, which is of course not a simple task in India.

Implications for Banks

Bargaining power of banks has improved as banks are no more confined to a single supplier of ATMs, thereby reducing the cost of procuring ATM network and maintenance of the networks. The purchase of ATMs is simplified. However, lack of overall control of the ATM environment is happening due to the complexity of working with multiple ATM suppliers. Though banks are independent of vendors and lock-in can be eliminated, there are challenges as procurement of ATM hardware and software is accomplished from more than one supplier. There should be an improvement in telecom infrastructure and power management in India.

Limitation of Study

This study is based on total interpretive structural modeling (TISM) as a qualitative tool. Though this tool has a strong relevance compared to interpretive structural modeling (ISM), subjectivity involved in expert opinion might be there. At the same time, the study has been conducted only on experts in banks of India. They have a good knowledge on technical and functional aspects of both single and multivendor ATM technology implementations in banks. The study can further generalize from the perspectives of other stakeholders of multivendor ATM technology.

Direction for Future Research

Looking at the barriers of multivendor ATM identified here, an action research involving the government and other agencies involved in multivendor implementation can provide solutions to the issues pertaining to multivendor ATM adoption in India. Study on perception and attitude of bankers and suppliers toward the adoption of multivendor ATM technology can be researched. Leading banks are now competing among themselves to attract customers. Banks are also going for cross-selling and up-selling opportunities to attract customers as per their personalized ATM transactions. There is an attempt by forward-thinking banks to move from multivendor to multichannel integration so as to understand the customers in totality. The study has a very strong relevance in academic literature. This multivendor ATM technology adoption study can be applied to other developing countries.

Appendices

Table 2.7 Interpretive logic: knowledge base for bank drivers

Sl. no.	*Element no.*	*Paired comparison of drivers/enablers*	*Yes/No*	*In what way a/an driver/enabler will influence/enhance other driver/enabler? Give reason in brief if your answer is YES*
D01-Perceived ease of use				
2	D02-D01	New technology will influence/enhance perceived ease of use	Y	Facilitates user friendliness
11	D01-D07	Perceived ease of use will influence/enhance analytics capability	Y	Easy accessibility
14	D08-D01	Real-time ATM monitoring will influence/enhance perceived ease of use	Y	Hassle free operations
D02-New technology				
1	D02-D03	New technology will influence/enhance cost control	Y	Decision decoupling for banks
3	D02-D04	New technology will influence/enhance vendor independence	Y	Separates hardware and software purchase
5	D02-D05	New technology will influence/enhance network unification	Y	Single software in entire ATM network
7	D02-D06	New technology will influence/enhance increased security	Y	Addition of features, that is, EVM, remote keys, biometrics, and so on.
9	D02-D07	New technology influence/enhance analytic capability	Y	historical transactions can analyze trends
11	D02-D08	New technology will influence/enhance real-time ATM monitoring	Y	Management efficiency of ATM channel
13	D02-D09	New technology will influence/enhance standardization of management and maintenance	Y	Increased automation in bank head office

15	D02-D010	New technology will influence/enhance simplified ATM purchase	Y	
16	D010-D02	Simplified ATM purchase will influence/enhance new technology	Y	Adoption of MVS ATMs
D03-Cost control				
2	D04-D03	Vendor independence will influence/enhance cost control	Y	Supplier selection without lock-in
4	D05-D03	Network unification will influence/enhance cost control	Y	Transitive
11	D03-D09	Cost control will influence/enhance standardization of management and maintenance	Y	Transparent operations
12	D09-D03	Standardization of management and maintenance will influence/enhance cost control	Y	Cost reduction for HW management dept., maintenance vendors and first line administrators
D04-Vendor independence				
11	D04-D010	Vendor independence influence/enhance simplified ATM purchase	Y	Bargaining power of banks increased
D05-Network unification				
7	D05-D09	Network unification will influence/enhance standardization of management and maintenance	Y	Reduce interoperability issues
D06-Increased security				
1	D06-D07	Increased security will influence/enhance analytics capability	Y	Transitive
3	D06-D08	Increased security will influence/enhance real-time ATM monitoring	Y	Open architecture based on TCP/IP
D07-Analytics capability				
2	D08-D07	Real-time ATM monitoring will influence/enhance analytics capability	Y	Single view of customers and operations

Table 2.8 Interpretive logic: knowledge base questionnaire for bank barriers

Sl. no.	*Element no.*	*Paired comparison of barriers*	*Yes/No*	*In what way a barrier will influence/ enhance other barrier? Give reason in brief if your answer is YES*
B01-Government regulatory issues				
1	B01-B02	Government regulatory issues will influence/enhance complexity in working with ATM suppliers	Y	Hassle free operating environment
3	B01-B03	Government regulatory issues will influence/enhance lack of overall control	Y	Transitive link
B02-Complexity in working with ATM suppliers				
1	B02-B03	Complexity in working with ATM suppliers will influence/ enhance lack of overall control	Y	Challenges in controlling multivendor ATM environment
2	B03-B02	Lack of overall control will influence/enhance complexity in working with ATM suppliers	Y	Issues of updates for old/new ATM hardware/software
4	B04-B02	Telecom infrastructure issue will influence/enhance complexity in working with ATM suppliers	Y	Transitive
6	B05-B02	Power availability issue will influence/enhance complexity in working with ATM suppliers	Y	Transitive
B03-Lack of overall control				
2	B04-B03	Telecom infrastructures issue will influence/enhance lack of overall control	Y	Decision to scale and reduce cost of transactions
4	B05-B03	Power availability issue will influence/enhance lack of overall control	Y	Lack of alternative power sources
B04-Telecom infrastructures issue				
1	B04-B05	Telecom infrastructures issue will influence/enhance power availability issue	Y	Issue of connecting telecom company tower with power source

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CHAPTER 3

Leveraging Technology for Shared Services Transformation

M. V. N. Naga Lakshmi, Y. V. N. Sai Sricharan, and T. Vijayakumar

Introduction

Technology is a strong force in transformation, creating the differentiating value for the end customer with the customer being at the center of transformation. Time has never been more ripe, and opportunity has never been greater for enabling a differentiating value. Creating and delivering differentiating exponential value to the end customers are catalyzed and sometimes made possible with business process-technology integration. Technology revolution is disrupting business models, shared services being no exception—evolving them from their current technology-enabled-services to technology-integrated-services form. About 70% of the world's largest organizations are going through some kind of transformation, yet the rate of success remains dismal, where just one out of five or six

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companies are eventually successful in their transformations (Shared Services Forum, 2018). Be it transformation at organizational level, employee experience level or customer experience level, digital transformation in organizations is being brought about by the simultaneous adoption of exponential technologies and adaption of businesses processes in order to keep up with the pace and scale of unprecedented disruption. One example in this context is the retail sector, where the conventional retail business model was disrupted with the advent of online shopping platform, Amazon. This is a classic example of disruption brought about by the business process-technology integration to create non-linear value for the end customer. Hence, future-ready organizations began to design the differentiated value-add by integrating services to technology as opposed to integrating applications to technology to ensure valuable experience to both employees and customers.

Business Process-Technology Integration

In order to ensure Return on Investment, business sustainability and competitiveness and, most importantly, to deliver value-add, businesses across verticals continue to relook at their processes, practices and systems (including technologies) for continuous improvement. Well-defined business process management (BPM) standardizes processes and optimizes operations boosting efficiencies and workplace productivity in order to attain potential long-term and short-term benefits, and eventually achieving organizational goals in a much more focused and clear manner. On the flip side, failure to do so is likely to result in higher costs, lower revenues, less motivated employees and fewer satisfied customers. Armed with enhanced purchasing power, the new-age informed customers scrutinize availability, accessibility and delivery like never before, making it critical for the businesses to align business processes to meet the end goals of customer delight, loyalty and retention or customer experience, in its entirety. This is where technology can play a pivotal role. Technology has the potential to completely replace repetitive, rule-based, routine yet important tasks with automated routines and also help to implement new processes faster, smoother and efficiently. Technology can also help in making organizations monitor implementation in real time and help them in becoming flexible and quick to adapt to foreseen and unforeseen changes. However, despite the will, budget and wherewithal dedicated for massive transformation, the success rate is not too encouraging in large

companies undergoing disruption through transformation as it pivots on successful transformation at various levels simultaneously including leadership, culture, capabilities and business agility. This opens up a tremendous opportunity for the shared services organizations, SSOs; business service organizations, BSOs; global in-house centers, GICs to have a great role in enabling such transformations to leading such transformations. They are invaluable to parent organizations as they create competitive advantage, operating model flexibility and agility to face the digital world. However, this necessitates SSOs, BSOs and GICs to go through changes of their own.

Digital Disruption or Shared Services Transformation?

Given the rationale for the creation of SSCs in large organization and the transactional nature of operations in most cases, SSCs will continue to be viewed as back-office or low-cost capability provider as opposed to being a strategic partner. However, the positioning can be changed in the global organization if value is created for the end customer. For this, the SSCs need to be transformed. It has been widely recognized that digital transformation in shared services has a great potential to achieve operational excellence unlocking avenues to increase organizational revenues and enhance customer value-add. Consequently, the digital strategy that drives the shared services digital transformation assumes utmost significance—a future-proof strategy that is robust and sustainable with multiple goals such as enhanced efficiencies and effectiveness, enhanced employee experiences and superior value-add to the customer on one hand, while achieving business top line and bottom line on the other. Digital disruption introduced to the legacy operations in the form of Robotic Process Automation (RPA), Artificial Intelligence, Robotic Digital Automation (RDA) or cognitive automation has proven to unlock the potential operational excellence to deliver enhanced customer value. RPA, at a fundamental level, is an efficiency enabler, where a software service or a robot is used to carry out certain jobs, transactions or processes that were earlier carried out by humans. Of late, RPA is increasingly seen as the force that underpins shared services transformation from being an efficiency enabler. Automation brings in superior operational excellence in various fronts: reduced or eliminated operating costs of timely and accurate processes, increased capacity

utilization, Service-Level Agreement (SLA) adherence, risk management, empowered employees and finally agile and innovative shared services that provide significant customer value. Success of shared services transformation for value creation is dependent on the following factors:

- The customer-centric design of processes at operational level to avoid quality drop and customer-centric design of organization at strategic level to eliminate value loss
- Innovation can be developed as technology, application, infrastructure, process
- Leveraging company-wide data and talent management strategy hinging on tenets of domain knowledge, customer orientation, and empathy, right from candidate hiring to training to development to retaining to employee progression and technology intervention

The current study focuses on the significance of technology intervention for successful Shares Services transformation.

Theoretical Framework

The purpose of theoretical framework is: (a) to position the (hypothesis of the) study in relation to existing literature; (b) to elucidate the theoretical lens under which the research will be framed and, (c) to strike appropriate balance between objective scientific study and practical business relevance.

The review of existing literature on the shared services concept characterizes it as a predominantly practice-oriented phenomenon due to limited research on it as a subject of scientific study. Owing to this, a majority of publications authored by seasoned consultants and experienced practitioners on the subject ought to be seen as scientific papers (Keul, Bachleitner, & Kagelmann, 2000). The shared services approach has by far not been explained in its totality by any single specific theory, concept or model, as the shared services approach and model have been continuously evolving in response to business requirements. However, selected theoretical approaches can be interpreted in the context of shared services and can be summarized as follows:

Resource-based view (RBV) and dynamic capabilities approach (DCA) can both be applied to the concept of shared services when they are seen as described by Janssen and Joha (2006)—as a means to access shared

resources or to realign internal capabilities and competencies to face the challenges posed by dynamic business environment.

In a highly competitive business environment, businesses improve their operations by trying to 'Structure for Success' (Johnson, Scholes, & Whittington, 2008). One of such efforts could be shared services where organizations moved a broader range of functions to fewer centralized centers, when the financial crisis triggered recession in many countries. Research has shown that the adoption of shared services model in multinational organizations results in 30% further optimization due to the benefits reaped from the integration of systems, consolidation of operations and standardization of processes (Barrett, 2006; IMA, 2011).

Due to the relative novelty of shared services as an area of academic study, there is limited in-depth research in the public domain that explores the concept, barring a few studies. Keul et al. (2000) and Pérez (2008) explained parts of the shared service concept using theoretical models (Janssen & Joha, 2006, 2007), while Niehaves and Krause (2010) from new institutional economics focus on the principal-agent theory, which specifies how processes should be transferred to the shared service organization. Theories such as the transaction cost theory, resource-based view, property right theory can be used to understand various features of the Shared Services concept. It is widely established in the knowledge economy literature that in developed economies the conception of original scientific knowledge, innovation and technological transformation are major drivers of economic development (Tchamyou, 2017).

Digital technologies bring about significant disruption in business models, often resulting in digital transformation and innovation, and reorientation at the industry level. The survey of related literature upholds broadly the theoretical framework of the study of implications of technology interventions on shared services transformation. In this regard, there are a number of theories that offer a conceptual support that technology has a significant role to play in shared services transformation, which are briefly mentioned in the following text.

The disruptive innovation theory (Christensen, 2006; Christensen, Raynor, & McDonald, 2015) puts forth three considerations for disruptive innovation: enabling technology, business model innovation and an enhanced value network that repositions stakeholders. Similarly, the transformation phase of the 'four-phase-model for the realization of shared services' developed by Helmut (2014) consists of three sub-phases, starting with change management followed by finalizing SLAs and the rollout

of the business processes and IT and data migration. In the context of transformation, it has been suggested by Bergeron (2003) that the knowledge of 'the delivery model maturation path' by the transformation leaders is critical for effective shared service transformation, as it necessitates various transformations such as personnel pricing and processes and resources. Gordon E. Moore, the co-founder of Intel Corp, echoes 'Technology intensifies the law of change' (Bergeron, 2003). Mullins (2007) observes that the introduction of information technology in business has changed the structure and management, raising the bar of operations which was reinforced by Dressler (2007), who stated that the breakthrough in shared services operations has been the advent of ERP systems as the digital transformation enabler. Disruptive technologies improve efficiencies by facilitating standardization and integration of data and processes (Tolboom, Draaisma, & Broeders, 2016).

Theories such as core competencies theory (CCT) (Drejer, 2002; Roos & Roos, 1997) and more recently the digital capability framework (DCF) (Uhl-Bien, Riggio, Lowe, & Carsten, 2014) can offer a conceptual lens and theoretical support for technology intervention for shared services transformation. CCT suggests that employees/enterprise associates work collectively in cooperation in order to enhance their core competence/capability, thereby achieving sustainable competitive advantage (Drejer, 2002; Hamel & Prahalad, 1994). The DCF aims to help companies analyze their transformation potential and to leverage business and technology innovations in building up appropriate transformation and innovation capabilities. To sum-up the above discussion, technology can be viewed as a resource or capability or competence that can be harnessed to bring about effective shared services transformation.

Research Gap

Despite being a business space of active innovation and dynamic evolution in practice, surprisingly, there hardly exists any empirically founded, academically documented body of knowledge on the concept and practice of 'shared services'. The scant evidence-based/empirical work that currently exists is largely contributed or mandated by practitioners, business organizations, research firms or consulting companies and is limited to specific aspects, such as gaining understanding of possible savings from shared services or examining few interrelations of activities or their effect on the success of shared services, among others. Lack of extensive empirical

research based on conceptual framework offered by existing theories is a clear research gap in the shared service area that needs to be addressed. Following this, the current study attempts to contribute to close the gap (albeit marginally) by documenting the empirical findings on the highly underrepresented topic of 'shared services' in academic literature. Further, while there are few studies that discuss the collective impact of digital transformation on businesses, there are fewer studies that analyze empirically the effects of technology intervention on shared services transformation. Thus, the study aims to uncover industry practices in leveraging technology for shared services transformation across organizations and across industries.

Research Question

The research problem arising from the research gap makes way for the fundamental premise of the study that aims to answer the research question:

'How technology intervention enables shared services transformation?' (With special focus on efficiencies.)

Research Objectives

The research question can be effectively answered by fulfilling the following research objectives:

a) To understand 'technology-enabled shared services transformation', with specific reference to technology-enhanced efficiencies and effectiveness.
b) To identify what kind of shared services efficiencies can be brought about by technology-enabled transformation.
c) To understand the effect of digital and disruptive innovation on various business processes and identify what type of technological interventions act as enablers in shared services transformation.

Research Approach and Method

The research has two parts that have been carried out in two stages:

1. Review of literature to understand 'technology-enabled shared services transformation' in its entirety, with specific objective to

understand what efficiencies can be attained by technology intervention in shared services.
2. Empirical research through a survey to determine the influence of technology on shared services transformation, with specific reference to technology-enhanced efficiencies and effectiveness.

About the Survey

The online, self-administered questionnaire-based survey was sent out to shared services practitioners across all functions, working for both Indian and international organizations with centers in the south Indian cities of Bengaluru, Chennai and Hyderabad. Of over 100 responses representing over 14 industry segments and covering over 60 SSOs, the business functions of Finance & Accounting (F&A) had the greatest representation, closely followed by manufacturing and IT in that order.

Findings and Discussion

The findings of the survey reinforced the fact that the shared service organizations are capitalizing on technology to stay competitive and to meet changing customer needs better. The key findings of the survey are that most respondents felt that the rate of adoption of tools and technology could be better, and in some instances, SSCs continue to use ERPs and other ancillary tools enabled by human labor as their primary mode of operation.

About 60% of the survey respondents are of the opinion that technology is a game changer for shared services and that technological advances may multiply the potential efficiencies beyond cost and time. Close to 50% survey respondents feel that data/metrics availability and accessibility enhance shared services efficiencies. It was interesting to note that fewer than 50% respondents felt that technology helps in scaling up of the services. Close to 65% were of the opinion that digital migration-related risks can be mitigated. Close to 60% of the respondents felt that technology adoption makes shared services more agile and innovative in the dynamic business landscape.

It has been widely accepted that digital transformation in shared services has a great potential to achieve operational excellence unlocking avenues to increase organizational revenues and enhance customer value-add. Attaining operational excellences necessitates attainment of efficiencies,

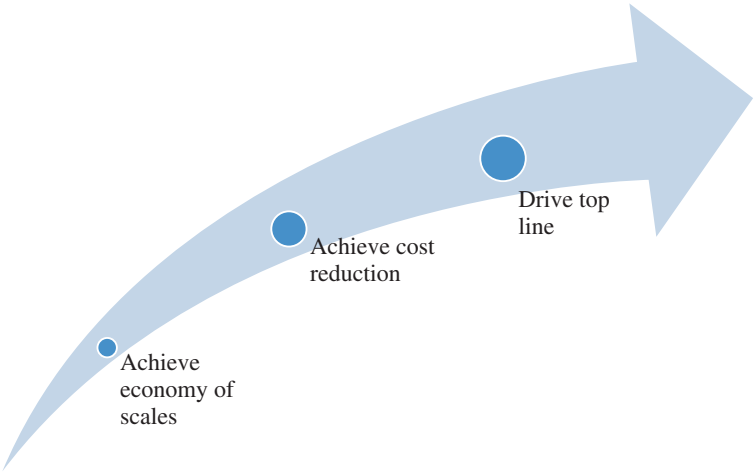

Fig. 3.1 Organizational efficiency curve (Source: Author(s))

the three stages of which (i.e., efficiency realization in the life cycle of SSC) can be depicted by means of an 'Efficiency curve' (see Fig. 3.1) as follows:

- Stage 1: Achieving economy of scales through operational optimization by centralizing services and processes
- Stage 2: Achieving cost reduction through elimination of unnecessary process steps or automation of process steps which reduces the processing time and improves the bottom line
- Stage 3: Driving top-line impacting functions like marketing/sales using latest technology to predict and enhance customer journeys, thus enabling seamless customer experience

For each of the above stages to succeed, a robust technological framework and environment that supports adoption of digital tools is imperative for any shared services organization—quality of the same dictates the success or failure of the operation. As data and processes are shared across lines of businesses (LOBs), how data is captured and updated becomes paramount. In this context, the following areas are of specific importance

- Data entry:
  - Singular point of data entry keeps the work flow simple and effective throughout

- Data validation and integrity of shared data:
  - Data captured at source and validated at source
- Effective audit trails of who captured/validated/accessed:
  - Data integration across various processes
- Single system of record:
  - Accurate and near-real-time data updating to avoid out-of-sync conditions
- Effective and accurate MIS to provide stakeholders key and accurate information:
  - Canned and on-demand reports to be available to enable accurate and timely decision making
- Reporting capability for fraud detection:
  - Effective data protection
- To safeguard data that is being saved and shared from both internal and external threats:
  - Implement 'principle of least privilege'
  - Data deletion and retention policies

In order to address the above, selection of enabling technology and tools which are compatible and scalable is highly important. The associated challenges/costs include the propositions make vs. buy, licensing cost and support infrastructure. The availability of various tools and technology in the market enables the organizations to address the requirements diligently. Technology intervention can take various forms such as BPM tools, RPA and cognitive automation, AI, ML and cloud computing (see Fig. 3.2).

Conclusion

Fear the unknown or prepare for the unknown. Perish or flourish. Disruptive technologies that facilitate digital transformation enhance shared services performance, in terms of delivering differentiating value alongside lowering costs, improving quality and efficiencies. Business models can be strengthened cost-effectively and disruptive innovation models enabled. It is noteworthy that a lot of interest and hype about the value-add brought in by intelligent automation technologies at work notwithstanding, businesses worldwide are adopting a guarded approach when it comes to the actual adoption of automation at work.

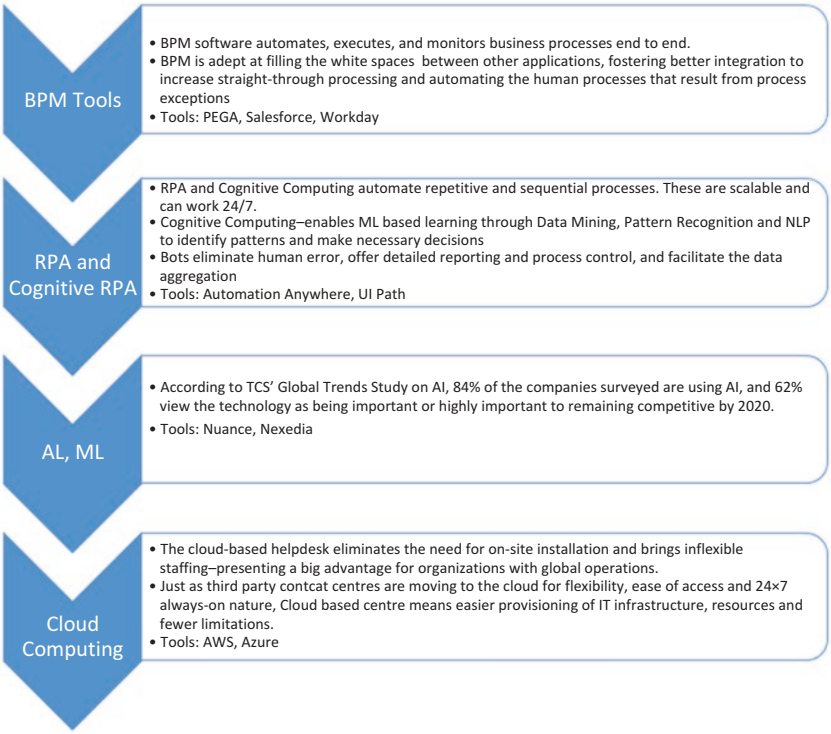

Fig. 3.2 Technology intervention in shared services (Source: Author(s))

While tactical application of robotics is common, strategic enterprise-wide deployments of cognitive automation and RPA remain to pick up steam. The dark (unstructured) data is deciphered by AI models such as the Machine-Learning-enhanced-cognitive IQ bots.

It is strongly believed that technology in the form of digital workforce is here to stay in shared services organizations, transforming them from cost center to an active strategic center for the benefit of all stakeholders. Consequently, the HR department has an important role to play in drawing up and delivering re-skilling programs for the employees with the skills of the future. In this context, six essential future skills listed by Blueprism—RPA pioneer and popular provider of RPA and allied technology—are visual perception, knowledge and insight, learning, problem solving, planning and

sequencing and finally collaboration. The seven significant elements or considerations for successful strategic RPA adoption, according to Blueprism include the following determinants:

- Vision (aligning strategy to expected outcomes)
- Organizational design (to enable the best delivery of RPA capability)
- Governance and pipeline (process identification for automation and associated benefits)
- Delivery methodology
- Service model (customer-engagement model, complete with reporting and referral handling processes)
- People (recruiting, training, mentoring)
- Technical environment (economical and scalable)

Implications

Business process management efforts globally point to the fact that digital capabilities are essential to the transformation of shared services. Emerging technologies such as cognitive automation, RPA, RDA, blockchain, cloud computing and Big Data Analytics create an opportunity to revamp business functions and processes. More specifically, these technologies bring efficiency and insights that drive business agility and yield an interconnected, intelligent enterprise. With applications across enterprises, from F&A to field operations, digital technologies make faster and smarter decisions possible with a direct impact to the top-line growth. For instance, early adopters of digital technology recommend that finance shared service organizations could redesign/revamp their finance processes using block-chain framework technology and simplify financial records with triple-entry bookkeeping. Similarly, investment in process automation using RPA or cognitive automation powered or complemented by AI by organizations with operations related SSCs could augment efficiencies. Harnessing Machine Learning (ML) and Artificial Intelligence (AI) driven analytics coupled by demand-based cloud computing would result in manifold benefits such as improved insights into customer-buying behavior patterns that could in turn help the company to set the market trends or react to changing patterns with greater speed and intelligence. The corporate symbiotic measures such as established businesses looking out for active collaboration with start-up companies aid in keeping the technology investment and adoption

costs minimal or completely off the balance sheet of the established companies. Similarly, the experience and expertise of established organizations in terms of business process expertise and compliance/regulatory knowledge can be leveraged by start-ups to boost digital disruption in a secure way.

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CHAPTER 4

Coal-Sourcing Options for Captive Power Plants of Aluminum Smelters in India: Issues and Challenges

Srikanta Kumar Naik and Ranjit Roy Ghatak

Introduction

The domestic aluminum industry is struggling to remain globally competitive due to increasing production costs. India has among the highest cost of production of aluminum. This can be attributed to high power cost in India. Non-coking coal is crucial input for aluminum producers with power cost constituting almost 40% of the aluminum production cost (Saraswat & Ghosh, 2018). One ton of aluminum production requires about 14,500 units of electricity generated from almost 11 tons of coal (Saraswat & Ghosh, 2018). All the plants have set up their captive power plants of about 9500 MW for cheaper and uninterrupted power supply. Presently, the captive power plants of aluminum smelters in India are going through coal shortage, majorly due to less supply of domestic linkage coal against annual contracted quantity as per Fuel Supply Agreement (FSA) with Coal India Limited (CIL).

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The objective of the study is to suggest most viable coal source mix for uninterrupted coal supply to the captive power plants of the aluminum industries in India.

Industry Scenario

To carry out the research, we have studied overview of global and domestic energy-mix, power and coal scenario, demand and supply of coal, and typical coal sourcing in aluminum sector. In addition, geological and geographical coal reserve, installed and generation capacity of domestic power sector, coal production and offtake at CIL and subsidiaries and domestic coal supply trend to power and non-power sector have been reviewed. The study encompasses discussions on coal block allocation/auction, linkage auction, e-auction-related regulatory framework and import of coal scenarios within the industry and Indian economy as well.

Indian Aluminum Industry

The Indian primary aluminum industry consists of three major players which are NALCO (PSU), Hindalco and Vedanta with a production of about 3.4 MT and capacity of 4.1 MT. The aluminum industry has set up about 9500 MW of captive power capacity for cheaper and uninterrupted power supply.

Coal-Sourcing Options

There are five key sourcing options of coal, varying significantly on cost, quality and availability for the CPPs of aluminum smelter in India.

1. Linkage/Linkage Auction: Linkage coal is of lowest cost, characterized by relatively regular and stable supply. Materialization is low and variable (affected with change in demand supply scenario of domestic power and coal sector).
2. e-Auction: Cost and volumes of e-auction coal are subject to market dynamics at monthly level.
3. Import: Imported coal characterized by highest cost and one to two months of lead time for supply can be used for blending with other

cheaper coals. There is also technical limitation on the portion and quality of import coal blending.

4. Traders: Coal procurement from traders is characterized by highly unreliable supply, subject to volumes available with traders, transportation availability and competition among buyers.
5. Captive Coal Mines: Significant capital investment is needed upfront to bid and develop captive coal mines to achieve volume and price security.

Imperatives for Efficient Coal Sourcing for Aluminum Smelters in India

Coal-sourcing mix should be dynamically optimized every month, in light of changing prices, quality and quantity available across all sources. Marginal cost of coal should be used as the measure for each sourcing basket. Long-term and medium-term security need to be emphasized for reliable uninterrupted coal supply. Risk of cost of coal shortage should be valued at equivalent GRID power prices/opportunity loss in production. Sourcing team needs to be in constant touch with multiple importers, traders and transporters in order to ensure that all sources are tapped effectively. Sourcing team needs to capitalize on cyclicality in international coal market-benefit from phases of low prices. They need to have logistics capacity to handle varying modal mix and coal quality.

Issues and Challenges in Sourcing Coal for Aluminum Smelters in India

There is a significant gap in demand and supply of coal in domestic market of India. Domestic coal supply to CPPs of aluminum smelters has been worsening due to following major issues:

- Cancellation of coal block allocation by Supreme Court in 2014 and aggressive bidding (high premium) in subsequent coal block e-auction from 2015 ("Supreme Court Scraps 214 coal blocks", 2014).
- Underutilization of captive coal block due to cost competitiveness, inherent challenges such as higher stripping ratio and higher cost of land acquisition.

- Auction of linkage coal on the basis of source-specific competitive bidding.
- Stress in power sector affecting CIL's coal supply to non-regulated sector.
- Higher dependency on CIL for supply of domestic power grade coal.
- Incremental production of coal being used to cater the increased demand of power utilities.
- Disturbances in coal production of CIL due to major issues such as delay in getting Environment Clearance (EC), Forest Clearance (FC), Rehabilitation & Resettlement (R&R) issues and local disturbances.
- Quantity of coal offered in spot and exclusive e-auction schemes by CIL's subsidiaries reduced.
- CIL's vendible pi-head coal stock continuously depleting due to increased supply to the power sector.
- Higher dependency on imported coal due to wider gap in domestic coal demand and supply.
- Government directive to power utilities to run on domestic coal supply. Power utilities thus reduced the import of coal for blending with domestic coal. Some of the PSU utilities recently ended up importing coal to tide over the shortage.
- Capacity constraints leading to coal infrastructure and logistics bottlenecks in coal-evacuations from mines/sidings.
- Frequent interruptions in linkage coal supply to the non-regulated sector by CIL and priority in rake supply to the power sector. Captive power plants (including aluminum smelters, steel, cement and other industries), which use about 33 gigawatts of coal-fired generation capacity, are last in line for domestic coal supply by CIL (Russell, 2018). Aluminum industry is not in priority in coal supply as it is classified as non-core industry ("Aluminium makers face coal shortage", 2018).
- Coal quality non-conformance in the supply of coal by CIL's subsidiaries. Deficiency in quality assessment by third party (improper sample collection and unavailability of sample preparation equipment). There is enormous delay in getting the analysis reports, credit/debit notes. Subsidiaries supplied unsized and uncrushed coal at various instances.
- Grade of coal produced has been worsening.
- Competitive and dynamic power market. High spot power price in importing power from grid by aluminum smelters.

- Hiccups in growth of renewable energy sources.
- Coal block auction for commercial mining have been moving at a slow pace.
- High taxes, duties and levies, excessive carbon tax, Renewable Power Obligation (RPO) burden, higher electricity duty.
- Low Research & Development (R&D) in coal sector and limited use of coal-washing technologies in India.
- Huge reserve lying untouched due to the non-application of advanced technologies specific to the particular type of deposit.
- Adverse geology and increase in stripping ratio resulted in increase in mining cost.
- Operating performance of CIL is lower than global peers. Technology adoption by the coal sector in India is limited.

Global Coal Scenario

R/P (Reserves-to-Production) ratio for coal is around 134 years. Around 85% of the coal production globally is consumed domestically. China continues to be the largest coal producer globally and accounts for 45% of the world's coal production. The United States, India, Australia and Indonesia together account for 32% of the world coal production. Generation from coal has started to decline due to continuously increasing mix of renewables. Globally, coal production has been declining. Developed economies namely the United States, China and Europe continued to report fall in demand for coal and have reported growth in gas-based and renewable energy generation. Australia and Indonesia continued to be the largest coal-exporting nations in the world and accounted for 56% of the total coal export volume. The top four destinations of exported coal were China, India, Japan and South Korea and accounted for 59% of the total global coal import volume.

Power Sector Scenario in India

India is the third largest producer and third largest consumer of electricity in the world. Over financial year (FY) 2010–2018, electricity production in India grew at a compound annual growth rate (CAGR) of 6%. India has the fifth largest installed capacity in the world. The installed power capacity reached 346 GW as of September 2018. Installed capacity increased steadily over the years, posting a compound annual growth rate (CAGR) of 9.08% in FY 2009–2018 (Government of India, India Brand Equity Foundation, 2019).

Coal provides 56% of Indian energy needs, and 73% of the entire power generated in the country is coal based. Coal-based power generation grew at a CAGR of 9% in FY 2013–2016 period; however, this growth has been slowed down to 5% in last three years. Coal-based power plant installed capacity has grown at a CAGR of 12% in FY 2013–2016 period, as a result the Plant Load Factor (PLF) of coal-based power plants dropped significantly in FY 2013–2016 period (72% to 62%). However, the PLF has again increased due to slowdown in capacity addition in FY 2016–2019 period. The increase in capacity has outpaced the growth in demand, resulting in a declining trend of all-India Plant Load Factor (PLF). This indicates underutilization of thermal capacity.

Coal demand by power sector has been growing at 5–6% per annum in line with GDP growth. Some of the shortfall/steadiness in nuclear/hydro and gas-based power plant had to be taken by coal-based power plant. As a result, PLF of coal-based power plants is consistently higher than last year. Coal demand by power plants has increased from 46 Million Tonnes per month in FY 2015–2016 to 53 Million Tonnes per month in FY 2018–2019. Currently, coal consumption is at its highest level; however, import by power sector has not picked up, putting huge pressure on domestic coal supply to power sector.

Coal Sector Scenario in India

India has the fifth largest geological coal reserve of 319 billion tons (149 BT measured, 139 BT indicated and 31 BT inferred), of which 89% of the existing coal reserves in India belong to the non-coking category, which is consumed mainly for power, cement and fertilizer production. India is the third largest coal producer in the world after China and the United States. The total coal production in India was around 676 million tons (MT) in FY 2018. More than 93% of the domestic production comes from public sector coal producers. 93% of coal production is from open-cast mines. Domestic coal shortage has been widely reported, especially for thermal power plants. The state-run miners (CIL and SCCL) on their part have been trying to address the issue of coal shortage at power plants. Demand for non-coking coal in India has been rising at 3.7% from FY 2012–2018. Non-coking coal consumption is forecasted to grow at a CAGR of 5.4% to reach 1076 MT in FY 2023 from 826 MT in FY 2018 and domestic supply is forecasted to reach 931 MT in FY 2023 from 664 MT in FY 2019, at a CAGR of 7% (Government of India, India Brand Equity Foundation,

Table 4.1 Growth of Indian non-coking coal sector at a glance

Particulars (MT)	*2013–2014*	*2016–2017*	*2017–2018*
1. Reserve of non-coking coal (measured)	107,509	124,423	129,112
2. Demand of non-coking coal	716	828	845
3. Supply of non-coking coal	514	591	664
4. Non-coking coal production in India	509	596	608
5. Non-coking coal production by CIL	414	499	534
6. Import of non-coking coal	130	149	145

Source: CEA, MOC, CIL Reports

2019). Correspondingly, supply for non-coking coal has only been rising at 2.8% from FY 2012–2018. This has led to consistent increase in demand–supply gap for non-coking coal. The growth of non-coking coal sector in India is exhibited in Table 4.1.

Geological Coal Reserve in India

As per GSI compilation of resources as on 1 April 2018, in situ geological resources of coal in India up to a depth of 1200 meters is 319 BT, which includes proved, indicated and inferred resources. Jharkhand, Odisha and Chhattisgarh constitute 69% of the total coal reserve of India having 83, 79 and 57 BT of coal respectively (Geological Survey of India, 2018). Out of the total coal reserve of 319 BT, non-coking coal is 283 BT (89%). Geographical mismatch between demand and supply of coal is explained, as 87% of coal is concentrated in the eastern states of Odisha, West Bengal, Jharkhand and central states of Madhya Pradesh and Chhattisgarh. Around 45% of the thermal power plants (TPPs) are on the northern and western regions.

Key Trends on e-Auction of Captive Coal Blocks

Hon'ble Supreme Court of India vide its judgments in August and September 2014 had declared 204 coal mines/blocks allocated to the various government and private companies since 1993 as illegal on the grounds that the procedure followed was arbitrary and no objective criterion was used to determine the selection of companies. Pursuant to this judgment, e-auction of Schedule II and Schedule III Coal Mines was conducted (Government of India, Ministry of Coal, 2015).

Post SC judgment on deallocation of 204 coal blocks in September 2014, the Ministry of Coal has so far awarded 84 coal blocks through auction and allocation route to various end users out of which around 18 mines have started production of coal (Government of India, Ministry of Coal, Coal Controller Organization, 2018). Captive coal blocks are underutilized due to reasons such as:

- Coal blocks which may have landed costs higher than the alternate sources of coal available for the end-user plant (EUP).
- Inherent challenges such as higher stripping ratio and higher cost of land acquisition.
- High premium quoted in the coal block auctions in spite of being inherently viable.

e-Auction of Coal Blocks for Non-regulated Sector

Attractiveness of each coal blocks to be mapped is based on capacity and quality of coal; evacuation infra and distance from the plant; type of deposit: underground and open-cast; readiness of blocks: status of clearances; land acquisition; R&R issues. A bidder can sell up to 25% of actual mine production in open market without being charged any additional premiums on such sale (Government of India, Ministry of Coal, 2019). Washery rejects from these mines can only be sold after taking approval from Coal Controller of India (CCO). A successful bidder or allottee proposing to utilize the coal mined from a particular mine for any other plants owned by the bidder or its subsidiary company for common specified end use shall provide prior intimation to the Central Government in writing.

An end user can bid for uncovered portion of their requirement met by captive coal mine and linkage. However, a linkage can be surrendered once a coal mine is secured under auction. The entitlement to receive coal pursuant to such coal linkage shall stand proportionately reduced on the basis of the requirement of coal being met from the mine.

Coal India Limited (CIL): Overview of Coal Production and Dispatch

The producing Indian subsidiary companies of Coal India Limited are:

1. Eastern Coalfields Limited (ECL)
2. Bharat Coking Coal Limited (BCCL)

3. Central Coalfields Limited (CCL)
4. Western Coalfields Limited (WCL)
5. South Eastern Coalfields Limited (SECL)
6. Northern Coalfields Limited (NCL)
7. Mahanadi Coalfields Limited (MCL)
8. North Eastern Coalfields (NEC)

Coal India Limited (CIL) is the biggest coal company in the world. CIL had 369 mines at the beginning of 2017–2018, of which 174 are underground, 177 open-cast and 18 mixed mines. While production from open-cast mining was 536.83 MT during 2017–2018, production from underground mining was only 30.54 MT. Incremental increase in coal production by CIL in the last five years (FY 2013–FY 2018) was 115 MTs, compared to incremental increase of 73 MTs during previous five years, from FY 2008 to FY 2013. Coal Production Growth of CIL stood at CAGR: 4.5% during FY 2012–2018. Production from open-cast mines during 2017–2018 was 94% of total coal production. Non-coking and coking coal comprises 94% and 6% of CIL's coal production. About 50% of CIL's total production comes from 15 mega open-cast mines. There are 26 operational mega mines, which are contributing around 60% of total production. CIL is developing 11 new mines to maintain the current production momentum.

Production of coal at CIL's subsidiaries was affected due to issues related to land acquisition/possession, Rehabilitation & Resettlement (R&R) and related law and order issues, Forest Clearance (FC) and Environment Clearance (EC). Around 60% of the world's coal production is from underground mines while 40% from surface mines. The largest coal-producing countries like China, South Africa, the United States and Australia are producing coal from underground mining at 95%, 50%, 33% and 20% respectively. India stands at about 6%. The growth of coal production from mines of CIL is linked to growth of coal production from surface mines. After nationalization in 1970s, CIL had more than 700 underground mines. About 60 small and old (underground and mixed) mines were closed in 2017–2018.

Policies Driving Linkage e-Auctions

Coal India Limited (CIL) has been supplying indigenous coal to regulated, strategic and non-regulated sectors. Regulated sector covers non-captive coal-based power generation units. Strategic sectors are rail and defense. Non-regulated sectors cover cement, steel, captive power and

others. Proportion of coal allocation between power and non-power sectors may be continued at the same level as average proportion of the last five years, that is, 75% for power and 25% for non-power (Government of India, Ministry of Coal, 2016). About 90% of the supplies are made through long-term Fuel Supply Agreements (FSAs) with end users and the rest through electronic auctions (e-auctions) (Government of India, Ministry of Coal, 2015).

The coal linkages were earlier granted to various entities on the basis of decisions of a Standing Linkage Committee. In the non-regulated sector, there is no justification of providing coal at a price less than the market price because the market is not regulated and the market forces determine the price of the final product. Post the Supreme Court judgment on deallocation of 204 coal blocks in September 2014 (Government of India, Ministry of Coal, 2015), it is logical to interpret that the same philosophy of non-discretionary allocation could be extended for the CIL's linkages as well. This development has made CIL to allocate linkages through a market-based mechanism. In pursuance to the new policy, CIL has been conducting linkage auctions for different sub-sectors under non-regulated sector since June 2016 (Coal India Limited, 2016).

RoM (Run-of-Mines) prices of CIL are different for regulated and non-regulated sectors. This is a fair principle, and especially in the non-regulated sectors, the various end-use sub-sectors have their own distinctive economics and methodology. If the sectors are pitted against each other, it would lead to some sectors losing out on linkages.

Therefore, separate quantities have to be earmarked for regulated and non-regulated sectors on the one hand, and furthermore, within the non-regulated sub-sectors, cement, sponge iron, all captive power plants (CPPs), steel (coking coal) and others would have separate quanta in the auction process. The attributes of linkage auction of coal is detailed as below:

- The methodology for auction of linkages that achieves this balance is Supplier Controlled Ascending Market Clearing Auction where the prices are increased till demand–supply equilibrium is established. The initial floor price is set at the relevant CIL ROM price and for a particular link quantity. If bids are received for quantity greater than link quantity, then the floor price is increased in steps. Auction stops when bids are received for the exact quantity, that is, link quantity offered. Maximum bid quantity by a particular bidder shall not exceed the normative requirement of the end-user plant.

- For auction of linkages, CIL/SCCL shall chalk out annual or six-monthly auction calendar.
- There may not be premature termination of FSAs of non-regulated sector. However, there will be no renewal of existing FSAs of non-regulated sector (except FSAs of Central Public Sector Enterprises (CPSEs) of Fertilizer [Urea]), which are maturing in 2015–2016 onward. Extant coal supply arrangements may continue till commencement of coal supply under auction process (Government of India, Ministry of Coal, 2016).
- Source of supply shall be individual mines/railway sidings. Auction will be conducted in "Lots". Each lot will majorly have grade, quantity, size, point of delivery (road-sale point/railway siding), sub-sector for which that lot is earmarked.
- The tenure of the FSA shall be five years, which can be extended by another five years on mutually agreed terms upon the request of the bidder. FSA shall have a lock-in period of two years. Post the expiry of lock-in period, the successful bidder may seek an exit after serving a prior written notice of three months (Coal India Limited, 2016).
- Eligible quantities are calculated by a predetermined formula. Consumption is considered at 85% PLF and Heat rate as prescribed by Central Electricity Authority. All existing linkages are subtracted at G-10 irrespective of FSA grade. All existing captive mine secured are taken out from consumption requirement. Auctions are conducted on Rs/ton premium over notified price (Coal India Limited, 2016).
- Linkage auction FSA requires 100% supply by CIL against 75% supply in existing linkage FSA (Coal India Limited, 2016).
- Quality assurance through third-party sampling facility.
- Linkage Auction FSA is mine-specific and hence there shall be predictability of tentative logistics cost
- Regional players that are nearing expiry of existing linkages will be the foremost competitors. A list of all regional players needs to be prepared with existing linkage expiry, location and willingness to pay.
- However, non-regional players that have high unsecured demand can be surprise entries.

Key Trends on India's Import of Coal

The coal production in the country had not been keeping pace with the increasing demand. The major reason being delay in development of coal mines in the country. Moreover, the supply of high-quality coal (low-ash coal) in the country has been more limited. This compelled power plants

to import coal to bridge the demand–supply gap. Power utilities were advised to import coal for blending due to inadequate availability of domestic coal and to maintain the stipulations of Ministry of Environment and Forest regarding use of coal with less than 34% ash content and to occasionally supplement the coal from indigenous sources. Further, with the commissioning of power plants designed for use of imported coal as fuel, power utilities imported coal to meet the requirement of fuel for these power plants. Present import policy allows coal to be freely imported under Open General License by the consumers themselves considering their needs.

Coal accounted for 4.9% of total imported goods by value (approx. $22 billion) in India and is the fourth most imported commodity behind petroleum, precious stones and gold. Steam coal or non-coking coal accounts for 70% of total coal imports volume. India's non-coking coal imports were at 164.21 MT in FY 2018–2019, about 13.25% increase over 144.99 MT recorded in FY 2017–2018 ("Coal Import Rises", 2019). Indonesia is the most dominant source with about 48% share in total import.

Global Coal Demand and Supply

The global seaborne trade amounts to around 1 billion tons and with prices averaging $80 per ton, the market size would be near $80 billion. Only 15% of global production is traded for more than 50% for oil. During the last 12 months, global coal prices have been in the range of $70–106. Global coal demand is expected to go up to 1000 MT in 2018 from 923 MT in 2017, which means that there will be a likely 77 MT growth in demand in 2018. Attributes of demand and supply forces are discussed in the section below:

- Demand: China and India are the biggest drivers, account for around 65% of the global thermal coal demand. Growth rates are driven by GDP growth combined with power generation mix changes. China's coal consumption is a major uncertainty with 80 million tons gap between high and low scenario. India's domestic coal demand is set to increase at the rate of 6% per annum owing to growth and import-substitution.
- Supply: Indonesia is expected to continue their dominance in supply of non-coking coal. Indonesia's regulations and South Africa's rail-

ways coal export capacity are likely to be the major factors on supply side. Chinese and Indian policy-making and domestic industry dynamics are pivotal factors.
- Pricing: There would be continued price volatility driven by demand–supply gap, logistics bottlenecks, policy decisions and mine disruptions. USD movement, oil price, geological inflation, inflation in labor and other mining costs will affect the prices.

Implications for Captive Power Plants

Captive power plants (CPPs) typically have 70% of their import requirements on long-term contracts (LTCs) and the rest is opportunistic buying on spot. Best-in-class companies have a mix of traders and miners in their supplier portfolio. LTCs are signed with one or two suppliers per geographies and two geographies overall at most (typically Indonesia and South Africa). Mozambique and the United States are typically used for opportunistic buying (especially high sulfur off-spec coal). Best-in-class prices for importers in India are in the range of 20–27% discount to Newcastle (NEWC) index. This is driven by a strong value proposition of large volumes and excellent reputation on payment. Within Indonesia, it is economical to target supplier with lower gross calorific value (GCV) off-specifications (off-spec) coal (<5500 NAR) as lower GCV off-spec coal trades at a discount. Long-term contracts are generally linked to index (Newcastle, API4, etc.) while spot prices are fix for delivery within 90 days. Selection of right index for target quality of coal is important, as GCV discount has been available for lower GCV coal. The index should be closer to the actual GCV. If linked to Newcastle, the most prominent index, sufficient discount should be applied. Industry players are working on various combinations of short term, long term, FOB/CIF, trader/miner, fix/index and get varying discount from index. A comprehensive supplier-management program is executed across three categories

- A class supplier: Candidates for LTCs, CEO to CEO discussion every six months, potential for long-term strategic partnerships
- B class supplier: Predominantly spot purchase, meetings through roadshows every year
- C class supplier: Low priority, to engage in case of positive disruptions in their system

Pricing and Contracting Strategy

Optimal strategies across major elements depend on volumes and overall prevailing market conditions as mentioned below:

1. **High-volume, long-term index-linked contracts (volume: >5 MT)**:
   (a) Description: Typically done by Japanese and South Korean players for high GCV coal (>5500 NAR)
   (b) Long-term contracts directly with coal producers up to three years
   (c) Buyer rationale: Long-term supply security at competitive price
2. **Medium-term volume variable price contract with coal producers/traders (Volume: 1–5 MT)**:
   (a) Description: Typically done for low and medium GCV coal
   (b) Buyer rationale: Supply security in the short term
   (c) Typically get in to this when market is not at its lowest
3. **Small-volume spot/short-term contract (volume <1 MT)**:
   (a) Description: three to six months' contracts with producers/traders (1–3 vessels)
   (b) Typically driven by opportunistic buying or distress sale
   (c) Buyer rationale: Market intelligence on price for negotiation on LTCs
   (d) Large portion of volumes on variable demand
4. **Short-term vs. long-term contract: long-term contracts (>6 months) applicable when**
   (a) Quantity to be procured is >3 MTPA and it is certain
   (b) Supply security is critical
   (c) Outlook on domestic e-auction prices is high
   (d) Index discount with chosen supplier is substantial
5. **Producers vs. traders: traders offer certain advantages over producers**
   (a) Supply security, flexibility to lift laycans, quick fulfillment
   (b) Offer multi-origin, opportunity to buy low volumes
   (c) Optimize specifications and price across locations
   (d) Large traders get up to 15% discount from relevant index while buying from producers

6. **Index-linked vs. fixed price contracts**:
   (a) Index-linked contracts reduce risk for both supplier and buyer—most commonly used for LT contracts
   (b) Big traders are able to keep part of their requirement fixed at lower cost due to volume and long-term relationships
7. **Free on board/cost, insurance and freight (FOB/CIF)**:
   (a) Miners prefer FOB deals: Marine-logistics arrangement to be arranged by customers
   (b) CIF with traders is more prevalent norm due to the following:
      (i) Traders have better charter deals
      (ii) As an aggregator, traders also provide flexibility of choosing discharge port
8. **Off-specs coal**: Off-specifications coal trades with a discount. Operational feasibility should be worked out.
9. **Implications of quality parameters**: Plants should examine cost benefit analysis for the quality parameters viz. GCV, moisture, ash, VM, sulfur, AFT, HGI and size. A rejection limit is set after a certain range.

Recommendations

1. **Sourcing Strategy**: Around 70% of the overall coal requirement should be secured on long-term basis through captive coal blocks, linkage auction based on cost economics for uninterrupted reliable coal supply. Only ~30% of the coal should be secured through open-markets sources such as domestic e-auction, traders, imported coal for blending. Sufficient coal to be made available at the plants (15 days' stock). Integrated margin management to be used while formulating the coal-sourcing strategy.
2. **Linkage Coal Materialization with Quality Conformance**: Continuous pursuance at Ministry of Coal (MOC)/Coal India Limited (CIL) to be in place for stable coal supply to non-power sector as per monthly contracted quantity. Robust transportation and supervision services contracts should be in place. Quality conformance to be ensured through third-party sampling provision
3. **E-auction Coal Procurement**: A comprehensive e-auction strategy should be implemented based on marginal cost analysis, intelligence gathering, mines-wise attractiveness, competitive intensity, dynamic decision-making model, monthly decision on mine-level quantity

and price targets. Quality conformance should be safeguarded through third-party sampling provision

4. **Import Coal Procurement**: 70% of import quantity should be procured on long-term contracts (LTCs) with 30% on opportunistic buying with one or two suppliers for LTCs per geography and two geographies at most for LTCs. Mix of miners and traders should be considered in the import coal supply portfolio.

Limitations of the Study

- This study is limited to the coal-sourcing options for CPP sub-sector of aluminum industry under non-regulated customers of CIL.
- The basis of sample selection is purely judgmental in view of the time available
- The issues identified and proposed action plans in this report are based on the discussions with the people engaged in the industry, review of relevant documents/reports and physical observation of the activities in the process.
- Subsequent test work, study of issues in detail and developing action plans are directed toward the issues identified.
- The work carried out and the analysis thereof are based on the primary and secondary data gathered from various websites, study of various published reports, interviews with the industry experts.
- An effort has been made in specific to verify the accuracy and authenticity of the information gathered only in those cases where it was felt necessary.
- The outcome of the analysis may not be exhaustive and representing all possibilities.

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PART II

Corporate Financial Management

CHAPTER 5

Managing Microfinance Institutions: Analyzing How Relationships Influence Entrepreneurial Behavior

Fernando A. Moya-Dávila and Ananya Rajagopal

Introduction

Microfinance organizations have emerged in developing countries in the mid-twentieth century as community resources for need-based funding to the community members. The philosophy of microfinance has evolved over the concept of self-help groups (SHG) to empower women socially and economically (Burlingame, Davis, & Kirchhoefer, 2017). The group approach in microfinancing has been supported by the apex refinancing banks in developing countries like NABARD (National Bank for Agriculture and Rural Development) in India. This concept was internationally recognized and endorsed by the International Bank for Reconstruction and Development (World Bank). Over time, the microfi-

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nancing operations by self-help groups have adapted to the banking standards and operations are carried out with necessary documentation, monitoring, and evaluation. However, these organizations are based on community control toward individual and peer-group lending for personal and entrepreneurial needs, respectively. The economic theory suggests that SHGs help in building social and economic capital for the people belonging to the bottom-of-the-pyramid socio-economic segment (Vandewalle, 2017).

In early 1970s, the experiment on microfinance first emerged in Bangladesh to provide credit to household women in the bottom of the pyramid segment to improve their livelihood through self-help options. The purpose of this community credit experiment in Bangladesh was to break the influence of financial intermediaries and individual moneylenders and develop a non-profit and non-governmental community organization (Khandker, 2012). The success of microfinancing model through self-help groups has been globally recognized as Bangladesh Grameen Bank experiment, which may be understood etymologically as rural bank experiment of Bangladesh. One of the principal objectives of organizing self-help microfinance groups was to develop a community banking landscape to empower rural women and provide organizational control in their hands (Kakani & Thakur, 2010).

Self-help microfinance organizations encourage women to resolve their financial crisis and develop an entrepreneurial attitude for using microcredit to improve their livelihood by developing small-scale enterprises. Therefore, the philosophy behind microfinancing is considered as small survival lendings by empowering women within the social communities. The SHGs on microfinance intend to help economically deprived women to enhance their economic conditions by effectively managing their role of stakeholders in microfinance-based enterprises (Naser & Crowther, 2016). Most microfinance organizations operate on informal procedures, have a lack of appropriate training to manage relationship lending among members, and generate entrepreneurial behavior to use small survival lendings effectively. Therefore, improving relationship-lending strategies for microfinance institutions is considered a global concern for educating women members of SHGs to start a new business from microfinance loans (Mahmood, 2011). The empowerment philosophy of SHGs to encourage women entrepreneurial groups like the community way of the development process has proved to be the most effective means of empowerment of women entrepreneurs (Mathur & Agarwal, 2017).

One of the major challenges for microfinance organizations is to develop a lender-entrepreneur relationship to educate members on developing financial proposals, expected interest rates, loan amount, payback time, and enterprise planning. Therefore, microfinance groups should assume joint liability from the initiation of the lender-entrepreneur relationship until the effective use of resources by the members (Singh & Padhi, 2017). The lending relationship between microfinance organizations and entrepreneurs affects the utilization of the loan amount, internal cash flows, and loan recoveries. Microfinance organizations maintain a low level of cash holdings, thus there is a need for perennial cash flow. In this process, these organizations face a major challenge of information asymmetry among members, which affects the loan payback dynamics and effective utilization of the credit (Hu, Lian, & Su, 2016). In microfinancing organizations, effective lender relationships help in determining community-approved interest rates in a non-linear lending pattern. The benefits of relationship lending can be capitalized for the entire microfinance organization if the relationship with the members of the organization is continuous and reasonably long. However, relationship lending might increase the financing cost in terms of interest rates and payback duration and improve the quality of lending (Lopez-Espinosa, Matordomo, & Moreno, 2017).

The borrower-lender relationships matter significantly in disbursement and monitoring the utilization of business credits. These relationships also affect the loan contract terms and per capita credit availability. Therefore, appropriate borrower information on the credit utilization plan is necessary to develop intensive relationships with the borrowers and streamed dynamic benefits of credit utilization over time (Durguner, 2017). Developing effective lending relationship in micro-enterprises helps the organization in identifying the borrower's attitude and credit utilization perspectives during the tenure of credit. The lending relations can be maintained within borrower clusters to significantly impact the entrepreneurial activities and increase the outreach mechanisms to the borrowers (Kong, Turvey, Xu, & Liu, 2014).

Effectively managing the relationships among borrowers improves lending efficiency in microfinance organizations and streamlines the entrepreneurial access to internal capital. Small enterprises benefit from comprehension on lending process and guidance over utilizing the credit for improving the livelihood economy and social values (Bauer & Esqueda, 2017). The need for credit and the borrower's rationale for seeking credit

can be well established by bridging the communication between the lender and borrower. It has been observed that borrower's behavior toward credit is often obscure and it does not indicate the clear purpose for seeking credit. By jointly exploring the credit rationale, credit utilization perspectives, and the goals of microfinance organizations, a clear map of lender-borrower relationship can be drawn considering the community values at large (Jia, Heidhues, & Zeller, 2010).

This study aims at analyzing relationship-lending perspectives in reference to borrower-lender dynamics and cohesiveness in the lending process and developing entrepreneurial behavior. This study contributes to the existing literature by exploring the emerging trend of microfinancing through self-help groups for women in Mexico and discusses the convergence between the lender behavior and its impact on borrower benefits through effective organizational relationship strategy. The thesis of this study is validated through empirical analysis presented in the research conducted by Naser and Crowther (2016) in reference to the effectiveness of the SHGs. Another study conducted by Durguner (2017) critically explains the lender-borrower relationship metrics and defines benefits associated with the effective lending process in microfinance organizations, which endorses the focus of the present study. The following discussion in the chapter is divided into seven sections comprising literature review, theoretical motivation, and framework of hypotheses, study design, analysis and findings, managerial implications and conclusions, and limitations and future research directions.

Literature Review

Modern financial intermediation research has focused its attention on the role that relationship plays in the lender-borrower interaction. As information asymmetries are critical for financial intermediation at all levels of lending, especially, for small businesses, relationship lending has been considered an alternative type of lending to diminish this problem. Diamond (1984) pointed out well by saying that the best lending practice by depositors is to have delegated monitoring by banks because they have diversification possibilities. Banks being the best economic agents to lend, they bear most of the risk of lending. How do they know whom to lend? What are the probabilities of the borrower to pay the loan back on time? Boot and Thakor (1994) argue that if entrepreneur performs well with the first credit, he or she will obtain infinite unsecured credits. Building a relationship helps for future credits from lenders to borrowers.

Stiglitz and Weiss (1981) show a model of credit rationing in which among observationally identical borrowers some receive loans and others do not. Even though small businesses are not mentioned in the chapter, this seminal work applies to them. Small businesses have certain characteristics, unknown to the bank, that may or may not make them deserve a loan. In many cases, credit will be denied by banks. Banks might have an excess supply of credit but due to information asymmetries with small businesses, they won't lend them money even though they accept to pay a higher interest rate. Information asymmetries occur in a transaction when one party has unknown characteristics to the other party or one party has more information than the other party. Banks do not know if the small business is financially strong and has the desire to pay back. On the other hand, small businesses know perfectly well the characteristics of the bank and the loan. This behavior increases the riskiness of the loan and decreases the expected return for banks. Interest rate directly affects the quality of the loan in a manner which matters to the bank. Higher interest rates will attract riskier creditors (adverse selection) who won't care to pay back the loan (moral hazard). For this reason, banks will keep the interest rate unchanged as demand increases. Equilibrium on this situation is not where supply and demand curve intercepts. The economic situation where the demand exceeds the supply of funds is called credit rationing. Credit rationing is a reality in economic equilibrium and is a major contribution of Stiglitz and Weiss.

Information asymmetries are central to the literature on financial intermediation as developed by Diamond (1984) and others (see Bhattacharya and Thakor (1993) for a review). Diamond (1984) analyzes the determinants of delegation costs and develops a model in which a financial intermediary has a net cost advantage relative to direct lending and borrowing. He claims that diversification is the key to understanding why there is a benefit from delegating monitoring to an intermediary, which is not monitored by depositors. Bhattacharya and Thakor (1993) justify the existence of financial intermediation to signal quality of borrowers when a bank loan is given to them. In addition, they claim that credit-contracting variables permit the bank to reduce information problems more effectively.

Sharpe (1990) derived a model of customer relationships in bank loans market. He says that an essential factor underlying a bank's loan pricing policy is its impact on the bank's stock of loyal customers. A bank that actually lends to a firm learns more about the borrower's characteristics than do other banks.

Boot and Thakor (1994) demonstrate with a theoretical model that a durable bank relationship benefits the borrower. The intuition behind this argument is that the long-run contracting enables the bank to efficiently tax and subsidize the borrower through time to reduce the use of collateral. Rajan (1992) developed a model in which the main point is that there is a fundamental trade-off between bank debt and arm's length debt. The bank can monitor the firm and control its investments decisions but alters the payoffs between itself and the firm. The firm may prefer an arm's length financing source. Rajan (1992) suggests that relationships and transactions reflect two extremes of the control-rent trade-off.

Longhofer and Santos (2000) developed a relationship-lending model that lies in the fact that once the firm's prospects have deteriorated, junior creditors have incentives much like those of the firm's shareholders. Thus, it is the most senior claimant that benefits from helping the firm improves its quality. If banks are made junior to other creditors, they benefit little from additional investment in the firm during times of poor performance and hence will have little incentive to build relationships that enable them to determine the value of such an investment. As a result, making the bank senior improves its incentives to build a relationship with the firm, thereby fulfilling an important function of intermediated debt.

Concern about the availability of credit has covered great attention from academics and practitioners. Banks will not lend to companies that apparently are more riskier even though the interest rate charged is higher (Stiglitz & Weiss, 1981). The asymmetric information, agency costs, and moral hazard are the causes for credit not to flow easily to profitable but riskier investment. De Meza and Webb (1987) argue that in equilibrium a loan market might be characterized by overlending. De Meza (2002) says that entrepreneurial over-optimism makes the tendency to overlend. This argument confronts Stiglitz and Weiss (1981).

The portfolio of small business loans owned by banks is inversely related to the size of the institutions (Keeton, 1995; Levonian & Soller, 1995; Nakamura, 1993; Peek & Rosengren, 1998). Big banks tend to lend less to small business while small banks have a larger portfolio of small business loans. This is called the Large-Bank Barriers Hypothesis (Berger, Klapper, & Udell, 2001). Small business lending has grown more rapidly at small banks than at larger ones. Strahan and Weston (1998) find that banks' portfolio of small business loans per dollar of assets rises and then falls with

banking company size. Berger and Udell (1995), Keeton, 1995, 1996, Peek and Rosengren (1996) find that larger banks tend to lend less to small firms, particularly to those most in need of bank relationships.

Strahan and Weston (1998), Peek and Rosengren (1996, 1998) also find that consolidation among small banking rises to lend to small businesses. Small business lending per dollar of assets increases after mergers and acquisitions between small banking companies.

The Foreign-Owned Bank Barriers Hypothesis argues that foreign-owned banks are less likely to lend to small firms with opaque information (Berger et al., 2001). Domestic banks tend to lend more to small firms. Foreign banks in Argentina, Chile, Colombia, and Perú lend less to small business than private domestic banks (Clarke, Cull, Soledad, Peria, & Sanchez, 2003).

Banks in financial distress lend less to small firms. As loans to small firms are riskier, this type of banks will want to reduce the riskiness of their portfolio avoiding small business lending. The theory is called the Distressed-Bank Barriers Hypothesis (Berger et al., 2001).

Under relationship lending, the lender gathers proprietary information about the firm and its owner through a variety of contacts over time. In part, this information is obtained through the provision of loans (Berger & Udell, 1995; Petersen & Rajan, 1994) and deposits and other financial products. Additional information is generated through interaction with other members of the local community, including the borrower's suppliers and customers, who may give specific information about the firm and its owner or general information about the business environment in which they operate. This information also includes performance on verbal promises and commitments made by the owner that are not easily quantified or documented. These verbal promises and commitments may relate to the strategies and actions of the firm or the owner. In short, relationship lending is substantially based on soft, qualitative information acquired over multidimensional dealings with the firm, its owner, and other local community members over time, and this information is not shared (and could not easily be shared) with other potential lenders. Boot (2000) mentions that three conditions are met when relationship lending is present: (1) The intermediary gathers information beyond readily available public information, (2) information gathering takes place over time through multiple interactions with the borrower, (3) the information remains confidential.

The empirical literature suggests that the strength of the bank-borrower relationship may be reflected in a number of different measures. These alternative measures include the following attributes on lender-borrower relationship:

- The existence of a banking relationship (Cole, 1998),
- The temporal length of the relationship (Angelini, Di Salvo, & Ferri, 1998; Berger & Udell, 1995; Ongena and Smith 2001; Petersen & Rajan, 1994, 1995; Scott & Dunkelberg, 1999),
- The breadth of a relationship (Cole, 1998; Degryse & Cayseele, 2000; Scott & Dunkelberg, 1999),
- The degree of mutual trust between the bank and the firm (Harhoff & Körting, 1998),
- The number of different account managers (e.g., Scott & Dunkelberg, 1999), and
- The presence of a main bank (Elsas & Krahnen, 1998) and borrowing from a single bank (Berger et al., 2001; Ferri & Messori, 2000; Harhoff & Körting, 1998; Machauer & Weber, 2000; Ongena & Smith, 2000).

Empirical evidence also generally suggests that banking relationships affect the pricing and availability of credit, and that small businesses benefit from these relationships. Stronger relationships with strength measured in the six different ways just enumerated have been empirically associated with the following effects of lender relationship:

- Lower loan interest rates (Berger & Udell, 1995; Degryse & Cayseele, 2000; Harhoff & Körting, 1998; Scott & Dunkelberg, 1999),
- Reduced collateral requirements (Berger & Udell, 1995; Harhoff & Körting, 1998; Scott & Dunkelberg, 1999),
- Less dependence on trade debt (Petersen & Rajan, 1994, 1995), and
- Greater protection against the interest rate cycle (Berlin & Mester, 1998; Ferri & Messori, 2000) and
- Increased credit availability (Cole, 1998; Elsas & Krahnen, 1998; Machauer & Weber, 2000; Scott & Dunkelberg, 1999).

Ongena and Smith (2000) demonstrate that in European countries with civil laws single-bank relationships are uncommon and many firms maintain relationships with many banks. When the country is under

common law, the opposite is the truth. Longhofer and Santos (1998) develop a model that explains how banks are important to small business borrowers because they develop valuable relationships that help banks understand firms' true quality. Other evidence on strong relationships suggest that they decrease interest rates (Berger & Udell, 1995), reduce collateral requirement (Berger & Udell, 1995), reduce the dependence on trade debt (Petersen & Rajan, 1994, 1995), increase protection against interest rate cycles (Berlin & Mester, 1998), and increase credit availability (Cole, 1998; Elsas & Krahnen, 1998). Relationship lending requires local loan officers to know better the small firm and accumulate "soft information" to decide further loan renewals or new loans.

Microfinance and Entrepreneurship in the Base of the Pyramid

Entrepreneurs are important at the base of the pyramid. Successful stories are seen on Silicon Valley of high tech and disruptive business ideas, but survival entrepreneurship is equally important due to the wealth it brings to millions of families around the world. So, the financial system built for them has to enhance development. Unfortunately, the financial system is not for this segment (Hermes & Lensink, 2007). Lack of credit from the banking system to develop entrepreneurial activities is generally seen as the major reason why many people remain poor. Microfinance institutions (MFI) alleviate this problem but at very high cost. MFIs follow methodologies that encourage payments on time through group lending, social pressure to pay from peers, joint liability groups, and insider group approvals to accept new members. Usually, groups of single women are formed and receive the loans. If a member fails to pay, solidarity from other group members completes the payment for her. Relationship lending is the lending technique that dominates the microfinance industry.

Lending Relationship

The borrower-lender relationship constitutes the key links between the attitude of borrowers and lending objectives. Such a relationship helps MFIs to understand the borrower requirements, potential to use resources, its impact on quality of life, and the attitude toward repayment of credit

(Lopez-Espinosa et al., 2017). The relationship between borrower and lender helps to monitor the micro-credit lending operations and the extent of engagement of borrower with the implied objectives of borrowing. Rural borrowers can be better monitored through relationship programs and inculcate trust between borrowers and MFIs (Kong et al., 2014). The effective lending relationship constitutes two measurable dimensions that include the duration of the relationship and organizational contracts. The relationship between borrowers and lenders need to span beyond the distribution of loans, which significantly mitigates the business performance of MFIs. The intensity of such relationship significantly benefits the borrower and increases the competitiveness of the lenders in a given financial market (Durguner, 2017; Lopez-Espinosa et al., 2017). In view of the discussion based on the above studies, the following hypothesis has been structured:

H_{1a} The length of relationship and effectiveness of organizational contracts determine the success of borrower-lender relationship programs.

Relationship lending generates positive outcomes for the MFIs. The relationship programs of financial institutions increase the lending cost in the short run. In rural community lending by MFIs, the better-informed lenders will have better access to capitalize on the economic benefits of lending. A well-conversed lending for the farm and non-farm sector borrowers helps the MFIs to jointly schedule the credit utilization process and its effects on economic productivity. A small-business loan market can survive in various socio-economic demographics by developing a comprehensive lender-borrower relationship charter (Bauer & Esqueda, 2017).

Large microfinance institutions also practice partial privatization of lending relationship to distinguish the implementation of relationship programs effectively and manage lending operations at institutions level. The evidence on partial privatization benefits smaller and risk-averse financial institutions to manage borrower-lender relationships effectively across different borrower segments (Ghosh, 2016). Borrower relationships benefit long-term financing for micro and small firms and monitor the utilization of credit in view of the community objectives of MFIs. The borrower relationships on a broader perspective also extend to educate borrowers toward managing family funds, public grants, and state micro-loans

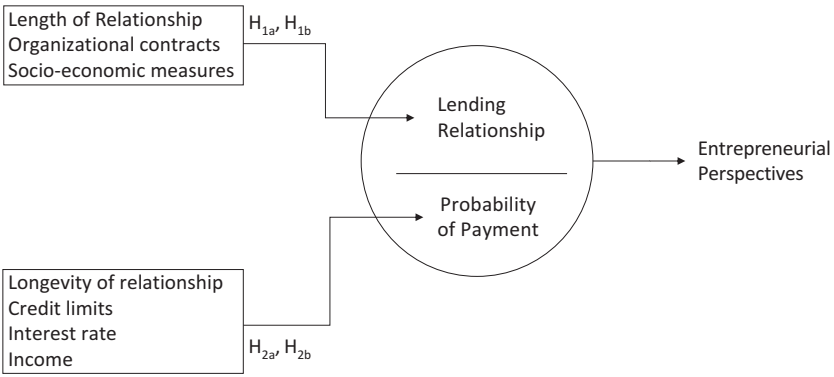

Fig. 5.1 Research model (Source: Authors)

(Daskalkis, Jarvis, & Schizas, 2013). Therefore, the hypothesis has been developed as stated below (see also Fig. 5.1):

H_{1b} Effective borrower-lender relationship guides systematic approach to socio-economic benefits for the loan disbursed to the borrowers by MFIs.

Entrepreneurial credit requirements are largely driven by the economic needs, quality of life indicators, and financial market pattern. The credit lending by MFIs is also influenced by the geo-demographic potential and gender-based productive requirements (Wellalage & Locke, 2017). Rural and semi-urban entrepreneurs borrow a small amount of loan from MFIs for focused investment in productive activities. A consistent and positive relationship between the quality of financing institutions and new venture formation validates the need for micro-credit, repayment schedule, and continuity in financing. Accordingly, the regional entrepreneurial activities and the role of MFIs appear to be highly correlated in achieving the developmental objectives (Hasan, Kobeissi, Wang, & Zhou, 2017). The credit availability and credit flow of MFIs strengthen the entrepreneurial growth in reference to employment, entrepreneurial earnings, liquidation potential, and in improving the economic growth of micro-enterprises (Chodorow-Reich, 2014).

Microfinance borrowers often fail to follow their repayment schedule due to the loan volume work-breakdown structure of utilizing loans over the fixed liquidation time. It causes delays due to time and rate of interest

variations caused due to prolonged repayments (Hering & Musshoff, 2017). The repayment performance of borrowers of MFIs in Latin American countries is related to 3-T concept comprising Territory, Time, and Task (the purpose of borrowings and phased utilization of loan) in relation to the longevity of their association with MFIs. The borrower relationship determines the scheduling of repayments and application of credit interest rates (Marconatto-Diego, Luciano, Renaud, & Danilo, 2013). Therefore, the hypothesis can be framed as stated below:

H_{2a} Members of micro-enterprise demand small credit in reference to the convergence of ease of time and rate of interest

The repayment schedule of borrowers is linked to disposable income and the period of the relationship of borrowers in MFIs. This system of credit repayment arrangement empowers borrowers economically to stay committed to repayments and gain development results on borrowings (Paramanandam & Packiriswamy, 2015). Geo-demographic segmentation of MFI borrowers helps the organizations not only to develop borrower relationships but also provides an opportunity to measure the income and repayment potential. This is a socio-economic matrix to map the relationship intensity in reference to the need for borrowing and the ability of repayment of borrowers (Ray & Mahapatra, 2016). Therefore, the following hypothesis can be developed:

H_{2b} The probability of repayment of micro-loans depends on the disposable income earned by the borrowers and the duration of relationship with MFIs.

Conceptual Framework

In self-help microfinance organizations borrower relationship has a significant impact on borrowings, repayments, and improving socio-economic levels of borrowers. This research is built around nine variables across three geographical destinations spread over two states as exhibited in Fig. 5.1. The independent variables chosen for the study include frequency of borrowing, income, credit amount, interest rate, a period of liquidation, the geo-demographic spread of borrowers, and repayment status of borrowers. In addition, length of relationship and frequency of repayment have been considered as dependent variables for data analysis. The research

model has been built in the context of length of the relationship of borrowers with the MFI during the period of study. As indicated in Fig. 5.1, the research model exhibits that length of relationship affects organizational lending contracts and socio-economic measures of borrowers (H_{1a}, H_{1b}). The longevity of the relationship, credit limits, and interest rates are proportional to the income of borrowers which determine the probability of payment with the MFI (H_{2a}, H_{2b}).

The research model exhibited in Fig. 5.1 explains that lending relationship and the probability of payment determine the entrepreneurial health of borrowers within the MFI. The analysis of data has been conducted in the context of the interrelationship and covariance among the variables as stated above.

Methodology

SOFIPA[1] is an MFI that lends to groups of women in the states of Oaxaca, Puebla, Michoacán, and Guerrero in Mexico. With a solidarity group lending methodology, SOFIPA organizes the groups integrated solely by women and disburses the funds and collects repayments on loans from the group as a whole. A promoter that works for SOPIPA organizes the group that is encouraged to meet each month. This process has two objectives. First, to strength relationship and solidarity among group members and the MFI. Second, to monitor repayments. SOFIPA provided a database of 136,248 credits given to 55,387 females individual belonging to 6876 different groups from 2016 to 2018. The amount of credit (CREDIT) ranged from $1000 to $50,000 Mexican pesos. The nominal interest rate (INTRATE) ranged from 68.31% to 135.75% per year. Of the 136,248 credits in the database, 122,594 credits were selected with the criteria of having a monthly salary that entrepreneurs reported ranging from $100 to $45,000 (Table 5.1). The final data set to run regressions was based on the selection criteria that eliminates salary outliers. The relationship is measured by the days that the individual and group initiated business with the MFI to the day the loan was given. The days that the entrepreneurs have been doing business with SOFIPA until the credit was disbursed ranges from 0 to 705 days (TIME). The variable TIME is used as a proxy

[1] SOFIPA (Sociedad Financiera del Pacífico) is an MFI that operates in the state of Oaxaca, Mexico, lending to groups of women from the states of Puebla, Michoacán, Guerrero, and Oaxaca. http://www.sofipa.org.mx/.

Table 5.1 Descriptive statistics

	N	*Min*	*Max*	*Mean*	*Std dev*
CREDIT	122,594	1000	50,000	6794.44	5237.695
INTRATE	122,594	68.31	135.75	112.3656	16.50469
SALARY	122,594	100	45,000	2902	6056
TIME (days of relationship)	122,594	0	705	167.13	178.107
Payment (0 = default, 1 = payment)	122,594				
N VALID	122,594	1000	50,000	6794.44	5237.695

of "relationship". It is the "time of the relationship" with the MFI, which we used to operationalize the construct "relationship". To correct for heteroskedasticity the variables were transformed to natural logs (LN) of the original variable of interest. All regressions were run with these transformed variables. SPSS was used to run the regressions.

Using OLS regressions and logistic regressions it is proved that interest rates go down as relationship increases (Eq. 5.1). Also, it is tested that the probability of payment increases as relationship increases (Eq. 5.2). Also, we look at the disposable income earned by the entrepreneur and see if it impacts the probability of repayment (Eq. 5.2).

H_{1a} The length of relationship and effectiveness of organizational contracts determine the success of borrower-lender relationship programs.

H_{1b} An effective borrower-lender relationship guides systematic approach to socio-economic benefits for the loan disbursed to the borrowers by MFIs.

H_{2a} Members of micro-enterprise demand small credit in reference to the convergence of ease of time and rate of interest.

H_{2b} The probability of repayment of micro-loans depends on the disposable income earned by the borrowers and the duration of relationship with MFIs.

The level of default (see Table 5.2) the MFI has 1.3%. The complement, 98.7% is the repayment rate. The default is defined as the absence of payment the day that the group committed to doing so. In all, 1892 cases fall into this category. On the other hand, repayments add up to 98.5%.

Table 5.2 Payment

		Frequency	*Percentage*	*Valid percentage*	*Cumulative percentage*
Valid	Default	1655	1.3	1.3	1.3
	Payment	120,939	98.7	98.7	100.0
	Total	122,594	100.0	100.0	

Results and Discussion

Regression (1) explains how the interest rate given to each group of women depends on the length of the relationship. Control variables are salary and size of the credit. With this test, the length of relationship and effectiveness of organizational contract determine the success of borrower-lender relationship programs (H_{1a}). From Table 5.3,[2] LNTime is −0–008 with a t value of −37.91. As time in days of the relationship decreases, the interest rate charged to each loan given to women decreases. The interpretation of this result means that trust and confidence that entrepreneurs signal to the lender make them receive a better and lower interest rate the next time they borrow. The results are consistent with Berger and Udell (1995). Also, it is learned from this result that an effective borrower-lender relationship guides systematic approach to socio-economic benefits for the loan disbursed to the borrowers by MFIs (H_{1b}).

$$\text{lNIntRate} = \beta 0 + \beta 1\text{LNSalary} + \beta 2\text{LNCredit} + \beta 3\text{LNTIME} + \epsilon \quad (5.1)$$

Equation (5.2) is a logistic regression that tests the probability of payment and default of the loan. Using the binary logistic regression module of the SPSS the payment/default (1,0) was regressed with interest rates, size of the credit salary of the entrepreneur and time.

$$P\left(\text{Payment} = 1, \text{Default} = 0\right) = \beta 0 + \beta 1\text{LNIntRate} + \beta 2\text{LNCredit} + \beta 3\text{LNSalary} + \beta 4\text{LNTime} + \epsilon \quad (5.2)$$

Testing if members of micro-enterprise demand small credit in reference to the convergence of ease of time and rate of interest (H_{2a}) and if the probability of repayment of micro-loans depends on the disposable income

[2] From Tables 5.4 and 5.5, general information of regression (1) is disclosed.

Table 5.3 Coefficients of regression analysis[a]

Model		*Not standardized coefficients*		*Standardized coefficients*	t	*Sig.*
		B	*Standard error*	*Beta*		
1	(Constant)	5.054	0.007		693.013	0.000
	LNCredit	−0.043	0.001	−0.179	−57.872	0.000
	LNSalary	0.007	0.001	0.030	10.428	0.000
	LNTime	−0.008	0.000	−0.115	−37.910	0.000

[a]Dependent Variable: LNIntRate

Table 5.4 Summary of the model

Model	R	R *square*	*Adjusted R square*	*Error*
1	0.247[a]	0.061	0.061	0.14262

[a]Predictores: (Constant), LNTIME, LNSalary, LNCredit

Table 5.5 ANOVA results[a]

Model		*Sum of squares*	*df*	*Quadratic mean*	F	*Sig.*
1	Regression	161.622	3	53.874	2648.474	0.000[b]
	Residual	2493.664	122,590	0.020		
	Total	2655.286	122,593			

[a]Dependent Variable: LNIntRate
[b]Predictores: (Constant), LNTIME, LNSalary, LNCredit

earned by the borrowers and the duration of relationship with MFIs (H_{2b}), the results are summarized on Table 5.6 (A, B, C, D, E, and F).

It was tested empirically that as a relationship (Time) increases the cost of credit decreases. Value is created for entrepreneurs as the relationship matures. Solidarity groups have a big incentive to build a relationship with the MFIs. What about value for the MFI? If the cost of credit is lower, it has to be because the risk associated with that loan is also lower. The solidarity group is repaying as the relationship is built.

Table 5.6 Statistical analysis of variable affecting payment (dependent variable)

Variables of the equation (A)

		B	*S.E.*	*Wald*	*df*	*Sig.*	*Exp*(B)
Step 0	Constant	4.213	0.023	33089.770	1	0.000	67.550

Variables not in the equation (B)

			Grade	*df*	*Sig.*
Step 0	Variables	LNIntRate	134.665	1	0.000
		LNCredit	0.502	1	0.479
		LNSalary	98.196	1	0.000
		LNTime	22.585	1	0.000
	Global statistics		244.207	4	0.000

Omnibus test of model coefficients (C)

		Chi-square	*df*	*Sig.*
Step 1	Step	227.498	4	0.000
	Block	227.498	4	0.000
	Model	227.498	4	0.000

Model summary (D)

Step	*−2 Log Likelihood ratio*	*Cox & Snell* R *square l*	*Nagelkerke* R *square*
1	19525.849[a]	0.002	0.012

[a]The estimation has finished in iteration number 8 because parameter estimations have changed in less than 0.001

Classification table[a] *(E)*

Observed			*Predicted*		
			payment		*Percentage correct*
			0	*1*	
Step 1	Payment	0	0	1892	0.0
		1	0	127,804	100.0
	Global percentage				98.5

[a]The cut value is 0.500

(*continued*)

Table 5.6 (continued)

Variables in the equation (F)

		B	*Std error*	*Wald*	*gl*	*Sig.*	*Exp*(B)
Step 1[a]	LNIntRate	−1.853	0.167	123.531	1	0.000	0.157
	LNCredit	−0.173	0.044	15.581	1	0.000	0.841
	LNSalary	0.090	0.010	86.920	1	0.000	1.094
	LNTime	0.042	0.012	11.888	1	0.001	1.042
	Constant	13.672	0.930	216.279	1	0.000	866109.113

[a]Variable(s) entered on step 1: LNIntRate, LNCredit, LNSalary, LNTime

Of the 122,594 valid observations, 120,939 (98.3%) were paid on time and 1655 credits defaulted (1.7%). A Wald test is used to test the statistical significance of each coefficient (β) in the model. A Wald test calculates a Z statistic, which is:

$$Z = \frac{\hat{\mathrm{B}}}{SE} \tag{5.3}$$

The Wald statistics (equivalent to the F stat) is 33,089.770. This means that at least one independent variable is significant and has a relationship with the dependent variable (1 = Payment, 0 = Default).

The likelihood-ratio test uses the ratio of the maximized value of the likelihood function for the full model (L_1) over the maximized value of the likelihood function for the simpler model (L_0). The likelihood-ratio test statistic equals:

$$-2\log\left(\frac{L_0}{L_1}\right) = -2\left[\log\left(L_0\right) - \log\left(L_1\right)\right] = -2\left(L_0 - L_1\right) \tag{5.4}$$

This log transformation of the likelihood functions yields a chi-squared statistic. This is the recommended test statistic to use when building a model through backward stepwise elimination. The −2LL for the logit regression is 19,525.85 (significant) and the Cox and Snell R2 is 0.002 while the Nagelkerke's R2 is 0.012. Cox and Snell's R2 is an attempt to imitate the interpretation of multiple R2 based on likelihood, but its maximum can be less than 1, making it difficult to interpret. Nagelkerke's R2 is a further modification of Cox and Snell

coefficient to assure it can vary from 0 to 1. That is, Nagelkerke's R2 divides Cox and Snell's R2 by its maximum in order to achieve a number that ranges from 0 to 1.

Other variables tested besides Time are the size of the credit, the salary of the entrepreneur, and interest rate. All of them transformed into its LN.

Results found are that as the Time (relationship) increases, the probability of payment increases. Beta coefficient for LNTime is positive 0.042 with a Wald statistic of 8.888 (Table 5.6). This makes the coefficient significant or not different from zero. What does a coefficient of 0.042 means? Suppose that a certain client has a probability to the payment of 85%. In other words, having 15% probability of default. The odds ratio for such client is 85/15 = 5.666. The odd ratio coefficient for the regression model is $e^{0.042}$ = 1.042894. The new odd of the dependent variable is 5.666 × 1.042894 = 5.9097. Let assume X is the new probability of payment and 1–X the new probability of default. $X/1–X$ = 5.9097. Solving for new X = 0.8961. This means that for every unit that LNTime increases, the probability of payment for a client with a probability of 85% will increase to 89.61%. In other words, the probability of default will drop from 15% to 10.39%. It is also observed that as salary increases the probability of payment increases as well.

Conclusions

MFIs replace the functions of traditional banks for lending to unattended segments. MFIs lend to the poor at extraordinarily high interest rates. This type of loans is not breaking the vicious circle of poverty. Although in emerging countries survival entrepreneurial activity is observed, poverty is not being eliminated. MFIs contribute to this problem as they lend at very high interest rates that offset by far the level of risk and operational expenses of the small size credit disbursed. How can MFIs diminish the interest rates to poor entrepreneurs? This chapter shows evidence that interest rates can be reduced when a relationship is built among lenders and borrowers. As relationship measured by the time a lender makes business with the borrower increases, the level of confidence and certainty increases, making feasible to diminish the cost of credits. Also, as the relationship matures, the probability of payments increases as well. Building a relationship between MFIs and poor entrepreneurs is an alternative exit of information asymmetries and default transactions.

Future of Relationship Lending

Berger and Udell (2004) identify two potential threats to building relationships, both of which could result in some MFIs significantly reducing or eliminating the use of the relationship-lending technology. The increases in MFI size, higher local market shares for large MFIs, and increased penetration of foreign-owned MFIs associated with consolidation may create financial institutions that are disadvantaged in gathering and using the soft, qualitative data about entrepreneurs needed for relationship lending. Technological advances in information processing, telecommunications, and financial technologies may improve the processing, transmission, and analysis of the hard, quantitative information used in transactions-based lending technologies and cause banks to substitute away from or discontinue relationship lending, which is not helped as much by technological change. In Mexico, the biggest threat is that most of banks are international. The future of relationship lending is uncertain but continued and improved research on the effects of MFIs industry consolidation and technological change may help bring it into better focus.

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CHAPTER 6

Directing Institutional Capital to India's Renewable Energy Sector

Labanya Prakash Jena and Chavi Meattle

Introduction

A decade ago, renewable energy was considered both risky and an expensive alternative to conventional sources of power (Chavaro & Konieczny, 2016). However, due to its increasing affordability supported by strong government impetus toward clean energy, it is fast becoming a mainstream source in the world's energy consumption mix (Frankfurt School—UNEP, 2017). Currently, wind and solar power have reached grid parity vis-à-vis the conventional sources of electricity due to decreasing renewable energy equipment prices (IRENA, 2017a). Further, the United Nations, supported by various countries, has set an ambitious target of doubling the renewable energy mix over 2018–2036 by 2030 (UN, 2016) from its current share of 18.3 percent in the total final energy consumption. However, this would require substantial financial resources than business as usual.

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In India, the renewable energy sector would need a cumulative investment of ~USD 450 billion over 2016–2040 to reach estimated cumulative installed capacity of ~480GW by 2040 (BNEF, 2016). Further, the target of electrification of 6 million vehicles by 2030 would require an additional USD 110 billion of investment over 2018–2030. To this end, the foreign and domestic institutional investors like pension fund and insurance companies, given the magnitude of their assets under management (AUM), are an attractive source of capital (CPI, 2016). The domestic institutional investors in India hold an AUM of USD 564 billion in 2017, while the foreign institutional investors globally have AUMs of more than USD 100 trillion (World Bank, 2015).

This chapter provides an evaluation of three financial instruments available to investors, namely, the Green Bonds, Infrastructure Debt Funds (IDFs), and Infrastructure Investment Trust (InvITs). The evaluation includes an analysis of the status of the instrument and its impact on reducing the cost of capital and ability to mobilize funds for renewable energy developers followed by matching its characteristics with the investment criteria of the institutional investors.

The structure of the chapter is as follows. "Theoretical Rationale and Research Methodology" provides briefly the methodology of the chapter followed by "Increasing Suitability of Institutional Investments to Renewable Energy Investment Characteristics" with discussion on increasing suitability of renewable energy investments to institutional investments. "Mapping the Characteristics of Institutional Investments with the Financial Instruments for Investment in Renewable Energy" maps the characteristics of the three instruments to the needs of institutional investors and "Conclusion and Way Forward" provides the concluding thoughts to increase uptake of these new financial investments.

Theoretical Rationale and Research Methodology

Risk and financial return of an asset are two parameters which investors consider when taking a decision on investing in a specific security (Markowitz, 1959). These two investment decision parameters gave birth to the famous Capital Asset Pricing Model (CAPM) (Lintner, 1965; Sharpe, 1964). CAPM describes relationship between riskiness and expected return of a single security or portfolio and used by asset and portfolio managers to measure the riskiness of a security or portfolio risk. A simplified CAPM is represented as $R_e = R_f + \beta*(R_m - R_f)$, wherein:

R_e represents expected return of the security
R_f represents risk-free rate
R_m represents expected return of the market
β (Beta) represents volatility of return of the security in relation to the market

The CAPM model is characterized by a single investment risk—Beta—a statistical coefficient calculated by comparing the historical return of an asset compared to market. However, for the renewable energy sector there is little historical performance record in India which hinders the quantification and evaluation as to whether the return is commensurate with the risk. This is mainly because companies in renewable energy sector in India are not listed in the stock market and they rarely issue bonds to raise their debt capital requirements. This restricts deploying traditional investment techniques like CAPM while investing in renewable energy sector. This inability to quantify the risk appropriately through traditional modeling techniques further increases the risk perception of assets in the sector. Consequently, addition of risk premium to the cost of capital discourages low-risk-seeking capital providers such as pension and insurance funds to invest in this sector.

Insurance sector generally follows Bailey's three basic investment principles: Safety, Yield, and Liquidity (Bailey, 1862). Insurance fund is a liability-driven fund, which is purely contingent and probabilistic (Korivi and Joshi-Khamkar, 2014) and hence maintains a heavy amount of liquid fund in its balance sheet. Similarly, pension funds also prefer liquid asset to contingent liability—pensioner withdraw funds during retirement or before—to protect themselves against reputation risk (Jenkinson et al., 2008). Renewable energy sector is perceived to be risky due to its limited historical performance record compared to the coal energy sector. Therefore, liquidity and safety-first principles of insurance and pension funds restrict them to invest in non-liquid and risky securities like renewable energy sector.

For our study, we conducted primary interviews with more than 40 stakeholders, foreign and domestic. These included pension funds, insurance companies, banks, Non-Banking Financial Companies (NBFCs), asset managers, advisors, regulators, and renewable energy developers. This was done to explore the investment strategy of institutional investors in general, and in renewable energy sector in particular. Based on the responses we received from the stakeholders, we identified six key objec-

tives pursued by investors—returns, risk, liquidity, time horizons, size, and regulatory considerations (Maginn, Tuttle, & McLeavey, 2016). These parameters have been used to evaluate the aforementioned financial instruments. This analysis has excluded other evaluation parameters like specific circumstances of investors and tax concerns since institutional investors are generally exempted from tax on investment income and realized capital gains, and unique circumstances depend on specific status of investors.

Increasing Suitability of Institutional Investments to Renewable Energy Investment Characteristics

Renewable energy has been able to attract private investments, given India's aggressive policy target of capacity addition of 175GW by 2022, backed by supporting policies such as generation-based incentives (GBIs), capital and interest subsidies, viability gap funding, concessional finance, fiscal incentives, and so on in the last few years (MNRE, 2017). The private sector accounted for 77 percent of the total investment in grid-connected renewables projects in 2015–2016 with only 23 percent by public actors in India (SEforAll, 2018). With the private finances, domestic corporations and project developers alone accounted for 63 percent of the investments indicating growing commercial investments in the renewable sector.

While we are seeing a substantial amount of capital from the private actors, there is still a gap between the current and required investments due to wide perception gap regarding risk and return in the sector (WEF, 2013). To bridge this gap, the sector needs a huge amount of capital and it needs to mobilize financing from large investors having long-term investment horizon. One such investor class is the institutional investors seeking low-risk investment (utility type) and long-duration assets, the traits that are well-aligned with investment profile of renewable energy. The institutional investors such as pension and insurance funds generally have large portfolios, preferring investment in asset class offering scale to absorb sizable capital inflows/outflows. These set of investors are constrained by regulation restricting them to invest in liquid assets, which allows them to meet any contingent claims, if required. More generally, institutional investors tend to seek investments that offer both medium to long-term investment duration (5–20 years).

On the other hand, the renewable energy sector needs financial investors, which allows the developers and utility companies to deleverage their balance sheet; equity capital generated from deleveraging the balance sheet can be used to finance risky and early-stage development projects (Nelson, 2013). This opportunity allows for bundling existing mature investment with some performance record and predictable cash flow into securities offering low-risk and medium-return profile and larger ticket size investments. Further, the renewable energy investments are mostly long term (10–25 years), which aligns well with the long-term investment horizons of these institutional investors. However, regulations pertaining to securities' ratings, listing, and liquidity restrict institutional investments in renewable energy sector. With appropriate policy/regulatory support, listed options will become more mainstream (Jena, Meattle, & Shrimali, 2018).

Further, there is a case for rebalancing institutional investment portfolios toward green infrastructure including renewable energy sector. The power sector, which has historically been dominated by fossil fuel, typically constitutes a large portion of institutional investors' portfolio. Due to increased environmental scrutiny and long-term climate risks (Mercer, 2015), fossils-based power producers face stranded asset risk, that is, assets are prematurely written-down, devalued, or converted into liabilities. For instance, it is estimated that USD 20 trillion (IRENA, 2017b) of upstream energy and power-generation investment alone is at risk of stranding under a two-degree scenario, unless early action is taken to shift capital away from carbon-intensive investments. This clearly warrants a shift in institutional investors' asset allocation in favor of green infrastructure over the carbon-intensive industries.

However, the institutional investors are not investing at expected levels in green infrastructure. For example, global pension funds invested only 1 percent in infrastructural development in 2010 (Kaminker & Stewart, 2012), and even less for climate infrastructure (Croce, Schieb, & Stevens, 2011). Further, less than 1 percent of global bonds are labeled green (UNEP, 2016) and less than 1 percent of institutional investors' investments are directed into climate financing (SEforAll, 2018).

Mapping the Characteristics of Institutional Investments with the Financial Instruments for Investment in Renewable Energy

Institutional investors typically look for listed (and liquid) vehicles to make majority of their investments. In India, policymakers have been aware of the need for these vehicles, and they have been gradually created, both for debt (green bonds, IDFs) as well as equity (InvITs financial vehicles). IDFs and InvITs (both invest in operational projects with lower risks) allow investors to invest in illiquid infrastructure sector including renewable energy, while green bonds give exposure institutional investors to non-carbon-intensive sector. So, the issue appears to be not so much of introducing new instruments/vehicles but of getting them attract institutional investment in renewable energy. To this end, we provide a matching of investment criteria pursued by institutional investors: returns, risk, liquidity, time horizons, and regulatory considerations with characteristics of renewable investments.

Green Bonds

Green Bonds are like traditional bonds except that their proceeds are earmarked toward financing green projects including renewable energy. It allows investors, irrespective of their size and due-diligence capabilities, to evaluate credentials of green bonds and invest in climate-friendly sectors including renewable energy.

Current Status: The global green bond issuance stood at USD 155.5 billion in 2017, up by 78 percent in 2016 (Climate Bonds Initiative, 2018a). The Indian green bond market issuances stood at USD 6.5 billion (as of July 2018) wherein 83 percent proceeds were in renewable energy projects (Climate Bonds Initiative, 2018b). Apart from providing capital, green bonds are reported to reduce the cost of debt for an issuer by 15–20 basis points (Livemint, 2016). But lack of historical performance data over several years, given the long investment horizon of investors, makes it difficult to make a definite judgment on pricing of green bonds. However, the increasing issuances of green bonds, globally and in India, signifies the ability of green bond as a financial instrument to mobilize institutional capital in renewable energy sector.

Aligning institutional investors' investment criteria with green bond's characteristics: Green bond is an attractive fixed-income instrument for

institutional investors considering the Environmental, Social and Governance (ESG) or Sustainable and Responsible Investing (SRI) criteria in their investment strategy. Investors with the sole objective of financial returns—which is in-line with their fiduciary responsibilities—were reluctant to invest in a new instrument as green bond was perceived to be generating lower adjusted returns. But this trend has been changing with increasing awareness of 'physical risks' arising out of climate change due to unabated fossil-related investments (Bank of England, 2015), affecting insurance industry amongst others. For instance, the recent Harvey and Irma hurricane in the United States had an estimated insured loss of USD 65 billion, borne by the insurance industry. These green bonds can be an important instrument to hedge their portfolio from emissions-intensive assets and against climate-related risks, given the long investment horizon of institutional investors.

In addition, these bonds offer diversification benefits as climate friendly assets including renewable energy are less correlated with the market. For foreign institutional investors it offers additional international diversification benefits. Green bonds have been issued in over 23 jurisdictions, 23 currencies, and several sectors (OECD, 2017); wherein emerging markets like China and India are expected to be key growth markets. The summary of green bonds as an investment instrument for institutional investors is presented in Table 6.1.

Infrastructure Debt Fund (IDF)

IDF is an investment vehicle, launched in 2013 in India, with the objective of refinancing existing debt of infrastructure companies, thereby creating fresh headroom for banks to lend to new infrastructure projects (RBI, 2011). Long investment horizon, predictable and stable cash flows (dividend distribution), and favorable tax measures makes IDF an attractive investment vehicle for pension and insurance funds to invest in illiquid infrastructure assets including renewable energy.

There are two kinds of IDFs: IDF-NBFC and IDF-Mutual Fund. IDF NBFC structure would be more suitable for pension and insurance funds as IDF-NBFCs shall invest only in public private partnership projects (PPP) and post Commercial Operations Date (COD) infrastructure projects, which have completed at least one year of satisfactory commercial operation. Wherein, IDF mutual funds can invest up to 90 percent of their

Table 6.1 Green bonds performance against the investment criteria of institutional investors

Evaluation criteria	*Green bonds*	*Investors' requirement*	*Compatibility*
Return/ Performance	Average coupon rate for domestic issuers is 7.5% (TERI, 2018) Secondary market enjoys premium on back of the strong demand for green bonds. Oversubscription of green bonds issuance varies 1.5 to 4 times, on an average. Also, multiple issuances by the same issuers (e.g. IREDA, Yes Bank etc.)	Pension funds—Expected return on fixed income is 7.5%–8.2% (INR return) Insurance companies—Expected return on fixed income is 7.5%–8.5% (INR return) Foreign institutional investments in debt instruments in India is limited	Medium
Horizon	INR denominated green bonds' tenure varied between 3 and 10 years USD denominated green bonds' tenure varied between 5 and 7 years	Pension funds—More than 10 years, but there are a few domestic corporate bonds having duration of more than 10 years Insurance companies—2–40 years (depending on insurance plans) Foreign institutional investors—Variable (e.g., 10–20 years or 5–8 years) based on financing route	High
Liquidity	Around 13 bonds were traded in India (2017) with a very thin trading volume. However, need for historical data to make a more comprehensive assertion regarding liquidity	Pension funds and insurance companies—Need to hold excess cash (or liquid assets) to meet contingent claims Foreign institutional investors—Can invest in both illiquid as well as liquid investments	Low
Regulations/ Ratings	INR denominated green bonds were mostly rated AA or above USD denominated green bonds were mostly rated BBB− or above	Pension funds and insurance companies—Not allowed to invest in debt rated lower than AA domestic rating; There is limited regulatory restriction for foreign institutional investors in securities/sectors within their emerging market asset class	Medium

(*continued*)

Table 6.1 (continued)

Evaluation criteria	*Green bonds*	*Investors' requirement*	*Compatibility*
Size	INR denominated green bonds' average issuance size is USD 50–100 mn USD denominated green bonds' average issuance size is USD 500–1000 mn	Domestic institutional investors—Minimum size for direct investment is USD 1 mn Foreign institutional investors—USD 100 million	High
Risk	Green bonds are subjected to a risk profile like any other conventional bond (UNDP, 2016). However, most green bonds have ratings of AA or above	Domestic institutional investors seek low-risk–low-return investments. High ratings reflect low-risk profile of green bonds	High

portfolio at a life cycle stage, including at the construction stage and invest up to 50 percent of their portfolio in BBB−rating and above projects.

Current Status: The portfolio size of IDFs is approximately INR 127.5 bn (USD 1.8 bn); three registered IDF-NBFCs and IDF-MFs accounts for ~INR 100 bn (USD 1.4 bn) and ~INR 27.5 bn (USD 0.4 bn) as of March 2017. This seems dwarf when compared to the banks' outstanding credit to the power sector at INR 4890 bn (USD 70 bn).[1] However, the two of the three IDF-NBFCs staged an exponential growth of 70—80 percent in their portfolio between the financial years 2015–2016 and 2016–2017. During our primary research with IDF-NBFCs managers, they opined that the size of this financial vehicle is increasing at a healthy rate and they are satisfied with the growth of IDFs in the last two years.

Out of the INR 100 bn (USD 1.4 bn) of IDF-NBFCs, renewable energy sector is estimated to have been allocated ~INR 32 bn (USD 0.5 bn). However, IDFs have exposure of ~30 percent to renewable energy sector. High exposure of IDF's portfolio to IDF's renewable energy portfolio suggests that the renewable energy sector brings stability into IDF's portfolio, which was confirmed during our interviews with the fund managers of IDFs. Fund managers also stated that they would like to continue to allocate their portfolio heavily into the renewable energy

[1] Fifty-five percent of the infrastructure investments of INR 8890 bn.

sector. This trend suggests infrastructure sector including renewable sector can look for IDFs to refinance their short and medium debt financing into long term.

Further, IDF enjoys low-cost funding due to relatively low risk of its assets (all are operational assets) and strong backing of parent companies (L&T, IDFC, ICICI are the promoters of NBFC IDFs). In addition, operating cost of IDFs is very low compared to banks, which allows it to lend at a lower rate. For instance, the lending rate of the India Infradebt was at 9–10 percent, while the cost of funds from investors was at 8.0–8.5 percent in the financial year 2016–2017, resulting in a spread of ~1.5–2 percent (ICRA, 2017). As the renewable energy assets act as a stabilizer in IDFs' loan book, it could result in a lower lending rate to the renewable energy sector.

Aligning institutional investors' investment criteria with IDF's characteristics: Pension and insurance funds are heavily constrained by the regulations to invest in infrastructure assets as these are rated too low to meet investors' investment rating criteria (Firstpost, 2017). In addition, pension and insurance funds lack the support (team) to analyze direct infrastructure financing, which further constrains their ability to invest in these assets (Nelson, 2013). So, IDF is an attractive intermediary to source long-term capital from pension and insurance companies to fund infrastructure projects including renewable energy. For instance, the National Pension System (NPS), private scheme, allows investors to allocate 5 percent (of their assets) at fund level and 2 percent at portfolio level to an alternative investment fund (AIF). IDF, which is characterized as an AIF's asset vehicle having an AAA rating, makes it an ideal fit from a regulatory standpoint.

Also, there is a lack of good-quality long-duration corporate bonds, which shortens duration of pension and insurance funds assets (Primary Research), compared to long duration of their liabilities. Asset-Liability duration mismatches cash flows and increases reinvestment risks for investors. IDF allows them to invest in an instrument which matches their long-term liabilities with long duration of assets (minimum 5 years in case of IDF-NBFC structure). Also, the income earned from the IDF is exempted from the income tax for domestic investors supporting profitability (Table 6.2).

Table 6.2 IDFs performance against the investment criteria of institutional investors

Evaluation criteria	*IDF*	*Investors' requirement*	*Compatibility*
Return/ Performance	• IDF-NBFCs 7–8.5% • IDF-MFs—10-11%	Pension funds—Expected return on fixed income is 7.5%–8.2% (INR return) Insurance companies s-Expected return on fixed income is 7.5%–8.5% (INR return) Foreign institutional investors also invest in IDFs given this instrument is safe and its yield is attractive	High
Horizon	Typical IDF tenure is around 10–12 years	Pension funds—More than 10 years, but there are a few fixed-income securities having duration of more than 10 years Insurance companies—2–40 years (depending on insurance plans) Foreign institutional investors—Variable (e.g., 10–20 years or 5–8 years) based on financing route	High
Liquidity	IDF's bonds are of high quality, these bonds have liquidity in the market However, secondary market is yet to completely develop	Pension funds and insurance companies—Need to hold excess cash (or liquid assets) to meet contingent claims Foreign institutional investors—Can invest in both illiquid as well as liquid investments	Medium
Legal and regulatory considerations	All three IDF-NBFCs have been rated AAA and all three IDF-MF are rated AA or above	Pension funds and insurance companies—Not allowed to invest in debt rated lower than AA domestic rating; There is limited regulatory restriction for foreign institutional investors in securities/sectors within their emerging market asset class	High

(*continued*)

Table 6.2 (continued)

Evaluation criteria	*IDF*	*Investors' requirement*	*Compatibility*
Size	Average issue size is INR 5 billion (USD 72 mn). While, the growth of IDFs have been exponential in the past two years, the amount size of an IDF has to increase substantially to match the needs of a foreign institutional investor	Domestic institutional investors—Minimum size for direct investment is USD 1 mn Foreign institutional investors—USD 100 million	Medium
Risk	Relaxation on the need for tripartite-backed projects (2015) exposes IDFs to the project's inherent risk Investments in infrastructure projects should complete at least one year of commercial operation to meet the investment eligibility criteria of IDF-NBFCs, hence projects	Domestic institutional investors seek low-risk–low-return investments. High ratings reflect low-risk profile of IDFs	Medium

Infrastructure Investment Trust (InvITs)

InvITs are long-term investment vehicles which enable infrastructure developers to monetize their assets. Multiple income-generating operating assets are pooled under a single entity (trust) which issues units against these underlying assets to the investors. These units are listed on the stock exchange to provide liquidity to its investors (SEBI, 2016).

Setting aside the initial teething issues, InvIT market started in 2017, three years after the initial guidelines issued by SEBI. There are only two[2] InvITs launched so far: IRB InvIT Fund (sponsored by IRB Infrastructure) and India Grid Trust (sponsored by Sterlite Power), subscribed by 8.53 times and 1.34 times (Financial Express, 2017), respectively. Several

[2] As per information available until November 2017.

domestic insurance companies and foreign institutional investors have participated in this issuance which is a harbinger of interest and confidence in InvITs.

Current Status: Still at a nascent stage, this instrument has raised capital of around INR 55 bn (less than USD 1 bn). InvITs are expected to raise INR 150–200 bn (USD 2–3 bn) over the next 12–18 months (2020) on back of roads, renewables and transmission sectors. Seven InvITs are at various stages of being launched, adding INR 130 bn (USD 1.8 bn) of funds. These include several renewable energy companies like Acme Group, Mytrah Energy India, and Renew Power Ventures.

InvITs can help renewable energy sector in two ways: deleveraging developer's balance sheet and freeing capital for investing in new projects and refinancing expensive risky debt capital (raised during construction stage) at lower cost. In the United States and the Europe, YieldCos (similar structure to InvITs) raised USD 1.9 bn in 2016 (FS-UNEP, 2017), which was around 30 percent of the total USD 6.3 bn raised by clean energy companies on global public markets, thus bolstering InvITs potential in raising capital for the renewable energy sector. This suggests the ability of InvITs to drive capital for the sector.

Most of the projects under InvITs are in the operational stage with low risks; thus lowering the overall cost of capital. It also pools in multiple small projects together, thereby reducing the unsystematic risk through diversification. Further, mandatory listing increases the liquidity and simplifies the process of entry/exit. All these factors lead to reduction in the cost of capital in InvITs when compared to traditional corporate bonds. According to CPI's analysis, a Solar Investment Trust can easily push down the cost of equity by 300 to 350 basis points from the current levels and mobilize capital worth USD 1 billion within the next five years.

Aligning institutional investors' investment criteria with IDF's characteristics: InvITs are well positioned, as dividend-paying hybrid instruments are suitable for investors with long-term investment horizon with a need for stable cash flows and a moderate capital appreciation. InvITs are expected to deliver a yield of 10–12 percent for a long time (higher than 5 years), making it attractive for institutional investors who are particularly looking for high-yield but low-risk assets.

Institutional investors are largely discouraged to invest in unlisted stocks or bonds. InvIT, as they are listed, can all also address illiquidity risk faced by institutional investors while investing in the infrastructure sector including renewable energy. Moreover, InvITs enjoy a favorable tax regime

and is a pass-through investment vehicle. At least 90 percent of the distributable cash flow of an InvIT is mandated to be distributed to the unit holders (every 6 months), resulting in maximization of cash flows to investors. Dividend and interest income received by the trusts stand tax exempted. No capital gains are levied if units are held for over 36 months. For NRI unit holders, a 5 percent withholding tax is applied.

Unlike the other infrastructure assets which are subject to revenue and cost uncertainties, renewable energy InvITs are likely to offer more stable cash flows. This is because the revenue realized from power sold through long-term contractual agreement (called Power Purchase Agreement) and low cash operating expenses compared to other infrastructure assets (Table 6.3).

Conclusion and Way Forward

During interviews with various stakeholders, we identified certain barriers that stymies the uptake of these financial instruments by the institutional investors. These range from high regulations, small size of investments, high perceived risk, or simply limited knowledge about the instruments structure. To mobilize greater investment in renewable energy through these instruments, we outline some initial potential solutions from the policy, regulatory, and investor perspectives.

Green Bonds

Institutional investors generally restrain investments in the Indian green bonds due to paucity of data on their historical performance. Globally, several green bond specific indices by S&P, Solactive, Bank of America Merrill Lynch (BofA ML), and MSCI-Barclays have emerged, allowing investors to evaluate an instrument's performance. BofA ML green bond index includes bonds issued by the Indian corporates. India should consider constructing a benchmarking index, exclusively for the green bond issuances in India to provide the investors with a clear risk-return tracking. This would encourage the investors to consider investing a portion of their core bond allocation to green bonds, without significantly affecting their portfolio.

Infrastructure Debt Fund

Several domestic investors raised their apprehensions on the recent relaxation (in 2015) of guideline, which suggests that an IDF must be a party to a tripartite agreement with the concessionaire and the project authority

Table 6.3 InvITs performance against the investment criteria of institutional investors

Evaluation criteria	*InvITs*	*Investors' requirement*	*Compatibility*
Return/ Performance	• Yield offered by InvITs (12%) are 550 basis points higher than the corporate fixed deposits and the 10-year government bonds • Post-listing performance of the two listed InvITs has been lackluster with both trading below their issue prices	Pension funds—Expected return on fixed income is 7.5%–8.2% (INR return) Insurance companies s- Expected return on fixed income is 7.5%–8.5% (INR return) As InvIT is a new financial instrument, domestic institutional investors would wait and watch before investing. Our primary research confirms this hypothesis Yield offered by InvITs will attract foreign institutional investors. They have experience in investing in similar kind of instruments: YieldCos in the US and the UK	Medium
Horizon	The underlying assets generally have a life of over and above 20 years	Pension funds—More than 10 years, but there are a few fixed-income securities having duration of more than 10 years Insurance companies—2–40 years (depending on insurance plans) Foreign institutional investors—Variable (e.g., 10–20 years or 5–8 years) based on financing route	High
Liquidity	• InvITs need to be listed on the stock exchange, enabling a reasonable exit option to its investors • Secondary market is yet to fully develop with more issuances	Pension funds and insurance companies—Need to hold excess cash (or liquid assets) to meet contingent claims Foreign institutional investors—Can invest in both illiquid as well as liquid investments	Medium
Legal and regulatory considerations	The recent InvITs have been rated at AAA	Pension funds and insurance companies—Not allowed to invest in debt rated lower than AA domestic rating; There is limited regulatory restriction for foreign institutional investors in securities/sectors within their emerging market asset class	High

(*continued*)

Table 6.3 (continued)

Evaluation criteria	*InvITs*	*Investors' requirement*	*Compatibility*
Size	• Cumulative projects and issue size should not be less than INR 5 billion and INR 2.5 billion, respectively. • Involvement of several institutional investors like CDPQ and CPPIB in recent InvITs (issued and to be issued) indicated that issuance size is not a major concern • However, the size of the asset pool for InvITs is still very small and needs to develop	Domestic institutional investors—Minimum size for direct investment is USD 1 mn Foreign institutional investors—USD 100 million	Medium
Risk	• Low execution risk • Asset performance risk exists because expected cash flows could be affected by contractual enforcement risk	Domestic institutional investors seek low-risk–low-return investments. Limited track record would discourage domestic and foreign institutional investors	Medium

to ensure a compulsory buyout with termination payment (RBI, 2011). As many renewable project contracts do not have a tripartite agreement, this measure is likely to increase investment into the renewable energy sector. However, the absence of a tripartite agreement takes away the in-built credit enhancement from investors, affecting the inherent risk and credit ratings of underlying projects. Therefore, we suggest that any guideline change should be undertaken only after much calibration with the involved stakeholders to avoid making it counterproductive.

Further, National Pension System's private funds allocation to Alternate Investment Fund (AIF) is significantly low, only 5 percent of the total investment can be made in AIFs and REITs (PFRDA, 2017). A government regulation for investors to allocate a certain (minimum) percentage of assets into renewable energy via the AIF route (over and above 5% allocation) could be an important step. Furthermore, as of now the Employee Provident Fund Organization (EPFO) is not allowed to invest in a financial structure like an IDF. We propose introducing a separate asset class which could include investments in Alternate Investment Funds and Investment Trust (real estate and infrastructure) in the EPFO portfolio. This is likely to unlock further capital for infrastructure sector including renewable energy sector.

Infrastructure Investment Trust

During our interviews with investors we realized that the majority of them had no or very limited knowledge about InvITs. Also, they suffer from perception risk as they are often compared to a YieldCo in the United States and United Kingdom, which is a publicly trading investment vehicle that bundles long-term renewable energy projects. The YieldCos have had a treacherous journey, where they exhibited high growth potential initially but the valuation of a number of YieldCos significantly collapsed in 2015 (The Lab, 2017). To make investors invest in InvITs, it is important to educate the investors about the instrument functionality, potential benefits, and the risks associated with it.

To conclude, the foreign and domestic institutional investors have deep pockets to address the financing requirements in the renewable energy space. Green bonds, Infrastructure Debt Funds and Infrastructure Investment Trusts are a new wave of financial instruments, which has the potential to scale up investments in the renewable energy sector. These instruments reasonably align with the investment criteria of these institu-

tional investors, particularly the return, investment horizon and risk criteria. However, the regulations pertaining to the listing, rating, and liquidity of securities limit investment in these instruments, which needs to be addressed through regulatory and policy interventions.

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CHAPTER 7

Risk Management in Emerging Markets in Post 2007–2009 Financial Crisis: Robust Algorithms and Optimization Techniques Under Extreme Events Market Scenarios

Mazin A. M. Al Janabi

Introduction

The 2007–2009 Global Financial Crisis (GFC) has emphasized the necessity of a proper identification and assessment of embedded liquidity risk in financial trading portfolios for emerging markets. In essence, liquidity trading risk arises due to the inability of financial entities to liquidate their holdings, at reasonable prices, as time elapses throughout the liquidation (closeout) period. Undeniably, certain collapses in some well-known financial entities and the consequential financial turmoil were caused, to some degree, by the impact of trading liquidity risk on structured portfolios. To that end, the main objective of this chapter is to develop and test a reasonable approach for the assessment, management, and control of market price risk exposure for financial trading portfolios that contain a

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number of illiquid equity assets under intricate market circumstances and to propose an approach for determining the upper limits of the risk-budgeting boundaries.

To evaluate the risks involved in their trading operations, major financial institutions are increasingly exploiting Value at Risk (VaR) models. Since financial institutions differ in their individual characteristics, a tailor-made internal risk model is more appropriate. Fortunately, and in accordance with Basel capital accords, financial institutions are permitted to develop their own internal risk models for the purposes of providing for adequate risk measures. Furthermore, internal risk models can be used in the determination of economic capital that financial entities must hold to endorse their trading of securities. The benefit of such an approach is that it takes into account the relationship between various assets classes and can accurately assess the overall risk for a whole combination of multiple trading assets (Al Janabi, 2012, 2013, 2014; Al Janabi, Arreola-Hernández, Berger, & Nguyen, 2017).

Nowadays, VaR has become an important and useful tool for monitoring market and liquidity risk, and its use is being encouraged by the Bank for International Settlements (BIS), Basel II and Basel III capital adequacy accords on banking supervision (Bank for International Settlements, 2009, 2013). In essence, VaR estimates the downside risk of a portfolio of market-priced assets at a particular confidence level over a chosen time horizon. In effect, VaR strives to assess adverse market events in the lower tail of a return distribution of a trading portfolio—events more likely to cause financial trouble to a firm if they arise.

Given that VaR focuses solely on downside risk (that is, the impact of bad outcomes) and is customarily expressed in monetary terms, it is viewed as an insightful and transparent market and liquidity risk assessment and forecasting tool for top-level management in both financial and non-financial entities. The recognition of VaR as a risk assessment and forecasting tool has triggered ample interest in its use among portfolio managers, risk-management practitioners, and academics alike. Notwithstanding the apparent benefits of VaR for financial risk disclosure and reporting purposes, VaR has also been backed for enterprise-wide risk management because of its ability to aggregate and forecast market and liquidity risk across different asset classes (Al Janabi, 2014). In essence, VaR could be valuable in making portfolio asset allocation and hedging decisions, managing cash-flows, setting upper limits risk-budgeting thresholds, and in the overall optimization procedure for selection and evaluation of structured portfolios.

A large body of literature have examined and empirically tested different VaR techniques for both financial and non-financial markets. For instance, Garcia, Renault, and Tsafack (2007) tackle a specific issue within the VaR and that is the subadditivity property required for the VaR to be a coherent measure of risk. In a similar vein, Campbell, Huisman, and Koedijk (2001) develop an optimum-portfolio selection model that maximizes expected returns subject to a downside risk constraint rather than standard deviation alone. The suggested model allocates financial assets by maximizing expected return conditional on the constraint that the expected maximum loss should be within the VaR limits set by the risk manager.

On the other hand, Alexander and Baptista (2004) analyze the portfolio selection implications arising from imposing a VaR constraint as a risk-management tool on the mean-variance (MV) model (Markowitz, 1952) and compare them with those arising from the imposition of a conditional VaR constraint (CVaR). Likewise, Alexander and Baptista (2008) look at the impact of adding a VaR constraint to the problem of an active manager who seeks to outperform a benchmark by a given percentage. In doing so, the authors minimize the tracking error variance (TEV) by using the model of Roll (1992). In a similar vein, Cain and Zurbruegg (2010) propose a technique that involves switching between risk measures in different market environments, to capture the well-documented dynamic nature of risk within a portfolio optimization setting. Thus, the in-sample results show categorically that switching between various measures, such as CVaR, time-varying (GARCH) variances and simple standard deviations, can lead to a better performance than using any single measure.

Another strand of theoretical and empirical research has been focused on using asymmetric copula models in the context of managing downside correlations. It is a well-known phenomenon that equity returns experience an increase in correlations (i.e., asymmetric or lower tail dependence) during downside markets (Ang & Chen, 2002; Longin & Solnik, 2001), which at the same time violates the assumption of elliptical dependence in mean-variance analysis. As a result, using more advanced flexible multivariate copulas (so-called vine copulas, and introduced first by Aas, Czado, Frigessi, & Bakken, 2009) offers a key prospect for tackling this kind of asymmetric behavior. In this line of research, Low, Alcock, Faff, and Brailsford (2013) examine the use of multidimensional elliptical and asymmetric copula models to forecast returns for portfolios with 3–12 constituents. In their analysis, they assumed that investors have no short-sales constraints and a utility function characterized by the minimization of CVaR is employed.

On another front, Al Janabi (Al Janabi, 2012, 2013, 2014) tackles the issue of adverse market price impact on liquidity trading risk and coherent portfolio optimization using a parametric liquidity-adjusted VaR (LVaR) methodology. The proposed adverse price unwinding approach comprises a liquidation multiplier (add-on) that can adjust the impact of unfavorable price movement throughout the closeout period along with an optimization algorithm that allocates assets subject to imposing meaningful financial and operational constraints.

Furthermore, in their research paper, Madoroba and Kruger (2014) introduce a new VaR model that incorporates intraday price movements on high–low spreads and adjusts for a trade impact measure, a novel sensitivity measure of price movements due to trading volumes. Furthermore, the authors compare and contrast 10 worldwide-recognized liquidity risk-management models including the "*Al Janabi model*," which is used in this chapter for liquidly risk modeling and for optimizing upper limits LVaR risk budgeting.[1]

In a different modeling technique, Al Janabi et al. (2017) propose a portfolio optimization methodology based on the integration of DCC (dynamic conditional correlation) t-copula and LVaR models to enhance asset allocation decisions under illiquid market conditions. Their empirical findings prove the superiority of the DCC-copula-LVaR modeling technique over the traditional Markowitz (1952) optimization procedure for a portfolio composed of international stock market indices, gold, and crude oil across various trading scenarios.

[1] For other relevant literature on liquidity, asset pricing and portfolio choice and diversification one can refer as well to Angelidis and Benos (2006); Berkowitz (2000); Madhavan, Richardson, and Roomans (1997); Hisata and Yamai (2000); Le Saout (2002); Amihud, Mendelson, and Pedersen (2005); Takahashi and Alexander (2002); Cochrane (2005); and Meucci (2009), among others. Furthermore, within the copula technique, and particularly the vine copula approach, there were indeed very few studies in this respect and most of published research is still focused on the issue of transaction costs (i.e., bid-ask spreads). In particular, Weiß and Supper (2013) investigate the issue of forecasting liquidity-adjusted intraday VaR with vine copulas. In their paper, they propose to model the joint distribution of bid-ask spreads and log returns of a stock portfolio by implementing Autoregressive Conditional Double Poisson and GARCH processes for the marginals and vine copulas for the dependence structure. By estimating the joint multivariate distribution of both returns and bid-ask spreads from intraday data, they incorporate the measurement of commonalities in liquidity and co-movements of stocks and bid-ask spreads into the forecasting of three types of liquidity-adjusted intraday VaR.

In this backdrop, the objective of this chapter is to provide practical and robust assessment of market risk for equity trading portfolios (frequently it can be called, trading, investment, or price risk). As such, the aim is to create a practical technique to assist in the establishment of sound risk-management practices (for equity portfolios that contain both long-only and long- and short-sales trading positions) and within a prudential regulatory framework of rules and policies. To that end, the optimization algorithms and parameters that are required for the construction of robust LVaR and stress-testing methods are reviewed from previous research studies and applied to equity trading portfolios of the six Gulf Cooperation Council (GCC) financial markets. Moreover, a robust technique for the incorporation of illiquid assets is defined and is appropriately integrated into LVaR and stress-testing models. Effectively, the developed methodology and risk-assessment algorithms can aid in evolving risk-management practices in emerging markets and predominantly in light of the aftermaths of the GFC, credit crunch and the resultant 2007–2009 financial turmoil.

This chapter intends to make the following key contributions to the academic literature in this specific liquidity risk and portfolio management fields. First, it represents one of the limited numbers of research studies that empirically examines liquidity risk management using actual daily data of emerging GCC zone stock markets. Second, a daily database of stock market indices of the GCC region is used whose behavior is presumably more diverse than if equity assets of any particular stock market had been employed, as other authors have done heretofore. Third, unlike most empirical studies in this field, this study employs a robust liquidity trading risk-management model that considers risk forecasting under intricate market circumstances. Fourth, this chapter implements a novel approach to the optimization of multiple-assets portfolios by implementing an LVaR framework along with a multivariate dependence modeling technique and GARCH-M (1,1) method for estimating expected returns and conditional volatilities. To that end, in this chapter, we implement a robust optimization algorithm based on Al Janabi model (Madoroba & Kruger, 2014) for optimizing and selecting upper limits risk budgeting with LVaR constraints using realistic operational and financial scenarios.

In this background, the implemented methodology and risk-assessment algorithms can aid in advancing risk-management practices in emerging markets, particularly in the wake of the sub-prime credit crunch and the resulting 2007–2009 financial turmoil. In addition, the proposed quantita-

tive risk-management techniques and optimization algorithms can have important uses and applications in expert systems, machine learning, smart financial functions, and financial technology (FinTech) in big data environments. The balance of the chapter is organized as follows. The following section lays out all the quantitative risk-management foundation of LVaR method and includes full mathematical derivation of liquidity risk-management techniques and Al Janabi model (Madoroba & Kruger, 2014), which integrates the effects of illiquid assets in daily market risk management. The results of empirical tests and all case studies for the simulation and optimization of upper limits LVaR risk budgeting are discussed in Section "Evaluating and Controlling of Market Liquidity Risk Exposures: Optimization Case Study of Emerging GCC Financial Markets". Section "Concluding Remarks and Recommendations" provides concluding remarks and recommendations.

Derivation of Al Janabi Model

In this section, the derivation of Al Janabi Model for Market Liquidity Risk Evaluation with a Closed-Form Parametric Process has been discussed. For the computation of VaR, the volatility of each risk factor is extracted from a predefined historical observation period and can be estimated using GARCH-M (1,1) model under the assumptions of adverse market settings. The potential effect of each component of the multiple-assets portfolio on the overall portfolio value is then worked out. These effects are then aggregated across the whole portfolio using the dependence measure (correlations parameters) between the risk factors (which are, again, extracted from the historical observation period) to give the overall VaR value of the portfolio with a given confidence level. As such, for a single trading position, the absolute value of VaR can be defined in monetary terms as follows:

$$\mathrm{VaR}_i = \left|\left(\mu_i - \alpha * \sigma_i\right)\left(\mathrm{Asset}_i * Fx_i\right)\right| \tag{7.1}$$

where μ_i is the expected return of asset i, α is the confidence level (or in other words, the standard normal variant at confidence level α) and σ_i is the conditional volatility of the return of the security that constitutes the

single position and can be estimated using a GARCH-M (1,1) model.[2] While the term Asset_i indicates the mark-to-market monetary value of asset i, Fx_i denotes the unit foreign exchange rate of asset i. If the expected return of the asset, μ_i, is very small or close to zero, then Eq. (7.1) can be reduced to[3]:

$$\text{VaR}_i = \left|\alpha * \sigma_i * \text{Asset}_i * Fx_i\right| \tag{7.2}$$

Indeed, Eq. (7.2) includes some simplifying assumptions, yet researchers and practitioners in the financial markets routinely use it for the estimation of VaR for a single trading asset.

Trading risk in the presence of multiple risk factors is determined by the combined effect of individual risks. The extent of the total risk is determined not only by the magnitudes of the individual risks but also by their dependence measures (i.e., correlations matrix). Portfolio effects are crucial in risk management not only for large diversified portfolios but also for individual instruments that depend on several risk factors. For multiple-assets portfolio, VaR is a function of each individual security's risk and the correlation parameters $\left[\rho_{i,j}\right]$, as follows:

$$\text{VaR}_P = \sqrt{\sum_{i=1}^{n}\sum_{j=1}^{n}\text{VaR}_i\,\text{VaR}_j\,\rho_{i,j}} = \sqrt{\left[\text{VaR}\right]^T\left[\rho\right]\left[\text{VaR}\right]} \tag{7.3}$$

This formula is a general one for the computation of VaR for multiple-assets portfolios regardless of the number of trading securities. It should be noted that the second term of the above formula is rewritten in terms of matrix-algebra—a useful form to avoid mathematical complexity, as

[2] The time-varying pattern of assets volatility has been widely recognized and modeled as a conditional variance within the GARCH framework, as originally developed by Engle (1982, 1995). Engle (1982) introduced a likelihood ratio test to ARCH effects and a maximum likelihood method to estimate the parameters in the ARCH model. This approach was generalized by Bollerslev (1986) and Engle and Kroner (1995). In fact, the generalized autoregressive conditional heteroskedasticity in mean, GARCH-M (1,1) model, is used in our empirical analysis for the estimation of expected return and conditional volatility for each of the time series variables.

[3] If the purpose of the risk analysis is to investigate diverse stock market dependences and related risk management measure, then $Asset_i$ should be the mark-to-market prices of the individual stock market indices.

more and more multiple-assets classes are added to the portfolio. In addition, this tactic can streamline the programming and computational processes and allow for the incorporation of short-sales positions into the market risk-management algorithms.

On the other hand, liquidity is a key risk factor, which until lately, has not been appropriately dealt with by risk models. Illiquid trading positions can add considerably to losses and can give negative signals to traders due to the higher expected returns they entail. The concept of liquidity trading risk is immensely important for using VaR accurately and recent upheavals in financial markets confirm the need for laborious treatment and assimilation of liquidity trading risk into VaR models.

The choice of the time horizon or number of days to liquidate (unwind) a position is very important factor and has big impact on VaR numbers, and it depends upon the objectives of the portfolio and the liquidity of its multiple-assets holdings. For financial entities' trading portfolios invested in liquid currencies, a one-day closeout horizon may be acceptable. For an investment manager with a monthly re-balancing and reporting focus, a 30-day period may be more appropriate. Ideally, the holding period should correspond to the longest period for orderly portfolio liquidation (Al Janabi, 2008a).

The simplest way to account for liquidity trading risk is to extend the holding horizon of illiquid positions to reflect a suitable liquidation period. An adjustment can be made by adding a multiplier to the VaR measure for each class of trading assets, which at the end depends on the liquidity of each asset. Nonetheless, the weakness of this method is that it allows for subjective assessment of the liquidation horizon. Furthermore, the typical assumption of a one-day horizon (or any inflexible time horizon) within VaR framework neglects any calculation of trading risk related to liquidity effect (that is, when and whether a trading position can be sold out and at what price). A broad VaR model should incorporate a liquidity premium (or liquidity risk factor). This can be worked out by formulating a method by which one can unwind a position, not at some ad hoc rate but at the rate that market conditions is optimal, so that one can effectively set a risk value for the liquidity effects. In general, this will raise significantly the VaR, or the amount of economic capital to support the trading position.

In fact, if returns are independent and they can have any elliptical multivariate distribution, then it is possible to convert the VaR horizon parameter from daily to any t-day horizon. The variance of a t-day return should

be t times the variance of a 1-day return or $\sigma^2 = f(t)$. Thus, in terms of standard deviation (or volatility), $\sigma = f(\sqrt{t})$ and the daily or overnight VaR number [VaR (1-day)], it is possible to determine the liquidity-adjusted VaR (LVaR) for any t-day horizon as:

$$\text{LVaR}(t-\text{day}) = \text{VaR}(1-\text{day})\sqrt{t} \tag{7.4}$$

The above formula was proposed and used by J.P. Morgan in their earlier *RiskMetrics*™ method (Morgan Guaranty Trust Company, 1994). This methodology implicitly assumes that liquidation occurs in one block sale at the end of the holding period and that there is one holding period for all assets, regardless of their inherent trading liquidity structure. Unfortunately, the latter approach does not consider real-life trading situations, where traders can liquidate (or re-balance) small portions of their trading portfolios on a daily basis. The assumption of a given holding horizon for orderly liquidation inevitably implies that assets' liquidation occurs during the holding period. Accordingly, scaling the holding horizon to account for orderly liquidation can be justified if one allows the assets to be liquidated throughout the holding period.

In what follows, we review a re-engineered approach for computing a closed-form LVaR with explicit treatment of liquidity trading risk and robust assessment of coherent (investable) portfolios.[4] The key methodological contribution is a different liquidity-scaling-factor than the traditional root-t multiplier. The proposed model and liquidity-scaling-factor is more realistic and less conservative than the conventional root-t multiplier. In essence, the suggested multiplier (add-on) is a function of a predetermined liquidity threshold(s) defined as the maximum position that can be unwound without disturbing market prices during one trading day. The essence of the model relies on the assumption of a stochastic stationary process and some rules of thumb, which can be of crucial value for more accurate overall trading risk assessment during market stress periods when liquidity dries up in consequence of a financial crisis. In addition, the re-engineered model is quite simple to implement even by very large

[4] The concept of coherent (investable) market portfolios refers to rational financial portfolios that are subject to meaningful financial and operational constraints. In this sense, coherent market portfolios lie-off the efficient frontiers as defined by Markowitz (1952), and instead have logical and well-structured long-only and long- and short-sales asset allocation.

financial institutions with multiple assets and risk factors. To that end, a practical framework of a methodology (within a simplified mathematical modeling technique) is proposed below for incorporating and calculating LVaR of illiquid assets with different closeout periods, detailed along these lines.[5]

The market risk of an illiquid asset is larger than the risk of an otherwise identical liquid position. This is because unwinding the illiquid position takes longer time than unwinding the liquid position, and, as a result, the illiquid position is more exposed to the volatility of the market for a longer period. In this approach, an asset trading position will be thought of illiquid if its size surpasses a certain liquidity threshold. The threshold (which is determined by traders for different assets and/or financial markets) and defined as the maximum position which can be unwound, without disrupting market prices, in normal market conditions and during one trading day. Consequently, the size of the asset trading position relative to the threshold plays an important role in determining the number of days that are required to closeout the entire position. This effect can be translated into a liquidity increment (or an additional liquidity risk factor) that can be incorporated into VaR analysis. If, for instance, the par value of an asset position is $200,000 and the liquidity threshold is $50,000, then it will take four days to sell out the entire trading position. Therefore, the initial position will be exposed to market variation for one day, and the rest of the position (that is $150,000) is subject to market variation for an additional three trading days. If it is assumed that daily changes of market values follow a stationary stochastic process, the risk exposure due to illiquidity effects is given as follows.

In order to take into account the full illiquidity of assets (that is, the required unwinding period to liquidate an asset) we define the following:

t = number of liquidation days (t-days to liquidate the entire asset fully)

σ_{adj}^2 = variance of the illiquid asset trading position; and

σ_{adj} = liquidity risk factor or standard deviation of the illiquid asset trading position.

The proposed approach assumes that the trading position is closed out linearly over t-days and hence it uses the logical assumption that the losses due to illiquid trading positions over t-days are the sum of losses over the individual trading days. In addition, we can assume with reasonable accu-

[5] The mathematical approach presented herein is largely drawn from Al Janabi, 2012, 2013, Al Janabi, 2014, and Al Janabi et al., 2017 research papers.

racy that asset returns and losses due to illiquid trading positions are independent and identically distributed (*iid*) and serially uncorrelated day-to-day along the liquidation horizon and that the variance of losses due to liquidity risk over *t*-days is the sum of the variance (σ_i^2, $\forall i$, $i = 1,2\ldots,t$) of losses on the individual days, thus:

$$\sigma_{\text{adj}}^2 = \left(\sigma_1^{\,2} + \sigma_2^{\,2} + \sigma_3^{\,2} + \cdots + \sigma_{t-2}^{\,2} + \sigma_{t-1}^{\,2} + \sigma_t^{\,2}\right) \tag{7.5}$$

In fact, the square root-*t* approach (i.e., Eq. [7.4]) is a simplified special case of Eq. (7.5) under the assumption that the daily variances of losses throughout the holding period are all the same as first day variance, $\sigma_1^{\,2}$, thus $\sigma_{\text{adj}}^{\,2} = \left(\sigma_1^{\,2} + \sigma_1^{\,2} + \sigma_1^{\,2} + \cdots + \sigma_1^{\,2}\right) = t\sigma_1^{\,2}$.

As discussed above, the square root-*t* equation overestimates asset liquidity risk since it does not consider that traders can liquidate small portions of their trading portfolios on a daily basis; and then it implicitly denotes that the whole trading position can be sold completely on the last trading day. However, this would be an overstatement of VaR; and the true VaR has to be between the 1-day VaR and 1-day VaR $\sqrt{t}$.

Indeed, in real financial markets operations, liquidation occurs during the holding period and thus scaling the holding horizon to account for orderly liquidation can be justified if one allows the assets to be liquidated throughout the holding period. As such, for this special linear liquidation case and under the assumption that the variance of losses of the first trading day decreases linearly each day (as a function of *t*), we can derive from Eq. (7.5) the following:

$$\sigma_{\text{adj}}^{\,2} = \left(\left(\frac{t}{t}\right)^2 \sigma_1^{\,2} + \left(\frac{t-1}{t}\right)^2 \sigma_1^{\,2} + \left(\frac{t-2}{t}\right)^2 \sigma_1^{\,2} + \cdots + \left(\frac{3}{t}\right)^2 \sigma_1^{\,2} + \left(\frac{2}{t}\right)^2 \sigma_1^{\,2} + \left(\frac{1}{t}\right)^2 \sigma_1^{\,2}\right) \tag{7.6}$$

In this manner, if the asset position is liquidated in equal parts at the end of each trading day, the trader faces a 1-day holding period on the entire position, a 2-day holding period on a fraction $(t\text{-}1)/t$ of the position, a 3-day holding period on a fraction $(t\text{-}2)/t$ of the position and so forth. Evidently, the additional liquidity risk factor depends only on the number of days needed to sell an illiquid trading position linearly. Thus,

for the general case of *t*-days, the following algorithm of t gives the variance of the liquidity risk factor:

$$\sigma_{\text{adj}}^{\,2} = \sigma_1^{\,2}\left(\left(\frac{t}{t}\right)^2 + \left(\frac{t-1}{t}\right)^2 + \left(\frac{t-2}{t}\right)^2 + \cdots + \left(\frac{3}{t}\right)^2 + \left(\frac{2}{t}\right)^2 + \left(\frac{1}{t}\right)^2\right) \quad (7.7)$$

To calculate the sum of the squares, it is convenient to use a short-cut approach. From mathematical finite series, the following relationship can be deduced:

$$(t)^2 + (t-1)^2 + (t-2)^2 + \cdots + (3)^2 + (2)^2 + (1)^2 = \frac{t(t+1)(2t+1)}{6} \quad (7.8)$$

Hence, after substituting Eq. (7.8) into Eq. (7.7), the following can be achieved:

$$\sigma_{\text{adj}}^{\,2} = \sigma_1^{\,2}\left[\frac{1}{t^2}\{(t)^2 + (t-1)^2 + (t-2)^2 + \cdots + (3)^2 + (2)^2 + (1)^2\}\right] \text{ or}$$

$$\sigma_{\text{adj}}^{\,2} = \sigma_1^{\,2}\left(\frac{(2t+1)(t+1)}{6t}\right) \quad (7.9)$$

Accordingly, from Eq. (7.9) the liquidity risk factor can be expressed in terms of volatility (or standard deviation) as:

$$\sigma_{\text{adj}} = \sigma_1\left\{\sqrt{\frac{1}{t^2}[(t)^2 + (t-1)^2 + (t-2)^2 + \cdots + (3)^2 + (2)^2 + (1)^2]}\right\} \text{ or}$$

$$\sigma_{\text{adj}} = \sigma_1\left\{\sqrt{\frac{(2t+1)(t+1)}{6t}}\right\} \quad (7.10)$$

The result of Eq. (7.10) is of course an algorithm of time and not the square root of time as employed by some financial market's participants based on the *RiskMetrics*™ methodologies (Morgan Guaranty Trust Company, 1994).

The above model can also be used to compute LVaR for any time horizon. Likewise, in order to perform the calculation of LVaR under illiquid

market conditions, it is possible to use the liquidity factor of Eq. (7.10) and define the following[6]:

$$\mathrm{LVaR}_{\mathrm{adj}} = \mathrm{VaR}\sqrt{\frac{(2t+1)(t+1)}{6t}} \tag{7.11}$$

where, VaR = Value at Risk under continuous liquid market outlooks and; $\mathrm{LVaR}_{\mathrm{adj}}$ = Value at Risk under illiquid market scenarios. The latter equation indicates that $\mathrm{LVaR}_{\mathrm{adj}} > \mathrm{VaR}$, and for the special case when the number of days to liquidate the entire multiple-assets is one trading day, then $\mathrm{LVaR}_{\mathrm{adj}} = \mathrm{VaR}$. Consequently, the difference between $\mathrm{LVaR}_{\mathrm{adj}}$ and VaR should be equal to the residual market risk due to the illiquidity of any particular asset class under illiquid markets outlooks. In fact, the closeout periods (t) necessary to liquidate the entire multiple-assets portfolios is related to the choice of the liquidity threshold; however, the size of this threshold is likely to change under adverse market perspectives. Indeed, the choice of the closeout horizon can be estimated from the total trading position size and the daily trading volume that can be unwound into the market without significantly disrupting asset market prices; and in actual practices, it is generally estimated as:

$$t = \frac{\text{Total Trading Position Size of Asset}_i}{\text{Daily Trading Volume of Asset}_i} \tag{7.12}$$

In practice, the daily trading volume of any trading asset is estimated as the average volume over some period of time, generally a month of trading activities. In effect, the daily trading volume of assets can be regarded as the average daily volume or the volume that can be unwound in a severe crisis period. The trading volume in a crisis period can be roughly approximated as the average daily trading volume less a number of standard deviations. Albeit this alternative approach is quite simple, it is still relatively objective. Moreover, it is reasonably easy to gather the required data to perform the necessary liquidation scenarios; and thereafter the closeout periods.

[6] It is important to note that Eq. (7.11) can be used to calculate LVaR for any time horizon subject to the constraint that the overall LVaR figure should not exceed at any setting the nominal exposure, in other words the total trading volume.

In essence, the above liquidity-scaling factor (or multiplier) is more robust and less conservative than the conventional root-t multiplier and can aid financial entities in allocating reasonable and liquidity market-driven regulatory and economic capital requirements. Furthermore, the above algorithm can be applied for the computation of LVaR for every asset and for the entire portfolio of multiple-assets. In order to calculate the LVaR for the entire portfolio under illiquid market circumstances $\left(\mathrm{LVaR}_{P_{\mathrm{adj}}}\right)$, the above algorithm can be extended, with the aid of Eq. (7.3), into a matrix-algebra arrangement to yield the following:

$$\mathrm{LVaR}_{P_{\mathrm{adj}}} = \sqrt{\sum_{i=1}^{n}\sum_{j=1}^{n}\mathrm{LVaR}_{i_{adj}}\,\mathrm{LVaR}_{j_{\mathrm{adj}}}\,\rho_{i,j}} = \sqrt{\left[\mathrm{LVaR}_{\mathrm{adj}}\right]^{T}\left[\rho\right]\left[\mathrm{LVaR}_{\mathrm{adj}}\right]} \tag{7.13}$$

The elements of the vectors of Eq. (7.13), that is, the absolute value of $\mathrm{LVaR}_{i\mathrm{adj}}$, for each trading asset can now be calculated with the aid of Eqs. (7.1), (7.2), and (7.11), in this manner:

$$\mathrm{LVaR}_{i\mathrm{adj}} = \left|\left(\mu_i - \alpha * \sigma_i\right)\ \mathrm{Asset}_i * Fx_i \sqrt{\frac{\left(2t_i+1\right)\left(t_i+1\right)}{6t_i}}\right| \tag{7.14}$$

On the other hand, for the special case when μ_i is small or close to zero, we can have:

$$\mathrm{LVaR}_{i\mathrm{adj}} = \left|\alpha * \sigma_i * \mathrm{Asset}_i * Fx_i \sqrt{\frac{\left(2t_i+1\right)\left(t_i+1\right)}{6t_i}}\right| \tag{7.14a}$$

Now, we can define the ultimate two vectors $\left[\mathrm{LVaR}_{\mathrm{adj}}\right]^{T}$ and $\left[\mathrm{LVaR}_{\mathrm{adj}}\right]$ as follows:

$$\left[\mathrm{LVaR}_{\mathrm{adj}}\right]^{T} = \left[\mathrm{LVaR}_{1_{\mathrm{adj}}}\ \ \mathrm{LVaR}_{2_{\mathrm{adj}}}\cdots\mathrm{LVaR}_{n_{\mathrm{adj}}}\right] \tag{7.15}$$

$$\left[\mathrm{LVaR}_{\mathrm{adj}}\right] = \begin{bmatrix} \mathrm{LVaR}_{1_{\mathrm{adj}}} \\ \mathrm{LVaR}_{2_{\mathrm{adj}}} \\ \cdots\mathrm{LVaR}_{n_{\mathrm{adj}}} \end{bmatrix} \tag{7.16}$$

The above algorithms (in the form of two vectors and a matrix, $\left[\mathrm{LVaR}_{\mathrm{adj}}\right]^{T}$, $\left[\mathrm{LVaR}_{\mathrm{adj}}\right]$ and $\left[\rho\right]$) can facilitate the programming and computational processes of the optimization engine so that the risk/portfolio manager can specify different closeout horizons for the whole portfolio and/or for each single asset according to the required number of days to unwind the entire multiple-assets completely. The latter can be achieved by specifying an overall benchmark closeout horizon to liquidate the entire constituents of the multiple-assets portfolio. The closeout horizons required to liquidate trading assets holdings (of course, depending on the type of each asset) may be obtained from the various publications in financial markets and can be compared with the assessments of individual traders of each trading unit. As a result, it is possible to construct simple statistics of the asset volume that can be liquidated and the necessary time horizon to unwind the whole volume.[7]

Evaluating and Controlling of Market Liquidity Risk Exposures: Optimization Case Study of Emerging GCC Financial Markets[8]

In this research study, databases of daily price returns of the six GCC stock markets' main indicators (indices) are assembled and appropriately matched for the actual days of operation of each country. The total numbers of indices that are considered in this research study are nine indices;

[7] In fact, the concept of liquidity risk in financial markets and institutions can imply either the added transaction costs related to trading large quantities of a certain financial security, or it can deal with the ability to trade this financial asset without triggering significant changes in its market prices (see Roch & Soner, 2013, for further details and empirical analysis).

[8] A number of Middle-Eastern countries have joined the implementation of modified versions of Basel II and Basel III capital accords. In fact, the GCC financial markets, in general, are in progressive stages of implementing advanced risk management regulations and techniques. Moreover, in recent years outstanding progress has been done in cultivating the culture of risk management among local financial entities and regulatory institutions. In the Middle East, the majority of banking assets is expected to be covered by Basel II and Basel III regulations by 2020. Generally speaking, capital ratios are fairly strong in the GCC, though they have fallen lately as banks have expanded their products and operations. Within the GCC, there have been negotiations for common application of Basel II and Basel III rules, though with different timeframes. This is due to the fact that some GCC countries are more diverse, for instance, in terms of the presence of foreign banks than others.

seven local indices for the six GCC stock markets (including two indices for the UAE markets) and two benchmark indices, detailed as follows:

DFM General Index (United Arab Emirates, Dubai Financial Market General Index)
ADX Index (United Arab Emirates, Abu Dhabi Stock Market Index)
BA All Share Index (Bahrain, All Share Stock Market Index)
KSE General Index (Kuwait, Stock Exchange General Index)
MSM30 Index (Oman, Muscat Stock Market Index)
DSM20 Index (Qatar, Doha Stock Market General Index)
SE All Share Index (Saudi Arabia, All Share Stock Market Index)
Shuaa GCC Index (Shuaa Capital, GCC Stock Markets Benchmark Index)
Shuaa Arab Index (Shuaa Capital, Arab Stock Markets Benchmark Index)

For this particular study, we have chosen a confidence interval of 95% (or 97.5% with "one-tailed" loss side) and quite a few closeout horizons to compute LVaR. Historical database (of more than six years) of daily closing index levels, for the period 17/10/2004–22/05/2009, are assembled for the purpose of carrying out this research and further for the construction of market risk-management parameters and risk limits (or risk budgeting). In fact, the selected time-series datasets fall within the period of the most critical part of the 2007–2009 global financial turmoil and are drawn from Reuters 3000 Xtra Hosted Terminal Platform and Thomson's Datastream database. The examination and analysis of data and discussions of relevant empirical findings are organized and explained as follows.

Stochastic Properties of the Returns Series

In the process of estimating and analyzing the stochastic properties of data, first, the daily continuous compounded returns of the nine stock market indices are calculated. These daily returns are key inputs for the computation of conditional volatilities, correlation matrices, systematic risk, skewness, kurtosis, and to apply Jarque-Bera (*JB*) non-normality test. Next, based on Al Janabi model (Madoroba & Kruger, 2014), robust financial modeling, optimizing algorithm, and a software package are designed for constructing structured multiple-assets portfolios and consequently for the implementation LVaR and scenario analysis under extreme illiquid market outlooks. This is followed by integrating the dependence

measures (correlation factors) of Table 7.3 into the risk-engine simulation algorithms.

To that end, Table 7.1 illustrates the daily conditional volatility of each of the sample indices under regular (normal) market and intricate (stressed) market outlooks that was estimated via the means of a GARCH-M (1,1) technique. Intricate market volatilities are computed by fitting an empirical distribution of past daily returns for all stock market indices. Thus, the maximum negative returns (losses), which are witnessed in the historical time series, are selected for this purpose (refer to Table 7.2) for the maximum daily gains and losses and the dates of occurrence. This approach can aid in overcoming some of the limitations of normality assumption and can provide a better analysis of LVaR, especially under stressed and illiquid market perspectives.

Next, statistical analysis and testing of non-normality (i.e., asymmetrical behavior in returns distribution) are performed on the sample indices. To take into account the distributional anomalies of asset returns, test of non-normality is conducted on the sample equity indices using the Jarque-Bera (*JB*) test. In the first study, the measurements of skewness and kurtosis are realized on the sample equity indices, and the empirical results are depicted in Table 7.1. It is seen that all indices show asymmetric behavior (between both positive and negative values). Moreover, kurtosis studies show similar patterns of abnormality (i.e. peaked distributions). Nonetheless, the Jarque-Bera (JB) test shows an obvious general deviation from normality and, thus, rejects the hypothesis that GCC stock markets' time-series returns are normally distributed.

Upper Limit LVaR Risk Budgeting for Mainstream Financial Trading Units

Maximum risk limits (or risk-budgeting thresholds) are an important concern for any corporate trading-asset risk-management unit and it should be defined clearly and used wisely to ensure complete control on the trading/investment unit's exposure to risk. All LVaR limit-setting and control, monitoring and reporting should be performed by the risk-management unit, independently from the front office's traders.

How should we set upper LVaR risk limits to safeguard against maximum loss amounts? These are some of the central questions that risk managers need to address in designing their risk management systems. In this chapter a simplified—however, a robust—methodology is presented for the setting

Table 7.1 Conditional volatility, expected returns, systematic risk, and Jarque-Berra Test (JB) for non-normality

Stock market indices	*Daily volatility (regular market)*[a]	*Daily volatility (intricate market)*[a]	*Arithmetic mean*	*Expected return*[a]	*Systematic risk (beta factor)*	*Skewness*	*Kurtosis*	*Jarque-Bera (JB) Test*
DFM General Index	1.81%	12.16%	0.12%	0.14%	0.58	0.01	7.86	955[b]
ADX Index	1.32%	7.08%	0.07%	0.07%	0.40	0.12	7.26	734[b]
BA All Share Index	0.58%	3.77%	0.05%	0.04%	0.06	0.43	10.24	2142[b]
KSE General Index	0.71%	3.74%	0.09%	0.08%	0.14	–0.18	8.38	1173[b]
MSM30 Index	0.79%	8.70%	0.12%	0.10%	0.10	–0.57	18.40	9617[b]
DSM20 Index	1.48%	8.07%	0.06%	0.07%	0.31	–0.11	5.59	273[b]
SE All Share Index	1.86%	11.03%	0.03%	0.01%	0.98	–0.97	8.47	1361[b]
Shuaa GCC Index	1.30%	8.10%	0.06%	0.08%	1.05	–0.66	14.00	4949[b]
Shuaa Arab Index	1.15%	7.57%	0.07%	0.10%	1.00	–0.61	13.79	4758[b]

Source: Designed by the author using in-house built software

[a]Denotes estimation of conditional volatility and expected return using GARCH (1,1)-M model
[b]Denotes statistical significance at the 0.01 level

Table 7.2 Maximum daily positive returns (gain) and negative returns (loss) and the dates of occurrence

Stock market indices	*Maximum daily positive return (gain)*	*Dates of occurrence*	*Maximum daily negative return (loss)*	*Dates of occurrence*
DFM General Index	9.94%	1/23/2008	−12.16%	3/14/2006
ADX Index	6.57%	5/9/2005	−7.08%	1/22/2008
BA All Share Index	3.61%	1/24/2006	−3.77%	8/13/2007
KSE General Index	5.05%	3/16/2006	−3.74%	3/14/2006
MSM30 Index	5.22%	10/16/2007	−8.70%	1/22/2008
DSM20 Index	6.22%	2/4/2008	−8.07%	1/22/2008
SE All Share Index	9.39%	5/13/2006	−11.03%	1/21/2008
Shuaa GCC Index	11.14%	5/13/2006	−8.10%	1/21/2008
Shuaa Arab Index	9.43%	5/13/2006	−7.57%	1/21/2008

Source: Designed by the author using in-house built software

Table 7.3 Dependence measures (correlation factors) of stock market indices

	DFM general index	*ADX index*	*BA all share index*	*KSE general index*	*MSM30 index*	*DSM20 index*	*SE all share index*	*Shuaa GCC index*	*Shuaa Arab index*
DFM general index	100%								
ADX index	56%	100%							
BA all share index	12%	8%	100%						
KSE general index	17%	16%	12%	100%					
MSM30 index	12%	17%	11%	11%	100%				
DSM20 index	18%	23%	12%	12%	20%	100%			
SE all share index	20%	20%	7%	16%	11%	10%	100%		
Shuaa GCC index	37%	35%	13%	19%	13%	26%	62%	100%	
Shuaa Arab index	39%	36%	12%	24%	15%	26%	60%	93%	100%

Source: Designed by the author using in-house built software

of upper limits LVaR risk budgeting. To that end, a variety of optimization case studies are examined in order to setup techniques for the computation of maximum LVaR risk-budgeting limits and to establish adequate procedures for handling certain situations in which trading/investment units are above the authorized LVaR upper limits. In fact, these upper limits LVaR methodology and computational procedure must be examined and approved by the senior management of the financial entity because it is crucial that all trading/investment units use these authorized LVaR limits as strict guidelines and policies for their risk takings. In addition, any excessive risk taking beyond the ratified LVaR limits must be reported to top management by the risk-management unit. Likewise, traders/asset managers need to provide full and justified clarifications of why their reported LVaRs are beyond the approved limits (Al Janabi, 2013, 2008a).

To that end, Tables 7.4, 7.5, 7.6, 7.8, and 7.9 represent different optimization case studies for establishing of realistic upper limits LVaR risk budget-

Table 7.4 Risk-budgeting upper limits in AED with 10 days closeout period, different correlation factors (ρ), and under regular (normal) market outlook

Upper limits risk budgeting	ρ = *Empirical*	ρ = *+1*	ρ = *0*
LVaR first case study of optimization	3,494,906	5,883,546	2,679,576
LVaR second case study of optimization	8,249,941	8,249,941	8,249,941
LVaR third case study of optimization	**11,767,031**	4,276,034	**12,432,381**
LVaR fourth case study of optimization	8,415,267	**10,609,262**	6,974,587

Source: Designed by the author using in-house built software

Notes: This table demonstrates risk-budgeting upper limits with four optimization case studies, and with 10 days closeout period, different correlation factors, and under regular (normal) market outlooks

Table 7.5 Risk-budgeting upper limits in AED with 10 days closeout period, different correlation factors (ρ), and under stressed (intricate) market outlook

Upper limits risk budgeting	ρ = *Empirical*	ρ = *+1*	ρ = *0*
LVaR first case study of optimization	20,449,118	34,921,874	15,683,656
LVaR second case study of optimization	52,091,452	**52,091,452**	52,091,452
LVaR third case study of optimization	**68,535,481**	33,290,131	**71,970,610**
LVaR fourth case study of optimization	47,690,472	50,763,385	41,653,465

Sources: Designed by the author using in-house built software

Notes: This table demonstrates risk-budgeting upper limits with four optimization case studies, and with 10 days closeout period, different correlation factors, and under stressed (intricate) market outlooks

Table 7.6 Risk-budgeting upper limits in AED with 5 days closeout period, different correlation factors (ρ), and under regular (normal) market outlook

Upper limits risk budgeting	ρ = *Empirical*	ρ = *+1*	ρ = *0*
LVaR first case study of optimization	2,641,900	4,447,542	2,025,569
LVaR second case study of optimization	6,236,369	6,236,369	6,236,369
LVaR third case study of optimization	**8,895,040**	3,232,378	**9,397,997**
LVaR fourth case study of optimization	6,361,344	**8,019,848**	5,272,293

Source: Designed by the author using in-house built software

Notes: This table demonstrates risk-budgeting upper limits with four optimization case studies, and with 5 days closeout period, different correlation factors, and under regular (normal) market outlooks

Table 7.7 Risk-budgeting upper limits in AED with 5 days closeout period, different correlation factors (ρ), and under stressed (intricate) market outlook

Upper limits risk budgeting	ρ = *Empirical*	ρ = *+1*	ρ = *0*
LVaR first case study of optimization	15,458,080	26,398,456	11,855,729
LVaR second case study of optimization	39,377,437	**39,377,437**	39,377,437
LVaR third case study of optimization	**51,807,954**	25,164,974	**54,404,668**
LVaR fourth case study of optimization	36,050,608	38,373,512	31,487,060

Source: Designed by the author using in-house built software

Notes: This table demonstrates risk-budgeting upper limits with four optimization case studies, and with 5 days closeout period, different correlation factors, and under stressed (intricate) market outlooks

Table 7.8 Risk-budgeting upper limits in AED with 15 days closeout period, different correlation factors (ρ), and under regular (normal) market outlook

Upper limits risk budgeting	ρ = *Empirical*	ρ = *+1*	ρ = *0*
LVaR first case study of optimization	4,181,429	7,039,282	3,205,939
LVaR second case study of optimization	9,870,521	9,870,521	9,870,521
LVaR third case study of optimization	**14,078,492**	5,115,998	**14,874,540**
LVaR fourth case study of optimization	10,068,322	**12,693,296**	8,344,643

Source: Designed by the author using in-house built software

Notes: This table demonstrates risk-budgeting upper limits with four optimization case studies, and with 15 days closeout period, different correlation factors, and under regular (normal) market outlooks

Table 7.9 Risk-budgeting upper limits in AED with 15 days closeout period, different correlation factors (ρ), and under stressed (intricate) market outlook

Upper limits risk budgeting	ρ = *Empirical*	ρ = +1	ρ = 0
LVaR first case study of optimization	24,466,047	41,781,763	18,764,479
LVaR second case study of optimization	62,324,052	**62,324,052**	62,324,052
LVaR third case study of optimization	**81,998,269**	39,829,488	**86,108,179**
LVaR fourth case study of optimization	57,058,564	60,735,106	49,835,676

Source: Designed by the author using in-house built software

Notes: This table demonstrates risk-budgeting upper limits with four optimization case studies, and with 15 days closeout period, different correlation factors, and under stressed (intricate) market outlooks

ing. In all optimization case studies, the effects of various asset allocations (with or without short selling) are investigated for the purpose of setting of adequate LVaR risk-budgeting limits. Thus, in all case studies, the optimization is based on the definition of LVaR as the maximum downside loss over a specified time horizon and within a given confidence level. The optimization technique solves the problem by finding the market positions that maximize the downside losses, subject to the fact that all optimization constraints are satisfied within their boundary values. Furthermore, in all case studies for the optimization of the upper boundaries of risk budgeting, different liquidation horizons (closeout periods) of 5, 10, and 15 trading days are assumed. In fact, the case of 10 days closeout period represents the agreed-upon regulatory parameter as specified by Basel committee on banking supervision and capital adequacy requirements. In addition, for the sake of simplification of the optimization process and thereafter its examination, a volume trading limit of AED 200,000,000 is assumed as a constraint for the whole multiple-assets portfolio—that is the financial entity (or trading unit) must keep a maximum overall market value of stocks of no more than AED 200,000,000 (between long-only and long- and short-sales positions).

While in the first LVaR optimization case study distinct asset allocations are assumed, in the second case study all trading positions are concentrated in one market index that has, under intricate market circumstances, the highest daily conditional volatility, that is, the Dubai Financial Market (DFM) General Index. Finally, in the third and fourth case studies the effect of short selling of the sample stocks (or indices) is also contemplated by randomly short selling some of the sample stocks.

The principal effect of diversification on LVaR upper limits risk-budgeting setting seems to be through the first LVaR optimization case

study; that is, with unequal asset allocation percentages. By and large, the highest LVaR upper limits risk budgeting (with empirical correlations parameters) are for the third optimization case study, when the trading budget is allocated between long- and short-sales equity trading positions (refer to Tables 7.4 and 7.5 for the optimization case studies under regular and stressed markets outlooks). As such, optimization case study three dominates all the other case studies with the exception when correlation factors tend to move strongly in the same direction (that is, when $\rho = +1$).[9] These phenomena can be explained by the nature of dependence measures (correlation factors) and the impact of short selling that are implemented in this optimization research study. In fact, in accordance with our previous research studies on other emerging financial markets, such as Morocco and Mexico (Al Janabi, 2007, 2008b), we have found by and large that short selling tends to decrease LVaR figures and, hence, the upper limits of LVaR risk budgeting. Thus, for the case of emerging GCC stock markets the above phenomena of high LVaR risk budgeting under $\rho = +1$ can be explained by the nature of the diminutive correlation factors that we have witnessed for the entire GCC stock markets (refer to Table 7.3 for further details). These tiny correlation factors have led to grand diversification benefits for long-only equity trading holdings and visa-versa for long- and short-sales positions.

While Tables 7.4 and 7.5 represent the typical regulatory case of 10 days closeout period, we decided to expand our empirical testing and provide evidences of the recommended techniques and algorithms by presenting two more optimization simulations with 5 and 15 days of liquidation horizons respectively. To that end, Tables 7.6, 7.7, 7.8, and 7.9 illustrate the upper limit of LVaR risk budgeting with 5 and 15 days of closeout periods, under both regular and intricate markets outlooks. Similar to the above case studies with 10 days liquidation horizon, the third LVaR case study for optimizing and determining upper limits risk budgeting indicates in general the highest risk-budgeting allocation under both regular and stressed markets perspectives. As expected, the case with 5 days closeout period produces less risk budgeting than the case with 10 days liquidation horizon and vice-versa for the optimization case with 15 days unwinding period.

As a conclusion of these structured optimization case studies, senior management of the financial institution can set the upper limits of daily

[9] Optimization results of the upper limits of risk-budgeting with different correlation parameters are highlighted in bold throughout Tables 7.4, 7.5, 7.6, 7.7, 7.8, and 7.9.

LVaR risk budgeting for their equity trading multiple-assets portfolios as follows.

Risk-Budgeting Parameters Under 10 Days Closeout Period (Basel Regulatory Case)

- Top limit amount of approved daily LVaR risk budgeting under regular market outlooks, with empirical correlations = AED 11,767,031.
- Top limit amount of approved daily LVaR risk budgeting under intricate market outlooks, with empirical correlations = AED 68,535,481.
- Top limit amount of approved daily volume limit for the whole multiple-assets trading portfolio = AED 200,000,000 (between long-only and long- and short-sales trading positions).
- Maximum closeout periods for all multiple-assets in the trading portfolio = 10 days

Risk-Budgeting Parameters Under 5 Days Closeout Period

- Top limit amount of approved daily LVaR risk budgeting under regular market outlooks, with empirical correlations = AED 8,895,040.
- Top limit amount of approved daily LVaR risk budgeting under intricate market outlooks, with empirical correlations = AED 51,807,954.
- Top limit amount of approved daily volume limit for the whole multiple-assets trading portfolio = AED 200,000,000 (between long-only and long- and short-sales trading positions).
- Maximum closeout periods for all multiple-assets in the trading portfolio = 5 days

Risk-Budgeting Parameters Under 15 Days Closeout Period

- Top limit amount of approved daily LVaR risk budgeting under regular market outlooks, with empirical correlations = AED 14,078,492.
- Top limit amount of approved daily LVaR risk budgeting under intricate market outlooks, with empirical correlations = AED 81,998,269.
- Top limit amount of approved daily volume limit for the whole multiple-assets trading portfolio = AED 200,000,000 (between long-only and long- and short-sales trading positions).
- Maximum closeout periods for all multiple-assets in the trading portfolio = 15 days

It should be mentioned that the above optimized top limits of LVaR risk budgeting are in their converted (or equivalent) UAE dirham (AED) values at the current or prevailing foreign exchange rates for all other emerging GCC countries versus the UAE dirham.

Concluding Remarks and Recommendations

There are many methods and ways to identify, measure, and control liquidity trading risk, and risk managers have the task to ascertain the identity of those algorithms that suit their requirements. In fact, there is no right or wrong way to assess and manage liquidity trading risk; it all depends on each financial entity's objectives, lines of business, risk appetite and the availability of funds for investment in trading risk-management projects. Regardless of the methodology chosen, the most important factors to consider are the establishment of sound risk practices, policies, and standards and the consistency in the implementation process across all lines of businesses and risks.

Under special conditions when changes in market risk factors are normally distributed, Liquidity-Adjusted Value at Risk (LVaR) can be computed using a closed-form parametric methodology, along with the application of GARCH-M (1,1) modeling technique for the estimation of conditional volatilities and expected returns. For upper limits LVaR risk budgeting and daily trading risk-assessment purposes, these assumptions are made for the sake of simplifying the computational process. However, for emerging markets environments, it is crucial to extend the closed-form parametric methodology with other quantitative algorithms, such as stress-testing and simulation analysis under intricate markets outlooks. This is done with the objective of estimating the impact of the assumptions that are made under the LVaR methodology. Likewise, the effects of illiquidity of trading assets and closeout horizons in emerging markets must be dealt with wisely and should be brought into existence within the LVaR framework of optimization algorithms.

Our empirical results suggest that in almost all tests, there are clear asymmetric behaviors in the distribution of returns of the Gulf Cooperation Council (GCC) stock market indices. The appealing outcome of this empirical research study suggests the inevitability of combining LVaR optimization algorithms with other quantitative risk-management techniques, such as, stress-testing and scenario analysis to grasp a better view of the other remaining risks (such as, the presence of fat-tails in the prob-

ability distribution of returns) that cannot be revealed with the plain assumption of normality.

In fact, the implications of the findings of this empirical research study on the GCC stock markets suggest that although there is a clear departure from normality in the distribution of assets' returns, this issue can be tackled without the need of complex mathematical and computational processes. In effect, it is possible to handle these issues, for equity cash assets, with the simple use of a closed-form parametric algorithm along with the incorporation of a credible stress-testing approach (under intricate market outlooks), as well as by enhancing the risk optimization engine with a rational illiquidity risk factor that takes into account real-world trading circumstances. In this research study, a robust model for the assessment of illiquidity of both long-only and long- and short-selling trading positions is integrated into the optimization algorithms. In contrast to other liquidity models, the liquidity methodology that is applied in this work is more appropriate for real-world trading practices since it considers selling small fractions of the long/short trading securities on a daily basis. This liquidity model can be implemented for the entire multiple-assets portfolio or for each asset within the structured equity trading portfolio. Indeed, the developed methodology and risk-assessment algorithms, which is based on Al Janabi model (Madoroba & Kruger, 2014), can aid in progressing quantitative risk-management practices in emerging markets and above all in the wake of the 2007–2009 credit crunch and the ensuing financial turmoil.

In conclusion, optimizing LVaR risk-budgeting upper limits is an important concern as part of daily quantitative risk-management process for strategic decision-making within trading financial entities. To that end, a robust risk-engine and optimization algorithms are presented to demonstrate a novel technique for the setting of upper limits LVaR risk budgeting. The robust optimization algorithm and mathematical modeling techniques are based on Al Janabi model (Madoroba & Kruger, 2014). Thus, in all optimization case studies, the volume limit in UAE dirham (AED200,000,000) is assumed constant and is used as a constraint, on the complex quantitative algorithms, for the computation of LVaR upper limits risk budgeting. For this particular research study, risk-budgeting parameters are computed for regular and stressed market circumstances and under the notion of different dependence measures (correlation factors) and with different closeout periods of 5, 10, and 15 days respectively. As such, quite a few structured optimization case studies are performed with different asset allocations (with or without

short selling) and with the objectives of providing of upper limits LVaR risk-budgeting structures for equity trading risk-management units, under regular and intricate market outlooks.

Finally, the implemented methodology and risk-assessment algorithms can aid in advancing quantitative risk-management practices in emerging markets, particularly in the wake of the sub-prime credit crunch and the ensuing 2007–2009 financial turmoil. In addition, the proposed quantitative risk-management techniques and optimization algorithms can have important uses and applications in expert systems, machine learning, smart financial functions, and financial technology (FinTech) in big data environments.

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PART III

Human Resources Management

CHAPTER 8

Stakeholder Influence on Decision Making: From e-Movements (#metoo) to Corporate Social Responsibility Policy

Andrée Marie López-Fernández

Introduction

The fourth industrial revolution, Industry 4.0, has shifted organizational dynamics by placing individuals and organizations in the midst of a new environment, one in which the Internet of things (Atzori, Iera, & Morabit, 2010) has significantly changed nearly every daily activity and task, as well as decision making. Data and information are at the tip of everyone's fingers, and anything and everything can be researched and done online and be saved to the cloud. Organizations can establish direct and simultaneous communication via social media with current and potential stakeholders; furthermore, the latter take to social networking sites to voice their thoughts, opinions, praises, and grievances, and even become active participants in social movements.

Protest activity and social movements are carried out in order to mobilize agents, change structures and systems, resist change and, in general, influence key decision making that may lead to desired outcomes. Social

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movements, whether focused on political or social issues, are driven by the same intent to converge objectives and interests; that is, their aim is to persuade the majority that the minority group's interests and objectives are, in fact, elemental to the collective. Throughout the years, there have been numerous social movements around the world; although it is true that not all have attained the change desired, those that have, have certainly impacted the manner in which both countries and organizations are governed. The power of protest and civil disobedience, for instance, has a significant impact on corporate decision making, particularly, on organization design and execution of policies, standards and norms. Therefore, social movements have been, par excellence, the strongest determinants in social growth and development.

Organizations engaging in corporate social responsibility take a firm stance on the protection of human rights, dignity, and equality, which begs the question, are organizations that state to be socially responsible advocating for the terms of their policies and standards? Is it possible to be effectively engaging in corporate social responsibility when action is taken only upon public embarrassment? Moreover, what is the role of the organization's corporate governance in the apparent leniency of unethical and questionable practices that deem the engagement in corporate social responsibility misleading and deceptive? The main objective of this study is to understand the effects of stakeholders' power to influence organizations' decision making through social media communication. In this endeavor, propositions have been framed along with a conceptual model on the basis of the analysis of previous literature and current cases to provide insights for managerial implications.

Literature Review

Corporate Social Responsibility

The manner in which social growth and development and business growth and development converge is by engaging in corporate social responsibility (CSR). The concept has been defined as an organization's practices aimed at social well-being that go beyond legal requirements and obligations (McWilliams, Siegel, & Wright, 2006). Corporate social responsibility has a positive impact on an organization's reputation (Galbreath, 2010), organizational performance (Sun & Yu, 2015; Surroca, Tribó, & Waddock, 2010), collaborators' moral (Utting, 2005) and motivation and

satisfaction (Mozes, Josman, & Yaniv, 2011), consumer satisfaction (Xueming & Bhattacharya, 2006), competitive advantage (Kim & Scullion, 2013), financial performance (Schatzberg, Gupta, & McCandless, 1997; Simpson & Kohers, 2002), innovation (Rexhepi, Kurtishi, & Bexheti, 2013), and stakeholders' overall satisfaction and loyalty (Isa, 2012; Lindgreen, Swaen, & Johnston, 2009), amongst others.

Organizations have an important responsibility toward their stakeholders (Ismail, 2011), both current and potential, and CSR is an important means for effective stakeholder management (Khan, Khan, Ahmed, & Ali, 2012). According to Homburg, Stierl, and Bornemann (2013), CSR is described as the organization's voluntary practice of taking internal and external stakeholders' interests and concerns into account; thus, it is a business concept oriented toward stakeholders (Maon, Lindgreen, & Swaen, 2009) as well as driven by stakeholders. It is not enough for organizations to engage in corporate social responsibility, they must also be proactive in the communication of their practices (Liston-Heyes & Ceton, 2009; Panapanaan, Linnanen, Karvonen, & Phan, 2003) to current and potential stakeholders in order to achieve desired outcomes. Therefore, maintaining direct dialogue with stakeholders regarding their CSR efforts is essential to the latter's satisfaction. Furthermore, stakeholders demonstrate a preference for establishing relationships with organizations that demonstrate a greater involvement in social issues, such as the community (Amato & Amato, 2007), at least that surrounds them, and environmental issues (Bird, Hall, Momentè, & Reggiani, 2007). As such, the achievement of stakeholder satisfaction is no longer fulfilled by the mere attainment of profit (de Camargo, Mendonça, de Oliveira, Jabbour, & de Sousa Jabbour, 2017) and quality products and/or services (Stigson, 2002).

Transparency and accountability are two fundamental elements of CSR; together, they lay the foundation for honesty and trust, which are significantly valued by stakeholders (O'Connor & Meister, 2008). Firms engaging in CSR strive to be accountable as well as be held accountable by their stakeholders. However, stakeholders are only able to hold parties and/or organizations accountable if they are duly empowered (Cooper & Owen, 2007) to do so; thus, organizational leaders need to assure their stakeholders that their voice is valuable and taken into account for decision making. In the sense that they acknowledge stakeholders as genuine participants in the ongoing improvement of business dynamics.

Firms engaging in corporate social responsibility are open to listening to stakeholders' needs, wants, as well as grievances because they under-

stand that their loyalty is based on their perception of satisfaction and added value. Stakeholder dialogue is essential in stakeholder management as well as the effectiveness of a firm's CSR engagement (Pedersen, 2006). And, achieving a successful dialogue requires the encouragement of stakeholder voice. According to Singh, Sethuraman, and Lam (2017), stakeholder engagement refers to the dialogue established with stakeholders regarding the firm's CSR practices; such dialogue includes having an actual conversation whereby information, data, and feedback are actively exchanged amongst interested parties. And, stakeholder engagement is achieved when stakeholders are heard (Pedersen, 2006) and perceive their voices to be making a difference; in a sense, they not only want organizational leaders to listen to what they have to say but also want to know that the information shared is being considered for decision making and is, ultimately, making a difference; thus, engagement for stakeholders means proactivity and inclusion. Hence, the proposition has been constructed as:

P_1 Firms engaging in CSR foster stakeholder dialogue derived from stakeholder voice.

Social Movements

Whistleblowers, social movements, civil disobedience, protest activity, riots, sit-ins, boycotts, calls to ban, and so on are all different types of demonstrations of opposition to the status quo; however, they do share a common sense of disapproval of how policy is sustained, decisions are made, legislation is upheld, and their overall effects on social growth and development. Individuals, groups, organizations, and collectives use their voices to stand up against unjust behavior and decisions in the pursuit of resolute change. While social growth and development continues to be hampered by inequality, discrimination, war, poverty, famine, and hatred, social movements will rightly persist.

A social movement, a concept coined by Lorenz von Stein in 1850, is considered to be the undertakings of organized groups with the aim to resolve social issues (Rao, Morrill, & Zald, 2000). These movements have also been defined as a collection of people's thoughts and beliefs that stand for specific change in society (Zald & McCarthy, 1980) and a shared "collective identity" that has the aim to "prevent, or undo social, political or cultural change" (Maiba, 2005), and/or contentiously challenge and disrupt others (Tarrow, 2011). Social movements, then, emerge and come to

light because direct and/or one-on-one requests and petitions for change have been ignored and dismissed; in other words, the interests of what is perceived to be the minority are not or have not been converging with those of the majority. Social movements grow in power because they originate from and influence other movements (Meyer & Whittier, 1994; Porta & Tarrow, 2004); therefore, current social movements have precedent, accumulated shared knowledge, as well as motivation and inspiration. In other words, it is clear that, although not in all cases, social movements have the potential for beneficial outcomes, and desired results.

According to Blumer (1995), social movements can take on the form of an organization or a "collective enterprise", in that they acquire the same attributes; they, for instance, have a shared mission and vision, common goals and objectives, strategies, tactics, and core values, also known as corporate philosophy, collaborators, leadership, and so on in such a way that social movements may influence cultural innovation and even build new organizations (Rao et al., 2000). Moreover, they have the power to impact organizational behavior, because by modifying public opinion, they are able to influence the decision making of policy makers (Lipsky, 1968); and, regardless of whether organizational leaders are responsive to a social movement's demands and requests for change, they are definitely impacted by them; that is, social movements alter the outcomes of cost-benefit analysis, as well as stakeholder perceptions and attitudes (Zald, Morrill, & Rao, 2005) toward the organization. The latter, in turn, influences decision making, making the relationship between social movements and firms cyclical; therefore, the outcomes of social movements can have a significant impact on business growth and development.

Stakeholders and Social Movements

Stakeholders are any and every party interested and/or affected by an organization's activities and decisions as well as those that can affect the latter (Werther & Chandler, 2011). There are many stakeholder classifications (Kumar, Rahman, & Kazmi, 2016); for instance, there are project stakeholders (Cleland, 1997), that is, those that can affect and/or are affected by an organizational project, and internal and external stakeholders (de Chernatony & Harris, 2000; O'Shannassy, 2003), that is, those operating inside and outside the organization. And, there are primary and secondary stakeholders (Freeman, Harrison, & Wicks, 2007), the former are those that have a direct impact on organizational decision making and

are more consistent with profit-enhancing interest and, the latter, although with less or no power, may indirectly influence decision making and are more consistent with social well-being interest (Godfrey, Merrill, & Hansen, 2009).

Key elements in stakeholder management include stakeholder voice (Van Dyne, Ang, & Botero, 2003), stakeholder dialogue (Kaptein & Van Tulder, 2003), stakeholder engagement (Greenwood, 2007), stakeholder satisfaction (Strong, Ringer, & Taylor, 2001), and stakeholder added value (Hillman & Keim, 2001), all of which are attainable by being proactive in the effective management of organizational-stakeholder relationships. Successful organizations, amongst other factors, create value for their stakeholders (Freeman, 2009), that is, for both those current stakeholders and those that may potentially become the organization's stakeholders. Therefore, high-performing organizations ought to unwaveringly listen to and adopt their needs, requirements, and wants, in order to effectively add value, satisfy them, and maintain an effective relationship.

Meeting stakeholder demands may seem a complex task, as it might be argued that organizations simply cannot make all interested parties happy with their results; the latter is true, however, organizations may strive to satisfy their current and potential stakeholders with their business dynamics, that is, the manner in which they approach business: their corporate governance, corporate philosophy, engagement in corporate social responsibility, backstage operations, management, and overall achievement of strategic goals and objectives. By doing so, satisfaction with results will follow; in fact, stakeholder satisfaction by means of socially responsible business dynamics may lead to added value (Hillman & Keim, 2001), commitment (Mory, Wirtz, & Göttel, 2016), loyalty and, eventually, co-creation of value.

Since it is clear that organizations may not survive without stakeholders, it is vital that organizational leaders be proactive with their interests and concerns. On one hand, stakeholders have significant power and influence, especially today, on organizational decision making; on the other hand, legitimacy, which is the perceived appropriateness of action on the bases of social canons (Mitchell, Agle, & Wood, 1997), is granted by stakeholders to the firm (Deegan, Rankin, & Vogt, 2000). An organization's engagement in socially responsible practices, for instance, is essential to the provision of legitimacy (Boyle & Boguslaw, 2007; De Quevedo-Puente, De la Fuente-Sabaté, & Delgado-García, 2007). In such way that stakeholders have high expectations of organizational business dynamics and their alignment with society's needs.

Stakeholders are constantly surveilling organizational behavior, which influences their decision making and attitude toward the firm. They do so because they are not only interested in the quality of the products and/or services they offer but also because they are interested in how they conduct their business operations. Increasingly, stakeholders need to know that the organizations they associate with not only do well, by achieving profit-enhancing objectives, but also do good, by comporting themselves ethically and engaging in socially responsible practices. In contrast, stakeholder preference to not associate with organizations that engage in unethical practices, or even questionable practices, has gradually increased as well.

According to Fernández-Guadaño and Sarria-Pedroza (2018), society continues to increase their demands for organizations to be both sustainable and responsible in their pursuit of economic, social, and environmental development; these demands are often expressed in the form of social movements. An organization's stakeholders are the very same people taking part in social movements; as such, no distinction should be made in the ethical management of stakeholders (Goodpaster, 1991), both current and potential. According to Porter and Kramer (2006), there are four aspects that compel the engagement in CSR: moral appeal, sustainability, authorization to operate, and reputation, which are all perceived, approved by, and granted by stakeholders. For instance, in order to maintain the right to operate, the firm must ensure that social expectations are being met (Moir, 2001). Therefore, when stakeholders, who expect a firm to be socially responsible, perceive an organization and/or members of an organization comporting themselves unethically, they vocalize their opinions through protest, social movements, boycotts, bans, amongst other manners, and vice versa.

Activism tends to be associated with consumers rather than with other stakeholders; however, there is a growing number of shareholders utilizing their rights to motivate organizations to promote social and environmental development (Wagemans, van Koppen, & Mol, 2013). For example, Nike's most recent ad campaign depicted Colin Kaepernick which instigated uproar; while some stakeholders are praising the decision, others have taken it upon themselves to boycott the organization, protest by burning sneakers, and so on. Despite the initial backlash, Fortune reported that there has been a 5 percent rise in Nike's stock since the firm announced the endorsement of Kaepernick (Kelleher, 2018). Granted, there are current and potential stakeholders that object to firms taking a stance such as

Nike did, however, more often than not, stakeholders' actions and demands are associated with the exhortation of organizations to stop engaging in bad, questionable, or unethical practices, for instance: price fixing, sexism, racism, animal cruelty, and environmental destruction, amongst others. The above discussion prompted to develop the following research proposition:

P_2 Stakeholders engage in social movements to voice their dissatisfaction with firm behavior

Social Media and Social Movements

The manner in which social movements are carried out has undergone significant change in itself, that is, the very activity's stage has, although not entirely, shifted from the streets to social media. One of the primary characteristics of the fourth industrial revolution, which justly differs from previous eras, is the scope of its social impact. For instance, it is the attributes of the Internet of things (Atzori et al., 2010) that has systematically altered the dynamics of communication which have, in turn, significantly influenced behavioral and attitudinal changes. The ever-growing use of social media, particularly social networking sites (SNSs), has, amongst other aspects, shifted stakeholders' power of influence on organization's decision making. Said influence has been increasingly visible with the viralization of social movements.

Social networking sites connect and reconnect people (Mejias, 2010) with similar interests (Boyd & Ellison, 2007) and enable them to read content, produce it, as well as discuss and share it (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011; Shirky, 2011) with other users around the world. Further, the practice of obtaining and disseminating news via social media has significantly increased (Lee & Ma, 2012) in the last years, since stakeholders prefer such platforms and they have become a significant source of information (Westerman, Spence, & Van Der Heide, 2014). Therefore, it makes good business sense for organizations to engage in dialogue with their current and potential stakeholders, regarding their practices, via social networking sites. That is, there is a greater probability that information, once shared with stakeholders, will be reposted and/or retweeted essentially increasing visibility of the original post instantly.

One of the principal activities that foster social movements is the diffusion of data and information to make as many people as possible knowl-

edgeable of the cause, objectives, process to participate, and so on. Technology has always been an important factor in the effectiveness of knowledge sharing such as printing, telegrams, telephones, any form of traditional mass media (Marvin, 1990), amongst many others; thus, the Internet has only increased the effectivity with which information is disseminated. Furthermore, social media and social networking sites have significantly increased the velocity and information quantity that can be shared simultaneously around the world. Online social movements are the mobilization of masses via online platforms with the aim of pursuing social change. They have been defined as the "adoption and use by social movements and community activists of new information and communication technologies (ICTs), such as the Internet and the World Wide Web" (Loader, 2003).

e-Movements (Earl & Schussman, 2002) have not completely eliminated offline, in person, movements. However, today, because of the attributes of social networking sites, the scope of social movements' impact and influence is boundless. Protest activity, for instance, is traditionally viewed as a group of people that take to the street to voice their opinions, thoughts, grievances, and complaints; it has proven to be an effective tool to mobilize masses as well as decision making. However, social networking sites, such as Facebook, Twitter, Instagram, amongst many others, have become significant platforms for the mobilization of people and groups for social movements (Carty, 2014); the latter has led, for instance, to online protests, e-protests (Scott & Street, 2000).

There are several advantages to the use of social networking sites for social movements, particularly, scope, anonymity, safety, and convenience. Scope of the social movement is particularly enhanced on social media as the number of potential viewers and participants surpass the millions; for instance, Facebook alone accounts for 2.27 billion monthly active users (Facebook, 2018). This also means that the reach of the effects of a social movement is amplified as well. Social networking sites leave the decision of the degree of online anonymity to each user, as well as the extent of privacy which is manageable by a series of settings. According to Youmans and York (2012), anonymity and privacy are essential for activists as well as social networking site users; therefore, such elements are significant advantages for social movement participants. Granted, anything and everything shared/posted online becomes part of the public domain; however, there is greater sense of identity protection when participation is carried out via SNSs.

Safety has always been a particular issue for participants of social movements and, especially for protest activity; there are over 118 million hits on Google for "protest safety", about 50 million for "staying safe during a protest", more than 22 million for "protest safety guide", and over 13 million hits for "protest safety tips". Therefore, it is clear that people are concerned about their safety and that of others when engaging in protest activity and with good reason since past experience has demonstrated that even peaceful protests can turn violent in an instant. Furthermore, there is growing fear of repercussion if identified as a protester, either by regulatory authorities or by organizations in which individuals work. Some participants are aware that they may be identified on social media; however, there is less concern than if their faces were to be plastered on the news, they are arrested, or worse. And, there is a considerable reduction of censorship (Isa & Himelboim, 2018), although it is not completely eliminated, as there is less oppression of freedom of speech. In July 2018, the United Nations Human Rights Council (UNHRC), during their 38th session, adopted a resolution that declares States must uphold and protect human rights during protests, both offline and online (UNHRC, 2018). Thus, there is a significant safety advantage to the use of social networking sites for social movements and protest activity.

The attributes of social networking sites also enable users to associate and assemble with others without major disruption to their daily lives and activities. In fact, stakeholders may now be active participants in multiple social movements simultaneously without leaving the comfort of their homes, preferred coffee shops, parks, and even offices, amongst others. Furthermore, their participation can go beyond local social movements as they can now be proactive in international movements as well. As such, the processes of captivating an audience and carrying out protest activity become much more efficient.

Intermediaries are no longer required for firms and stakeholders to connect because social networking sites provide ideal conditions; thus, firms can create a direct connection and dialogue with their stakeholders (Baird & Parasnis, 2011) who can now directly interact with brands, organizations, through social networking sites (Koufaris, 2002). While firms are able to gather valuable data and information, stakeholders are able to exert their voices regarding their degree of satisfaction or dissatisfaction with firms' behavior; that is, both positive and negative word-of-mouth (WOM) are generated via social media which can be viewed in the form of praise or discontent (Bakeberg, 2015) with brands, their firms, and overall

practices. While positive WOM can enhance a firm's image, negative WOM, caused by dissatisfaction with firm behavior, is much more frequent and can cause significant damage to reputations and cause an online "firestorm" (Pfeffer, Zorbach, & Carley, 2014), crisis for the organization (Ndlela, 2010) in question; hence, the research proposition constructed as stated below:

P_3 SNSs' attributes encourage stakeholders to participate in online social movements to voice their dissatisfaction with firm behavior.

Social movements, like any other post or tweet, have the potential of going viral. Virality has been defined as the probability with which a tweet or a post will be resent, shared, or retweeted (Hansen, Arvidsson, Nielsen, Colleoni, & Etter, 2011). And, it has also been described as the nature of the message itself (Guerini, Strapparava, & Özbal, 2011), in that a post or tweet's virality is tied to the potential virality of the content and if it does not account for the particular attributes, it will not spread through social media. Social movement viralization is attainable by the combination of four elements: (*i*) the message, (*ii*) the diffusion of the message by influencers and non-influencers, (*iii*) hashtags, which are keywords or phrases created with a pound sign (#) (Wang, Wei, Liu, Zhou, & Zhang, 2011) that are used in order to organize and coordinate groups of people focused on the same topic of discussion (Bruns & Burgess, 2011), and (*iv*) a crossover effect by which content is shared in media outlets different from the original source. It is noteworthy that the audience on SNSs' is vast; it not only includes current and potential stakeholders but also celebrities, influencers, religious and business leaders, diplomats, politicians, policy makers, key decision makers, amongst many others.

#Metoo Movement

The term "Me Too" was coined by Tarana Burke in 2006 (Ilinskaya & Robinson, 2018) with the aim of helping sexual violence survivors. In 2017, the term exploded when the hashtag #metoo went viral on social networking sites such as Twitter, Facebook, and Instagram, amongst others, as hundreds of SNSs' users took to these platforms to make their voices heard. Women and men around the world were simultaneously united by a hashtag that summed up their experiences. It was the beginning of a social movement against sexual assault and harassment, a move-

ment that has significantly altered the perception of corporate image and business dynamics; it began to exhort organizational leaders to engage internal and external stakeholders in the practice of self-examination and self-reflection (Becker, 2018) for a thorough and purposeful analysis, and adequate decision making.

Stakeholders around the world have joined the movement with greater intentions than merely participating in the conversation. They have been utilizing their power to influence organizational leaders to do the right thing by taking a strong stance against harassment, sexual assault, sexual abuse, violence, and discrimination. This particular social movement has been the center of discussion in almost every industry and sector, which means all organizations have been brought to the conversation regardless of their size and line of business. According to Vanhamme and Grobben (2009), when negative WOM is associated with a firm, CSR can be an effective means by which the organization can manage crises and restore their image; however, authentic engagement in CSR requires a step further. Firms that fiercely listen to their stakeholders and drive change in their corporate philosophy and corporate governance, do so because they are convinced that being socially responsible is the key to business and social growth and development. Some may argue that engaging in CSR is a mere public relations tactic and they would be right regarding organizations that comply with social demands in the form of answerability rather than accountability, examples of which are abundant.

Firms tend to take one of four positions when stakeholders actively voice their opinions via social media on their questionable or unethical behavior, including dismiss, evade, comply, and take-charge. Figure 8.1 depicts the different approaches taken by firms in response to stakeholder voice regarding firm behavior. When stakeholder voice is inconspicuous and the organization is not engaged in corporate social responsibility, their voice is dismissed; that is, organizational leaders tend to vocally reject their opinions and deem them a non-issue. When stakeholder voice is inconspicuous and the firm states to be engaged in CSR, organizational leaders tend to evade stakeholder requests and demands by remaining on the sidelines of the issue. When stakeholder voice is forceful but the firm is not fully engaged in CSR, organizational leaders tend to merely comply with indications from regulatory authorities; that is, they take action if and when a law is passed and/or they perceive their right to operate is in danger. Finally, when stakeholder voice is forceful, and the organization is engaged in CSR, organizational leaders take-charge, meaning that they

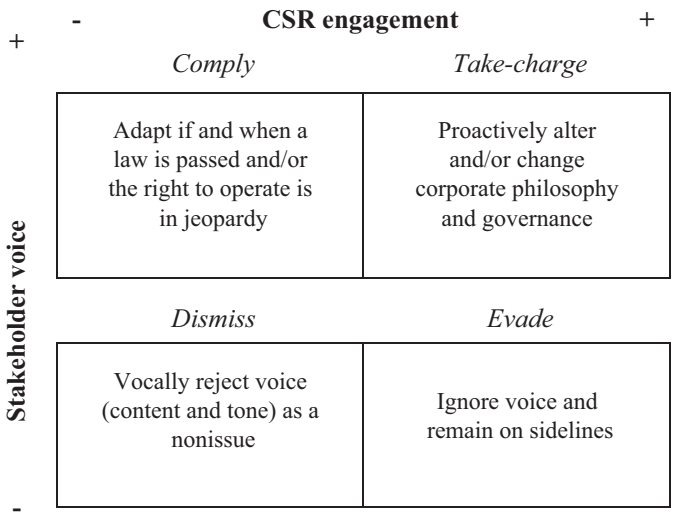

Fig. 8.1 Firm response to stakeholder voice via social media

are proactive in adapting their organizational design as to restructure their corporate philosophy and governance to fit stakeholders' requests in pursuit of both business and social growth and development. Therefore, the degree of responsiveness of firms varies, where those that dismiss are irresponsive, the ones that evade are inadequate, firms that comply are practicing answerability, and those that take-charge are accountable; further, only the latter are genuinely socially responsible and, thus, engaging and satisfying their stakeholders.

There is a vast quantity of examples of firms that, unfortunately, fall short of current and potential stakeholders' expectations, as well as international standards and law. Perhaps the most infamous example is the Weinstein case, which instigated the uncovering of misconduct across industries around the world. Over 80 women have come forward with allegations against Harvey Weinstein, who remains under investigation (Gonzalez, France, & Melas, 2018). The case has demonstrated that (1) current and potential stakeholders have a voice and will use it to demand justice offline and online: #Metoo, #TimesUp!, #NoMore, and so on, and (2) the accusations of men and women that have abused their power has not only exposed individuals but has also exposed organizations.

The latter has shed particular light on the *Weinstein effect* whereby firms not only demonstrate severe lack of proactivity and social responsibility but also reveal organizational illness, meaning that unethical and questionable practices permeate the organization, enabling said behavior; thus, there are issues with the very foundation of the organization, its corporate philosophy, and governance. Merely firing the guilty or alleged guilty party sends current and potential stakeholders the wrong message. It suggests that the organization is complying, giving into the pressure out of fear of further repercussions, their degree of responsiveness to stakeholder demands falls along the lines of answerability.

For instance, recently, Google collaborators around the world staged a walkout in protest of the firm's actions (Weaver, Hern, Bekiempis, Hepler, & Fermoso, 2018); male executives, who were accused of sexual harassment, received exit packages of millions of dollars (Wakabayashi, Griffith, Tsang, & Conger, 2018). Collaborators engaged in protest activity aligned with the #metoo movement, as they took to the streets and social media: #GoogleWalkout; their voices filled with outrage and demands were heard worldwide as news simultaneously spread on social networking sites: Times up! Rather than taking-charge and proactively addressing the situation head-on by making significant changes to their corporate policies, organizational leaders tried to evade the situation, and then chose to remain silent dismissing the misconduct; finally, due to global current and potential stakeholder pressure, Google's CEO made a statement where he apologized, confirmed that 48 collaborators had been fired due to sexual harassment of which none had received similar exit packages (Wakabayashi et al., 2018). Therefore, the message to current and potential stakeholders is that their well-being is secondary to profit-enhancing objectives and they have no intention of making significant changes to their corporate policies to ensure safety and a respectful and dignified workplace; thus, they are not genuinely socially responsible.

That said, there are examples such as Tecate, a Mexican brand from the Cuauhtémoc Moctezuma Brewery, which has taken a strong stance on their CSR engagement by publicly announcing their alignment with human rights. In 2016, Tecate launched an ad, which won a Gold Glass Lion at Cannes in 2017 (Expansión, 2017), for their "For a Mexico without violence against women" campaign with a powerful message to their consumers. The ad depicted men engaging in socially accepted masculine activities, while a masculine voice narrated that men are not defined by their strength, image, courage, bravery, or sexual orientation, but by how

they treat women, "If you don't respect her, Tecate is not for you; we don't want your business, we hope you never find us, you are not one of us"; the ad ended with the statistic "2 of every 3 women suffer a type of violence in Mexico" and "Tecate: For a Mexico without violence against women" (El Financiero, 2017). The brand Director, Raúl González, stated "we are committed to our consumers in every way, we always seek to innovate and be creative with our products and campaigns, we want them to join our causes" (El Financiero, 2017). Furthermore, rather than participating in Super Bowl LI, Tecate invited their stakeholders to use the hashtag #PorEllasAsiSomos (because of them (women) we are) in order to raise funds to fight violence against women, Tecate donated a peso for every Tweet, and the ad was not used for the event but to raise additional funds (HuffPost, 2017). A year later, Tecate associated with the Red Nacional de Refugios (National Network of Shelters) to inaugurate the Center for the Empowerment and Leadership of Women (Díaz, 2018). Therefore, the message that the firm sends current and potential stakeholders is that they listen to them and take their concerns into consideration for decision making and their actions suggest that they are being proactive in regard to social performance; further, they indicate that they take their engagement in CSR seriously and, therefore, their actions are consistent with business and social growth and development. Hence,

P_4 The viralization of stakeholder voice related to social movements, produced by SNSs' content management features, influences corporate policy.

Model Analysis

The main objective of the study is to understand the effects of stakeholders' power to influence the organizations' decision making through social media communication. In order to do so, four propositions were framed and a conceptual model developed to analyze the implications of organizational engagement in corporate social responsibility and stakeholder influence on policy making. Figure 8.2 includes the model framework in which the study's propositions have been associated with the analyzed constructs. The model describes how a firm's actions and degree of engagement in corporate social responsibility can cause stakeholder satisfaction or dissatisfaction, and the implications of stakeholder voice as an influence on CSR policy.

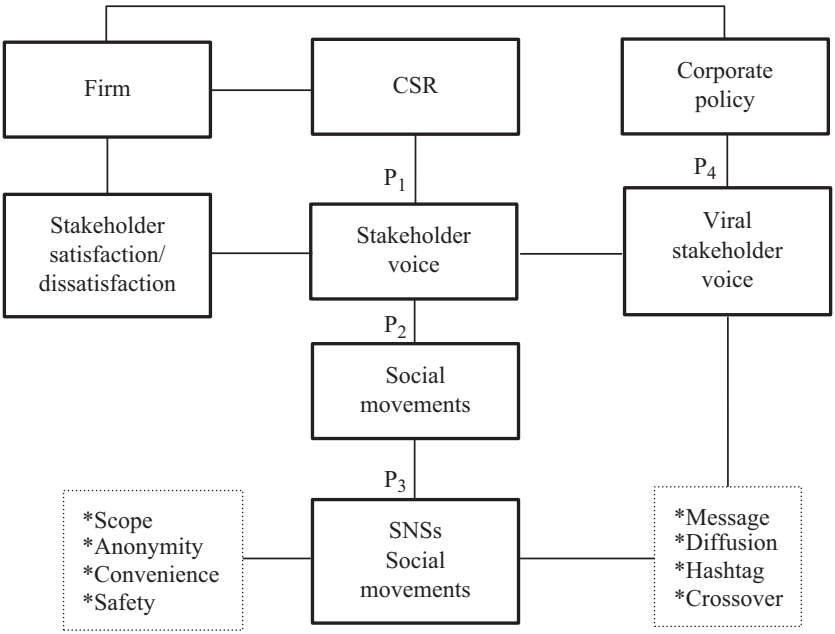

Fig. 8.2 Stakeholder influence and CSR policy model

Many firms say they are being socially responsible; however, a vast majority do so by merely engaging in philanthropic activities, social marketing, greenwashing, and/or social washing. These firms are more consistent with profit-enhancing objectives rather than seeking a balance among financial, environmental, and social performance; further, they respond to current stakeholder voice only when it is accompanied by pressure from regulations, industries, or is simply too forceful to silence. Corporate social responsibility is a stakeholder-oriented practice (Freeman & Dmytriyev, 2017) carried out for society, by society, and because of society; at its very core, its objective is to achieve both business and social growth and development. As such, firms genuinely engaged in CSR actively listen to their current and potential stakeholders and maintain a dialogue with them, and, because they strive to be proactive in the achievement of growth and development, they encourage stakeholder voice (P_1) for its consideration in organizational decision making.

Stakeholders frequently utilize their voice to share information and experiences with products, services, and firms offering them; however, a good amount of their voice exertion is ascribed to their dissatisfaction with organizational behavior. Brand image is significant for stakeholder decision making regarding their purchase intentions; in fact, it is a determinant of their attitude toward a given service and/or product (Wu, 2015) and their overall selection of them (Schiffman & Kanuk, 2007). And, their behavior is not the exception as stakeholders increasingly base their decision making on the degree with which organizations act in a socially responsible manner. Stakeholder trust is quintessential to fostering a successful relationship with brands (Morgan & Hunt, 1994) and their corresponding organizations. Therefore, if stakeholders do not trust the firm and/or perceive that organizational behavior is unacceptable and/or intolerable, they tend to decide against associating with the firm in question and often take part in social movements (P_2); they may join in on protest activities, boycotts, and bans amongst others, in order to have their voices heard with the clear intent to instigate change, make a difference, influence organizational leaders to do the right thing.

Social media and social networking sites continue to grow in popularity (Shi, Hu, Lai, & Chen, 2018) as the number of active monthly users continues to grow on platforms such as Facebook, Twitter, Instagram, YouTube, amongst many others. SNSs are utilized for a variety of activities because their attributes offer far more advantages than disadvantages. This is the case of social movements carried out on SNSs; as mentioned before, there are four main characteristics that encourage stakeholders to participate in online social movements: scope (i.e. number of participants), anonymity (i.e. identity protection, privacy), safety (i.e. well-being, fear of repercussion, reduction of censorship), and convenience (i.e. comfort, multiple participation, local and international participation). Stakeholders, then, take to social networking sites to participate in social movements to voice their dissatisfaction with firm behavior (P_3) because they feel they are generally protected and that what they have to say has greater impact.

Organizations tend to become aware of social movements and their demands only until they are being covered by mass media (McCarthy, Smith, & Zald, 1996) and have made headlines; more and more frequently, firms are becoming aware of social movements when they have spread through social networking sites. The direct and simultaneous communication that may occur between stakeholders engaged in social movements and firms takes a step further because of the nature of SNSs; content

management features of SNSs (i.e. message, diffusion, hashtag, and crossover), as mentioned earlier, not only enable users to participate in social movements but also set off viralization. Stakeholders influence firms' policy making and decision making by voicing their dissatisfaction with firm behavior by participating in the viralization of social movements via social networking sites (P_4). For instance, although the immediate effects of the #metoo movement have been the exposure of alleged guilty parties, the secondary effects are revealing of the organizations' governance, as well as their efforts to uphold their position on corporate social responsibility. Moreover, the power of stakeholder voice on SNSs led to the viralization of the social movement which, in turn, has shown the power of influence on organizational decision making in their CSR policies; that is, truly socially responsible firms that take-charge are proactive and are consistently accountable for business and social growth and development.

Conclusions

Organizations engaging in CSR display a sense of commitment toward business as well as stakeholders' well-being; therefore, socially responsible firms present a readiness to be responsive to social change as well as, importantly, the proactivity and interest to adopt change and foster social growth and development. The heightened awareness that the #metoo movement has brought has shifted business dynamics, particularly in regard to corporate policy and stakeholder management. The power behind the #metoo movement lies not in the change that occurred immediately, shortly after a movement began, but in a long-term change that entails elevating the standards of operation to meet those declared by law and international organizations.

There are far too many organizations that continue to lag behind; some continue to believe that they can evade the issue or dismiss stakeholder voice, while others choose to comply in an effort to maintain the right to operate. The governance and operations of these firms beg the question, how safe is the workplace? In all likelihood, firms are falling short of true social responsibility because their very foundation, their corporate philosophy, has not been developed in support of CSR engagement; in other words, they lack the proper grounds. It may be perceived that genuinely socially responsible firms are taking a bold stand against unethical practices; however, it is them actually "doing well by doing good" (Kurucz, Colbert, & Wheeler, 2008) which, incidentally, is highly valued by current

and potential stakeholders. Successful organizations adapt to changes in the environment, which also entails listening to the demands that current and potential stakeholders are making in regard to social issues, which more often than not are voiced by means of social movements. Therefore, in the pursuit of business and social growth and development, firms ought to modify their behavior to not only meet stakeholder expectations but to surpass them.

Directions for Future Research

Future research could study particular cases in which stakeholder voice, emerging from social movements, has caused a direct impact on corporate social responsibility policies. It is also suggested that future research could analyze the effects of the viralization of the #metoo movement in organizations operating in different countries as to determine if local legislation is correlated with the adaption of corporate social responsibility policies. Finally, the reasons why organizations, although stating to be socially responsible, are not taking a strong and proactive stance on sexual harassment and human rights could also be studied.

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CHAPTER 9

Direct and Interactive Effects of Perceived Organizational Support and Positive Reciprocity Beliefs on Organizational Identification: An Empirical Study

Bindu Chhabra

Introduction

Organizational identification (OID) refers to the perception of oneness or belongingness with the organization (Ashforth & Mael, 1989) and has been found to play a crucial role in employee-organization relationship, leading to a range of positive employee and organizational outcomes. The employee-organization relationship can be explained in reference to the outcomes such as employee satisfaction and well-being (Knight & Haslam, 2010), employee performance (e.g. Walumbwa et al., 2011), employee creativity (Wang & Rode, 2010), organizational citizenship behavior (e.g. van Dick et al., 2006) and low turnover intention (e.g. Smith, Amiot, Callan, Terry, & Smith, 2012; van Dick et al. 2004). Owing to the importance of this concept, it becomes imperative to study the antecedents of OID.

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In recent times, a lot of attention is being paid to the social exchange antecedents of OID, which is based on social exchange theory (Eisenberger, Huntington, Hutchison, & Sowa, 1986; Snape & Redman, 2010; Song, Tsui, & Law, 2009). According to this theory, employee-organization relationship is built on unspecified obligations and employee perception of the quality of the social exchange relationship. The convergence of employee-organization relations can be explained as a function of benefits (i.e. pay, support, investment and recognition) received by the employee and personal sacrifice/efforts made by him/her (Coyle-Shapiro, Kessler, & Purcell, 2004; Cropanzano & Mitchell, 2005; Emerson, 1976; Settoon, Bennett, & Liden, 1996; Wayne, Shore, & Liden, 1997). This view is independent and distinct from other major theory of employee-organization relationship, namely, social identity theory (Tajfel, 1978; Tajfel & Turner, 1986). This theory builds on the self-definitional function of social membership and advocates the central role of OID—the perceived oneness between individual and organization—in the employee-organization relationship (Ashforth, Harrison, & Corley, 2008; Ashforth & Mael, 1989).

These two different perspectives, that is, the social identity and social exchange, have been so far conceptualized in isolation and without influencing each other (van Knippenberg, van Dick, & Tavares, 2007). In recent times, however, researchers have started looking at social exchange as a key precursor in social identification process. One such antecedent, which is of interest to the contemporary researchers, is perceived organizational support (POS) (Edwards, 2009; Edwards & Peccei, 2010; Gibney, Zagenczyk, Fuller, Hester, & Caner, 2011; Sluss, Klimchak, & Holmes, 2008; Sturges, Conway, & Liefooghe, 2010). POS is defined as the employees' beliefs on the extent to which the organization values their contributions and cares about their well-being (Eisenberger et al., 1986). A large number of studies have supported the positive effect of POS on OID (e.g. Edwards, 2009; Edwards & Peccei, 2010; Sluss et al., 2008).

This study aims to extend the work on the social exchange antecedents of OID by examining the moderating effect of positive reciprocity beliefs on the effect of POS on OID. Positive reciprocity belief is defined as the degree to which individuals endorse reciprocity in exchange relationships (Eisenberger, Lynch, Aselage, & Rohdieck, 2004). Integration of the social identity (Tajfel & Turner, 1986) and social exchange theory (Blau, 1964) can create the space for arguing that individuals' POS and positive reciprocity beliefs will have a positive impact on their OID. The present

research contributes to the existing literature in a number of ways. It offers a convincing evidence regarding the social exchange antecedents of OID through empirical testing of the main effects of POS on OID. Further, it adds to the literature by identifying how positive reciprocity beliefs moderate the relationship between POS and OID.

The chapter has been structured as follows. The section on the "Review of Literature" details the critical review of literature concerning POS, positive reciprocity beliefs and OID and their relationship with each other. The specific research objectives are listed in the section on "Objectives of the Study", which is followed by the section on "Research Methodology" wherein the sampling procedure and the research instruments are discussed. The section on "Data Analysis, Results and Discussions" explains various statistical procedures used to analyze the data, followed by subsequent results and the relevant discussion explaining the results. The section on "Managerial Implications" highlights the practical implications of the results for practitioners and policy makers. Finally, the section on "Limitations and Scope for Future Research" pinpoints the limitations of the study and the future research which can be conducted in the field.

Review of Literature

Perceived Organizational Support and OID

According to the social exchange theory, people engage in social relationships based on the cost-benefit trade-offs of the relationship (Blau, 1964; Cropanzano & Mitchell, 2005; Emerson, 1976). On receiving benefits or favors from others, people develop unspecified obligations to return these favors. This theory differs from social identity theory on at least one assumption regarding the employee-organization relationship. As noted by van Knippenberg et al. (2007), "social exchange processes imply a relationship in which the individual and the organization are separate entities psychologically [while] identification implies that the individual and the organization are one" (p. 463). Although social exchange perspective presumes that employee and organization are two separate entities, it does not suggest that these entities cannot be psychologically attached. Likewise, even though social identity perspective assumes that the employee and the organization could be one, it may not be necessarily so. Previous research has shown that an employee may be psychologically

detached from an organization through organizational disidentification (Elsbach & Bhattacharya, 2001; Kreiner & Ashforth, 2004). Therefore, social exchange and social identity perspectives can be integrated by acknowledging that the two distinct entities in a social exchange relationship can be connected by social identification.

Based on the above argument, efforts are being made by the contemporary researchers to integrate these two perspectives of employee-organization relationship. These researchers have started to incorporate insights from social exchange theory to explain the development of OID. For example, Wiesenfeld, Raghuram, and Garud (2001) found that perceived work-based social support is positively related to OID among virtual workers. Sluss et al. (2008) found that POS mediates the effect of leader-member exchange on OID and Edwards (2009) found the mediating role of POS in the relationship between HR-related environment and OID. OID was found to mediate the effect of POS on turnover intention and involvement (Eisenberger, Armeli, Rexwinkel, Lynch, & Rhoades, 2001). The feeling of being valued and appreciated by the organization (POS) builds up the confidence in the employees that the organization appreciates and trusts them and is fulfilling its exchange obligations (Cropanzano & Mitchell, 2005). Additionally, other supportive organizational constituents (including supervisors and co-workers) enhance the employees' feeling of being central, included, valued and respected. This leads to a stronger belief by the employees that organizational involvement is attractive and self-enhancing and thus there is a stronger motivation to identify with the organization. Hence, an organization-based collective identity is developed.

The review of literature for this section demonstrates that POS has a positive impact on OID. However, to explore the relationship between POS and OID, the following hypothesis is proposed:

H1 Perceived organizational support is positively related to OID

Moderating Role of Positive Reciprocity Beliefs on POS-OID Relationship

Individuals may differ in terms of the extent to which they endorse the value of reciprocity in an exchange relationship (Cropanzano & Mitchell, 2005). Therefore, reciprocity belief has a dispositional orientation and people who have strong reciprocity beliefs demonstrate reciprocal

exchange relationships consistently. In the organizational context, those employees having positive reciprocity beliefs are more likely to value the support they receive from the organization. They feel more obligated to reciprocate emotionally if they have received any benefits from the organization (e.g. support) and are likely to receive benefits in future (e.g. Frenkel & Sanders, 2007; Lee & Peccei, 2007; Rhoades & Eisenberger, 2002). On the other hand, for the employees having lower reciprocity beliefs, even when the organizational support is higher, they are less likely to develop strong relationship with the organization and do not feel obligated to reciprocate it back to the organization. Therefore, it can be expected that the effect of POS on OID will be stronger for employees with positive reciprocity beliefs as these employees place greater value on the support they receive from the organization. They are more inclined to develop stronger ties with the organization when they believe that the organization values, cares about and supports them (Eisenberger et al., 1986) and because they expect that their sustaining contribution to their organization will enable them to receive reciprocity from their organization in future.

Prior research has found a strong effect of positive reciprocity belief on social exchange variables (particularly POS) in a number of contexts with different workplace outcomes. For example, Eisenberger et al. (1986) found that the relationship between POS and absenteeism was greater for school teachers with stronger reciprocity beliefs. Witt (1992) found that reciprocity beliefs enhance the effects of participation in decision making on job attitudes. It has also been found to enhance the effects of procedural justice on employee commitment (Witt, Kacmar, & Andrews, 2001) and satisfaction with training experience (Witt & Broach, 1993). Scott and Colquitt (2007) concluded that reciprocity beliefs moderated the effects of organizational justice on a number of employee outcomes like citizenship behavior and task performance. Ladd and Henry (2000) also found that reciprocity beliefs enhance the effect of POS on organizational citizenship behaviors. Based on the review of literature in this section, the following hypothesis is proposed:

H2 Positive reciprocity beliefs moderate the positive relationship between perceived organizational support and OID, so that the relationship is stronger for employees with stronger positive reciprocity beliefs.

Research Methodology

Sampling

This study was a part of the wider study and the data was collected using structured questionnaires from the employees working in different organizations in India. The link to the questionnaire was sent to the alumni of some leading business schools of India who were working in different organizations. They were appraised of the academic purpose of the study and confidentiality of their responses was ensured. In all 306 usable questionnaires were received from the executives of various types of organizations in different sectors such as education, banking and insurance, information technology, government and so on. Respondents ranged in age from 23 to 58 years (mean age 32.24 years and SD 7.38), 208 of them were males and 98 were females. Table 9.1 shows the demographic details of the sample.

Research Instruments

Perceived Organizational Support: This was measured using a Eisenberger, Cummings, Armeli, and Lynch (1997) 8-item scale. Respondents indicated the extent of their agreement with each item on a 5-point scale (1 = strongly disagree and 5 = strongly agree). A higher score meant higher perceived organizational support. A sample item included "My organization strongly considers my goals and values".

Organizational Identification: Organizational identification was assessed with six-item measure from Mael and Ashforth (1992). The sample item is "When someone criticizes my organization, it feels like a personal insult". The scale ranged from 1 (strongly disagree) to 5 (strongly agree).

Positive Reciprocity Beliefs: Positive reciprocity beliefs was measured by a 10-item measure developed by Eisenberger et al. (2004). The sample item included "If someone does me a favor, I feel obligated to repay them in some way". The scale ranged from 1 (strongly disagree) to 5 (strongly agree). A higher score meant higher positive reciprocity norm.

Control Variables

Control variables in this study included gender, age, industry type and organizational tenure. Gender was assessed using a dichotomous scale: male (1) and female (2). Industry type was assessed using a nominal scale:

Table 9.1 Demographic profile of samples

Variables	N	*%age*
Age		
20–29 yrs	133	43.5
30–39 yrs	130	42.4
40–49 yrs	28	9.2
50–59 yrs	15	4.9
Gender		
Males	208	68
Females	98	32
Industry type		
Education	37	12.1
Banking and finance	78	25.5
Information technology	49	16
Manufacturing	27	8.8
FMCG	34	11.1
Government	28	9.2
Other	53	17.3
Tenure with the organization		
1–9 yrs	286	93.5
10–19 yrs	14	4.5
20–29 yrs	3	1
30–39 yrs	3	1

education (1), banking and insurance (2), IT (3), manufacturing (4), FMCG (5), government (6) and any other (7). Age and organizational tenure were measured in years using a continuous scale. Prior research has found some gender and age differences in job attitudes (Ng & Feldman, 2010). They found that older workers have more favorable attitudes than younger workers, and this attitude between age and job attitudes was moderated by tenure with the organization. Gender, industry type, age and organizational tenure were controlled for all regression analysis in order to minimize their influence on the focal variables in the study.

Results and Analysis

Data Analysis Overview

Hierarchical multiple regression analysis was used to examine the potential main effects of POS and positive reciprocity beliefs on organizational identification. Organizational identification was regressed on the anteced-

ent sets in four steps. Control variables were entered on Step 1, POS on Step 2, positive reciprocity beliefs on Step 3, and interaction term (i.e. POS × positive reciprocity beliefs) on Step 4. The magnitude of R^2 change at each step of hierarchical regression analysis was used to determine the variance explained by each set of antecedents. The beta values reported were used to determine the effect of each variable in the antecedent sets on organizational identification.

Preliminary Data Analyses and Overview of Analyses

Descriptive data (means and standard deviations), correlations, and Cronbach (1951) alpha coefficients are displayed in Table 9.2. As can be seen all scales demonstrated good internal consistency.

Perceived Organizational Support and Organizational Identification

It was predicted that POS will be positively related to organizational identification (H1). As can be seen from Table 9.3, entry of POS in step 2 accounted for a significant increment in variance on organizational identification, R^2 ch. = 0.172, $F = 20.856$, $p < 0.01$(supporting H1). The analyses revealed that POS was positively related to organizational identification ($\beta = 0.328$, $p < 0.01$).

Positive Reciprocity Belief and Organizational Identification

The hierarchical multiple regression analyses were continued to assess the effect of positive reciprocity belief (PRB) on organizational identification (H2). PRB was entered on Step 3 (see Table 9.3) after the control vari-

Table 9.2 Descriptive statistics and correlations for focal variables

	Variables	*Mean*	*SD*	*1*	*2*	*3*	*4*	*5*
1.	POS	3.6	0.14	**(0.89)**				
2.	Positive reciprocity beliefs	3.9	0.29	0.08	**(0.84)**			
3.	Organizational identification	2.67	0.25	0.44**	0.27**	**(0.78)**		
4.	Age	32.24	7.38	0.04	0.09	0.27**		
5.	Tenure	3.96	4.63	−0.07	0.00	0.01	0.43**	

Note: Cronbach's (1951) alpha reliability coefficients appear in the diagonal $*p < 0.05$; $**p < 0.01$

Table 9.3 Hierarchical multiple regression analysis on organizational identification

Independent variables	*Step 1 βs*	*Step 2 βs*	*Step 3 βs*	*Step 4 βs*
Gender	−0.161	−0.068	−0.049	0.028
Age	0.176**	0.156**	0.143**	0.147**
Industry type	0.036	0.052	0.073	0.076
Tenure with organization	−0.111	−0.070	−0.062	−0.072
POS	–	0.328**	0.316**	0.765**
PRB	–		0.159**	0.499**
POS × PRB	–			−0.075**
Adjusted R^2	0.074	0.246	0.291	0.311
R^2 change		0.172**	0.047**	0.02**
F change (p-value)	7.098**	20.856**	21.873**	19.422**

*$p < 0.05$; **$p < 0.01$

ables (Step 1) and POS (Step 2). Entry of PRB on Step 3 accounted for the significant increment of explained variance in organizational identification, R^2 ch. = 0.047, $F = 21.873$, $p < 0.01$(supporting H2). As expected, the analyses revealed that PRB was positively related to organizational identification, $\beta = 0.159$, $p < 0.01$. In order to see if there was a problem of multicollinearity between two independent variables viz. POS and PRB, the variance inflation factor (VIF) was calculated. The VIF was found to be 1.24, which was well within the acceptable limit of 4 (Pan & Jackson, 2008).

Positive Reciprocity Belief (PRB) and POS-OID Relationship

The multiple regression analysis was continued in order to investigate the potential impact of PRB on the POS—organizational identification relationship. As can be seen in Table 9.3, the POS × PRB interaction was entered on Step 4. Entry of the interaction in the fourth step revealed that the interaction was significant, and so this two-way interaction was plotted according to the procedure outlined by Jaccard, Wan, and Turrisi (1990).

The interaction of POS × PRB on organizational identification was found to be significant, $\beta = -0.075$, $p < 0.01$. In line with H2 and evident from Fig. 9.1, employees having high PRB exhibit a stronger positive relationship between POS and organizational identification. However for the employees low on PRB, this relationship between POS and organizational identification is weaker.

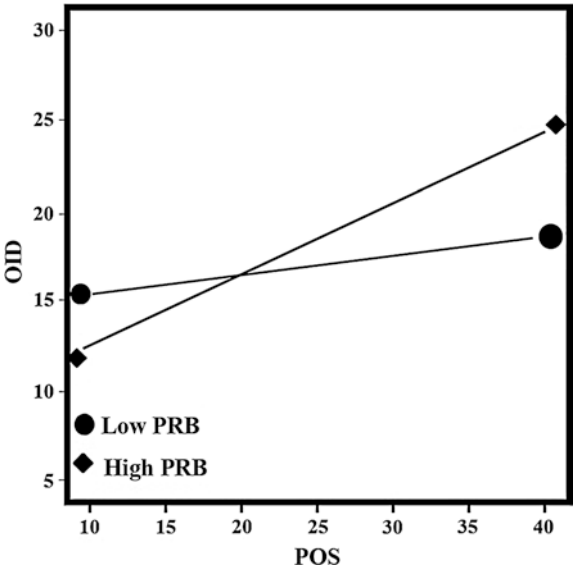

Fig. 9.1 Two-way interaction of POS and PRB on organizational identification

Discussion and Implications

The present study attempts to contribute to the existing research literature by studying the moderating role of positive reciprocity beliefs (PRB) in the relationship between perceived organizational support (POS) and organizational identification (OID), apart from studying the main effect of POS on OID. Based on the extensive review of the literature, it was hypothesized that POS would be positively related to OID. Additionally, PRB was expected to further strengthen the positive relationship between POS and OID.

The findings based on the sample of employees from various kinds of organizations from different sectors showed that POS is positively related to OID, thus supporting H1. These results are in line with previous research (Edwards & Peccei, 2010; Sluss et al., 2008) and provide support for the integration of social exchange and social identification perspectives. The study has been done across diverse sectors like Education, Manufacturing, IT, FMCG and even the government and the results show the wide application and acceptance of the basic tenets of the theory.

Regarding the moderating role of PRB in the relationship between POS and OID, the results show that relationship between POS and OID

is stronger for the employees higher on positive reciprocity beliefs. These results are in line with previous research (e.g. He, Pham, Baruch, & Zhu, 2014; Rhoades & Eisenberger, 2002) and support H2.

Theoretical Implications

This study provides further evidence that social exchange beliefs are an important antecedent of OID development. While recent research has indicated that POS has a positive effect on OID, this has not yet been sufficiently tested across different cultural contexts and across industries. The results of the study provide empirical corroboration of the fact that social exchange beliefs play a key role in fostering employee identification with the organization. The study thus approaches the issues from the social exchange perspective and adds to the understanding of the complex construct of OID.

The study, however, goes further and also examines the moderating effect of positive reciprocity beliefs of the relationship between POS and OID. Importantly, it signifies that individual perceptions and beliefs are important variables in the equation. It is a dispositional issue and even similar perceptions about the organizational support may lead to very different levels of OID. These findings are significant and add to a layered and nuanced understanding of the relationship between POS and OID.

Finally, cultural and industry contexts cannot be ignored. The traditions and cultures in a society also affect beliefs as well as behaviors. In traditional cultures, there is low social and even physical mobility. Attitudes toward jobs vary across sectors as well as cultures. In India, employment in government sector is viewed differently primarily due to job security. The fact that the positive relationship holds as hypothesized even in differing cultural and industry contexts is a useful addition to the literature and points toward the robustness of the theory.

Managerial Implications

Organizations world over are trying to improve their business strategy and adopt practices which provide them with an edge in the increasingly competitive environment. The fast-paced changes in the technology mean that even the relatively stable business models are undergoing change quickly, resulting in larger-than-normal employee turnover. In such a scenario retention of valuable employees provides a competitive edge and organiza-

tions are figuring out ways to keep attrition low. The results of this study reflect the changing nature of the business environment over time. In the earlier phase of the industrial age most of the employment was in relatively stable sectors like manufacturing where jobs were held for a long period even for life. This made it easy and even natural for the employees to identify with their work. With the nature of work and industry undergoing rapid changes, the attitude toward work has also evolved and identification with the organization cannot be now assumed to be a natural outcome of a lifetime of association with an organization or even an industry as there is frequent crossing over into different fields. POS can therefore come in handy to foster identification with the organization.

All organizations want to foster employee identification, as there are multiple benefits to be reaped. However, it is easier said than done. Policies are primarily framed to protect organizational interests rather than specific situations faced by employees. HR managers often find themselves in situations where policy and employee interests are in conflict. Recognition of the fact that POS is a key precursor of OID can push the management to frame policies, which are designed to generate positive responses and reduce chance of conflict. Clear enunciation of the terms of employment, fair and transparent application of rules and empathetic response can generate positive perceptions of organizational support even without conceding any substantive ground.

Moderating role of PRB too has important implications. It cautions against a one size fits all approach regarding developing OID and generating POS. No one policy prescription can be universally applicable and different individuals will react differently depending upon their disposition. Flexibility and customization are therefore necessary. The findings indicate that hiring policies, selection procedures and employee engagement need to be refined to select the right candidates with preferred dispositional bearings in key positions to avoid potential adverse scenarios.

Limitations and Scope for Future Research

All research endeavors have limitations. This study uses self-report measures to asses POS, PRB and OID. Although the measures used were reliable, the very fact that the independent, dependent and moderating variables were assessed using self-report measures could lead to the problems of common method variance. Further, with self-report measures,

social desirability biases become a cause of concern. Future studies can also use qualitative techniques to identify emergent themes in this area.

OID can be understood from many different approaches. This study has explored the phenomenon from social exchange perspective to arrive at a certain understanding. There may be other important antecedents of OID having a bearing on employees' attitudes, which can be a fruitful area to be pursued by researchers. However, POS remains a key precursor of OID and needs to be studied further in different contexts to validate the theory. The role of PRB also needs to be further explored. Dispositions and belief systems are complex constructs notoriously difficult to comprehend. This opens the field for further research to probe the contours of these fields to arrive at conclusions that are more definitive. This research has aimed at providing a more nuanced understanding of the relationship between POS and OID by studying the moderating role of PRB.

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CHAPTER 10

Human Resources as Business Value Creator: Business Philosophy Revisited

Deepak Sharma

Introduction

Ulrich, Kryscynski, Brockbank, and Ulrich (2017) commented on the mission of human resources (HR) that *HR is not about HR, HR begins and ends with business.* In the recent past the HR function has been under criticism for not being able to make an impact on business. It has been argued that the biggest role of HR is to create value for business. Some of the established HR systems started in the past have become redundant as they have not been able to create business impact. It has been widely argued that HR systems need to restrain themselves from establishing an administrative flavor out of their work responsibilities. They should focus toward competency building of workforce and culture and commitment building for the organization.

Pareek and Rao (2008) were invited in 1975 by Larsen and Toubro to make recommendations for increasing effectiveness of their performance management system. This led to the creation of what we call modern HR in India. Pareek and Rao presented a proposal to Chairman of Larsen and

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Toubro, N. M. Desai, and recommended that Performance Appraisal, Potential Appraisal, Feedback and Counselling, Career Development and Career Planning and Training and Development get distinct attention as unique parts of an integrated system which they named the Human Resource Development (HRD) System. This system was proposed as a separate system with strong linkages to personnel (human resources) system. Pareek and Rao came up with a philosophy for the new HRD system to promote HRD. They came up with 14 principles vital for designing the HRD system. The principles dealt with both the purpose of HRD systems and the process of their implementation. The following 14 principles were shared with the organization as fundamental to designing the HR system. It was proposed that HRD systems should possess the following attributes:

- Help the organization increase enabling capabilities.
- Help individuals recognize their potential and help them contribute their best in various organizational roles that they are expected to perform.
- Help maximize individual autonomy through increased responsibility.
- Facilitate decentralization through delegation and shared responsibility.
- Facilitate participative decision making.
- Attempt to balance the current organizational culture along with changing the culture.
- Balance between differentiation and integration.
- Balance between specialization of the function with its diffusion into the others.
- Ensure responsibility for the function.
- Build upon feedback and reinforcement mechanisms.
- Maintain a balance between quantification and qualitative decisions.
- Balance between external and internal help.
- Plan the evolution of the function.
- Promote continuous review and renewal of the function.

Review of the Literature

Creelman and Ulrich (2007) found that organizations who were managing their human capital effectively had a competitive advantage over others. Friedrich and Rajshekhar (2018) assert that organizations that have successfully created capacity and built strategic capabilities are beginning

to evolve the role of strategic business partners to better align with business demands. They also suggest a good HR business partner model would include competencies such as business acumen, client service focus, consulting skills, personal and professional impact, coaching and influencing, facilitating organizational change.

Garavan, Shanahan, Carbery, and Watson (2016) introduced the concept of dynamic strategic human resource development capabilities and proposed a framework consisting of enabling factors, specific components, underlying processes and unique strategic human resource development capabilities. They also came up with views that the number of stakeholders must be involved while managing strategic human resource development that will trigger strategic human resource development to think differently about its role and value creation for organizations.

It was found that organizations having high scores on talent management were more likely to demonstrate strong financial performance (MacMillan, 2008). It has also been found in researches that support of stronger human resource management initiatives in times of crisis reduces problems related to lay off, maintenance and management of talent pool and leads to better motivated workforce (Cooper, 2008). Research results repeatedly demonstrate that organizations applying HR principles and practicing human capital development are far better in performance than others (Cheese, 2008).

HR function has repeatedly been admonished for making a strategic contribution to the business (Brockbank, 1999; Hammonds, 2005; Yeung, 2011). It has been witnessed that progress has not been much (Rasmussen, Andersen, & Haworth, 2010). It has also been witnessed that non-HR professionals are connected with strategic HR roles (Rasmussen et al., 2010), therefore there has been ambiguity in HR profession, professional boundaries and occupational identity (Wright, 2008).

Boxall, Purcell, and Wright (2007) made a distinction between three major subfields of human resource management. They identified them as Micro HRM, Strategic HRM (SHRM) and International HRM (IHRM). They went ahead and identified functions of Micro HRM as covering subfunctions of HR policy and practice, consisting of two main categories: one dealing with managing individuals and small groups (e.g., talent acquisition, induction, training and development, performance management and remuneration) and the other dealing with management of work organization and employee relations. Strategic HRM deals with overall

HR strategies adopted by business units and organizations and tries to assess their effect on performance. International HRM covers HRM in organizations that operate across national boundaries.

When we see human resource as a discipline, we witness that the perspective of dynamic capabilities has an impact on it (Helfat & Peteraf, 2015; Teece, 2014; Wang, Senaratne, & Rafiq, 2015). Teece, Pisano, and Shuen (1997) assert that challenge for strategic human resource development lies in its contribution to create new capabilities and renewal of already existing capabilities when responding to environmental change (Bowman & Ambrosini, 2003; Zollo & Winter, 2002). Guzman, Neelankavil, and Sengupta (2011) in order to understand the current HR philosophy and specific roles practiced by HR professionals among Asian organizations conducted a survey with 377 HR managers in four Asian countries, namely, India, Indonesia, Malaysia and Philippines. Research found that there were considerable differences between current HR functions as practiced and ideal HR functions. In addition, survey results identified significant differences among countries in areas such as strategic practices and roles of HR managers. Difference between practice and ideal in HR administration was also witnessed at different levels of management. It was also found that differences among countries exist depending on the type and size of the organization and whether HR managers work for HR departments or for other functional departments.

HR professionals need to focus on more actively collaborating with top management and line managers in formulating strategy and execution of the strategy than on operational execution (Ramlall, 2006; Wright, McMahan, Snell, & Gerhart, 2001). Strategic HR as an area of study found its beginning only in late 1970s and early 1980s. This happened as strategic management had an impact on the area of HR (McMahan, Bell, & Virick, 1998). It has been witnessed that the concept of strategic human resource management came up in 1990s with focus on proactive and value-based approach to Human Resource Management (Schuler, 1992). Strategic HRM focuses on areas such as ensuring fit between HRM practices and strategic organizational goals, HR function as part of senior management, percolation of HRM practices to line managers and having strategic approach to talent acquisition, compensation, performance appraisal and value added to organizational performance by HRM.

Learning organizations started to realize that of all the factors that have a contribution to organizational performance, the human factor was the most critical factor (Huselid, 1995).

As transnational organizations moved ahead with the objective of internal consistency, the importance of human resource in international organizations that had business transactions across different cultures compelled HR professionals to focus at HR from an international perspective (Bartlett & Ghoshal, 1998; Rosenzweig & Nohria, 1994). Even the field of international HRM may be considered as not too old and relatively new. The role of HRM is development of talent of employees to facilitate them to compete in a changing, complex and competitive environment (Hanlon, 1990; Zaleznik, 1988). As we witness large-scale differences existing in cultural and economic environments, the task of development of human capital becomes more tough and challenging, especially in the context of increasing multinationals operating in global context (Hualt, 1996).

Yeung, Woolcock, and Sullivan (1996) proposed that to sustain the transformation of human resource functions, HR professionals must develop and demonstrate a new set of competencies to fulfill their changing roles and responsibilities. Based on in-depth interviews with ten senior HR executives, they proposed an HR competency model which is both generic (i.e., able to encompass the key competencies that are frequently used by companies in different industries) and specific (i.e., able to highlight the competency differences in various HR roles). Research indicated that only 10–35% of HR professionals possess the required new competencies. They also discussed ten strategies that ten prominent companies use to bridge the competency gap of their HR professionals. Important levers for competency development include planning and assessment, communications, performance management, training and development.

Ulrich, Cody, LaFasto, and Rucci (1989) in a study of HR practices at Baxter Healthcare Corporation merger reported that human resource (HR) professionals face increasing demands to add value to business performance. To be strategic business partners is not merely a concept and ideal but a set of specific, concrete behaviors and activities. The merger between Baxter Travenol and American Hospital Supply produced the largest hospital supply firm in North America. Through the study it was found that HR professionals played a significant partnership role in this merger. Baill (1999), in a study of changing requirements of the HR professional, examined the new competencies that are required in human resources (HR) professionals. The challenge that comes with HR moving into a more critical role at the management table is that the expectations for their contributions also increase. This challenge is made even greater

because the requirements are not only changing, they are growing. In addition to traditional HR disciplines, the HR function is now looked to for expertise in designing organizations and organizational systems and for managing major changes to increase competitiveness.

Studies have confirmed that strategic HRM has a positive impact on organizational performance (Huselid, Jackson, & Schuler, 1997). Strategic and functional HR competencies were considered to be different (Huselid et al., 1997; Ulrich & Brockbank, 2005). Researchers have also put forward an argument that HR competencies may be role specific (Blancero, Boroski, & Dyer, 1996; Schoonover, 2003). Rao (2007) says as a future CEO, an HR professional needs to have a total business orientation. They need to be goal driven and need to use HRD effectively as a strategic intervention and a future-building tool. They must possess a high degree of cross-functional orientation. They need to align HRD very well with business and organizational goals. They have to be vision driven and futuristic. They need to balance the present with future, short-term and long-term systems.

Strategic HR may lead to performance effectiveness of HR professionals as it fulfills the expectation of an ideal HR professional's role. It has been increasingly felt that HR professionals are expected to be business partners who have the power to influence the business outcomes (Ulrich, 1997). SHRM may enhance HR professionals' work commitment and satisfaction also. Furthermore, as research points to vital importance of strategic HR competencies for success in human resource jobs, many HR professionals still perform better when doing their functional role than in making strategic contribution to the business (Ramlall, 2006; Ulrich, Brockbank, et al., 2013). However, it may still not be clear whether this lack of strategic focus is due to HR professionals lacking HR competencies or because HR professionals lack competencies considered as necessary to be a business partner. It might also be due to the fact that they have them but are not able or required to use them or because there may be ambiguity on the strategic competencies needed. Caldwell (2010) and Wright (2008) stressed that focusing too much on competencies relating to business knowledge while under-focusing on other vital areas of HR expertise may reduce professional identity for HR experts and professionals. Also, HR competency studies have focused more on job-specific behaviors with less attention on personal attributes behind that behavior (Buckley & Monks, 2004; Lounsbury, Steel, Gibson, & Drost, 2008).

There has also been a growing concern that HR professionals need to possess high levels of moral and ethical standards, which are seen as critical in maintaining trust with employees and line managers (Francis & Keegan, 2006; de Gama, McKenna, & Peticca-Harris, 2012; Greenwood, 2013). Graham and Tarbell (2006) discovered that less attention has been paid to employee-related HR competencies in the development of HR competency models. Han et al. and Brown et al. found that having a set of strategic HR competencies did not necessarily pave way for HR effectiveness.

McClean and Collins (2011) examined the relationship between high-commitment HR practices and firm performance in professional services firms through the mediator of employee effort. They found that the relationship between effort and performance is contingent on the value of the employee group to firm-competitive advantage, suggesting that companies may only want to expend the effort and resources on building a high-commitment HR system for employee groups that are clearly tied to creating firm-competitive advantage.

Another research looked into the strength of HR practices in India and their effects on employee career success, performance and potential. The study explored the role of HR practices for individual and organizational success via a survey of 4811 employees from 32 units of 28 companies operating in India. Study focused on employee perceptions of the effectiveness of three specific human resource practices within their firms and the relationship of these practices to career success, performance and potential. Companies operating in India appear to be creating strong human resource climates based on structured HR practices in performance management, professional development and normalized performance ratings. The perceived effectiveness of these HR practices influences employees' perceptions of career success and, to a lesser extent, organizationally rated performance and potential. Study also reported differences in perceptions of HR practices among national, international and global companies and among the industries of information technology (IT), manufacturing and services. The relationship to perceived HR practices and outcomes was partially contingent on firm geographic scope and industry sector (Stumpf, Doh, Tymon, & Walter, 2010).

Long and Ismail (2011) examined the competencies of human resource professionals in the manufacturing companies of Malaysia. The competencies examined in this study were business knowledge, strategic contribution, HR delivery, personal credibility, HR technology and internal

consultation. The sample consisted of HR professionals from Malaysian manufacturing companies in the southernmost state of Malaysia, Johor. A total of 89 firms responded to the survey exercise. The finding showed that the top nine ranking HR competency factors are from the domain of personal credibility and HR delivery. The respondents' self-rated competency shows that personal communication, legal compliance, effective relationship and performance management rank above all other factors. Competencies such as strategic contribution, business knowledge, HR technology and internal consultation have significant correlation with firms' performance. Furthermore, it is found that out of all HR competencies, the highest contributions to a firm's performance are strategic contribution and internal consultation.

Quinn and Brockbank (2006) examined BAE Systems that provided a comprehensive HR professional development program to enhance the competencies of its HR professionals in order to encourage better business performance. Pre- and post-program measures and extensive qualitative interviews about HR's impact on business performance evidenced the effectiveness of this comprehensive approach to the development of HR professional competencies.

Research literature provides insights into the global culture competencies that human resource (HR) professionals should possess. Cultural competency is the ability of an individual to effectively communicate and interact with people from different cultures. She adds that HR professionals with cultural competency should learn one's own and other people's cultural background, preferences and biases. She explains the three areas of cultural competency, including self-awareness, second language acquisition and societal sensitivity (Tyler, 2011).

Payne (2011) examined the impact of gender on a rater's perceptions of human resource (HR) managers' competencies in their strategic roles. Raters were HR managers and non-HR managers of various organizations. Survey data indicated that male managers rated the competencies of male HR managers at a significantly higher level than those of female HR managers. Clardy (2008) studied the strategic role of Human Resource Development in managing core competencies. Three strategic roles for the HRD function in core competency management were proposed and discussed: participating in strategic planning, developing core competencies and protecting them.

Srimannarayana (2013) in a study of 594 HR professionals tried to find out the extent of demonstration of HR competencies by HR professionals

while discharging their roles and responsibilities and the study led to the conclusion that the major strength of HR professionals in India is credible activist. HR practitioners are required to deliver results with integrity, build relationships of trust, foster and maintain effective interpersonal skills and communicate well both on paper and face-to-face. Ulrich, Brockbank, Younger, and Ulrich (2013) asserted that India's organizations are shifting from competition based on scale and low cost to competition based on innovation and quality. Because of the country's size, it is possible to turn scale and costs to competitive advantage. In addition, with an understanding of the required competencies, HR professionals in India are positioned to continue their substantive contributions to their individual careers, their organizations and their nation as a whole.

Global HR Competencies

Literature available on HR competencies indicates toward value-driven approach as suggested by the work of Ulrich and team. Human Resource Competency Study was conducted in seven rounds. For almost 30 years the HR Competency Study empirically defined the competencies of HR professionals and how those competencies impact personal effectiveness and business performance.

Ulrich, Brockbank, Yeung, and Lake (1995) worked on empirical assessment of human resource competencies with data from 12,689 associates of human resource (HR) professionals in 1500 businesses in 109 firms. The research work focused on an extensive assessment of HR competencies. It extended current HR theory and practice in two ways. First, it proposed specific competencies HR professionals may demonstrate to add value to a business. Second, it offered an empirical assessment of how these competencies affect the performance of HR professionals as perceived by their associates. The results indicate that when HR professionals demonstrate competencies in business knowledge, delivery of HR and management of change, HR professionals are perceived by their associates as more effective. At the University of Michigan's Business School, they performed the longest and largest ongoing study of the competencies of HR professionals. This project has been conducted in four major waves over 16 years: 1987, 1992, 1997 and 2002. Via 360-degree surveys with thousands of HR professionals and over 28,000 HR clients (line managers and peers), plus extensive reviews of academic work, they evaluated every mainstream HR competency in companies representing a wide range of

industries and sizes from Europe, Asia and Latin America as well as North America. The resulting insights were qualitatively different from most others in the literature. The key point revealed was that what HR professionals do best, that is, personal credibility, has only moderate influence on business performance. Meanwhile, what HR professionals do only moderately well, that is, making a strategic contribution, has almost twice the influence on the businesses where it occurs. Strategic contribution has a 43% impact on business performance, personal credibility was found to have 23% impact on business performance, HR delivery was found to have 18% impact, business knowledge was found to have 11% impact and HR technology was found to have 5% impact on business performance.

HR competencies are the factors that define successful performance of HR professionals in a business partner role. Strategic HR may lead to performance effectiveness of HR professionals as it fulfills the expectation of an ideal HR professional's role. It has been increasingly felt that HR professionals are expected to be business partners who have the power to influence the business outcomes (Ulrich, 1997). Ulrich, Brockbank, Johnson, and Younger (2007) studied the high expectations faced by the Human Resources Department to meet the demands of global competitiveness. They presented a research about the guidelines that HR professionals can use to respond to the expectations and changes needed by the company. The business context requisites for HR professionals to build competencies that would affect business performance are reported. It is inferred that HR would be playing new and vital roles aimed to establish the human resource competency.

Ulrich, Younger, Brockbank, and Ulrich (2013) found that by upgrading their competencies in six domains, HR professionals can create sustainable value. The six HR competence domains, namely, strategic positioner, credible activist, capability builder, change champion, human resource innovator and integrator and technology proponent, come from assessment by HR professionals and their line associates (over 20,000 global respondents) to 139 specific competency stated survey item. They also found that effective HR department has more impact on a business' performance (31%) than the skills of individual HR professionals (8%). HR professionals need to work together as a unified team to fully create business value.

The latest 7th round was completed in 2016. After seven rounds of major studies over 30 years with over total 100,000 respondents, it was found that every four to five years, 30–40% of HR competencies evolve.

In recent rounds, HR technology and HR analytics evolved. Global HR competencies existed, but they also varied by geography, industry, size of organization, level in the organization, role in the organization, gender, time in role, but it was identified that 50–60% of HR competencies were essential to all circumstances; 40–50% of such competencies were found to vary by setting. Each of the seven rounds was independent, in that they represented a cross section of HR professionals (HR participants) who rated themselves on competencies and associate raters who rated them. In 1987, three domains were noticed: business knowledge, HR delivery and management of change. In 1992, four domains came up, in 1997 five domains were found, while nine domains emerged in 2016. The pattern was very clear for all competence domains and that was that HR professionals had considerably improved over the last 30 years.

Based on the findings, three of these competencies were core drivers of key outcomes:

- *Strategic positioner* focused on the role of HR professional being able to position the organization to win in its marketplace and strategy. To serve the external stakeholders (customers, investors), HR professionals needed to be strategic positioners.
- *Credible activist* meant HR professionals aimed at building relationships of trust with individuals. In order to gain access to business discussions, HR professional needed to be credible activists.
- *Paradox Navigator* which involved HR professional's vital competency of being able to manage tension (which enables change) as he needed to deliver business results.

Other three competencies were identified as Strategic Enablers:

- *Culture and change champion* which meant HR professionals were being able to make change happen that creates new cultures.
- *Human capital curator* involved the role of HR to be able to nurture talent and care for existing employees within the organization.
- *Total rewards steward* involved HR professionals being able to manage the financial and non-financial incentives for work.

Further three competencies were identified as foundational enablers:

- *Compliance manager* which involved HR manager's roles and responsibility as compliance manager involves ensuring compliance with regulatory requirements.
- *Analytics designer and interpreter* which meant HR professionals must be able to use data to make better decisions. HR analytics is not just a simple head count or employee score or attrition data (that HR was expected to do previously) but at the core of HR analytics lies data algorithms which are employed in making people decisions across an employee lifecycle. Organizations might not only match person-job fit in terms of competencies but also may check a potential hire for cultural fit.
- *Technology and social media integrator* meant that HR professionals must aim at using internal and external technology to make a difference. With the increase in technology leading to automation in a big way, HR systems used by employees were increasingly becoming self-service. Paper-based HR practices have all been becoming online. HR needs to use this technology to their advantage.

Theoretical Propositions

Based on the literature available, the following propositions may be put forward:

- *Proposition 1:* Organizations who were managing their human capital effectively had a competitive advantage over others and were more likely to have a strong financial performance, therefore presence of HR systems in organizations is vital.
- *Proposition 2:* HR professionals need to have not only knowledge of HR but knowledge of business and a high degree of cross-functional orientation.
- *Proposition 3:* HR professionals need to use HR systems effectively as a strategic intervention and a competence-building and trust-building tool, aligning HRD with business and organizational goals.
- *Proposition 4:* As strategic and functional HR competencies were found to be different, to sustain the transformation of human resource functions, HR professionals must develop and demonstrate a new set of competencies including core competencies, strategic enablers and foundational enablers to fulfill their changing roles and responsibilities.

- *Proposition 5:* There has also been a growing concern that HR professionals need to possess high levels of moral and ethical standards, which are seen as critical in maintaining trust with employees and line managers.
- *Proposition 6:* Non-HR professionals are connected with strategic HR roles. As a consequence there has been ambiguity in HR profession, professional boundaries and occupational identity; this ambiguity needs to be removed.

Conclusion

Organizations who were working on human capital development and management were found to have a competitive advantage over others and were more likely to have done financially well. HR professionals need to understand the context in which business operates. They need to understand, assess and work toward stakeholders' expectations. They need to work toward HR as a strategic intervention and a competence-building and trust-building tool, aligning HR with business and organizational goals.

Timms (2018) asserted that individual acts of transformation are powerful when linked to others and a movement created, a movement to transform HR. This transformation of HR is for more effective HR of future. To accomplish any business goal, HR practitioners can contribute in design and delivery of talent as well as proactively anticipate requirement for organizational capability building, including issues such as leadership development. In organizational building HR professionals build organizations that deliver value to business, society and community at large. In contributing to leadership, HR builds organization for future success. However, this HR needs to achieve with high levels of moral and ethical standards and also with role clarity toward HR profession, professional boundaries and with requisite competencies and occupational identity.

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PART IV

Macro-Economic and Social Factors

CHAPTER 11

Impact of Foreign Direct Investment on GDP Growth Rate in India: Analysis of the New Millennium

Pooja Gupta, Vikku Aggarwal, Karan Champaneri, and Kritika Narayan

Introduction

Foreign direct investment (FDI) is delineated as an investment into another country by an organization with the idea of production of a good or marketing of a product in the country of investment. Besides being a pivotal source of non-debt capital inflow for the host country, it also commits transfer of technology, skill and know-how from one country to another. It has essentially been contemplated as crucial for the integrity of global economies ensuring deeper and enduring ties between nations. The spectrum of external sources of finance of developing countries includes long-term and short-term investments in forms of FDI, capital market investments, foreign currency loans taken both by the government as well

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as the private sector and aid being given by foreign agencies and government. Amongst these, FDI has the highest proportion of around 39% of the total financial inflows into the developing economies. Thus, FDI has emerged as the largest source of external finance to the emerging economies over the years. The drop in FDI numbers in the last two years has been compensated by extensive bank lending and portfolio investments in these economies.

Global foreign direct investment (FDI), as per the World Investment Report 2018 by UNCTAD, fell in 2017 by 23% as compared to 2016. This was in stark contrast with the accelerated growth in GDP and trade that was seen in 2017. This trend was contrary to Alfaro, Chanda, Kalemli-Ozcan, and Sayek (2004) and Pegkas (2015) who have in their studies established that FDI plays an important and positive role in the economic growth of an economy. The impact of FDI on a country's economic growth has been a highly researched topic. A number of significant papers have done insightful analysis of the relation between FDI and the recipient country's economic growth. The analysis has further gone ahead to state that the amplitude of this economic growth depends on the recipient country's socio-economic conditions, namely, availability of human capital and macroeconomic stability of the country. On the other hand, there has been research which has not been able to find a robust, independent influence of FDI on the recipient country's economic growth.

India is seen as one of the leading economies today although it is yet to come in the category of developed economies. The growth in the Indian economy has been primarily attributed to the liberalization and privatization of the economy in 1992. This change in the economic policy of India also paved the way for FDI in India. Since then, India has benefitted greatly from the foreign investments that have poured in. One of the brightest periods for India with respect to FDI coming into the country was the early 2000s. The strong economic performance of India during the period (2001–2008) exploded the FDI investments in the country. As per UNCTAD estimates, FDI inflows to India increased from US$ 6 billion in 2001–2002 to around US$ 38 billion in 2008–2009. This gave India the tag of preferred investment destination. In the 1990s, when Indian economy was making structural changes, FDI was allowed in only few sectors and that also in a restricted form. Over the years, successive governments have opened the economy more and now FDI is allowed in almost all sectors, barring those dealing with national security.

This huge influx of FDI inflows in India suffered a break with the onset of the financial crisis precipitated by the demise of Lehman Brothers in 2008. The next four years, Indian economy, like the world economy, saw a deceleration in economic growth as well as a deceleration in FDI inflows to the economy. The situation gradually improved after 2011 when slowly the world economy and subsequently the Indian economy came back on track. The growth rate of Indian economy has been restored to high levels of between 7 and 8% since then and so have the FDI inflows in the country.

This study aims to look at the impact of FDI on the growth rate in the Indian economy. The growth rate of the economy is measured as the growth rate in GDP. The time of the study is the new millennium, that is, from 2001 onward until early 2018. The time has been chosen such as to study the impact of FDI on the growth rate of India in pre-financial crisis period (2002–2007), the financial crisis years (2008–2012) and the post-financial crisis period (2013–2018). This delineation of the time helps in understanding the impact in a better way. It helps in removing the bias that may be in the data because of the fallout of the financial crisis.

Literature Review

The earliest study done regarding the impact of foreign investment on the economic growth rate was by Solow (1956, 1957). His research has become the focal point for subsequent research done on this topic. Arrow (1962), Shell (1966), Lucas (1988) and Grossman and Helpman (1991) determined that FDI influenced economic growth through factors such as research and development and emphasis on human capital.

Findlay (1978) proposed that an increase in the amount of FDI inflows increased the rate of technical progress in the recipient country as new technology is being disseminated by the foreign firms. Agarwal (1980) established that the size of the recipient country's economy was the most important factor in attracting the FDI. Schneider and Frey (1985), Balassa (1985), Wheeler and Mody (1992) talked about GDP growth rate being one of the major influencers for FDI inflow in an economy. Wang and Blomstrom (1992) talked about technology spillovers in recipient economies leading to economic growth in these countries. Contrarily, Boyd and Smith (1992) found that FDI might affect economic growth negatively because of misallocation of resources.

Blomstrom, Lipsey, and Zejan (1994) studied over hundred countries for the period 1960–1985 and found that FDI had a strong positive

influence for developed economies and not developing economies. Harrison (1994) studied Morocco and Venezuela's economy and found that foreign firms were more productive than domestic firms and hence FDI influence was seen in an economy's progress. Balasubramanyam, Salisu, and Sapsford (1996) applied endogenous growth theory to a cross section of 46 developing countries to argue that the growth-enhancing effects of FDI are stronger in countries with outbound trade and pursued export promotion rather than import substitution. Their econometric analysis indicated that the elasticity of output with respect to FDI exceeds that of domestic capital investment.

De Mello (1997) finds that the correlation between FDI and domestic investment is negative in developed countries. Borensztein et al. (1998) studied emerging economies for the period 1970–1989 and established that although FDI was a positive contributor to economic growth, the impact of FDI was seen more in the development of human capital in the recipient country. Dunning (1999) also talked about FDI helping in improving the productivity in the recipient country. Frankel and Romer (1999) established that an increase in economic growth of an economy followed an increase in FDI inflows as these FDI inflows led to asset and technology transfer. De Mello (1999) goes on to subsequently establish positive effects of FDI on economic growth in both developing and developed countries. The study further draws from its analysis that the extent of long-term growth in host countries is determined by the flow of technology and knowledge to the host country from the investing countries.

Nair-Reichert and Weinhold (2001) established that the causal relationship between foreign and domestic investment and economic growth in developing countries was heterogeneous. Lim (2001) found that due to foreign firms bringing more up-to-date technology to the recipient country, FDI is found to be more productive at times than domestic investments. Dunning (2002) found that FDI in developing economies was prone to more efficiency seeking in work. Lipsey (2004) found a positive impact of FDI inflow on economic development of host country although the negative effects of FDI on economic growth are understood to be manifested through crowding out of domestic investment, increasing external vulnerability and dependency.

A sample of 18 Latin American countries for 1979–1999 was used by Bengoa and Sanchez-Robles (2003) to explore the interaction between economic freedom, foreign direct investment (FDI) and economic

growth. Hermes and Lensink (2003) found that the positive externalities associated with FDI inflow occurred through different channels such as increased competition in the host country, increased emphasis and focus on training of labor and management and technology transfer. Alfaro et al. (2004) look at the links between foreign direct investment (FDI), financial markets and economic growth. They looked at cross-country data between 1975 and 1995 and found that FDI did not have direct and clear impact on economic growth. Carkovic and Levine (2005) found that the FDI inflows did not exert a significant, positive impact on economic growth in developing countries.

Meschi (2006) looked at the impact of FDI on economic growth in middle-east Asian and northern African countries for the period 1980–2003. She found the relationship to be significantly negative. Yao (2006) found that both exports and FDI have a positive effect on economic growth. Herzer (2008) found out that the long-run causality between FDI and domestic output was bidirectional. Tintin (2012) examined as to what extent FDI impacted economic growth for a sample of 125 countries for the period of 1980–2010. He found that FDI stimulates the economic growth across the developed and developing countries, but the scale of the impact was found to be non-uniform across country groups. Stamatiou and Dritsakis (2013) found that FDI inflows not only impact the economic growth but also lead to creation of jobs in the recipient country. He, Sun, and Zou (2013) found that economic deregulation moderated the effectiveness of FDI in the early years of Chinese economic growth (1981–98). Pegkas (2015) looked at the impact of foreign direct investments on economic growth in the Eurozone countries over the period of 2002–2012. He found a long-run positive cointegration relationship between the two variables.

Omri and Sassi-Tmar (2015) researched on the correlation between FDI and economic growth for North African countries taking three of them, namely Tunisia, Morocco and Egypt as their sample during 1985–2011. The analysis, which was based on a simultaneous equations model, revealed that in overall terms a mutually promoting two-way linkage between FDI and economic growth existed in these countries. The generalized method of moments (GMM) finds that the two-way linkage between FDI inflows and economic growth has been verified in all three economies.

Iamsiraroj (2016) identifies a bidirectional causal relationship between FDI and economic growth. The bidirectional causality implies that eco-

nomic growth of the recipient country can both determine and be determined by FDI inflows. In a recent study done by Jayaraman, Choong, and Ng (2017) with respect to India, like many other emerging economies, the interaction between FDI and financial development indicates a complementary relationship between the two. The bounds testing procedure under ARDL framework has been employed to identify the existence of a long-run relationship between growth in per capita income, FDI, investment and credit to private sector and openness of the economy. The results confirm that FDI can stimulate economic growth in India through financial sector development.

Framework of Hypotheses

As seen in the previous section, there have been numerous studies on the relationship between FDI inflow in a country and the economic growth of that particular country. The objective of the study is to look at the impact of FDI inflows in India on the GDP growth rate of India for the time period 2002–2018. The study aims to find the directional causality between the two factors, FDI inflow and the growth rate of the Indian economy. The study is further divided into three time frames—pre-financial crisis (2002–2007), financial crisis (2008–2012) and post-financial crisis (2013–2018). This is to understand the relationship between FDI and economic growth in India without the bias of worldwide economic downturn. There are four hypotheses to be tested here:

H1 FDI inflows to India influenced the GDP growth rate of India during 2002–2018 period

H2 FDI inflows to India affected the GDP growth rate of India during pre-financial crisis, 2002–2007 period

H3 FDI inflows to India affected the GDP growth rate of India during the financial crisis, 2008–2012 period

H4 FDI inflows to India influenced the GDP growth rate of India during post-financial crisis, 2013–2018 period

Methodology

In order to study the impact of FDI inflow to India on the GDP growth rate of India, in this study we have looked at quarter-wise data of FDI inflow and GDP growth rate. The other data taken in the study is USD-INR exchange rate and crude oil price in the international market. The data has been collected quarter-wise from 2002 to 2018 Q1. For the purpose of the study, GDP growth has been taken as independent variable, FDI inflows have been taken as dependent variable and USD-INR exchange rate and oil prices have been taken as control variables.

We use regression, correlogram and Granger causality tests to determine the impact of FDI inflows on the economic growth rate of India. As the data being used in the study is time series data, we wanted to check the stationarity of the time series; for the same we applied Dickey-Fuller Test of stationarity. The Augmented Dickey-Fuller Test (ADF) is unit root test for stationarity. A correlogram is a visual way to show serial correlation in data that changes over time. Correlograms give a good idea of whether or not pairs of data show autocorrelation. To analyze the impact on GDP, firstly we tested the data for the entire time period (2002–2018). Then to check whether the crisis has affected our study or not, we divide the time into three parts: pre-crisis (2002–2007), crisis (2008–2012) and post-crisis (2013–2018Q1).

Analysis

The first step while analyzing the time series data is to check for the stationarity of the data. If the data is found to be non-stationary, then the problem of spurious regression occurs (Newbold and Granger, 1974). In spurious regression, one may get high r-squared value with high significance, but in reality it may not be significant. Augmented Dickey-Fuller test is done to check whether the data in the time series is stationary or not (Dickey and Fuller, 1979). Here the null hypothesis is that there is unit root data, meaning the data is non-stationary in nature and the alternate hypothesis is that data is stationary and there is no unit root. In this study, a lag of three years is taken. The results of the ADF Test are exhibited in Table 11.1.

As can be seen in the table, the *p*-value is significant for only two of the four variables considered. Hence for all the two data series, Indian GDP growth rate and Net FDI inflow in India, we reject the null hypothesis and

Table 11.1 Augmented Dickey-Fuller test

Data	*Indian GDP growth rate*	*Net FDI inflow in India*	*USD-INR exchange rate*	*Crude oil price in India*
Lag order	3	3	3	3
Dickey-Fuller	−4.0479	−4.3	−1.0704	−1.8042
p-value	0.01324	0.01	0.9199	0.6543

determine that the data is stationary. The remaining two data series show signs of non-stationarity and auto correlation. A correlogram is a visual representation of the serial correlation in a time series. In order to look at the relationship between FDI inflows in India and the GDP growth rate in India, we look at three different correlograms depicting pre-crisis period (2002–2007) in Fig. 11.1, crisis period (2008–2012) in Fig. 11.2 and post-crisis period (2013–2018) in Fig. 11.3.

The FDI inflow shows a positive impact on GDP growth rate for upcoming quarters. The FDI inflow majorly impacted the GDP growth rate in every quarter during crisis. The FDI inflow shows positive impact on GDP growth rate in 0, +1 and +2 quarters. It also shows negative impact on GDP growth rate in the 4th and 5th quarter, suggesting less stability in the economy.

Granger causality is a way to investigate causality between two variables in a time series. The method uses empirical data sets to find patterns of correlation. A variable X is causal to variable Y if X is the cause of Y or Y is the cause of X. The null hypothesis for the test is that lagged x-values do not explain the variation in y. In other words, it assumes that $x(t)$ does not Granger-cause $y(t)$. In this study, x is FDI inflows in India and y is the GDP growth rate for India. In the following tables, the Granger causality tests have been run to check whether FDI inflows have influenced the GDP growth rate in India. Table 11.2 shows the test results for the entire period (2002–2018). Table 11.3, 11.4, and 11.5 show the Granger Causality results for the three sub-periods.

It is observed that Granger causality is present with a lag of two time periods. Finally, to check the quantum of impact of FDI inflows on the GDP growth, we run a regression with FDI inflows to India being the independent variable and GDP growth rate being the dependent variable, USD-INR exchange rate and the crude oil prices being the control variables. Table 11.3 below represents the regression results for the entire period into consideration, that is, 2002–2018.

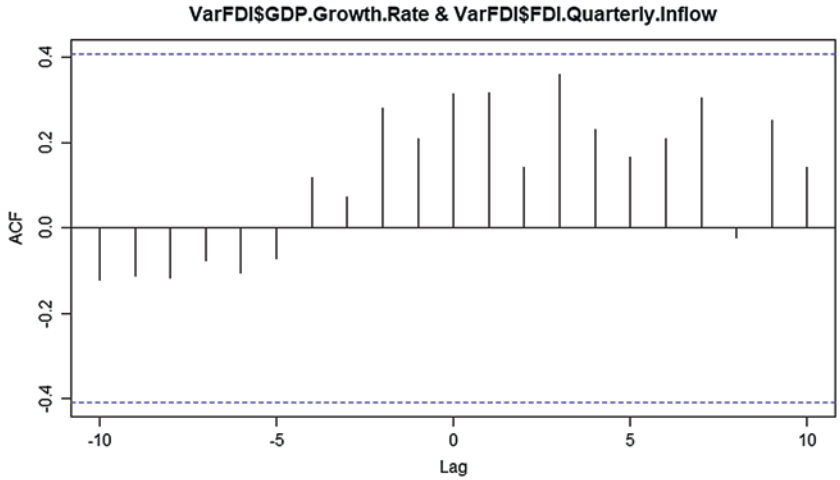

Fig. 11.1 Pre-crisis correlogram (2002–2007)

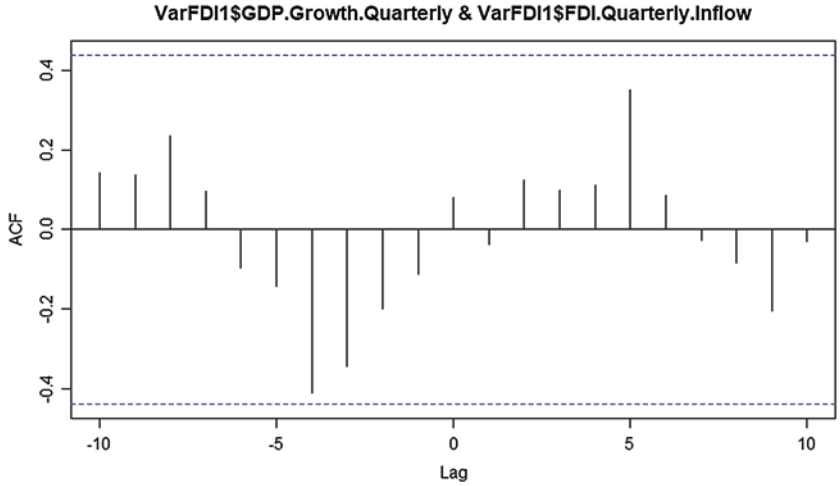

Fig. 11.2 Crisis correlogram (2008–2012)

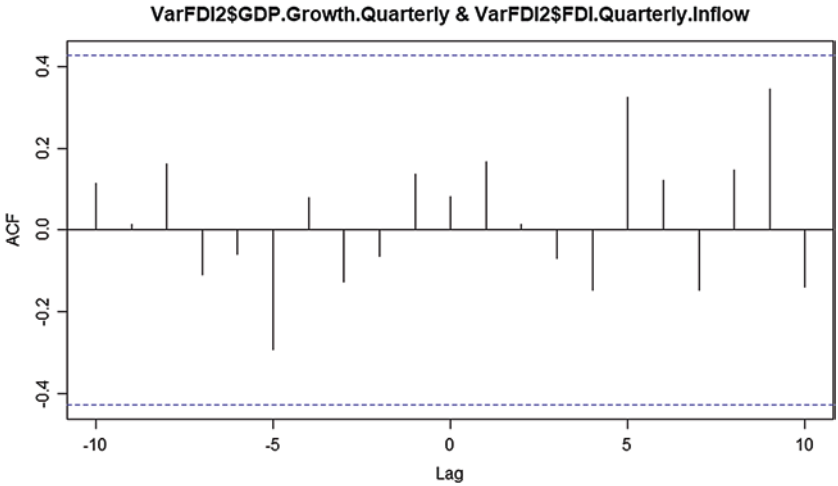

Fig. 11.3 Post-crisis correlogram (2013–2018)

Table 11.2 Granger causality results between FDI and GDP growth rate for 2002–2018

Sample	*1960m4–1965m5*	*No. of observations*	*62*
Log likelihood	−1411.524	AIC	47.30722
FPE	2.46E+14	HQIC	48.04809
Det(Sigma_ml)	4.1E+13	SBIC	49.19419
	Std. err.	t	P > |t|
Growth rate			
L1.	83.96069	−0.15	0.0882
L2.	84.27517	−0.96	0.0343

The regression results show a robust relationship between FDI and growth rate. The coefficient results also show a significant positive impact of FDI inflows in India on the GDP growth rate in India over a time period 2002–2018.

In the pre-crisis model, the regression equation comes as significant but the FDI inflow impact on the GDP growth rate is not significant.

Table 11.3 Regression results for the period 2002–2018

Descriptive statistics

	Mean	*Std. deviation*	*N*
GDP growth quarterly	7.4642	2.39688	64
FDI quarterly inflows India (in million USD)	1902.438	1479.1316	64

Model summary[a]

Model	*R*	*R square*	*Adjusted R square*	*Std. error of the estimate*	*Change statistics*					*Durbin-Watson score*
					R square change	*F change*	*df1*	*df2*	*Sig. F change*	
1	0.444[b]	0.197	0.142	2.21986	0.197	3.612	4	59	0.011	0.945

ANOVA[a]

Model		*Sum of squares*	*df*	*Mean square*	*F*	*Sig.*
1	Regression	71.199	4	17.800	3.612	0.011[b]
	Residual	290.739	59	4.928		
	Total	361.938	63			

Model		*Unstandardized coefficients*		*Standardized coefficients*	*t*	*Sig.*
		B	*Std. error*	*Beta*		
1	(constant)	10.097	2.115		4.774	0.000
	FDI quarterly inflows India (in million USD)	0.002	0.001	0.299	2.504	0.015

[a]Dependent variable: GDP growth quarterly
[b]Predictors: (constant), FDI quarterly inflows India (in million USD)

For the crisis period (2008–2012), the regression model is robust and the impact of FDI inflows on the GDP growth rate is seen as negative and significant.

In the post-crisis period, the regression model does not come out as robust. The impact of the FDI inflows on the GDP growth rate is seen as significant. Based on the above analysis, we accept Hypothesis 1 and Hypothesis 3. This is to say that we accept the hypothesis, there is a significant impact of FDI inflow on GDP growth rate in India during 2002–2018 period. This relationship was also found to be significant for the crisis period 2008–2012. In view of the above results, Hypothesis 2 and Hypothesis 4 are rejected, which explains that there was no significant relationship found between FDI inflow and GDP growth rate during the pre-crisis and post-crisis period.

Table 11.4 Regression results for the period 2002–2007

Descriptive statistics

	Mean	*Std. deviation*	*N*
GDP growth quarterly	8.0987	2.53830	23
FDI quarterly inflows India (in million USD)	688.130	1044.8753	23

Model summary[a]

Model	*R*	*R square*	*Adjusted R square*	*Std. error of the estimate*	*Change statistics*					*Durbin-Watson score*
					R square change	*F change*	*df1*	*df2*	*Sig. F change*	
1	0.684[b]	0.467	0.349	2.04793	0.467	3.949	4	18	0.018	1.377

ANOVA[a]

Model		*Sum of squares*	*df*	*Mean square*	*F*	*Sig.*
1	Regression	66.253	4	16.563	3.949	0.018[b]
	Residual	75.492	18	4.194		
	Total	141.745	22			

Beta coefficients

Model		*Unstandardized coefficients*		*Standardized coefficients*	*t*	*Sig.*
		B	*Std. error*	*Beta*		
1	(constant)	25.013	16.636		1.504	0.150
	FDI quarterly inflows India (in million USD)	0.000	0.002	0.019	0.084	0.934

[a]Dependent variable: GDP growth quarterly
[b]Predictors: (constant), FDI quarterly inflows India (in million USD)

Table 11.5 Regression results for the period 2008–2012

Descriptive statistics

	Mean	*Std. deviation*	*N*
GDP growth quarterly	7.2220	3.06281	20
FDI quarterly inflows India (in million USD)	2168.950	1227.3401	20

(*continued*)

Table 11.5 (continued)

Model summary[a]

Model	*R*	*R square*	*Adjusted R square*	*Std. error of the estimate*	*Change statistics*					*Durbin-Watson score*
					R square change	*F change*	*df1*	*df2*	*Sig. F change*	
1	0.767[b]	0.589	0.479	2.21075	0.589	5.367	4	15	0.007	1.427

ANOVA[a]

Model		*Unstandardized coefficients*		*Standardized coefficients*	*t*	*Sig.*
		B	*Std. error*	*Beta*		
1	(constant)	22.004	6.978		3.153	0.007
	FDI quarterly inflows India (in million USD)	−0.401	0.133	−0.536	−3.022	0.009

[a]Predictors: (constant), FDI quarterly inflows India (in million USD)
[b]Dependent variable: GDP growth quarterly

Table 11.6 Regression results for the period 2013–2018

Descriptive statistics

	Mean	*Std. deviation*	*N*
GDP growth quarterly	7.000	1.1619	21
FDI quarterly inflows India (in million USD)	2978.571	1130.0265	21

Model summary[a]

Model	*R*	*R Square*	*Adjusted R square*	*Std. error of the estimate*	*Change statistics*					*Durbin-Watson*
					R square change	*F change*	*df1*	*df2*	*Sig. F change*	
1	0.572[b]	0.328	0.159	1.0652	0.328	1.949	4	16	0.151	1.410

ANOVA[a]

Model		*Sum of squares*	*df*	*Mean square*	*F*	*Sig.*
1	Regression	8.844	4	2.211	1.949	0.151[b]
	Residual	18.156	16	1.135		
	Total	27.000	20			

(*continued*)

Table 11.6 (continued)

Model		*Unstandardized coefficients*		*Standardized coefficients*	*t*	*Sig.*
		B	*Std. error*	*Beta*		
1	(constant)	−12.545	9.241		−1.358	0.193
	FDI quarterly inflows India (in million USD)	0.295	0.132	0.818	2.245	0.039

[a]Dependent variable: GDP growth quarterly
[b]Predictors: (constant), FDI quarterly inflows India (in million USD)

Conclusion

The study has used quarterly data from 2002 until 2018 to check the impact of FDI inflows on the GDP growth rate in India in this millennium. The causal relationship is found between the two with a lag. As the time period taken into consideration included a major economic and financial crisis, for the purpose of running regression, the study divided the time period into three parts—pre-financial crisis, crisis and post-financial crisis. The regression analysis found a positive relationship between the two variables for the full time period. However, there was no significant relationship found between the two in the pre-crisis period and the post-crisis period. The study thus gives a weak significant relationship between FDI Inflows and GDP growth rate in India. In the study, it was determined that there is a relationship between the FDI inflows and GDP growth rate but with a lag. One can explore other macroeconomic factors affecting GDP growth rate and determine their correlation with FDI.

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CHAPTER 12

Macroeconomic Variables Affecting External Commercial Borrowings: An Investigation

Pooja Misra and Jagdish Shettigar

Introduction

India's external debt was USD 529.7 billion in end March 2018, registering a rise of $58.4 billion from March 2017. The rise was due to an increase in commercial borrowings, deposits by NRIs, and short-term debt. The composition of external borrowings reflected that long-term borrowings was approximately 80.7% of the total external debt, balance consisted of debt which is short term in nature. The country's long-term debt comprises debt sourced from global financial institutions, that is, IMF, World Bank, and so on, external commercial borrowings, private banks funding, trade credit, NRI deposits, and so on. It is the prudent external debt management policy which has served well and helped in ensuring that external debt is within manageable limits. With regard to the ratio of reserves in the form of foreign exchange with the Reserve Bank of India (RBI) to external debt, India stood at the sixth position at 69.7% in 2015 (Indiamacroadvisors, 2018). In end March 2018, external debt to Gross Domestic Product (GDP) ratio was 20.5%.

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External commercial borrowings (ECBs) are commercial loans that include bank loans, securitized instruments such as fixed-rate bonds, non-convertible, partially convertible, or optionally convertible preference shares, buyer's credit and supplier's credit, financial lease, and foreign currency bonds borrowed from lenders abroad who are not residents of India and has a maturity period of less than three years. Bonds issued by an Indian Corporation in foreign currency in which case both the constituents—principal and the interest to be paid on the principal—are in foreign currency are foreign currency convertible bond (FCCB), which are a part of India's long-term debt. ECBs can be accessed through both the routes—Automatic and Approval. External commercial borrowings are under purview of the Foreign Exchange Management Act (FEMA) (1999) and are monitored by the RBI along with the Ministry of Finance, Government of India. ECBs are an additional alternate source of funding from foreign countries for Indian corporates and Public sector undertakings in case of new investments to be made and expansion of current business undertakings. Borrowings in case of ECBs are permissible for specified purposes, generally for investments in capital goods. ECBs are not permissible for capital market investments, working capital, and repayment of existing rupee loans. Indian corporates are also able to benefit in case of differential interest rates between domestic and foreign markets.

During 1980s, Indian corporates and public sector undertakings (PSUs) were encouraged to tap the international market for foreign currency borrowings. With the advent of economic reforms post-1991, the exchange rate in India became a floating rate as against a pegged exchange rate with the current account being convertible and adopting a calibrated approach towards the capital account. External assistance lost its prominence in inflow of capital while on the other hand private capital inflows became strong. The capital flows alignment changed to private capital inflows with ECBs being the predominant component (Gopinath, 2004). For the period 1985–1990, ECBs provided 24% of the financing need. However, post the reforms due to the policy bent of encouraging non-debt inflows as against debt inflows, ECBs accounted for 16.3% of inflows in 2004–2005 as against 31.9% in 1990–1991. However, in March 2012, ECBs accounted for 27% of India's external debt, which further rose to 38.2% in March 2018. Factors such as Indian economy being well amalgamated in the world economy and a positive economic growth performance were instrumental in increasing the ECBs into India.

The Reserve Bank of India (RBI) announced a revised ECB framework in 2015, which consisted of three tracks:

- Track I permits ECBs in foreign currency for a medium period and maturity on an average of three to five years.
- Track II permits ECBs in foreign currency for a long period and a minimum maturity on an average of ten years.
- Track III permits ECBS in Indian rupee for a period an average of three to five years.

These entities eligible to borrow in Track I are companies engaged in manufacturing activities, software development, shipping and airline, Small Industries Development Bank of India (SIDBI), and units in special economic zones (SEZs). Under Track II, all entities permissible within Track I are eligible; additionally, companies from the infrastructure sector, real estate investment trust, and core investment companies are eligible. Under Track III, all entities permissible within Track II are eligible; additionally, non-banking financial corporations, microfinance institutions, and companies engaged in research and development, and developers of SEZs are eligible. The RBI has further eased the rules for external commercial borrowings in April 2018 and has stipulated that the all in cost ceilings would be uniform 450 bps over the benchmark rate, which is generally 6 months London Interbank Offered Rate (LIBOR) for Track I and II, while for Track III it is the current yield of Government of India (GOI) securities of similar maturities. Additionally, the list of eligible borrowers for ECB has been expanded to include housing finance companies and port trusts. With an increasing current account deficit in September 2018, one of the corrective measures adopted by the Government has been to permit manufacturing entities to avail of ECBs up to $50 million with a minimum maturity term of one-year duration.

Additionally, in January 2018 notification, RBI has permitted overseas branches of Indian banks to refinance the borrowings of Navratna and Maharatna PSUs. The underlying clause being that the amount outstanding of the original borrowing is not decreased and the all-in-cost of the new external commercial borrowing is lower than the original borrowing. Also, partial refinance of the ECB is now permissible with the same conditions. Keeping in mind that ECBs are an attractive avenue for Indian corporates to borrow from and the considerable external long-term debt exposure that India has it is imperative to investigate the macroeconomic factors that impact external commercial borrowings.

Review of Literature

External commercial borrowings are done by Indian corporates for import of capital goods, access to funds for new projects and for expansion and modernization of existing manufacturing facilities and microfinancing (Arunperumal, 2016). Foreign currency borrowing of firms was studied by Patnaik, Shah, and Singh (2016). They found that the regulators have adopted a liberal approach towards promoting ECBs. However, they have also recommended policy decisions regarding systemic risks due to unhedged borrowings by corporates. Additionally, the reporting mechanism by RBI for firms borrowing through ECBs has been tightened. In September 2015, RBI further relaxed norms by permitting companies to borrow via rupee-denominated bonds, thereby transferring the currency risk to the lenders and promoting firms to borrow through the ECB route. Thus, the risks for the lenders are that of fluctuations in interest rates only and thereby the exposure of their balance sheet to exchange rate risks is reduced. The only shortcoming being that bonds less than $50 million has a maturity limit of three years and bonds over $50 million have a maturity limit of five years which might slow down the growth of these rupee-denominated bonds. From a policy viewpoint, RBI is encouraging borrowing for a longer duration of time and simultaneously is promoting hedging of risks undertaken by the borrowing enterprises. They have also worked on simplifying procedures and making the ECB framework more transparent thereby reducing borrowing cost and bringing in quality borrowers.

Analysis by Chakraborty based on quarterly data of the Indian economy from 1993 to 2003 states that post-liberalization foreign direct investment (FDI) and ECBs were not volatile, while portfolio flows were volatile in nature. The efficiency of the Indian financial system based on firm level data on financing patterns of corporates was studied by Oura (2008). The author stated that firms had begun to increasingly rely on external sources of funding to finance their investment decisions. This was due to the fact that the Indian financial system was not channelizing funds to Indian corporates who were borrowing externally.

Some of the reasons given for increasing dominance of ECBs in India's external debt are: increase in risk appetite of the investors for emerging economies, differential interest rates with the benefit lying with the

domestic market rates, improved sovereign credit ratings, strong investment demand, and an underdeveloped corporate bond market (Acharya et al., 2015). Factors such as domestic real activity, liquidity conditions in the country, differential interest rates (Singh, 2007; Verma & Prakash, 2011), and real interest rates are some of the factors influencing ECB flows into India. Additionally, during the crisis period, external credit shocks did influence ECBs (Singh, 2009).

Interest rate differential and an underdeveloped domestic corporate bond market as per the study conducted (Verma & Prakash, 2011) are the reasons for Indian corporates turning towards ECBs. Additionally, positive growth levels of Organisation for Economic Co-operation and Development (OECD) countries resulted in increased capital inflows into India. As per Bhanumurthy, Bose, and Panda (2014), it is the pace of activity in the international and national markets which influences capital flows. In his study based on India for 2003–2014 Arunperumal (2016) found that exchange rates, interest rate differential, and real domestic activity impact ECBs. In his analysis, based on time series econometrics Dev (2017) studied the relationship between ECBs and index of industrial production (IIP), exports, imports, exchange rate, foreign investment, and differential interest rate for the period September 1999 to September 2012. It has been established that there is a positive long-term association between IIP, differential interest rate, and exchange rate, while imports and FI have a negative relationship. In the short run, interest rate differential, imports, exchange rate, and FI have a long-term positive relation while exports and IIP have a negative relationship. As per Ghosh and Chandrashekhar (2009) reasons for ECBs in India are primarily lowering of interest rates in the credit market and higher interest rate differentials.

Composition and factors influencing external commercial borrowings from 2000 to 2015 were studied by Ray, Sur, and Nandy (2017). The study looks into the macroeconomic trends and changes in the policies relating and impacting ECBs. With the help of Johansen cointegration test and vector error correction model, it analyses the influence of domestic and global determinants on ECBs. Factors considered were real interest rate differentials, growth differential and exchange rate, openness of the capital account, and sovereign credit ratings. A relationship was established between all the independent factors and the dependent factor of external commercial borrowings except sovereign credit ratings. The study

states that higher focus on domestic economic fundamentals and carefully approaching capital account liberalization is needed to stabilize ECB flows. The pre-crisis period impacting overseas borrowings by companies focusing on interest rates, real sector activity, and domestic credit constraint was studied by Singh (2007). He states that domestic companies have made use of overseas corporate borrowings to augment available financial resources. The shortcoming of the study was that IIP was taken as the representative of activity in the real sector, and thus, services have not been considered by the author. The subsequent study (Singh, 2009) states that additionally demand shocks affected borrowing from overseas while credit shocks were the dominant factor during a crisis.

The link between the impact of interest rate differentials and exchange flows was researched by Verma and Prakash (2011). A study by Bhanumurthy et al. (2014) found that capital inflows are exogenous in the long-run and are not influenced by differential interest rate and costs. It is the credit ratings, which affected FDI flows and cross border lending. Study done by Habermeier, Baba, and Kokenyene (2011) and Pradhan et al. (2011) showed that the components of inflow of capital were largely influenced by the system of Indian capital policies and controls. During the study, it was seen that capital controls encouraged unhedged borrowings when there was low volatility in exchange rates.

Our study follows a macroeconomic approach in determining the factors that impact external commercial borrowings. It considers the following independent set of factors, that is, exchange rate, differential growth rate, index of industrial production in India, interest rate differential, differential inflation, global money supply, and capital account openness which has been considered as a dummy variable. Thus, in comparison to the study conducted by Ray et al. (2017), the current research undertaken also explores the impact of IIP and differential inflation on external commercial borrowings.

Research Methodology

Quarterly data for the period July 2004–December 2017 was collected from secondary sources such as Worldbank.org, OECD, U.S. Bureau of Economic Analysis, and indiastats.com. The independent variables

considered were exchange rate, differential growth rate, index of industrial production in India, interest rate differential, differential inflation, and global money supply. The mathematical and statistical analysis was done via EViews.

The statistical tests adopted were an unrestricted vector autoregressive model (VAR) as it analyses the relationship between multiple influencing parameters. VAR is a flexible and simple model which analyses multivariate time series data. It is a quantitative forecasting approach. In a VAR model in case cointegration between the variables is established, a vector error correction model (VECM) is adopted. It is one of the modelling methods for multivariate time series data analysis. VECM is used in cases where a long-term relationship exists between non-stationary data parameters and variables in the economic data set. The data being analysed is time series in nature/longitudinal data, and the test conducted is the Augmented Dickey–Fuller test to establish for stationarity of data or unit root. In case, the data was not found to be stationary, the test was again conducted in the differentiated data set. It also determines the causal relationship between the independent and dependent variables through the Granger causality test.

In the analysis the model has been defined as:

$$\begin{aligned}\text{External Commercial Borrowings} = {} & C1 + C2(\text{Exchange Rate}) \\ & + C3(\text{Differential Growth Rate}) \\ & + C4(\text{Differential Interest Rates}) \\ & + C5(\text{Index of Industrial Production}) \\ & + C6(\text{Global Money Supply}) \\ & + C7(\text{Differential Inflation}) + E_t.\end{aligned}$$

Data Analysis and Results

On analysing the data by the Augmented Dickey–Fuller test, it was found that the independent parameters and the dependent parameter were not stationary. They had a unit root. Thereafter, Augmented Dickey–Fuller test was done for each of the parameters on their first difference and the data was found to be stationary or having no unit root.

Table 12.1 Johansen cointegration test

Lag Interval (in first differences): 1 to 1				
Unrestricted cointegration rank test (Trace)				
Hypothesized no. of CE(s)	*Eigenvalue*	*Trace statistic*	*0.05 critical value*	*Prob***
None*	0.560	157.363	125.615	0.0001
At most 1*	0.520	114.673	95.754	0.0014
At most 2*	0.478	76.476	69.819	0.0133
At most 3	0.295	42.679	47.854	0.1405
At most 4	0.267	24.490	29.798	0.1805
At most 5	0.132	8.341	15.495	0.4296
At most 6	0.019	0.992	3.842	0.3194

*Shows that there are three cointegration equations

After conducting the Augmented Dickey–Fuller test, the Johannsen cointegration test was done to check for long-run association between the variables. The test for Johannsen cointegration assesses for whether the parameters have a long-run relationship or are cointegrated or not. The basic assumption in case of Johansen cointegration is that the variables must be non-stationary. Lag order selection was done on the basis of Schwarz information criterion, Hannan–Quinn information criterion and final prediction error. Based on the results obtained, the lag was taken as 1. The test for Johansen cointegration showed that there are three cointegrating equations and there exists a long-run association amongst the variables. This was established at 5% confidence level. In cases where the parameters are seen to be cointegrated, a vector error correction model is run. As it was seen that for the given data set cointegration exists, thus the vector error correction model was conducted (Table 12.1).

Three cointegration equations at 0.05 confidence level were indicated based on trace statistics, thereby establishing the fact that the variables are associated in the long run.

Vector Error Correction Model

Based on the Johansen and Augmented Dickey–Fuller test for cointegration, a long-run association was established between the independent and dependent parameters, that is, external commercial borrowings. Keeping the same in mind, the vector error correction model was run using the following equation (Table 12.2).

$$
\begin{aligned}
D(\text{Ecbs}) = C(1)*&\left(\begin{array}{l}\text{Ecbs}(-1) - 179.63370019*\text{Iip}(-1) - \\ 2.11173629526*\text{Inflation}(-1) + \\ 114.217736605*\text{Interestrate}(-1) + \\ 1.47008375639*\text{M2}(-1) + 288.626969966\end{array}\right) + \\
C(2)*&\left(\begin{array}{l}\text{Exchangerate}(-1) - \\ 2.12178685663*\text{Iip}(-1) - \\ 1.299027043*\text{Inflation}(-1) + \\ 6.16289744854*\text{Interestrate}(-1) + \\ 0.00881223015925*\text{M2}(-1) + 29.9619898456\end{array}\right) + \\
C(3)*&\left(\begin{array}{l}\text{Growthrate}(-1) - \\ 3.9024558748*\text{Iip}(-1) - \\ 1.31652487607*\text{Inflation}(-1) + \\ 9.28245671998*\text{Interestrate}(-1) + \\ 0.02390915453*\text{M2}(-1) + 82.0638488236\end{array}\right) + \\
&C(4)*D(\text{Ecbs}(-1)) + C(5)*D(\text{Exchangerate}(-1)) + \\
&C(6)*D(\text{Growthrate}(-1)) + C(7)*D(\text{Iip}(-1)) + \\
&C(8)*D(\text{Inflation}(-1)) + C(9)*D(\text{Interestrate}(-1)) + \\
&C(10)*D(\text{M2}(-1)) + C(11) + C(12)*\text{Dummy\_Capital}
\end{aligned}
$$

Table 12.2 Results of vector error correction model

	Coefficient	*Std. error*	t-*Statistic*	*Prob.*
C(1)	−0.987861	0.219112	−4.508480	0.0001
C(2)	−87.34358	121.6081	0.718238	0.0368
C(3)	−21.39916	84.25100	−0.253993	0.0408
C(4)	−0.100891	0.152462	−0.661740	0.5119
C(5)	−85.34203	154.5945	−0.552038	0.5840
C(6)	87.12463	153.0455	0.569273	0.5724
C(7)	243.5901	151.1729	1.611334	0.0450
C(8)	115.0615	160.4348	0.717186	0.4774
C(9)	−520.7291	626.8669	−0.830685	0.4111
C(10)	9.557576	3.975981	2.403828	0.0209

(continued)

Table 12.2 (continued)

	Coefficient	*Std. error*	t-*Statistic*	*Prob.*
C(11)	−1544.865	664.6847	−2.324207	0.0253
C(12)	−120.8327	863.9199	−0.139866	0.8895
R-squared	0.5615	Mean dependent var.		31.3653
Adjusted *R*-squared	0.4410	S.D. dependent var.		1828.494
S.E. of regression	1367.210	Akaike info criterion		17.4781
Sum squared resid	74,770,533	Schwarz criterion		17.9284
Log likelihood	−442.431	Hannan–Quinn criter.		17.6508
F-statistic	4.6563	Durbin–Watson stat		2.1677
Prob(F-statistic)	0.000148			

Table 12.3 Breusch–Godfrey serial correlation LM test

F-statistic	*1.4887*	*Prob. F(2,37)*	*0.2212*
Obs *R*-squared	3.7783	Prob. Chi-Square(2)	0.1305

Table 12.4 Heteroskedasticity test: ARCH

F-statistic	*0.001409*	*Prob. F(1,49)*	*0.9702*
Obs***R*-squared	0.001467	Prob. Chi-Square (1)	0.9694

The VECM showed that the R square is 56.19% and the model is strong, Prob (F-statistic) is 0.000148. It was established that the model has no serial correlation and no autocorrelation. Serial correlation was checked for by the Breusch–Godfrey serial correlation LM test. The results show that the developed VECM is strong and there is a relationship between the independent variables and the dependent variable in the long run (Table 12.3).

As value of Prob. Chi-square is above 0.05, the null hypothesis, that is, model does not have serial correlation is accepted (Table 12.4).

Prob. Chi-square is above 0.05, thus null hypothesis that model does not have heteroskedasticity is accepted. The model has no heteroskedasticity.

Long-Run Causality

C(1), C(2), and C(3) are the error correction term or speed of adjustment towards equilibrium. Long-run association requires C(1), C(2), and C(3) to be negative in sign and significant. Since the same is significant and has a negative sign it shows that there is long-run association between the independent variable of exchange rate, differential growth rate, index of industrial production in India, interest rate differential, differential inflation, global money supply, and capital account openness as a dummy variable and external commercial borrowings in India. The analysis also showed that on an individual level, the independent parameter of index of industrial production and the independent variable of global money supply has a long-run relationship with external commercial borrowings. The variables do not jointly impact ECBS in the short run.

Short-Run Causality

The Wald test was used to check for the association in the short run between the independent and dependent parameters. The guideline for the same is that for association to exist in the short run based on the Wald test the value of Chi-square is to be less than 5%. The test results established that there does not exist an association in the short run between rate of exchange and ECBs, differential growth rate and ECBs, differential inflation and ECBs, and differential interest rate and ECBs. However, there does exist a short run association between IIP and external commercial borrowings and global money supply and external commercial borrowings.

Discussion and Conclusions

The composition of external borrowings reflected that long-term borrowings was approximately 80.7% of the total external debt, balance consisted of short-term debt. It is the prudent external debt management policy which has served well and helped in ensuring that external debt is within manageable limits. ECBs are under the purview and framework of FEMA 1999. The flow of capital changed to private capital inflows with ECBs being the predominant component (Gopinath, 2004). Factors such as amalgamation of the Indian economy in the global scenario and a positive growth performance were instrumental in increasing the ECBs into India.

Foreign currency borrowing of firms was studied by Patnaik et al. (2016). They found that the regulators have adopted a liberal approach towards promoting ECBs. However, they have also recommended policy decisions regarding systemic risks due to unhedged borrowings by corporates. In September 2015, RBI further relaxed norms by permitting companies to borrow via rupee-denominated bonds, thereby transferring the currency risk to the lenders and promoting firms to borrow through the ECB route. From a policy viewpoint, RBI is encouraging borrowing externally by firms for a longer duration and simultaneously is promoting hedging of risks by the borrowing firms. They have also worked on simplifying procedures and making the ECB framework more transparent thereby reducing borrowing cost and bringing in quality borrowers.

The study followed a macroeconomic approach in determining the factors that impact external commercial borrowings. It considers the following independent set of factors, that is, exchange rate, differential growth rate, index of industrial production in India, interest rate differential, differential inflation, global money supply, and capital account openness which has been considered as a dummy variable.

The Augmented Dickey–Fuller test showed that the independent parameters and the dependent parameter had a unit root or were not stationary. The test for Johansen cointegration showed that there are four cointegrating equations and there exists a long-run association amongst the parameters at 5% level. The VECM showed that the R square for the model is strong and is 61.89% and Prob (F-statistic) is 0.000034. This showed that the dependent variable of exchange rate, differential growth rate, index of industrial production in India, interest rate differential, differential inflation, global money supply, and capital account openness which has been considered as a dummy variable are able to explain the variation in external commercial borrowings upto an extent of 61.89%. It was established that the model has no serial correlation and no autocorrelation. The results also showed that the VECM developed is strong and there exists a long-run association between the independent parameters and the dependent parameter.

The analysis showed that there is long-run association between the independent variable of exchange rate, differential growth rate, Index of industrial production in India, interest rate differential, differential inflation, global money supply, and capital account openness which has been

considered as a dummy variable and external commercial borrowings in India. The analysis also showed that on an individual level the independent parameter of index of industrial production and the independent variable of global money supply has a long run relationship with external commercial borrowings. This also corroborates the findings of Singh (2007) wherein he states that the underlying pace of domestic real activity has an association with ECBs. Thus in situations when the Government is keen to encourage flow of ECBs into the country, policymakers should be cognizant of this fact and devise conducive policies especially with regard to IIP. The gap between LIBOR and domestic interest rates has been increasing since 2008, resulting in a sudden rise in demand for ECBs. Also, relative to the world economy, the Indian economy post the financial crisis of 2008, has been performing well, a direct outcome of which could be the rise in ECBs again.

The Wald test showed that there is no causality existing in the short run between rate of exchange and ECBs, differential growth rate and ECBs, differential inflation and ECBs, and differential interest rate and ECBs. However, there does exist a short-run causality between index of industrial production and external commercial borrowings and global money supply and external commercial borrowings. Thus policy makers ought to be aware of these factors, while policy decisions are undertaken especially with reference to index of industrial production as it is shown to have an association with ECBs both in the long run and short run. Additionally, as per the analysis a change in global money supply has an association with ECBs and the Government should be mindful of the same while making policy changes.

The Granger causality test showed that the independent parameters of index of industrial production, exchange rate, interest rate, and global money supply do Granger causality impact external commercial borrowings. Thus the economists and policy makers should be cognizant of the fact that changes in IIP, exchange rate, interest rate, and global money supply can have a Granger causal impact on Indian Corporates borrowing through external commercial borrowings and any changes in any of these parameters influence ECBs.

In this research study, credit rating of India has not been considered as a variable which can impact ECBs. Future research can investigate into the same.

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CHAPTER 13

Classroom 4.0: Understanding the New Battleground

Rohit Vishal Kumar

Introduction

The world that we live in today is undergoing change at a fast pace. One of the key drivers of this change is technology—which is evolving at a fast pace. This rapid change in technology is touching our lives in various ways and transforming it. However, the field of education—especially in India—has largely remained untouched. The focus of teaching in India has been more on bookish knowledge rather that assimilative knowledge. However, the changes in the society are also being reflected in the classroom and teachers of today are being forced to deal with much more than the teachers of the past. Even a few decades back, the teaching arena was a one-way process—with the teacher at the helm of affairs and the students being the obedient sheep that were learning at the font of knowledge. But with the change in time, the "chalk and talk" method has come under significant threat from various sources. Social fragmentation—in terms of growth of nuclear families, working parents, the rising number of divorces, the emergence of new pressure groups in the society—has started reflecting in the

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classroom (Esteve, 2000). Added to this is the growth of digital media and digital platforms which have entered the lives of the people. Technological changes like smartphones, laptops, availability of search engines, online encyclopedias, and social networking changes like Facebook, LinkedIn, WhatsApp, and so on all impact management education in some way or the other. These digital tools and techniques have also invaded the classroom and lead to a disruption in the traditional methods of teaching. The new generation—increasingly born after 1990s—is extremely reliant on various digital tools for day-to-day work including learning. This has brought the teacher into direct conflict with Google and Wikipedia which are regarded as more learned than the person delivering the knowledge in the classroom. The rising social and digital tensions have made the classroom more of a battlefield where the traditional mode of learning and teaching are fighting a losing battle against the new waves of digital invaders. Indian management education has not remained immune to these changes.

This chapter proposes to examine as to how the management students in India perceive the changing classroom and what they expect out of the classroom in terms of delivery. Section "Review of Literature" reviews some of the literature and section "Research Design" discusses the research methodology. The results of the data analysis are presented in section "Data Analysis" and the final section discusses the implications from the perspective of the teachers and how the teachers can make the best use of the changes which are threatening to overturn the system.

Review of Literature

In the traditional Indian teaching system, the teacher (or the guru) is considered at par with the creator. The Guru Shloka (hymns to the Spiritual Teacher) paid homage to the teachers by calling them "dispellers of darkness" and equated them with the holy trinity of Hindu Gods. Education was imparted using verbal means and the source of information was always the teacher. This essential model of knowledge delivery continued unhindered and was more formally operationalized with the advent of the industrial revolution. The industrial revolution leads to the requirement of mass-produced workers which in turn meant the advent of standardized curriculum, modes of delivery, and evaluation. With the advent of the overhead projector in the 1930s in the United States, the first major change in the classroom environment was initiated. The addition of mim-

eograph in 1940s and photocopiers in 1950s were the signals that classroom teaching was facing changing times. The advent of computers in the 1980s and its wide-spread adoption during the 1990s lead to another significant shift in the teaching paradigm. Teaching no longer was static but had started to become dynamic in nature (Parson, 2017). These changes, in effect, complimented the classroom delivery system and were subordinate to the teacher. The challenge to the teacher's hegemony started only with the advent of the internet and the growth of digital media. Suddenly, the teachers were not the only source of information. Information was available from multiple sources. Students sitting in the classroom could quickly check online and challenge the teacher. This was a major "paradigm shift" in the evolution of teaching as the traditional source of knowledge was suddenly being made redundant. This is the issue which is grappling the educators in many a classroom and many of the educators are at a loss regarding how to deal with this intrusion.

The literature on education and educators is immense and covers a wide variety of issues. Almost all aspects of teaching and learning—quality education, teacher-related issues, standards, and so on—have been dealt with in various available articles. This chapter selectively reviews the literature, keeping in mind the objective of the research. In the Indian context, the commonly used classroom techniques are the case study methods, role-playing, and a sprinkling of video and audio. However, the student of today is a person born with digital life, and as such, developments in the digital arena are also touched upon to some extent.

One of the most pervasive methodologies of teaching has been the "Case Study Method". Case methodology has been a subject of scrutiny at various levels. Harvard Business School—the progenitor of the case teaching method—has a plethora of literature on case methods (Christensen & Hansen, 1987; Hammond, 2002; Raymond, 1996; Shapiro, 1985). Closer home, Arun Kumar Jain (2005) evaluated the case method, as used in Indian business schools, and argues that case methodology is highly context-specific in terms of effectiveness; hence the choice of cases should be contextual in nature. He further says that the case method can overcome the limitations of the lecture and create a more dynamic classroom scenario. Cases allow students to appreciate various viewpoints, identify workable ideas, arrive at a solution, and make learning fun. Similar effects of the case study method have been reported by other authors (Jakka & Mantha, 2012).

Similarly, Schwartz and Fajardo (2008) have looked at the impact of adding live voice and visual interaction with online learning systems in a bid to make the learning environment more impactful. They conclude that adding live voice and visual on the online classrooms make the students more engaged in the learning process. The impact of educational drama (and role-playing) has also been a subject of scrutiny in research. Educational drama, which is an experiential form of learning, has been seen to create real enthusiasm among participants and the participants reported it to be a very effective learning tool. A study in an Australian University found no difference between the perception of males and females toward educational drama with both groups believing it to be highly relevant and effective in the assimilation of ideas (Brennan & Pearce, 2009).

E-learning is also coming up in a big way with various schools and colleges trying to integrate the learning management systems (LMS) into their delivery mode. However, LMS seems to have a plethora of issues; one of which is relevant content. As such the implementation of LMS has not been successful in various places (Govindasamy, 2002). Another study carried out in Chemnitz University, Germany using Moodle LMS found that proper application of LMS improves learning by positively stimulating creativity and enthusiasm. It also found that the workload of teachers is reduced and the usage of LMS leads to better collaboration between the teachers and students. LMS vastly improves multimedia delivery making learning more engaging and fruitful (Tserendorj, Tudevdagva, & Heller, 2012). Another study on massively online open course (MOOCs) found that online classrooms lead to chaotic nature of interaction tends to put people off, but surprisingly found that about 45% of the participants on the MOOC platform were over 55 years of age. The study also found that even though there was high registration but only a handful of participants were active self-directed participants whereas others wanted the guidelines of the facilitators. The research concluded that interaction with the participants, facilitators, and fellow learners was the key to the success of a learner on an open online platform (Kop, Fournier, & Mak, 2011).

Gönül and Solano (2013) investigated the teaching of business mathematics in a blended environment consisting of online evaluations and offline lectures and found that students who regularly attended classes and scored high on homework tended to score relatively higher in the final examinations. They also found that online assignment assimilation and more time on completing homework do not correlate positively with the end term examination grades.

Obviously, when things are going digital can copy paste be far behind? A few studies have also dealt with this syndrome in a classroom environment (Duff, Rogers, & Harris, 2006; Maurer, Kappe, & Zaka, 2006). Copy paste has been described as "an act of performing a fast, easy and usually not diligently researched copying of passages of text" by people of all walks of life including scientists, journalists, academics, and students (Weber, 2006). This leads to various infringements such as plagiarism and Intellectual Property Rights (IPR) violations and lowers of the quality of presented material. Kulathuramaiyer and Maurer (2008) have argued that a holistic approach is required to address the problem of plagiarism and have proposed a learning ecosystem—Identify–Correlate–Assimilate–Rationalise–Express (ICARE) to address the issue of copy paste in an education system.

The development of computer-based games and their current avatars the massively multiplayer online role-playing games (MMORPG) like "Civilisation" and "World of Warcraft" have been found to increase the ability to process information very quickly and in parallel from multiple sources. These games also allow the students to determine what is and is not of relevance to them, quickly adapt to changes in the environment, and develop an ability to process information in a non-linear fashion (Bearison & Dorval, 2002). Simulation and SIM-based games like "SimCity" have also been seen to enhance education as they provide a playful extension to complex problems. This allows the learners to manipulate the various variables to understand the complexities of the model allowing for more realistic answers instead of looking for one "correct" answer (Klopfer, Osterweil, Groff, & Haas, 2009).

Software giant Microsoft conducted innovative multi-country research on education titled "Microsoft in Education (MiE)". In a report published by SRI International on the initiative, it found that the quality of a teacher's assignment is strongly related to the work that a student does and about 90% of the variance in student work scores was due to the difference in the task assigned to the student by the teachers. The report found an interesting effect called the "*ceiling effect*"—in which the students deliberately restricted the use of their twenty-first-century skills and did just enough to complete the assignment (Shear, Novais, & Moorthy, 2010).

Although the review of literature is not exhaustive, it is becoming clearer that the classrooms of today are more "active" and "engaged" than the classrooms of yesterday. Active learning environments have been associated with increased student motivation leading to self-regulated learning

(Garcia & Pontrich, 1996; Young, 2005). To be able to actively involve the students in such a dynamic classroom, the teachers of today must use a plethora of learning methods such as projects, class participation, experiential learning, presentations, case studies, social media, and so on. Another change that is creeping in is that the classroom is becoming more of a learner-centric classroom rather than teacher-centric. As such the focus of this paper is to understand how the students of today perceive the various aspects in their quest for learning.

Research Design

To understand the perception of the students toward various methodologies being used in the classroom, faculty members in various business schools were contacted and requested to provide a list of various methods and technologies that are being employed by them in their respective classrooms. Based on the responses received, a list of 20 activities was generated which captured the various methodologies being used in the Indian management schools. Based on the list of activities generated, a self-administered questionnaire was created and was sent out to the students currently studying in business management programs with a request to fill in the questionnaire provided in the link and forward the link to their friends and colleagues studying in other business schools in India. A total of 224 responses were received and 198 (88.3%) were deemed to be complete enough for further processing. The sampling procedure can be looked upon as a purposive sampling method using a web-based questionnaire. This method does have its limitations, but it was hoped that as the students were forwarding it to their friends studying business management and, therefore, the universe of the study would be restricted to the students of business management in India providing a representative sample. The analysis was done using Jamovi software (Jamovi Project, 2018). Jamovi is a frontend for R language and brings the functionality of drag and drop to the R computing language. The statements along with their means and standard deviations are presented in Table 13.1 along with the coefficient of variation. It was surprising to note that the highest variance was found in the "class notes" and "use of textbooks"—suggesting that the management students may be confused regarding the use of textbooks and utility of class notes.

On analyzing the correlation matrix, the maximum correlation was found to be between the attributes "live projects" and "debates and

Table 13.1 Statements used in the analysis

Code	*Statement*	*Mean*	*Std. deviation*	*CV (%)*
A01	Relevant videos and movies	4.106	0.898	21.86
A02	Role-plays	4.056	0.850	20.96
A03	Debates and discussions	4.354	0.870	19.99
A04	Live projects	4.556	0.846	18.56
A05	Group assignments	4.096	0.985	24.05
A06	Mental exercise	4.116	0.879	21.36
A07	Case studies	4.348	0.875	20.13
A08	Corporate success stories	3.919	1.014	25.88
A09	Experience sharing by corporates	4.278	0.883	20.65
A10	Industrial exposure	4.449	0.870	19.55
A11	Use of management simulation games	4.035	0.936	23.21
A12	Use of self-evaluation modules	4.141	0.924	22.30
A13	Interactive learning modules	4.242	0.832	19.61
A14	Class notes	3.753	1.040	27.70
A15	PowerPoint presentation in classrooms	3.874	0.961	24.80
A16	Use of research articles	4.106	0.920	22.41
A17	Involvement in research and analytics programs	4.096	0.990	24.18
A18	Use of text books	3.768	1.036	27.49
A19	Availability of printed material	3.722	1.007	27.05
A20	Interactive sessions with experts	4.202	0.907	21.58

Base: 198 respondents studying business management at various institutes

discussion" with a value of +0.759 and the minimum were between "PowerPoint Presentation in Classrooms" and "Use of Management Simulation Games" with a correlation of +0.123. Calculation of variance inflation factor (VIF) showed that all the VIF were between 1 and 4 and as such the dataset was clear of multicollinearity.

The reliability analysis was conducted using McDonald's omega and Cronbach alpha. The traditionally used Cronbach alpha had a value of 0.940 for the unstandardized variables and a value of 0.936 for standardized coefficients suggesting excellent internal consistency. However, as is well known, Cronbach alpha has several drawbacks. A high level for alpha may mean that the items in the test are highly correlated—which has been found to be untrue from the values of VIF. Alpha is also sensitive to the number of items in a test and a larger number of items can result in a larger alpha and vice versa. Another issue with alpha is that the addition of more items leads to an increase in alpha (Cho & Kim, 2015; Revelle & Zinbarg, 2009). Another method—based on estimating reliability in factorial analy-

sis framework is the omega (McDonald, 1999). The omega measure corrects the underestimation bias of alpha and different studies show that it is one of the best alternatives for estimating reliability (Revelle & Zinbarg, 2009). The McDonald's omega value was 0.943—again showing a high degree of reliability.

Data Analysis

To understand the underlying dimensions, exploratory factor analysis along with parallel analysis was employed. Parallel Analysis, developed by Horn (1965), is a method of extraction of underlying components based on randomly constructed datasets with the same number of variables and the number of subjects as the real correlation matrix being analyzed. The ordered eigenvalues are obtained for each correlation matrix constructed; these ordered vectors are then averaged to obtain the value expected for a particular (ordered) eigenvalue when generated from random data. Parallel analysis can minimize over-identification of factors based on sampling error and is superior to reliance solely on eigenvalue scores generated by factor analytic processes alone. Principal component analysis—which is the de-facto standard of selection of components—was not employed because the objective of principal component is dimension reduction and not the identification of latent constructs. Principal component analysis, furthermore assumes that the underlying constructs are formative in nature (Matsunaga, 2010).

Promax rotation was employed because it was suspected that the underlying factors may have a high degree of correlation with each other in the real world. Orthogonality of factors has been challenged by many authors as unrealistic in the real world scenario (Hetzel, 1996; Pett, Lackey, & Sullivan, 2003). Promax begins with a varimax solution and then raises the factor loadings to a stated power called kappa leading to better identification of the factors. The outputs of Promax rotation (kappa = 2) are presented in Table 13.2 along with the percentage of variance explained by the identified factors. For sake of interpretation, loadings having an absolute magnitude less than 0.30 were suppressed in the output.

Based on the output of exploratory factor analysis, five latent factors were identified and categorized. Looking deeper at the Promax output, it was evident that some attributes loaded on more than one factor. For example, "A02-Role-Plays" loaded equally well on factor 2 and factor 3. Similarly, "A15 PowerPoint presentation in the classroom" loaded on fac-

Table 13.2 Output of promax rotation

Code	*Statement*	*Factor*					*Uniqueness*
		1	*2*	*3*	*4*	*5*	
A01	Relevant videos and movies		0.575				0.525
A02	Role-plays		0.342	0.359			0.530
A03	Debates and discussions	0.751					0.251
A04	Live projects	0.788					0.284
A05	Group assignments	0.709					0.576
A06	Mental exercise	0.499					0.490
A07	Case studies	0.765					0.280
A08	Corporate success stories		0.923				0.344
A09	Experience sharing by corporates		0.683				0.451
A10	Industrial exposure		0.373				0.370
A11	Use of management simulation games					0.469	0.524
A12	Use of self-evaluation modules					0.699	0.339
A13	Interactive learning modules					0.684	0.306
A14	Class notes			−0.304	0.932		0.147
A15	PowerPoint presentation in classrooms	0.481				−0.307	0.669
A16	Use of research articles			0.654			0.277
A17	Involvement in research and analytics programs			0.947			0.170
A18	Use of text books				0.630		0.493
A19	Availability of printed material				0.546		0.524
A20	Interactive sessions with experts		0.375	0.359			0.352
	Percentage of variance	16.45	12.19	10.69	9.44	11.71	
	Cumulative percentage of variance	16.45	28.60	39.30	48.8	60.5	

tor 1 and negatively on factor 5 and "A20 Interactive Sessions with Experts" loaded almost equally on dimensions 2 and 3. A decision was taken to drop these three attributes from the study leaving 17 dimensions for further analysis. However, another issue arose on factor 3 which now had only two observed attributes. Although there is no hard and fast rule regarding

latent factors having two observed constructs, Bollen (1989) is of the opinion that such latent factors are more prone to estimation issues and, therefore, suggests to keep a minimum of three attributes per latent factor. Keeping this aspect in mind it was decided to delete factor 3 and the attributes "Use of Research Articles" and "Involvement in research and analytics program". The final set of extracted factors for confirmatory factor analysis—along with suggested factor names—are exhibited in Table 13.3.

Confirmatory factor analysis was conducted using the above attributes and factors. The chi-square test of exact fit reported a value of 214 with a 94 df and a p value of < 0.001. Other fit parameters are presented in Table 13.4.

Although several different fit measures are presented in literature and many authors suggest different cut-offs for fit indexes, little consensus seems to be there. The ideal requirements are presented in the second row

Table 13.3 Extracted factors for confirmatory factor analysis

DIM-1	*DIM-2*	*DIM-4*	*DIM-5*
Classroom learning	*Experiential learning*	*Traditional learning*	*Self-learning*
[A03] Debates and discussions	[A01] Relevant videos and movies	[A14] Class notes	[A11] Use of management simulation games
[A04] Live projects	[A08] Corporate success stories	[A18] Use of text books	[A12] Use of self -evaluation modules
[A05] Group assignments	[A09] Experience sharing by corporates	[A19] Availability of printed material	[A13] Interactive learning modules
[A06] Mental exercise			
[A07] Case studies			

Table 13.4 Fit measures of confirmatory factor analysis

	CFI	*TLI*	*SRMR*	*RMSEA*	*RMSEA 90% CI*		*AIC*
					Lower	*Upper*	
Model fit	0.946	0.930	0.0514	0.0738	0.0569	0.0906	242.846
Ideal fit	>0.950	>0.950	<0.0800	<0.0700	–	–	

of Table 13.5 under the heading "ideal fit". As can be seen from the table almost all the fit indices reported by the model are very close to the ideal fit. Hu and Bentler (1999) had also suggested a two-index presentation strategy in which they had suggested that a model may be considered to be a good fit provided any one of the following holds—(a) TLI of 0.96 or higher and an SRMR of 0.09 or lower, (b) RMSEA of 0.06 or lower and an SRMR of 0.09 or lower, and (c) CFI of 0.96 or higher and an SRMR of 0.09 or lower (Hooper, Coughlan, & Mullen, 2008). Based on the two-index strategy, the model presented confirms to the last alternative (CFI of 0.96 or higher and an SRMR of 0.09 or lower) and can be considered as a good fit. The factor loadings and factor covariances are presented in Tables 13.5 and 13.6, respectively.

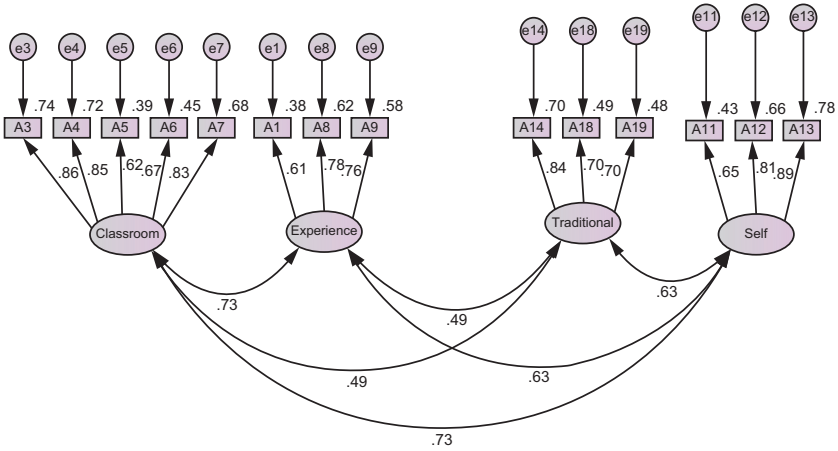
The path diagram is shown below in Fig. 13.1. The modification indices suggested that there is some scope of improving the model. However, deleting or joining variables without any strong theoretical or practical reason is frowned upon by many practitioners, and as such, it was decided to use the above model for explanation of what the Indian management students expect from the classroom.

Table 13.5 Factor loadings from confirmatory factor analysis

Factor	*Indicator*	*Estimate*	*SE*	*95% confidence interval*		Z	p	*Stand. estimate*
				Lower	*Upper*			
Classroom	A3	0.749	0.0506	0.65	0.848	14.8	<0.001	0.863
	A4	0.715	0.0496	0.618	0.813	14.42	<0.001	0.848
	A5	0.610	0.0654	0.482	0.738	9.33	<0.001	0.621
	A6	0.585	0.0573	0.473	0.698	10.22	<0.001	0.667
	A7	0.722	0.0521	0.62	0.824	13.85	<0.001	0.827
Experience	A1	0.549	0.0634	0.425	0.673	8.65	<0.001	0.613
	A8	0.794	0.0674	0.662	0.926	11.77	<0.001	0.785
	A9	0.673	0.0588	0.558	0.789	11.46	<0.001	0.764
Traditional	A14	0.869	0.0684	0.735	1.003	12.71	<0.001	0.838
	A18	0.725	0.0702	0.587	0.862	10.33	<0.001	0.702
	A19	0.699	0.0697	0.563	0.836	10.03	<0.001	0.696
Self	A11	0.609	0.0625	0.487	0.732	9.75	<0.001	0.652
	A12	0.749	0.0565	0.638	0.86	13.25	<0.001	0.813
	A13	0.735	0.0492	0.639	0.832	14.93	<0.001	0.886

Table 13.6 Factor correlations from confirmatory factor analysis

		Estimate	*SE*	*95% confidence interval*		Z	p	*Stand. estimate*
				Lower	*Upper*			
Classroom	Classroom	1.000						
	Experience	0.726	0.050	0.627	0.824	14.470	<0.001	0.726
	Traditional	0.490	0.068	0.357	0.622	7.230	<0.001	0.490
	Self	0.733	0.044	0.647	0.820	16.610	<0.001	0.733
Experience	Experience	1.000						
	Traditional	0.490	0.074	0.345	0.636	6.610	<0.001	0.490
	Self	0.629	0.061	0.510	0.748	10.350	<0.001	0.629
Traditional	Traditional	1.000						
	Self	0.632	0.059	0.516	0.748	10.700	<0.001	0.632
Self	Self	1.000						



Goodness of Fit: Chi-Square 146.846 with 71 df and p-value .000
Other Goodness of Fit Indicators: CFI .946 TLI .930 PRATIO .780 RMSEA .074 AIC 242.846

Fig. 13.1 Path diagram of the final CFA model

Implications and Discussions

The above output throws interesting light on what the students are looking from a classroom. Factor 1, which has been named as the "Classroom Learning", is composed of five attributes, namely, Debates and Discussions, Live Projects, Group Assignments, Mental Exercise, and Case Studies. Out of these Debates and Discussions, Live Projects and Case studies have the standardized estimates greater than 0.80 indicating that the students in the management classroom look forward to these activities for learning aspects. Amazingly enough, group assignments had the lowest estimate at 0.621 indicating that group assignments do not contribute significantly to the classroom learning. This may be because the students may feel discontent with the group assignments—as everybody and nobody owns the group. Many a group assignment have been reduced to PowerPoint presentations without any actual contribution to the learning process. This may have led to students to think of group assignments as another routine job without any ability to procreate learning.

The second factor named "Experiential Learning" consist of the following three attributes—relevant videos and movies, corporate success stories, and experience sharing by corporates. Again, it is seen that video and movies have a much lower contribution than the other two dimensions. This probably can be explained by the fact that the students at management institute may look up to the corporates as their role model and as such may consider "Corporate Success Stories" and "Experience Sharing" to be more beneficial to their overall learning.

The third dimension named "Traditional Learning" consist of the following three attributes—class notes, use of text books, and availability of printed material. All three attributes have loadings above 0.70 indicating that the Indian management student still considers the traditional inputs as a part of the learning process. The student has not been able to overcome the foundations of teaching which is laid in the Indian schooling system through textbooks and classroom notes. This is certainly a worrisome trend because management requires lateral thinking and the ability to correlate various dimensions. The straight-jacketing of the Indian student's minds from pre-management education days may be hampering Indian management students from reaching their full potential.

The fourth dimension has been named as "Self-Learning Modules" and consists of—use of management simulation games, use of self-evaluation modules, and interactive learning modules. Management simulation

games again load poorly indicating that management games are poorly integrated with the classroom learning structure. Experiences suggest that outside of top management schools in India, management games are not an integrative part of the curriculum in the Indian business schools. This needs to change because the management simulation games tend to develop contextual thinking and allow the students to understand the complex interrelationship between the various organs of an organization.

Looking at the correlations between the indicators it is seen that "Classroom Learning" and "Self-Learning" have a correlation of 0.733 followed by "Classroom Learning" and "Experiential Learning" are correlated with a value of 0.726. This high degree of correlation is indicative of the aspect that classroom learning is still the backbone of management students and that faculty members need to pay special attention to the classroom learning. Similarly, interactive experience with the corporates also leads to learning as it helps frame up the desired future direction. As such, students pay a high degree of importance to the sessions with corporates. This suggests that the management educators need to improve the classroom delivery by augmenting it with interactions with the corporates.

The research throws up important aspects of the classroom learning and has huge implications for teachers in the Indian context. Many a teacher in the Indian management schools tends to still deliver theory without relating them to other means of learning. This needs to change for effective delivery of material. Most importantly, educators need to induct various techniques—debates and discussions, live projects, group assignments, mental exercise, and case studies—in the classroom to create a better delivery mechanism. This needs to be aptly supported by exposure to the corporate environment and augmented with the traditional books and materials. Use of self-learning is not a forte of the Indian management system. This is not surprising because of the way the basic education had been delivered in the Indian context. Till about graduation levels (normally referred to as undergraduate program in rest of the world) Indian students are expected to follow a rigidly defined syllabus which places more emphasis on rote and rigid adherence to the prescribed syllabus. This kills the creativity and imagination of the students and by the time they arrive at the management schools they are well trained into the process. This is unfortunate as management students need to have spatial learning skills for being successful managers in the future.

The Indian management educator has a nearly impossible task at hand. Growing up in an environment where the teacher was considered the

source of knowledge, the educator must mold himself to a new classroom where he is a "facilitator" of knowledge as opposed to being the "disseminator" of knowledge. This role reversal may impact on his knowledge delivery skills. Further, he needs to assimilate different modes of knowledge delivery namely case study methods, group assignments, live projects, and so on. He also needs to spark the debate in the classroom while trying to ensure that the discussion does not go out of hand or offend the sentiments of the participants. This requires that the educator focuses on educating himself and keeping up to date with the current knowledge. The growing computer and digital skills need to be sharpened to be at par with the students and he needs to develop ways and means to outmaneuver the information flow on the net to keep the classes interesting and engaging. This increase in the workload may place severe cognitive and emotive pressure on the management educators and can be further researched. But the fact remains that the faster Indian educators get used to the changes—the better it would be for the management education system in India.

As for the limitations, it must be said that as the internet was used for data collection, the sample may not be very representative of the Indian graduate students and may suffer from a self-selection bias, which may have affected the outcome of the study. Nonetheless, the study provides interesting insights to the students and analyzes what they expect from teachers—especially in the management education context.

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CHAPTER 14

Values-Based Control in Land Acquisition for Infrastructure Projects

Suresh Mony and Narayani Ramachandran

Introduction

Land acquisition is one of the biggest roadblocks in the development of infrastructure projects in India. Mckinsey in their 2010 study titled 'Building India—Accelerating Infrastructure Projects' had attributed 50% of the delays on infrastructure projects in India to land acquisition proceedings which was the subject matter of archaic laws that originated during the British rule. In order to expedite the land acquisition process, the United Progressive Alliance (UPA) government passed a Fair Compensation and Transparency in Land Acquisition Rehabilitation & Resettlement (LARR) Act, 2013. While LARR 2013 was perceived as competent, consultative and participatory, it was criticized by the opposition legislators in parliament as well as industry for including complex procedures and fixing arbitrary land prices that could lead to unending litigations. Both industry and state governments were wary of projects stalling due to increased consent require-

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ments, compulsory Social Impact Assessment (SIA), increased project costs due to high land compensation rates and rehabilitation and resettlement (R&R) package for displaced families.

When the ruling National Democratic Alliance (NDA) came to power in May 2014, they bowed to the pressure of industry and diluted some of the progressive clauses in LARR 2013. The specific clauses include the requirements of the mandatory SIA study of projects in the areas of defense, rural infrastructure, affordable housing, industrial corridors and social infrastructure projects, which included public-private partnerships (PPPs). Consequently, public protests erupted, parliament proceedings were stalled and since they could not get the bill passed, the NDA government got an ordinance promulgated titled the Right to Fair Compensation in Land Acquisition, Rehabilitation and Resettlement (RECTLARR) Ordinance 2014.[1] Owing to continuing protests by social activists and strident opposition in parliament, the government adroitly added a provision in the ordinance permitting the states to pass their own laws. Thus, the ordinance has died a natural death and implementation of land acquisition has fallen squarely on the shoulders of the states.

The Government of India (GoI) claims that land acquisition delays have come down and a number of stalled projects have been revived. However, there are reports that many government departments are sidestepping RECTLARR-based land acquisition citing exorbitant costs-both compensation for land and the associated Rehabilitation and Resettlement (R&R) costs (Times of India). The new legislation is an approach to induce appropriate behavior amongst various stakeholders including government entities, private players and people affected by compulsory land acquisition which in management control terminology is called 'behavioral control'. Is this form of control enough, that's the moot question? This point has been examined from the risk perspective in this paper which is presented in four sections. Section "Introduction" focuses on the risk contours of land acquisition and the conventional control system thereof and section "Management Control Systems (MCS) for Land Acquisition" looks at the conventional control mechanisms and their inadequacies. The following section "Evaluation of Risk Drivers vis-à-vis Laws Related to

[1] The Parliament of India is the supreme legislative body of the Republic of India. The Parliament is composed of the President of India and two houses: the **Rajya Sabha** (Council of States) called the Upper house and the **Lok Sabha** (House of the People) termed as Lower house.

Land Acquisition" evaluates the risk drivers in the land acquisition process, section "Supplementary Control Mechanism-Values Based Control Approach for Land Acquisition" introduces the concept of Values-based control (VBC) as a supplementary control mechanism and section "Conclusions" presents the findings and suggestions for further research.

Management Control Systems (MCS) for Land Acquisition

According to Lowe (1971), MCS emanates from the need to tackle internal and external risk/uncertainties apart from needs such as ensuring goal congruence between organizational objectives and managerial members and monitoring human effort/resources while achieving the given set of objectives. Risks affect the ultimate goal/objective and hence have to be managed effectively and efficiently which calls for a sound MCS. Land acquisition delays are a major risk in the Indian context as stated in the Introduction and hence the need for an effective MCS assumes immense significance.

Risk Factors

Al-Bahar and Crandall (1990) introduced the term 'uncertainty' as the likelihood or probability of the occurrence of an event and defined Risk in project management terms as '*the exposure to the chances of occurrences of events adversely or favourably affecting project objectives as a result of uncertainty*'. Thus, if an event is certain to occur the probability of uncertainty is zero and there is no exposure to risk; on the other hand if say, the probability of land acquisition delays are 50%, then the project is exposed to land acquisition delay risk with a 50% probability of the risk event happening. Li (2003) introduced three categories of risks namely (a) Macro level exogenous risks which are external to the project at the environment level—national, political, legal (b) Meso level endogenous risks relating to project level implementation and (c) Micro level endogenous risk relating to stakeholder relationships such as conflicting objectives of the public and private partners—social welfare of government versus profiteering by private partner. Ng and Loosemore (2006) categorized risks into project-related risks which are linked to macro environment and general risks which are internal to PPP projects and said that the importance of each risk depends on the project and contractual environment.

Perspective of Risk vis-à-vis Land Acquisition

To meet the major macroeconomic goal of sustained (+7%) growth, infrastructure is a key driver and its rapid development is one of the primary goals of Government of India (GoI). The essence of the contextual macro level risk perspectives is:

Macro level (government)	
Risk event	Slow infrastructure capacity creation
Risk driver	Delays in land acquisition for infrastructure projects
Impact	Drop in GDP growth
Impact driver	Inadequate infrastructure capacity

Further, land acquisition could be delayed due to non-readiness on the part of land owners to part with land. This would then be the risk event and the risk perspective at the meso level would appear thus:

Meso level (project)	
Risk event	Non-readiness of land owners to part with land
Risk driver	Unfair compensation ratesSocial/human costs of displacement
Impact	Not obtaining consent of minimum 80% land ownersOpposition from community against displacement
Impact driver	Trade-off between returns from sale of land and long-term sustainability

Control Mechanisms

Ouchi (1979, 1980, 1981) posits that there are three forms of control to achieve organizational objectives: *outcome-based control*, where compensation is on the basis of the outcome; *behavior-based control*, that entails monitoring behavior; and *clan control*, which involves control via the implementation of social norms. Outcome-based control and behavior-based control could be viewed as contracting mechanisms between principals (shareholders, top management, etc.) and agents (subordinate managers, brokers for land, etc.) that help to minimize the divergence/conflict of interest between them (Eisenhardt, 1985, 1989; Ouchi, 1979, 1980).

Behavior Control and Outcome/Output Control

Ouchi (1979) states that if control in organizations is about monitoring, evaluation and feedback, then the question is what is it that is being monitored and evaluated? He elaborates that only two kinds of phenomena can be monitored or measured, namely behavior and outputs resulting from behavior. Behavior control is achieved through processes, rules/regulations. Having to meet legal requirements prescribed by law, adherence to contractual clauses such as timely exchange of information, timely submission of designs/drawings and progress/MIS reports, conduct of meetings and minutes thereof are all examples of behavioral control. Ouchi (1977) states that for behavior control to be applied, '*the organization must possess at least agreement if not true knowledge about means-end relationships*'. Behavior control works best when output measurability is low but task programmability is high, that is, the managers have sufficient knowledge of the process of transformation from inputs to outputs; whereas in output control, knowledge of process transformation is not required but a reliable and valid measure of the desired outputs should be available (Ouchi, 1977). Since land acquisition is subject to the vagaries of human action and reaction, output measurability is low necessitating a law for controlling behavior. On the other hand for construction, it is possible to lay down clear project specifications/deliverables which implies outcome/output-based controls. While outputs measure the quantity, quality and timeliness of the infrastructure service and are in the short term, outcomes measure the intermediate results (in the medium term) generated by the project outputs including change in people's behavior (if any).

Clan/Social Control

According to Eisenhardt (1985), the essence of 'clan control' is minimizing the divergence between organizational preferences/views which would lead to members cooperating in the goal seeking activities thereby achieving goal congruence. This is enabled through selection, training and socialization that lead to members internalizing goals. The same principle can be applied to a PPP where goal congruence between the private and public sector partners is desired. With respect to land acquisition, convincing land owners may not be entirely possible by the private partner who may require the support of the government in talking to the land owners, village headman, panchayat and so on. Therefore, even if the responsibility

of land acquisition rests with the private partner, governmental support through mutual interaction and socialization to get a grip on the issues involved and support for land acquisition, statutory approvals are essential. Through socialization, partners become more committed and share views to influence the members. Social control thus reduces perceived relationship risk as well as perceived performance risk. It is appropriate when both output measurability and knowledge of transformation processes are low.

Efficacy of Control Mechanisms

Lebas and Weigenstein (1986) state a general approach to control should revolve around the following factors:

- **Markets**—external market forces control managerial behavior and hence the use of policies like transfer pricing, variable management compensation
- **Rules**—involves input controls through externally imposed procedures such as planning, budgeting, adherence to law together with outputs that are measured such as performance reports, variance analysis, and
- **Culture**—something nebulous that through shared vision enables members of the organization to internalize goals, policies, rules and procedures obviating the need for internal supervision.

Lebas and Weigenstein (1986) studied these with respect to Hofstede's work-related value characterization, and concluded that although no one approach to control can be seen as superior, organization size, industry characteristics, technology, cultural context affect the nature of MCS. More importantly, they added that in the evolution of MCS there has been a lessening of rules-based controls. The future portents are increasing emphasis on controls embedded in organizational culture and the market and cultural approaches because of the following factors:

- Slow response times of the rules-oriented approach,
- Increasing environmental uncertainty, and
- New technologies and changing attitudes to work.

The clan/social control mechanism and culture-based controls posited by scholars are with respect to internal organizational members. Land acquisition necessitates controlling the behavior of external members such as landowners, project affected families, village panchayats and as such, clan/social control mechanism is not relevant.

Evaluation of Risk Drivers vis-à-vis Laws Related to Land Acquisition

The prevailing law relating to land acquisition is critically analyzed in the context of the risk drivers namely, compensation policy resettlement and rehabilitation.

Shortcomings of Compensation Policy

The world over, compensation for displaced persons has generally been through payment in cash or kind and is given only to those with undisputed legal title (Bartolome et al., 1999). Tenants, sharecroppers, wage laborers, artisans and encroachers are out of the ambit of compensation. However, paradoxically, they are most vulnerable and severely affected. Loss of community assets and common resources like grazing lands and forests are also not being accounted for while determining the compensation. Non-land owners engaged in agriculture who are among the poorest do not receive any compensation for their livelihood and more importantly the displaced persons/families, hereinafter referred to as project-affected families (PAF) are not in a position to challenge the government decision on compensation as they are unaware of their rights as well as the legal nuances and cannot afford expensive litigations.

The general practice has been to fix compensation for loss of fixed assets like agricultural land at the prevailing market rate calculated at an average of registered sale prices in the recent past. This is value in exchange rather than value of replacement. The erstwhile policy as per the 1894 Act assumed the displaced person to be a willing seller and accordingly compensation was deemed only the market value of property on the presumption that it is a sale–purchase agreement. However, this in itself is questionable since the displaced person far from being a willing seller is one who has been forced to sell and therefore the policy based on compensation merely for loss of property is blatantly unfair. Further, several

studies have shown how cash compensation is depleted by a PAF in a short period for repayment of old debts, in liquor and conspicuous consumption, thus lifetime livelihood and shelter is squandered within weeks or months. Compensation thus addresses only the loss of assets but not the loss of rights of individuals.

In view of the shortcomings of the archaic compensation policy, RECTLARR 2014 fixed compensation at four times the market rate in rural areas and twice the market rate in urban areas in addition to R&R package. Kelly (2010) argues that the proposed rates of compensation may benefit owners of large tracts of land who may get exorbitant sums but would not significantly benefit those having smallholdings. On the other hand, critics from industry opine that the proposed rates are too high, but Medha (2015) opines that past experience indicates that the real (unrecorded) market price within India could be 10 times the official rates. Hence, the policy norms of 2–4 times the market price appear arbitrary-one is not sure whether the PAFs are getting a fair deal and at the same time industry and government administrators perceive it to be exorbitant. In the USA and UK, the 'just' compensation policy is followed wherein it is deemed that the seller receives as much compensation to render him in a position as if the land was not taken away from him, that is a compensation that is not less than the loss imposed on him and also not greater than the loss.

Shortcomings of Rehabilitation and Resettlement (R&R) Policy

Displacement

It can be defined as 'Uprooting of communities and individuals out of their homes/ homeland for the purpose of economic development'. At the international level, it is treated as violation of human rights. Governments justify displacement in the larger national interest citing the long-term good that merits sacrifice of a few in favor of the larger group. Vora (2009) quotes Jawaharlal Nehru[2] (India's first prime minister) as having said to the people affected by the Hirakud dam '*if you are to suffer, you should suffer in the interest of the country*'. On the other hand, the World Bank views displacement '*as a result of a model of development that*

[2] Jawaharlal Nehru was the first Prime minister of independent India and had a 17-year tenure from August 1947 to May 1964.

enforces certain technical and economic choices without giving any serious consideration to those options that would involve the least social and environmental costs'. Most displacement in the world has been forced on the people without their meaningful participation in the planning and implementation of R&R aspects. More often than not, the displaced/affected people are the last to receive information on the project which in itself is very limited.

Kelly (2010) says that the element of 'sacrifice for the public interest' is key to the thinking that has influenced displacement and softened the disorientation that causes immense physiological, psychological, social, cultural, economic and ecological damage to the PAFs apart from loss of land, resources and livelihoods. Therefore, it appears logical to expand resettlement objectives beyond improving the current standard of living of the PAF by offsetting the above damages and moving toward a just R&R package. Various movements led by social activists around the world have challenged this perspective of displacement with physical relocation at the core of the remedial measures. They have vehemently argued that the alienation of individuals and the community and the loss of legal and customary rights and dislocation of the socio-economic organization is not accounted for. Bartolome et al. (1999) state that displacement refers not only to those who are forced to physically relocate to facilitate the project, but also those who are displaced from their resource base and livelihood through loss of land and disruption of socioeconomic relationships. Cernea (1998) states that risks subjected on PAFs are not a component of conventional project analysis and adds that forced displacement tears apart the existing social fabric leading to social, and cultural disarticulation. The loss of economic power with the breakdown of complex livelihood systems leads often to irreversible decline in living standards and marginalization of the PAFs. In recent years, the subject matter of debate is not so much on the magnitude of suffering but on the morality thereof; Sathe (2015) argues that whether people suffer willingly is a moot point and states that of late, the entire discourse of development has changed and that it may not be morally right to ask people to sacrifice even in public interest.

Resettlement and Rehabilitation

The import of the term resettlement which involves physical relocation of the displaced population is quite obvious. Resettlement has its set of socio-economic risks outlined in section "Displacement" and accordingly

Rehabilitation is envisioned as a process that would reverse the risks of resettlement. Jain (1999) states that rehabilitation is only possible 'when development takes place' and thus resettlement must be planned as an integral part of the comprehensive development project. In other words, rehabilitation is an outcome of resettlement that is conceived not merely as physical relocation/restoration of incomes but as development. To understand development in the context of R&R, Dreze and Sen (1996) say that 'in terms of real freedom that citizens enjoy to pursue their objectives, they have reason to value and in this sense an expansion of human capability can be broadly seen as a central feature of the process of development'. Therefore, the resettlement program in order to qualify as development should revolve around (a) enhancement of capabilities (b) expansion of social opportunities by addressing social and personal constraints that restrict people's choices. The success of a development program would thus not be measured in terms of the impact of income/compensation but on more tenantable benefits like loss of mortality, morbidity, increasing level of education increasing income through opportunities for employment and livelihood and more importantly participation of the displaced people in the decision-making process. The need is to move from the context of forced evictions or involuntary resettlement to the scenario where displacement is voluntary and takes place on the basis of negotiated agreement between developers and the affected people.

R&R Plan by Looking Through the Lens of the Displaced

Human displacement has multi-dimensional impacts, it leads not only to loss of property but also to loss of sources of livelihood, disruption of socioeconomic relationships and comfort factors such as access to places of worship, schools, medical facilities as well as community oneness. Arising out of these, some of the major aspects that need to be considered while designing a R&R package are:

- Land owner-centricity to be replaced by 'Affected families' that would include, apart from the landowners, tenants, agricultural or non-agricultural laborer, landless person, rural artisan or self-employed person
- Anyone who is deprived of carrying on his job and/or opportunities for self-employment to be compensated for loss of livelihood

- Education/measures to obviate possibilities of poor people who suddenly see large sums of money from squandering through actions like excessive drinking
- Provide for loss of future appreciation, that is to compensate landowners for the increase in future prices as a result of development
- Sustainability of resettlement measured across objective indices and subjective criteria as employed by those relocated.

van der Ploeg and Vanclay (2017) view project induced displacement and resettlement as a Human Rights issue and identified a set of human rights from key documents and instruments and named it as the Human Rights-Based Approach to Resettlement (HRBAR). They evaluated HRBAR and the standards outlined by the International Finance Corporation (IFC) and recommend avoidance of displacement and where avoidance is not possible minimization of displacement and most certainly, avoidance of forced eviction. Meaningful participation of the affected communities in the design of the R&R plan and obtaining their prior consent with a view to minimize adverse social, environmental and economic impacts is according to them an essential prerequisite. Implementation of the R&R plan would entail providing full and fair compensation for loss of livelihood, restoring and improving access to essential public services at resettlement sites and ensuring that resettlement activities are adapted to vulnerable groups.

Supplementary Control Mechanism: Values-Based Control Approach for Land Acquisition

The objective of GoI while enacting the RECTLARR 2014 was to ensure minimum delays in respect of land acquisition, a major risk factor hindering infrastructure development and thereby satisfy the strategic need of faster economic development. Through RECTLARR 2014, GoI aimed to arm the major stakeholder groups, industry, administrators, farmers/land owners in the project area and other affected families with an appropriate behavioral control mechanism through law that would shape their individual and group behaviors and act such that individual/group needs are satisfied and the national objective is concurrently met. However, as cited in the Introduction, behavioral control mechanism through law alone has not been found to be entirely useful in attracting private industry to invest

in infrastructure PPPs and nor has it sufficiently incentivized owners of land in project areas to part with land from the viewpoints of 'just compensation', living standards and sustainability. Therefore, other supplementary forms of control are required to arrive at a win-win situation. At the same time, it is not as if no land has been compulsorily acquired, or that projects have been at a standstill and the displaced population have been totally unhappy and outraged. There have been a number of instances of PPP projects successfully overcoming the hurdles to the fullest satisfaction of various stakeholder groups. Ashwin Mahalingam and Vyas (2011) after evaluating land acquisition and compensation processes in the world state that while there is no 'single best' process, number of innovations are possible and many such examples are available from India. Accordingly, these examples serve as experiential cases to study alternate control mechanisms.

Innovative Approaches

In the following projects, closure of land acquisition was successfully achieved with actions/decisions outside the purview of law and to the satisfaction of buyers and sellers.

- *Tamil Nadu Urban Development Project (TNUDP) Phase III*

  In this project anchored by the Chennai Metropolitan Development Authority (CMDA) and funded by World Bank, a government order was issued by the Government of Tamil Nadu (GoTN) to constitute a committee to negotiate and assess land values. This order empowered the committee to go beyond guideline values, sale deeds and code provisions to determine the compensation to be awarded to affected stakeholders. Land owners were compensated between 142% and 150% of the guidance value plus a building allowance at 25% of the compensation, plus subsistence allowance at Rs. 1800 per month for six months, plus a shifting allowance of Rs. 1000 and compensation for lost assets.

  The guidance values were generally lower than the true market value as sellers and buyers suppressed transaction value to save on stamp duty. Thus, the true value was not provided to the owners and besides the compensation was lower than the World Bank mandated 150% of guidance value. Yet, there were no protests or court cases, primarily because the PAFs were involved in the negotiations, the

process was transparent and the apprehension that if the Land Acquisition Act was followed, the compensation would be lower and disbursements would take longer.

- *Bangarmau Bypass*

  For the acquisition of 202 hectares of land for the Asian Development bank (ADB) funded Bangarmau Bypass, the Government of Uttar Pradesh (GoUP) passed an order in 2005 permitting negotiation with the landowners. Consultations were held with local NGOs to calculate land values. Using the registered prices of land for the preceding five years, prevailing circle rates, and the agricultural productivity rate (with a multiplier for 20 years), the land values were determined. A multiplier of 20 was employed which was made possible by the Government Order (GO) and attractive compensation values were achieved through the agricultural productivity rate which satisfied dispossessed landowners (ADB, 2007).
- *Surplus-Reallocation Model—Rajasthan*

  In practically all cases, the land prices increase after development and this benefit, which does not accrue to the erstwhile/dispossessed landowners but accrues to those residing on the fringes of the project area causes heartburn. From a 'Just compensation' point of view, this is unfair. To counter this issue, Dan, Guhathakurta, and Gupta (2008), propose that surplus land be acquired than what is actually necessary for the project and this excess land, which is likely to be more valuable, post-development, could be reallocated to the displaced people. This model, followed by the Urban Development and housing department of Jaipur has allowed landowners to benefit from an increase in land values (Gupta, 2008).
- *Land Pooling and Share Ownership, Pune*

  To build Magarpatta city, a cybercity-cum-residential complex near Pune, 123 farmers pooled together 400 acres of farmland along with a private limited company. They continue to own the land, own shares in the company and collect dividends on these shares as well as rents from the tenants in the city (Magar, 2008). This is an outstanding example of a win-win situation for the dispossessed and developers.
- *Land Readjustment and Pooling, Gujarat*

  Herein, planning authorities acquire and 'pool together' a group of adjoining lands and then replan the entire area such that land parcels are provided for infrastructure, civic amenities and development

projects, and land is allocated to the erstwhile landowners (Ballaney, 2008). Thus, there is no forcible acquisition of land and exploitation of the erstwhile land owners.

- *Salboni, Bengal*

  JSW Steel offered landowners cash compensation, shares in the project company as well as one job per family (Kakani, Raghu Ram, & Tigga, 2008).

  In addition to the above innovative solutions that have been practiced in India some of the other solutions that have merit include:

  – *Unlocking land value*: If the increase in land prices is considered as unlocking of land value due to development, then this extra value could logically be allocated between the landowners, the government and private developers. Eckart (1985) suggests employing Shapely value solutions, a game theoretical method that develops a basis for the equitable allocation of such excess land value.

  – *Voluntary sale*: An alternative to displacement/compulsory acquisition is to negotiate with landowners to acquire some of the parcels of land out of several potential parcels for development. Landowners have the option to retain their holdings if they so wish and developers will then pursue other land parcels. This approach permits negotiations to proceed within a competitive framework and ensure that sale prices reflect market realities. Since sale is voluntary, it aids in augmenting the satisfaction quotient of land owners.

  – *Stock options*: To counter the argument against unfairness of compulsory land acquisition, loss of future profits an approach suggested is the provision of common stock in the project company/PPP for subsequent distribution directly or as stock options to people whose lands have been acquired for the development. Herein, over and above a fixed compensation, displaced land owners are able to participate in the benefits accruing from the development venture and would be 'partners' in the venture. The shortcoming of this approach is that returns from shares are futuristic especially with long gestation infrastructure projects and developers often buy back the shares at very low prices at the start of the project, depriving the displaced parties of a share in the long term returns.

The foregoing examples illustrate that innovative solutions leading to win-win situations are possible provided officials from government and industry empathize with PAFs, exhibit a value-mindset in which social responsibility and justice are paramount. This is corroborated by Sathe (2016) who says that while farmers have been accused of being rigid in not parting with their land, he finds that farmers are willing to sell land if the compensation is fair and that farmers increasingly want to move out of agriculture and look for alternate opportunities. Therefore, if they are given a fair compensation and accepted as partners, more and more farmers would be willing to sell land. He also finds that concurrently the State has become more accommodative particularly because of the pro-farmer/pro-people movements led by social activists. However, all these examples pertain to land acquisition and are centered around tackling land acquisition/owners of land. The question of fair resettlement and rehabilitation of other stakeholders namely tiller of the soil, laborers, sharecroppers, tenants and artisans is yet to get the desired attention. Two projects, which focused on these neglected stakeholders, were the Krishnapatnam port in Andhra Pradesh and the Vadodara Halol highway in Gujarat. In the Krishnapatnam port, the public-private partnership has:

- Proactively carried out a survey of the needs of the villagers
- Provided jobs to youths in local areas
- Provided rehabilitation package and civic amenities to the displaced families
- Created a security force by coopting local fishermen youths as security guards, and giving other facilities including training facility by retired army officers and,
- Established kitchen establishments, for example, Pickle making units where women from the coastal community could find employment.

In the Vadodara Halol Toll Road (VHTRL) project, the Environmental and Social Impact Assessment study estimated around 300 families to be affected by this project. A systematic analysis of various alternatives was undertaken and bypasses were introduced at various critical locations. The extent of resettlement was hence reduced and resulted in the resettlement of only 10 project-affected households. VHTRL also undertook voluntary relocation of temples, schools and environmental infrastructure and created additional facilities such as pedestrian subways and compound walls and provided additional houses for the relocation of the community. This

project was designated by the World Bank as a 'best practice' example for its environment risk mitigation and social rehabilitation plan in India amongst World Bank assisted projects.

Applying a Values Mindset to Land Acquisition

Durkheim (1897/1964) and Weber (1905/1958) opined that values were crucial to explaining personal and social organization and change. Schwartz (1992) filled the gap of an acceptable construct and proposed the theory of basic individual values in which he identified ten values that are recognized by all cultures. Schwartz defined basic values as '*trans-situational goals that vary in importance and serve as guiding principles in the life of a person or group*'. The ten values have different motivations but are related, some are compatible while others conflict with one another. Comprehension of the values can expand decision making, attitudes and behavior.

Schwartz (2012) characterizes values as being beliefs, desirable goals that motivate action, as transcending actions, serving as standards for guiding selection or for evaluation, as having relative order of importance; and the relative importance of multiple values guides action. The motivation expressed by each value distinguishes them.

Schwartz enunciated ten values namely, power and achievement under the broad category self-enhancement; hedonism, stimulation and self-direction under the category 'Openness to change'; universalism and benevolence in the category 'Self-transcendence'; and conformity, tradition and security in the category 'Conservation'. The above values in the order mentioned are adjacent to each other and in a continuum. Across countries, societies and cultures, Schwartz found that Benevolence, Universalism and Self-direction are most important while Power and Stimulation were least important. Campbell (1975), Parsons (1957) and Schwartz and Bardi (1997) posit that in view of the adaptive functions of values in maintaining societies and the commonalities in human nature, the pan cultural similarity in the hierarchy of values is not surprising but is to be expected as the basic social function of values is to motivate and control the behavior of group members (Parsons, 1957).

Of these, the values that are relevant to evolving a control mechanism in the subject matter of forced land acquisition are security, conformity and universalism as exhibited in Table 14.1:

Table 14.1 Values relevant to evolving control mechanism for forced land acquisition

Value/s	*Motivations*
Security	Preserving existing social arrangements that give certainty to life
Conformity	Subordination of self in favor of socially imposed expectations
Universalism	Transcend selfish interests and look to transcend others interests

The above three values have a social focus. Schwartz et al. (2012) view security as composed of two facets namely personal security that relates to one's immediate environment and societal security that is concerned with safety and stability of the society at large. It is the latter interpretation that is relevant while dealing with compulsory land acquisition. Leaders/senior managers from both government and industry who possess the Security value such as in the VHTRL project would ensure that minimum resettlement is necessitated. Further, Schwartz et al. (2012) look at Conformity from two angles, rules conformity, that is compliance with rules, laws and formal regulations; and interpersonal conformity that is avoidance of upsetting or harming other people. Both these are important values to be possessed in the land agreements and R&R, respectively. In the TNUDP, the officials concerned did not display the conformity to rules value since despite a World Bank mandate of compensation of minimum 150% of guidance value they contracted with landowners at 142–150%. Schwartz et al. (2012) describe universalism as comprising Universalism-concern which is commitment to equality, justice and protection of all people; Universalism-nature which is preservation of the natural environment; and Universalism-tolerance that is acceptance and understanding of those who are different from oneself. Universalism-concern was exhibited in the Bagarmau Bypass project, by the Jaipur Urban Housing Development Authority, in the Magarpatta cybercity project in Pune, in the Gujarat projects where land readjustment and pooling was done, in the Krishnapatnam Port PPP and by JSW Steel at Salboni in Bengal. In these projects, the officials transcended selfish interests and took care/protected the interests of the displaced population. In some cases such as in the Magarpatta cybercity, the displaced population would potentially get more than they could have ever dreamt of-this is akin to 'customer delight' in marketing terminology.

Taking R&R as an integrated package, the values that merit adoption by implementers of projects are mapped below with the essential steps involved as per the guidelines of the International Finance Corporation (IFC):

R&R activity	*Influencing value*
Selection and preparation of resettlement site	Conformity-rules Security-social
Influx management	
Socialization with host community	Security-societal Universalism-tolerance
Relocation schedule and assistance	
Physical movement of people	Security-societal
Temporary arrangements	Security-societal
Facilities for women including those pregnant	Security-societal
Replacement of services and enterprises	
Social services	
Schools	Conformity-interpersonal
Hospitals/clinics, Shops, etc.	Security-societal
Livelihood restoration	
Land based	Security-societal
Wage based	Universalism-concern
Enterprise based	Universalism-concern

Although it appears that values of security and universalism primarily protect the interests of a different section of society, with whom one does not share a relationship/bond, project implementers should realize that ultimately pursuit of these values are in their own interest in terms of realization of goals. Values-based approach could be detrimental to their goals by way of opposition from the community that stymie project implementation plans. Thus, the Values-based approach is a control mechanism as much as the behavioral, or outcome/output controls albeit of an informal nature but decidedly superior in the context of risks presented during land acquisition. It is different from the informal clan/social control mechanism put forward by Ouchi (1979, 1981) and control through culture posited by Lebas and Weigenstein (1986) as their writings focus on motivating the behavior of internal organizational members toward goal congruence; they have not dwelt on tackling external (displaced) members of society. Thus, the essential difference between the Social control mechanism postulated in literature and the Values-based control posited by us is that the former mechanism targets organizational members only through

the medium of organizational policies and organizational culture leading to a shared vision. Such policies would potentially promote appropriate behavior, whereas the latter targets external societal members (landowners/displaced population) through the medium of internal organizational members exhibiting values of security, conformity and universalism. With particular reference to R&R, the Values-based control approach would result in a graduation from the existing 'value for exchange' principle to 'value of replacement'.

In his treatise 'Levers of control', Simons (1995) propounded the concept of 'Belief Systems' wherein organizational values and culture shape behavior of employees. If the Security, Conformity and Universalism values are incorporated in their Belief systems, infrastructure implementing organizations would find it easier to tackle the challenges of land acquisition together with R&R.

Conclusions

We started off questioning the adequacy of the prevailing law in India for managing the risk of non-readiness of land-owners to part with land required for public purpose. We examined the conventional control systems and found that they were not adequate to deal with external uncertainties thrown up during land acquisition. There are shortcomings in the compensation policy as well as R&R. Officials tend to neglect the fact that the sale of land by the displaced is not voluntary and hence mere market rates or some multiple thereof is not fair as their lives are uprooted. Besides, non-land owning PAFs are more badly affected through loss of jobs drastically impacting their livelihoods. Rosanas and Velilla (2005) after reviewing the conventional literature on MCS concluded that '*the illusion of control can mislead managers into believing that everything can be controlled and monitored*'. But in practice, this does not happen and based on personalized phenomenology they showed that the development of technical and moral values is crucial to the long run survival of companies.

Despite the shortcomings in the law, many projects have managed to successfully complete land acquisition. An examination of the solutions employed in these projects reveals a fair and humane approach toward achieving the goal of 'just compensation' based on discussions and negotiations. These projects served as logical cases for analysis. We related the actions employed for finding solutions in the projects and linked them to Schwartz's (2012) theory of basic values wherein he has characterized values as beliefs that motivate action. Out of the ten values propounded by

Schwartz, we identified three values that eminently described the actions that led to satisfactory solutions during land acquisition. These values are (a) Security—preserving existing social arrangements that give certainty to life (b) Conformity—subordination of self in favor of socially imposed expectations and (c) Universalism—transcend selfish interests and look to transcend others interests. If leaders and managers from industry and government can imbibe these values, much of the risk of delays during land acquisition can be mitigated. We, therefore, believe that in addition to the Behavioral, Outcome/Output and Clan/Social control mechanisms in management control literature, there is need for the Values-based control mechanism (VBC). VBC is not meant to be a substitute but would supplement the conventional control mechanisms. We have postulated VBC as a control mechanism based on live cases in India. There is scope for further research by studying the impact of VBC on project productivity that is efficiency of project completion as well as the impact on living standards and sustainability. We believe that VBC is applicable wherever there are issues like land acquisition challenges in developing and developed countries and particularly where the support of external members of *society/community is crucial to project implementation.*

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PART V

Marketing Management and Enterprise Effectiveness

CHAPTER 15

Developing Scale to Measure Perceived Brand Literacy of Consumer Products: An Empirical Experiment

Ananya Rajagopal

Introduction

Bengtsson and Firat (2006) defined brand literacy as the ability of the consumer to interpret the strategies used by the companies in the marketing practices. This can be achieved through introducing, maintaining, and reformulating brands and brand images, and enable the consumer to engage with these processes within their cultural settings (Bengtsson & Firat, 2006). The theory of brand literacy accounts for the stages involved in gaining fluency in reading and internalizing brand meanings. Brand literacy focuses on a form of consumer acculturation, for example, the ability of consumers to interpret the brand meaning, as it is communicated in advertising signs, retail spaces, and packaging (Oswald, 2010).

As explained by Stern (2006), it is important to understand the introduction of brand in the market as it plays a significant role in brand literacy among the consumers. Michel (2017) explains that a brand can have

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multiple brand meanings that stimulate consumer-learning process on brands. As explained by Berry (2000), brand meaning refers to customers dominant perceptions of the brand. Brand meaning both culturally and contextually influences consumers to derive the perceived meaning of the brand (Tierney, Karpen, & Westberg, 2016). Hence, consumers might derive the meaning of brands most suitable to them. Various concepts have emerged gradually on brand literacy, as shown in Table 15.1.

It may be observed from discussion presented in Table 15.1, that brand literacy includes brand image, brand meaning, and brand attributes. The above table exhibits the timeline of evolution of the brand literacy concept through which the brand literacy definition has been refined by the contributors over the period of 1996–2014. The brand literacy infers the consumer's ability to make sense of brand meaning and relate it with the perceived value within cultural settings (Bengtsson & Firat, 2006; Fırat, 1996). Both Bengtsson and Firat (2006) and Fırat (1996) have similarities in the way they define brand literacy, as they refer to the ability of the consumers to make sense of the brand meaning. Schroeder et al. (2014), further refined the

Table 15.1 Brand literacy definitions

Contributors	*Salient features*	*Brand literacy definition*
Fırat (1996)	Brand literacy, cognitive analytics, and brand culture	Brand literacy refers to 'the ability of the consumer to make sense of and compose the signs of a brand culture, and to understand the meaning systems'
Bengtsson & Firat (2006)	Brand literacy, consumer abilities on brand understanding, brand image, brand culture, and social environment	Brand literacy has been defined as 'the ability of the consumer to decode the strategies used in marketing practices in introducing, maintaining and reformulating brands and brand images, which then, further enables the consumer to engage with these processes within their cultural settings'
Oswald (2010)	Brand literacy, brand culture and language, retail brands, brand meaning, and attributes	Brand literacy follows a path similar to the acquisition of culture and language, which is analyzed and regulated by semiotic words. It develops ability of consumers in emerging markets to acquire brand meaning, nature, and perceived value among consumers
Schroeder, Borgerson, & Wu (2014)	Brand Literacy, brand meaning, reading, and understanding	The notion of brand literacy can be stated as how well consumers are able to 'read', understand, and engage brands and brand messages

notion of brand literacy in reference to the consumer's ability to read and understand brand messages to derive suitable meaning.

Brand literacy is largely a subjective proposition, which depends on consumer perception on the brand communication and its relevance to the perceived value (Koll & von Wallpach, 2009). Therefore, this study proposes to develop measurement scale on perceived brand literacy. Consistent communication of brands significantly influences consumer perceived value and brand performance leading to effective perceived brand literacy (Coleman, de Chernatony, & Christodoulides, 2015). Hence, for this research, consumer perceived brand literacy may be defined as how well the consumer is able to develop a holistic view of a brand, that is, how well the consumer believes that he/she understands with clarity, what the brand wants to convey through their perception of brand image, brand attributes, brand quality, brand personality, and brand leadership. Consumer perceived value (Mencarelli & Lombart, 2017) is generated through meaningful perception of brands through its image (Keller, 1993), attributes (Ailwadi & Keller, 2004; Malhotra, 2005), and distinctive brand personality (Aaker, 1996; Maggie, Weijters, & De Wulf, 2009). The perceived quality of a brand (DelVecchio & Puligadda, 2012; Dodson, Tybout, & Sternthal, 1978; Kohli, Harich, & Leuthesser, 2005) influences brand leadership (Chang & Ko, 2014) among consumers. All these concepts are considered to be important components of brand literacy, but it is important to bear in mind that they are not in themselves an indication whether or not the consumer has acquired brand literacy. According to Bengtsson and Firat (2006), brand literacy is a multidimensional construct which emerges in social settings.

This chapter is aimed at proposing a definition of consumer perceived brand literacy, which could serve as a construct and its dimensions. The scale developed will be used to measure the validity of the data and conduct reliability tests. The dimensions in this study include—perceived brand image literacy, perceived brand attributes literacy, perceived brand quality literacy, perceived brand personality literacy, and perceived brand leadership literacy.

Understanding Brand Literacy Concept

Antecedents of Consumer Brand Literacy

Companies strategically manage brands to try to make them meaningful to the consumers, so the consumers can engross them into their lives, and restore them with creative personal storyboards to make the brands appealing

to their peers and the society (Brown, Kozinets, & Sherry, 2003). Brand literacy tends to play a significant role in the valuation of products by the consumers. This role is an outgrowth of successful management strategies administered by the companies gradually over the years (Bengtsson & Firat, 2006). The role of perceived brand literacy helps managers create different strategies considering the consumer understanding on brand to develop consumer involvement and preferences (Grant, 2004).

Companies continuously build their brand strategies to update consumers' knowledge and to improve consumer perceived brand literacy. The principles of, and the techniques for, branding processes are shared within stakeholders (Coulter, Price, & Feick, 2003). As discussed by Dholakia (2004), sophisticated forms of brand literacy make consumers potent and help consumers unmask several attributes. Commonly, consumers who perceive brand literacy show signs of involvement with a brand (Dholakia, 2004). However, without appropriate brand literacy, consumers perceive limited understanding of the brand promise and its value (Dholakia, 2004).

Consequences of Brand Literacy

One of the consequences of brand literacy perceived by the consumers is the understanding of brand attributes (Parise & Spence, 2012), such as identifying brand image and associated text. Consumers correlate brand meaning with brand attributes and position them as the top of the mind icon (Sebba, 2015). Hence, looking at the contemporary viewpoints, brand literacy can be explained as the ability of the consumer to make sense and compose the signs and symbols of a brand culture (Bauman, 2001; Fırat, 1996). More specifically, brand literacy means that the consumers' understanding of the brand goes beyond the contemporary meaning of the words and symbols associated with the brand (Bauman, 2001; Fırat, 1996). Consumers, who exhibit literacy of a brand, understand that the brand name and the symbols associated with it are not just signs used to distinguish one manufacturer from another, but also endorse the signs that carry complex cultural meanings (Bauman, 2001; Fırat, 1996).

Another consequence of brand literacy may be observed in reference to the perceived consumer preferences and perceived brand association leading to perceived brand value. Brand literacy provides understanding on brand names that affect consumer preferences, sense of security and reliance on brand (Hui, 2010). As the perception of the brand literacy among

the consumers grows, they start to associate the etymology of the words and symbols associated with the brand (Bauman, 2001). This helps consumers understand the strategically managed brands. Hence, it can be said that the perception of brand literacy makes consumers confident, which helps them unmask the brand attributes hidden behind the corporate brand image perceived by the consumers (Dholakia, 2004).

The Effects of Perceived Brand Literacy

Perceived brand literacy as a construct helps in exploring the ways in which consumers understand and relate to the marketplace cooperation through the consumption process of the co-branded products (Bengtsson & Firat, 2006). According to Bengtsson and Firat (2006), co-branding was seen as an exhibition of two brand symbols through a marketing perspective. Consumers, who show a high level of brand literacy, tend to employ in-depth interpretation strategies. As this level of brand literacy increases in consumers, their way of appropriating, interpreting, negotiating, and constructing signs, and their attached meanings regarding the co-brand, elevates to a higher level, which gives consumers a certain level of power over the firms.

Literature Review

Perceived Brand Image

The perception of brand image development processes goes beyond geo-demographic, social, and cognitive parameters. Such process of perceived brand literacy refers to personification of brands and is central to understanding the brand image (Rindell & Iglesias, 2014). Time and context play as key determinants of consumers' brand image process in perceiving the brand literacy (Rindell & Iglesias, 2014). Perceived brand image is developed among consumers considering the brand behavior in the market, its price-image, corporate image perceptions, and consumer perceived value (Diallo, Burt, & Sparks, 2015).

Consumers perceive brand image and learn about the brands with semiotics (the study of science and symbols and their use or interpretation), an approach used by the companies to educate consumers (Combe, Crowther, & Greenland, 2003). Accordingly, effective brand communication and advertising play significant role in perceiving brand image and

generating brand literacy. Symbolic messages may also be used to change brand image and influence advertising effectiveness (Combe et al., 2003). Consumers perceive that a brand's performance is high and develop association with it when its perceived image is higher than the ideal expectations of consumers (Combe et al., 2003). Brand literacy and brand familiarity moderate the role of perceived brand image in determining the brand preference (Hu, Liu, Wang, & Yang, 2012).

Perceived brand image is described as the reasoned cognition or emotional perceptions attached by consumers to a specific brand. The perceived brand image is developed in reference to consumer beliefs on brand functionality and congruent characteristics (Dobni & Zinkhan, 1990; Low & Lamb, 2000). Perceived brand image constitutes brand associations, which are categorically linked into the memory of a brand (Aaker, 1991). Brand image is important because it contributes to the decision-making ability of consumers, and influences the consumer behavior subsequently (Bian & Moutinho, 2011). Hence, the dimension of Perceived Brand Image Literacy can be defined as the clarity with which the consumer understands the image that the brand is trying to project.

Perceived Brand Attributes

Consumer perceived brand is influenced by the brand attributes that draw consumer attention to the perceived brand values, and let the brand stay atop the mind. Brand literacy makes consumers perceive brand attributes and develop brand associations. The higher the brand association with the product, the more it will be remembered by the consumers (Sasmita & Suki, 2015). Brand attributes represent functionality of brand, and help in marketing a brand efficiently (Anisimova, 2007). Various dimensions of the brand attribute include corporate image, organizational values, and congruence to consumer personality. Marketing-level dimensions comprise functional, emotional, and symbolic brand benefits, and functional attributes of the brand (Anisimova, 2007). The brand values, brand personality, and functional consumer benefits are the most critical and brand attributes of both attitudinal and perceived values (Anisimova, 2007; Su & Reynolds, 2017).

Brand communication is another significant brand activity that not only generates brand literacy but also drives consumer cognition about developing purchase intentions (Huertas-Garcia, Consolación, & Mas-Machuca, 2016). As explained by Huertas-Garcia et al. (2016), brand literacy is largely perceived by consumers through the brand communication that

includes effectiveness of advertising and brand campaigns. This influences the perceived value of consumer preferences in reference to design, esthetics, and utilitarian benefits (functionality and performance) of the brand. Communications on brands incorporate messages and hedonic attributes to set sustainable value among consumers, and the brand equity in the marketplace (Huertas-Garcia et al., 2016).

Perceived brand attributes may be defined based on the tangible and emotional criteria, which explain perceived brand image and value associated concepts (Alvi & Kitchen, 2014). The perceived brand attribute describes a product or service, which the consumer visualizes, involved in the purchase or consumption (Keller, 1993). Hence, for the purpose of this chapter, perceived brand attributes can be defined as the clarity with which the consumer perceives the attributes that the brand is trying to convey.

Perceived Brand Personality

Brand information perceived by the consumers is one of the principal competence dimensions of brand personality, and combined with consumer involvement, it positively moderates the perceived brand effects among consumers. However, two-way interactions of brand information and consumer involvement are more meaningful than all other interactions in building the brand personality effects (Basfirinci, 2013; Chung and Park, 2017).

Perceived brand personality has convergence with brand experience, brand loyalty perceived by consumers, and perceived brand attitude (Didier & Lombart, 2010; Ramaseshan & Stein, 2014). This study examining the relationship among brand experience and brand relationship variables, brand trust (Hosseini & Behboudi, 2017), brand attachment, and brand commitment in convergence with the brand personality, reveals that brand experience, brand personality (Chung and Park, 2017), and brand relationship variables (brand attachment and brand commitment), all affect the degree to which a consumer knows about the brand, and is loyal to it. Authors of the study argue that consumers develop brand literacy, and sustain purchase and attitudinal brand loyalty, by enhancing brand experience to build brand personality gradually (Ramaseshan & Stein, 2014). There are both direct and indirect effects of brand's perceived personality on the three major relational consequences—trust, attachment, and commitment to the brand. Perceived brand personality is the set of human characteristics associated with the brand (Aaker, 1997, p. 347). Brand literacy allows consumers to often acquire relationships

with brands, like relationships with other people, leading to brand personification (Aaker, Fournier, & Brasel, 2004: Carlson, Donavan, & Cumiskey, 2009). Therefore, perceived brand personality can be defined as how clearly the consumer thinks he/she perceives the personality that the brand is trying to diffuse, in the context of this chapter.

Perceived Brand Quality

Brand quality is considered as the most important factor that can influence the consumers' choice for the brand (Holt, Quelch, & Taylor, 2003). Consumers may have differed perceptions of brand quality; however, it is important to consider that perceived quality by each consumer acts as important element of brand evaluation (Pyun, Kwon, & Lee, 2011). Perceived brand quality is associated with price, brand usage, and brand value including specific functional benefit variables (Aaker, 1996). Perceived brand quality can also be explained as a consumer's judgment about product superiority (Zeithaml, 1988).

Perceived brand quality is often found associated with the price and promotions of brands. A lower price is associated with lower perceived brand quality and vice-versa (DelVecchio & Puligadda, 2012). The relationship between perceived brand quality, customer perceived value, and disposition to pay a higher price for a product, determines the consumer intentions toward brands. Such assessment also seeks to determine if consumer involvement and brand performance measurements have moderating effects on such relationship.

Brand literacy prompts consumers to acquire perceived quality in terms of price and customer value. Consumer perceptions on brands determine brand association (Mishra, Singh, Fang, & Yin, 2017). However, consumer involvement moderates the relationship between perceived quality, perceived value, and disposition to pay a higher price. Thus, perceived brand quality can be defined as how clearly the consumer perceives the quality that the brand conveys. Perceived brand literacy helps consumers attain perceived brand quality based on their judgments toward the attributes of the brand.

Perceived Brand Leadership

Perceived brand leadership may be conceptualized as a consumer assessment, which indicates that the brand is successful, visionary, and up to date with the latest trends (Miller & Mills, 2011). The perceived brand

leadership concept helps consumers understand market dynamics and perceived brand relationships (Chang & Ko, 2014). Brand leadership is defined as consumers' perception about the ability of a brand to continually achieve excellence through sufficient combinations of trendsetting and brand positioning within an industry segment (Chang & Ko, 2014). Brand leadership scale comprises perceived quality, value, innovativeness, and popularity. It provides a unique methodological and conceptual approach for measuring products' brand leadership in the market dynamics. The scale helps firms develop a clear understanding of competitive relationships among leading and trailing brands from a strategic perspective based on consumers' perceptions (Chang & Ko, 2014).

Perceived brand leadership can be analyzed in the context of a conceptual framework linking the process and product innovations. Process innovation supports product innovation, as firms implement strategies to differentiate brand through its attributes. Changing attributes and quality of a brand is a disciplined process, where firms exploit their specialized resources using superior product knowledge and branding power. Leadership positions are maintained by the firms not only by responding to the changing demand but also by steering the market; by using innovative products and consumer education leading to brand literacy (Gehlar, Regmi, Stefanou, & Zoumas, 2009). Hence, in this study, perceived brand leadership can be defined as how clearly the consumer contemplates the leadership that the brand is trying to convey.

The Scale Development Process

Scenario Setting and Initial Development of Items

The scenario setting for the development of items for the scale developed in this study has been conducted by documenting the ideas and opinions of consumers regarding the construct and its dimensions. The process of scale development has been carried out using factor analysis and appropriate reliability and validity tests. Based on the reliability and validity tests, this study suggested that the development of new research scale should be subject to consecutive stages in order to conduct purification of the scale. During the scale development process, overlapping of items create redundancy in data validation, which needs to be removed meticulously by repeating the reliability and validity tests of the refined data sets. Hence, this study has been performed in two stages.

Two focus groups that explain broad questions used in the brain storming focus group session were conducted among the consumers of age group between 25 and 45. These have been conducted in Mexico City, in which six consumers attended each session. Care has been taken to include diverse focus group members in each session. The key purpose of both focus group sessions was to stimulate brain storming among participants within the framework of this study. Two different products—one in telecommunications segment (iPhone) and the other in automobile segment (Mazda 3)—were selected for discussion on various perspectives within the focus groups. During the trial group interview, the consumers revealed their perceived values on particular brands, and their perception about brand literacy. The participants of the focus groups were also stimulated to share their opinions about the perceived brand value and their brand associations. The key questions asked in the focus group discussions are as stated below:

- How do you perceive the image of this brand?
- How did you gain knowledge about this brand?
- What are your concerns on the brand quality of this brand?
- Which attributes comes to your mind for iPhone/Mazda 3 brands?
- What attributes influence you to choose this brand?
- How do you determine the value for a brand?
- How do you perceive a brand leader in a product segment?
- Do you consider this brand as a leader?
- What attracts you most in this brand?

Continuing with the focus group discussions, the participants were given a series of clues to provoke their perceptions about brand literacy within its definition, for example, perceived brand image, perceived brand attributes, perceived brand quality, and so on. In this process, participants were requested to share their opinion, and document their ideas independent of each other, which could support the development of items of the scale. During this exploratory phase, it was found that many opinions and ideas shared by the participants motivated to develop the items of the scale.

Consequently, 25 items emerged during the focus group, which were converted into questions for data collection. Later, the first set of items for the instrument was evaluated by three academic experts (judges) and was refined accordingly. The experts suggested to reorganize the definitions of the dimensions of the consumer perceived brand literacy. Accordingly, the

definition has been appropriately drafted. None of the items generated were judged in the context of theoretical perspectives. After the finalization of the set of items during the above process, a pilot survey test was conducted with 10% of the respondents of the total sample size (100). Accordingly, few questions were refined, but neither any items nor any questions were eliminated at this stage.

Critical Appraisal of Items

The items emerged out of the focus group, and the draft instrument generated based on the items, were examined by the subject experts. During the process of critical appraisal of items, the experts suggested that the items within each dimension measure as a single factor, although there may be strong multicollinearity among the items. However, it would be appropriate to identify those items, which explain the dimensions appropriately for the scale. Hence, narrowing the scale would be more effective for measuring the data. Another expert observed that there is similarity among the items of the scale. The differences among the items are very subtle, which might affect consumer cognition to establish clear distinction for responding the questions of the instrument.

Data Collection

The data was collected during the month of September–October 2017 in two different geo-demographic locations—Coyoacan and Tlalpan municipalities in the south of Mexico City, and Cuauhtemoc and Miguel Hidalgo municipalities in the center of Mexico City. In all, 100 respondents within the age group of 25–45 years (this is the main market segment for the two brands used in this study) have been selected for collecting the data through the instrument developed, as it has been observed that consumers of this age group prefer to use iPhone (King, 2015) and Mazda 3 (Wardlaw, 2016) brands. Some of the main characteristics of the respondents considered prior to applying the questionnaire are—economically independent, purchase capacity, currently own the products of the brands being reviewed, and so on.

The data was collected in specific locations such as shopping malls (where iPhone retail stores were located), and in the showrooms of Mazda distributors in the municipalities stated above. The research instrument, which was developed in Spanish, was given to the respondents who took

adequate time to read, understand and respond to the questions. The data was collected through the structured research instrument following the survey methodology.

The instrument was administered to 100 respondents in total, for both the selected brands (iPhone and Mazda 3 automobile). Of these, 40 questionnaires were qualified in the iPhone product segment, and 47 questionnaires were qualified in the Mazda 3 automobile segment for carrying out data validation test. The response trend in the data collection process was 87%, while 13% of the questionnaires did not qualify for the data analysis. The principal reason for non-consideration was ambiguity in responses and incompleteness of the information.

Reliability and Validity of Scale: Stage 1

In the first stage of validity test, the data sets for each product category were subjected to a sequential process. In this process, the factor analysis for the complete data set was done at the first stance, which revealed components and its associated values. Later, the validity test was conducted for the variables of each dimension, to obtain coefficients of Cronbach Alpha, Guttman's Lambda, and the Pearson correlation across the items for each component. This exercise was done for both brand segments of iPhone and Mazda 3. During the confirmatory process of factor analysis, the Kaiser-Meyer-Olkin (KMO) results for iPhone and Mazda 3 was found to be 0.769 and 0.789, respectively. The KMO values for both brands were found significant at 0.000 during the Bartlett test, which supports the KMO values. Factor loadings of iPhone and Mazda 3 have been exhibited in Tables 15.2a, b, respectively. The items in these tables have been translated to English as the original instrument was developed in Spanish language due to geographic limitations.

Reliability Test: Stage One

During the factor analysis of iPhone, it was observed that the created components had assorted dimensions, which indicated that there might be similarities in the items of the research instrument. This result suggests eliminating the overlapping items and refines the research instrument in the second stage. However, the factor loading for Component 1 was satisfactory. The factor loading of some items of Component 1 also appeared in the factor loading of Component 2, but they were of lower values.

Table 15.2a Factor loading for *i*-Phone

Item description	*Component*				
	1	*2*	*3*	*4*	*5*
I have a clear understanding of the position this brand as compared to its competition	0.773				
I perceive the quality transmitted by this brand	0.736			0.45	
The relevance of this Brand is clear to me	0.725			0.483	
I clearly understand the attributes of the brand	0.716				
I understand the market position of this brand	0.691				
I am certain about this brands personality	0.666				
I clearly understand this brand's image	0.658	0.455			
I consider having a clear idea of this brand's quality	0.655	0.45			
I am certain of the attributes of this brand	0.601	0.57			
I can easily remember the symbols and logo of the brand	0.578	0.469			
I consider that the attributes of this Brand are evident		0.89			
I think that the image presented by this Brand is evident.		0.863			
I understand the influence that this Brand has over others in the market		0.609			
I clearly perceive the attributes of the brand		0.607			
The leadership of this Brand is clear to me	0.44	0.549			
I consider that the personality of this Brand distinguishes it from others	0.444	0.507			
I perceive with certainty that the Brand has a defined image	0.423		0.797		
I can clearly distinguish the Brand quality	0.423		0.797		
I perceive that this Brand has clearly identifiable personality			0.774		
I can clearly identify this brand's personality		0.453	0.64		
I understand the degree of quality of this brand				0.896	
I have a clear impression of the kind of people that use this brand				0.887	
I am aware of the type of people who use this brand		0.469		0.601	
I can easily remember the attributes of this brand					
I can clearly distinguish the quality of this brand					0.86

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table 15.2b Factor loading for Mazda 3

Item description	*Component*				
	1	*2*	*3*	*4*	*5*
I perceive with certainty that the Brand has a defined image	0.838				
I understand the degree of quality of this brand	0.764				
I perceive that this Brand has clearly identifiable personality	0.736				
I understand the influence that this Brand has over others in the market	0.680				
I am aware of the type of people who use this brand	0.600	0.401			
I clearly understand the attributes of the brand	0.577		0.478		
I consider that the personality of this Brand distinguishes it from others	0.571	0.496			
I can clearly identify this brand's personality		0.818			
I am certain of the attributes of this brand		0.737			
I clearly understand the attributes of the brand		0.682			
I can easily remember the symbols and logo of the brand		0.675			
I can easily remember the attributes of this brand		0.653			
The leadership of this Brand is clear to me		0.620			
I have a clear understanding of the position this brand as compared to its competition	0.508	0.588			
I consider that the attributes of this Brand are evident			0.797		
I think that the image presented by this Brand is evident.			0.738		
I can clearly distinguish the quality of this brand	0.494		0.736		
I am certain about this brands personality		0.599	0.643		
I perceive the quality transmitted by this brand	0.512		0.611		

(continued)

Table 15.2b (continued)

Item description	*Component*				
	1	*2*	*3*	*4*	*5*
I think that the image presented by this Brand is evident.			0.585		0.451
I consider having a clear idea of this brand's quality				0.779	
I have a clear impression of the kind of people that use this brand				0.681	
I clearly see the relevance of this brand as compared to the others	0.521			0.555	
I can clearly distinguish the quality of this brand					0.651
I understand the influence that this Brand has over others in the market	0.427				−0.582
Extraction Method: Principal Component Analysis.					
Rotation Method: Varimax with Kaiser Normalization.					
(a) Rotation converged in nine iterations.					

Table 15.3 Reliability test of items across components for iPhone

Components	*Cronbach's Alpha*	*Guttman Lambda*					
		1	*2*	*3*	*4*	*5*	*6*
Component 1	0.932	0.838	0.936	0.932	0.880	0.908	
Component 2	0.875	0.729	0.880	0.875	0.829	0.863	0.891
Component 3	0.878	0.659	0.887	0.878	0.784	0.877	
Component 4	0.845	0.634	0.856	0.845	0.750	0.856	0.874
Component 5	The component had only one item due to which the reliability test could not be performed						

The data reliability test comprising Cronbach Alpha and Guttman's Lambda was conducted for the items of each component. The results revealed high reliability of items in each component, which are exhibited in Table 15.3.

It may be observed from the above table that the reliability test from Cronbach Alpha and Guttman's Lambda 3 are identical, which validates the data across items for each component.

Similar to the results of iPhone, it was observed that the components represented assorted items while carrying out factor analysis of Mazda 3. This indicated that there might be similarities in the items across the

Table 15.4 Reliability test of items across components for Mazda 3

Components	*Cronbach's Alpha*	*Guttman Lambda*					
		1	*2*	*3*	*4*	*5*	*6*
Component 1	0.900	0.771	0.902	0.900	0.895	0.876	0.900
Component 2	0.897	0.769	0.899	0.897	0.835	0.873	0.905
Component 3	0.903	0.753	0.907	0.903	0.900	0.892	0.904
Component 4	0.690	0.460	0.695	0.690	0.687	0.704	0.606
Component 5	0.150	0.075	0.150	0.150	0.150	0.150	0.081

research instrument. Therefore, the results prompted to eliminate the overlapping items and refine the research instrument in the second stage. The data reliability test comprising Cronbach Alpha and Guttman's Lambda was conducted for the items of each component which has been exhibited in Table 15.4.

The above table reveals that the reliability test from Cronbach Alpha and Guttman's Lambda 3 are identical which validates the data across items for each component for the Mazda 3 brand.

Pearson Correlation Analysis

Further to the reliability test, the inter-item Pearson correlation for each component has been analyzed obtaining two-tailed significance level test for iPhone brand. The inter-item correlation for all components indicated that the results are valid at 0.01 and 0.05 significance levels. The coefficients of correlations across the items for each component have been found positive, which indicates that the relationship across the items is acceptable.

Similar correlation analysis has been conducted for another brand Mazda 3. Correlation analysis has been supported by the two-tailed significance level test. The result of the analysis revealed that all items across the components are positively correlated and validated at the 0.01 and 0.05 significance levels. The Pearson correlation analysis for both brands, as discussed above, reveals that there are no contradictory relationships across the items, and can be validated for each component. However, in view of the overlap of items in the components, it is necessary to refine the instrument by removing the redundancy of the questions.

Reliability and Validity of Scale: Stage 2

In view of the above discussion on the methodology used to develop the scale, it may be stated that some anomalies across the items in each component were found during the stage 1, which demanded refining some items that were overlapping with others. Such overlap required elimination of some items from the questionnaire in order to refine the research instrument, so that each component can be constituted with homogeneous items.

At this stage, the items in the questionnaire were reviewed, and some were eliminated to have a better consolidation of items per dimension. The number of items that were eliminated for each brand is listed in Table 15.5. Later, the validity test was conducted for the variables of each component, to obtain results of Cronbach Alpha, Guttman's Lambda and the Pearson correlation across the items for each component. This analysis was done for both brand segments of iPhone and Mazda 3. The KMO results for iPhone and Mazda 3 was found to be 0.727 and 0.666, respectively. The KMO values for both brands were found significant at 0.000 during the Bartlett test, which supports the KMO values.

At this stage, the scale was reduced to 18 items for the brand iPhone and 19 items for the brand Mazda 3. An exploratory factor analysis was performed, which revealed that the remaining items were able to be grouped into five dimensions for both brands. The items in these tables have been translated to English as the original instrument was developed in Spanish language due to geographic limitations (Tables 15.6a, b).

In both stage one and stage two, the items 1 and 3 are clearly related to the dimension-perceived brand personality for the brand Mazda 3; and items 2, 3, and 5 are clearly related to the dimension-perceived brand leadership for the brand iPhone. In each case, the correlation between these items and other dimensions is very low. The respective factor loading of these items per brand and per stage is shown in Table 15.7.

Table 15.5 Items deleted for each brand per dimension

Dimensions	*iPhone*	*Mazda 3*
Perceived brand image	1	1
Perceived brand quality	2	1
Perceived brand attribute	2	2
Perceived brand personality	1	1
Perceived brand leadership	1	1

Table 15.6a Summary of final results from exploratory factor analysis for iPhone: stage two

	Perceived brand personality	*Perceived brand image*	*Perceived brand leadership*	*Perceived brand quality*	*Perceived brand attribute*
I am aware of the type of people who use this brand	0.944				
I perceive that this Brand has clearly identifiable personality	0.895				
I consider that the personality of this Brand distinguishes it from others	0.843				
I am certain about this brands personality	0.821				
I have a clear impression of the kind of people that use this brand		0.969			
I am certain of the attributes of this brand		0.969			
I can easily remember the symbols and logo of the brand		0.903			
I perceive with certainty that the Brand has a defined image		0.893			
The leadership of this Brand is clear to me			−0.989		
The relevance of this Brand is clear to me			−0.989		
I understand the market position of this brand			−0.862		
I have a clear understanding of the position this brand as compared to its competition			−0.836		
I can clearly distinguish the Brand quality				0.896	
I understand the degree of quality of this brand				0.854	

(*continued*)

Table 15.6a (continued)

	Perceived brand personality	*Perceived brand image*	*Perceived brand leadership*	*Perceived brand quality*	*Perceived brand attribute*
I consider having a clear idea of this brand's quality				0.735	
I clearly perceive the attributes of the brand					−0.902
I can easily remember the attributes of this brand					−0.809
I consider that the attributes of this Brand are evident					−0.763
Extraction method: Principal component analysis.					
Rotation method: Oblimin with Kaiser normalization.					
(a) Rotation converged in 7 iterations.					

Table 15.6b Summary of final results from exploratory factor analysis for Mazda 3: stage two

	Perceived brand image	*Perceived brand quality*	*Perceived brand attribute*	*Perceived brand leadership*
I am aware of the type of people who use this brand				
I am certain about this brands personality				
I consider that the personality of this Brand distinguishes it from others				
I perceive that this Brand has clearly identifiable personality				
I have a clear impression of the kind of people that use this brand	0.964			
I perceive with certainty that the Brand has a defined image	0.961			
I think that the image presented by this Brand is evident.	0.953			

(*continued*)

Table 15.6b (continued)

	Perceived brand image	*Perceived brand quality*	*Perceived brand attribute*	*Perceived brand leadership*
I am certain of the attributes of this brand	0.922			
I can clearly distinguish the Brand quality		−0.975		
I perceive the quality transmitted by this brand		−0.964		
I consider having a clear idea of this brand's quality		−0.928		
I can clearly distinguish the Brand quality		−0.789		
I can easily remember the attributes of this brand			0.969	
I clearly understand the attributes of the brand			0.937	
I am certain of the attributes of this brand			0.905	
The leadership of this Brand is clear to me				0.943
I understand the market position of this brand				0.912
The relevance of this Brand is clear to me				0.820
I understand the influence that this Brand has over others in the market				0.666

Extraction method: Principal component analysis.
Rotation method: Oblimin with Kaiser normalization.
(a) Rotation converged in 12 iterations.

Reliability of Final Scale: Stage Two

The exploratory factor analysis of the two brands is shown in Tables 15.6a, b respectively, where a clear five-factor structure can be observed. The data reliability test comprising Cronbach Alpha and Guttman's Lambda was conducted for the items of each component. The results revealed high reliability of items in each component for iPhone, as exhibited in Table 15.8a.

The reliability test indicates that α and λ scores for iPhone brand range from 0.88 to 0.95 and the reliability test indicates that α and λ scores for Mazda 3 brand range from 0.91 to 0.99 (Table 15.8b).

Table 15.7 Factor loading per brand and per stage

Item description	*Dimension*	*Factor loading stage 1*	*Factor loading stage 2*
I perceive that this brand has clearly identifiable personality	Perceived brand Personality(Mazda 3)	0.736	0.943
I consider that the personality of this brand distinguishes it from others		0.577	0.950
I understand the position of this brand in the market	Perceived brand Leadership(iPhone)	0.691	−0.862
The relevance of this brand is clear to me		0.725	−0.989
I have a clear understanding of the position of this brand as compared to its competition		0.773	−0.836

Table 15.8a Reliability test of items across dimensions for iPhone: stage two

Dimensions	*Cronbach's Alpha*	*Guttman Lambda*					
		1	*2*	*3*	*4*	*5*	*6*
Perceived brand personality	0.932	0.699	0.935	0.932	0.965	0.923	0.953
Perceived brand image	0.958	0.718	0.962	0.958	0.953	0.949	0
Perceived brand leadership	0.955	0.717	0.957	0.955	0.948	0.935	0
Perceived brand quality	0.896	0.597	0.898	0.896	0.737	0.902	0.883
Perceived brand attribute	0.884	0.589	0.884	0.884	0.793	0.874	0.838

Table 15.8b Reliability test of items across dimensions for Mazda 3: stage two

Dimensions	*Cronbach's Alpha*	*Guttman Lambda*					
		1	*2*	*3*	*4*	*5*	*6*
Perceived brand personality	0.990	0.742	0.990	0.990	0.987	0.958	0.990
Perceived brand image	0.968	0.726	0.969	0.968	0.968	0.942	0.963
Perceived brand quality	0.954	0.715	0.958	0.954	0.949	0.939	0.956
Perceived brand attribute	0.975	0.650	0.975	0.975	0.871	0.958	0.964
Perceived brand leadership	0.917	0.688	0.920	0.917	0.910	0.909	0.918

Pearson Correlation Analysis

The inter-item Pearson correlation for each dimension has been analyzed obtaining two-tailed significance level test for iPhone and Mazda 3 brands. The inter-item correlation for all components indicates that the results are valid at 0.01 significance level. The coefficients of correlations across the items for each dimension have been found positive for both brands, which indicate that the relationship across the items is acceptable. The Pearson correlation analysis for both brands as discussed above, reveal that there are no contradictory relationships across the items and can be validated for each component.

Conclusion

In this study, an effort was made to understand the construct-consumer perceived brand literacy by developing and testing parsimoniously a five-dimensional scale of this construct. Two brands, iPhone and Mazda 3, were selected to test the instrument. An initial scale of 25-item scale was developed which was refined in stage two of this study, leading to a final scale of 18 and 19 items for the brands iPhone and Mazda 3, respectively. In view of the results of the data analysis presented in the above section, it may be stated that the instrument for both iPhone and Mazda 3 brands have stable psychometric properties. The scale demonstrates that the consumers perceive the brand and understand the brand by means of the five dimensions (quality, image, attributes, personality, and leadership).

The study reveals different dimensions of consumer perceived brand, which enables the firms to develop appropriate strategies that will help them position the brands in the market. The results show that the dimensions of perceived brand personality and perceived brand image are prominent in both the brands. This can have substantial implication for the marketing strategies designed by the firms to increase the perceived brand literacy among the consumers.

Limitations and Future Research

Brand Literacy has emerged in the research studies of recent past as an important predicator of consumer decision making. Review of literature has revealed that there is a paucity of studies on purchase intentions and consumer decision making, integrating the lead determinants like brand

attributes, brand personality, brand image, brand quality, and brand leadership perceived by the consumers. It is suggested that future studies can be conducted to measure the inter-relationship among the PIRT determinants, which indicate personality, image, responsiveness, and trust of the consumer brands.

The extent of the findings of this study can be further explored including other dimensions and other brands to understand if the scale can be applied across all industries and brands. In this study, a scale was developed to measure the post-purchase brand literacy perceived by the customers through five dimensions. Nonetheless, it is important to consider that the assessment criteria may change for the pre-purchase situation. It would be interesting to understand in future, how the pre-purchase conditions would affect the scale.

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CHAPTER 16

Testing the Moderation Effects on Gartner's Customer Relationship Management Practices and Customer Acquisition

Subhasish Das, Manit Mishra, and Prasanta Kumar Mohanty

Introduction

Customer relationship management (CRM) has become one of the vibrant topics of the twenty-first century. Intensive competition and the advent of advanced technology have made it inevitable (Chen & Popovich, 2003). CRM originated from the concept of relationship marketing, whose ultimate objective is to improve long-term profitability by shifting product-centric marketing to customer-centric marketing. Customers differ in their preferences and purchasing habits. So all customers are not alike, hence firms must treat them differently (Bose, 2002). CRM helps in

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understanding customers and tailor their offerings to maximize the overall value for the customers (Chen & Popovich, 2003). Today the market is very competitive and is saturated to some extent; hence it is highly necessary to understand the customers and to keep personal relationship with them (Chou et al., 2002). CRM is an enterprise level effort and integrates all departments of the business such as marketing, sales, human resource, purchase, manufacturing, assembling, product testing and so on (Greenberg, 2004). CRM collects customer's information from various sources and precisely predicts their behavior and it practically reduces the gap between seller and buyer (Kotler, 1997).

Though several studies have been conducted on CRM still the literature is in its infancy (Buttle, 2009). Several frameworks of CRM are proposed by researchers but the latest and least studied framework is Gartner's framework (Chandler, Detienne, McKelvie, & Mumford, 2011) and the study on Gartner's True CRM practices is very rare (Peelen, Montfort, Beltman, & klerkx, 2009). Gartner's competency model of 'True CRM practices' has suggested best practices for a successful CRM. It proposed eight components of CRM, that is, CRM vision, CRM strategy, valued customer experience and organizational collaboration, processes, information, technology and metrics. CRM vision, CRM strategy, customer experience and organizational collaboration positively influence CRM process (Peelen et al., 2009).

This study is based on Gartner's framework of CRM success, aims at examining the effect of Gartner's CRM practices on customer acquisition, and tests the moderation effect of employee's gender and job satisfaction. This study will explore the relationship among CRM components suggested by Gartner and will identify the conditions for its success through moderation.

Literature Review

CRM breaks the intra organizational boundaries by linking the internal processes with external networks and makes customer related data available to all on a common platform by practically connecting the front and back office activities (Buttle, 2009).

Gartner group is one of the leading researchers' groups on CRM. 'Gartner's competency model' suggests eight components for a successful CRM as exhibited in Fig. 16.1. The components are CRM vision, CRM strategy, valued customer experience and organizational collaboration, processes, information, technology and metrics. The best practices for creating a CRM vision are 'developing CRM leadership from top', 'under-

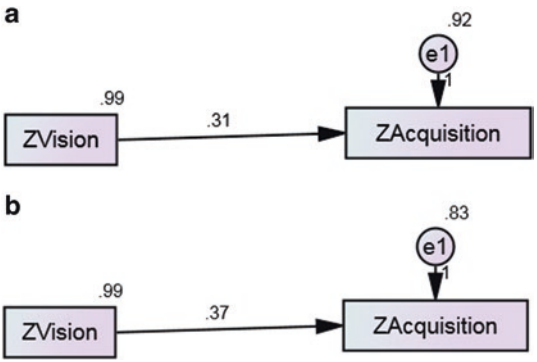

Fig. 16.1 Testing moderation effect of gender (**a**) Men (**b**) Women

standing how CRM is going to change the enterprise' and 'understand how CRM is unique for your enterprise' (Kirkby, 2001a). '[D]eveloping a long term road map to decisions into', 'thinking CRM as a combination of people, process and technology', 'clear articulation of goals and tactics to achieve them' and 'understanding all customers as not equal' as the best practices for developing a CRM strategy (Kirkby, 2001b). 'Involving customer in the CRM process', 'integration of all channels' and 'managing change and communication with customers and getting the basics first' are the best CRM practices of customer experience (Kirkby, Thompson, & Wecksell, 2001). 'Establishing cross functional teams', 'integrating change management and training from the beginning' and 'appointing an overall CRM leader' are the best practices for organization collaboration (Radcliffe, Thompson, & Eisenfeld, 2001).

Peelen et al. (2009) has done a study on Gartner's framework and has found that the practices are interrelated. CRM vision, CRM strategy, customer experience and organizational collaboration affect CRM process (Eisenfeld & Nelson, 2003). In view of the above discussion, the following hypotheses are developed:

H_1 CRM vision affects customer acquisition.

H_2 CRM strategy affects customer acquisition.

H_3 Customer experience affects customer acquisition.

H_4 Organizational collaboration affects customer acquisition.

H_5 Employees' gender moderates the relationship between CRM practices and customer acquisition.

H_6 Employees' job satisfaction moderates the relationship between CRM practices and customer acquisition.

Research Methodology

This study is based on the primary data collected from the selected retail store 'The World' at Bhubaneswar, Odisha. The respondents of the study are the employees of the store and 196 respondents were selected for this study.

Table 16.1 shows 57% of the respondents are male and 43% are female. It also shows that 47% are below 20 years of age, 24% are between 20 and 35 years of age, 20% are 35–50 years of age and rest 9% are above 50 years of age. As for experience, 18% of respondents are having an experience of less than 1 year, 35% have 1–3 years, 27% have 3–5 years and rest 20% have above 5 years of experience. Lastly, 17% of respondents belong to top management, 46% of respondents are from middle management and rest 37% belong to lower management.

Table 16.1 Respondent's profile

Demographics	*Particulars*	*No.*	*%*
Gender	Male	112	57
	Female	84	43
Age	<20 years	93	47
	20–35 years	48	24
	35–50 years	38	20
	>50 years	17	9
Experience	<1 year	36	18
	1–3 years	68	35
	3–5 years	53	27
	>5 years	39	20
Level of job	Higher	33	17
	Middle	91	46
	Lower	72	37

Measures

The study includes constructs of vision, strategy, valued customer experience, organizational collaboration, customer acquisition and moderators such as job satisfaction and gender. The CRM practices are measured on the basis of Gartner's 'CRM Best practices: From vision to collaboration' (Eisenfeld & Nelson, 2003), customer acquisition is measured on the basis of indicators suggested by Buttle (2009) and job satisfaction by Yiing and Ahmad (2009).

The appropriateness of the study is tested by a pilot survey with a sample of 30 respondents (Hair, Anderson, Tatham, Babin, & Black, 2007). The scale was found appropriate and good and the scale was applied for collecting data from the 196 respondents. As the structural equation model includes measurement and structural model, therefore, first an exploratory factor analysis (EFA) was done to understand the underlying constructs followed by the confirmatory factor analysis (CFA).

Structural equation modeling (SEM) is used for data analysis. SEM is a combination of measurement model and structural model. Measurement model checks the appropriateness of the data or it checks whether the data fits the model. The structural model measures structural relationships.

Convergent validity and discriminant validity can test the validity of the construct. Convergent validity is the extent to which the items that should be correlated are truly correlated to each other and divergent validity is the extents to which the items that should be correlated are in fact are not correlated (Campbell, 1959; Hair et al., 2006). Standardized factor loadings and composite reliability should be more than 0.7 for convergent validity and average variance extracted (AVE) should be more than 0.5 (Bagozzi & Yi, 1988). The values of AVE of all the constructs should be more than the maximum shared variance (MSV) for discriminant validity (Fornell & Lacker, 1981).

Table 16.2 shows composite reliability for all constructs is more than 0.7 and the values of AVE are more than 0.5 hence it holds convergent validity. The values of AVE are more than MSV for all constructs, hence discriminant validity is ensured. It indicates the validity of the scale and the items are the true measures of the underlying constructs.

The measurement model is tested with the help of confirmatory factor analysis (CFA). CFA measures the extent to which the measured variables actually represent the construct (Hair et al., 2007; Teo, 2011).

Table 16.2 Construct validity

Constructs	*CR*	*AVE*	*MSV*	*MaxR (H)*
Vision	0.89	0.880	0.348	0.97
Strategy	0.90	0.768	0.233	0.98
Experience	0.89	0.675	0.003	0.99
Collaboration	0.95	0.845	0.295	0.98
Acquisition	0.81	0.571	0.091	0.99

Reporting Model Fit

'Chi-square and degrees of freedom (χ^2/df), root mean square of approximation (RMSEA), standardized root mean square residual (SRMR), comparative fit index (CFI) and parsimonious normed fit index (PNFI)' can be reported for asserting model fit (Hooper, Coughlan, & Mullen, 2008) to indicate a good model fit. In addition goodness of fit index (GFI), adjusted goodness of fit index (AGFI) and normed fit index (NFI) are also suggested for checking the model fit (Crowley & Fan, 1997). The p value should be greater than 0.05, the value of (χ^2/df) should be as high as 5.0 (Wheaton, Muthen, Alwin, & Summers, 1977) to as low as 2.0 (Tabachnick & Fidell, 2007). The value of RMSEA should be lesser than 0.06 (Hu & Bentler, 1999). The value of SRMR should be lesser than 0.05 (Byrne, 1998; Diamantopoulos & Siguaw, 2000), the value of CFI should be more than 0.95 (Hu & Bentler, 1999). The value for GFI, AGFI, NFI and CFI 0.9 and a value less than 0.08 for RMSEA indicate a good model fit and the value of the ratio between Chi-square and degrees of freedom (χ^2/df) as it should be less than 2.5 (Gerpott, Rams, & Schindler, 2001; Hair et al., 2006; Homburg & Baumgartner, 1995).

Table 16.3 shows the values of all fit indices are as per the required threshold values; therefore, the measurement model indicates a good model fit and we can conclude that the items under study are reliable indicators of the underlying construct and we can test structural relationships (Teo, 2011).

Structural Model

Table 16.4 shows that the values of the indices are within the threshold limits hence we can conclude that the structural model also shows a good model fit.

Table 16.3 Model fit summary of the measurement model

Indices	*Obtained values*	*Threshold values*	*References*
p value	0.229	>0.05	Wheaton et al. (1977)
CMIN/DF	1.113	0> CMIN/DF<5	Tabachnick and Fidell (2007); Wheaton et al. (1977)
RMSEA	0.024	<0.08	Hu and Bentler (1999)
GFI	0.944	>0.9	Gerpott et al. (2001); Hair et al. (2006);
AGFI	0.917	>0.9	Homburg and Baumgartner (1995)
NFI	0.962	>0.9	
CFI	0.996	>0.9	Hu and Bentler (1999)
SRMR	0.030	<0.05	Byrne (1998); Diamantopoulos and Siguaw (2000)

Table 16.4 Model fit summary of the structural model

Indices	*Obtained values*	*Threshold values*	*References*
p value	0.229	>0.05	Wheaton et al. (1977)
CMIN/DF	1.113	0> CMIN/DF<5	Tabachnick and Fidell (2007); Wheaton et al. (1977)
RMSEA	0.024	<0.08	Hu and Bentler (1999)
GFI	0.944	>0.9	Gerpott et al. (2001); Hair et al. (2006);
AGFI	0.917	>0.9	Homburg and Baumgartner (1995)
NFI	0.962	>0.9	
CFI	0.996	>0.9	Hu and Bentler (1999)
SRMR	0.030	<0.05	Byrne (1998); Diamantopoulos and Siguaw (2000)

The standardized regression weight and their significance level can be observed in the following table. Table 16.5 shows that only CRM vision ($c = 0.054$, $p < 0.000$) has a significant effect on customer acquisition and the influence of all other CRM practices are insignificant.

Table 16.5 Regression weights

The relationships	*Estimate*	p	*Significance*
Acquisition ← Vision	0.542	0.000	Significant at 0.000
Acquisition ← Strategy	−0.074	0.403	Insignificant
Acquisition ← Customer experience	0.044	0.483	Insignificant
Acquisition ← Collaboration	−0.167	0.058	Insignificant

Table 16.6 Regression weights for men and women

Relationship	*Estimate*	p	*Significance*
Men			
ZAcquisition ← ZVision	0.306	0.000	Significant at 0.000
Women			
ZAcquisition ← ZVision	0.371	0.000	Significant at 0.000

Testing Moderation Effect of Gender

From Table 16.5, it is obvious that only CRM vision has a significant impact on customer acquisition. Therefore, only this relationship is considered for testing moderation (Arbuckle & Wothke, 1999; Baron & Kenny, 1986; Jaccard & Wan, 1996). Since gender is a categorical variable, a multiple group analysis is necessary to test the moderation effect (Bollen, 1989; Jaccard & Wan, 1996; Joreskog & Sorbom, 1993). Therefore, the data file was split into two groups 'Men' and 'Women' the structural model for men and women are tested separately by using AMOS and the results are as shown below.

Table 16.6 shows that by taking gender as a moderator on the relationship between CRM vision and customer acquisition, the regression weight for men is found to be 0.31 and for women, it is 0.371, respectively, and different from each other as exhibited in Fig. 16.1a, b. Though they are different, their significance can be tested by the critical ratio test. So from critical ration test, the pairwise parameter comparison which should be more than 1.96 to confirm moderation effect is found to be 0.058 which is less than 1.96 (Judd, Kenny, & McClelland, 2001). Therefore, there is no moderation effect of gender or gender is not moderating the relationship between CRM practices and customer acquisition.

Moderation Effect of Job Satisfaction

The moderation effect of job satisfaction is tested in the following structural model by using AMOS. Moreover, the regression weight after introducing the interaction variable can be seen in Fig. 16.2 and Table 16.7.

Table 16.7 shows that the effect of vision, job satisfaction and interaction variable on customer acquisition are significant at $p < 0.05$. Therefore, there is a moderation effect of job satisfaction on the relationship between CRM vision and customer acquisition (Judd et al., 2001). We can conclude that employee's job satisfaction moderates the relationship between CRM vision and customer acquisition. It is evident from Fig. 16.3 that job satisfaction dampens the effect of CRM vision on customer acquisition. Table 16.8 summarizes the validation of hypotheses.

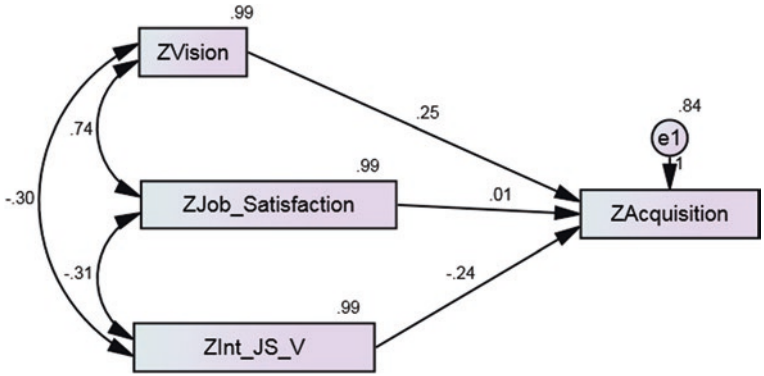

Fig. 16.2 Moderation effect of job satisfaction

Table 16.7 Regression weights after the introduction of moderator

Relationship	*Estimates*	p	*Significance*
ZAcquisition ← Z vision	0.251	0.011	Significant at $p < 0.05$
ZAcquisition ← ZInt_JS_V	−0.235	0.000	Significant at $p < 0.000$
ZAcquisition ← ZJob_Satisfaction	0.010	0.023	Significant at $p < 0.05$

ZAcquisition-standardized acquisition—Dependent variable
ZVision-standardized vision—Independent variable
ZJob satisfaction standardized job satisfaction—Moderator
ZInt_JS_V-standardized interaction-interaction

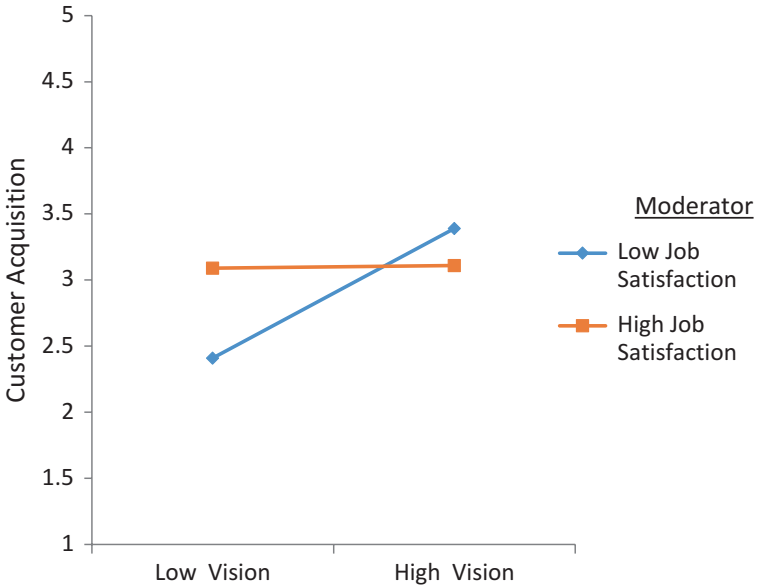

Fig. 16.3 The moderation effect of job satisfaction on the relationship between CRM vision and customer acquisition

Table 16.8 Results of hypotheses testing

Hypotheses	*Regression weights*	p	*Result*
H_1	0.086	0.021	Accepted
H_2	0.12	0.001	Rejected
H_3	0.047	0.144	Rejected
H_4	−0.044	0.218	Rejected
H_5	Rejected		
H_6	Accepted		

Conclusion

The study explored the impact of Gartner's CRM practices on customer acquisition. The statistical results reveal that not all CRM practices influence customer acquisition. The practices related to CRM vision of the selected retail store have a significant positive influence on customer acquisition. The practices related to the creation of valued customer experience,

customer experience and organizational collaboration show no significant influence on customer acquisition. The retailer should improve on these practices. And job satisfaction moderates the effect of CRM vision on customer acquisition.

The findings of the study are in accordance with Peelen et al. (2009) and Seeman and O'Hara (2006) which highlighted a positive influence of CRM on customer acquisition. Reinartz, Krafft, and Hoyer (2018) and Becker, Greve, and Albers (2009) have also found a positive relationship between CRM and customer life cycle management.

This study practically examines the influence of Gartner's CRM best practices on customer acquisition under the moderating effect of employee's job satisfaction and gender, which is not done before. It may assist the CRM practitioners to decide what to practice and to the selected retailer to identify the strong and weak CRM practices with respect to customer acquisition. It also provides an opportunity to the retailer for further CRM practices development and to identify the conditions for CRM success. Further, it strengthens the literature on Gartner's CRM practices and its influence on the customer life cycle.

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CHAPTER 17

Effectuation and Causation Approaches in Entrepreneurial Marketing: A Set-Theoretical Model

Pável Reyes-Mercado and Rajeev Verma

Introduction

New venture creation has received special attention from government and academics due to its role in the creation of economic growth, job creation, and diffusion of innovations. Innovative and young ventures' lack of critical information to drive decision-making is prevalent because markets, industries, and business opportunities are actually to be discovered (McGrath, 2010). Entrepreneurs often enact effectuated decision-making (Sarasvathy, 2001) and widely use intuition (Patterson, Quinn, & Baron, 2012). This commonality exhibited by entrepreneurs when they engage in launching new ventures has been the focus of research aimed at understanding its role in strategic marketing decision-making

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(Patterson et al., 2012). This is in clear contrast with the linear causation-driven frameworks that pervade most of marketing decisions in which there is plenty of information and uncertainty tends to be low (McDonald & Wilson, 2016). While the causation approach is well documented and literature is abundant, the effectual approach is still nascent and there is a need to understand how it evolves and how entrepreneurs use this approach. Also important, it is critical to analyse the link effectuation-causation given that some literature stream refers to these approaches as substitutable (Dew, Read, Sarasvathy, & Wiltbank, 2009) while other stream argue that they may be complementary (Sarasvathy, Kumar, York, & Bhagavatula, 2014). This chapter builds upon the second research stream. One of the reasons to propose a set-theoretic is that reviews of existing literature on effectuation (Read, Song, & Smit, 2009) have found shallow effect sizes of means, partnerships, affordable losses, and leverage contingency—critical variables of the effectual process—on venture performance. Hence, there is a need to open a debate on the interplay between effectuation and causation, rather than considering each approach separately.

To sum up, this chapter aims at discussing extant literature review on causation and effectuation approaches and contributes to knowledge by offering a conceptual model on how entrepreneurs engage in causation and effectuation patterns of decision-making as they go through the ventures' life cycle of exploring and exploiting business opportunities.

Section "Literature Review" reviews conceptual definitions for effectuation and causation along with a discussion of research on the classical definition of marketing and entrepreneurial marketing (EM). Section "Research Prospects and Implications" offers a conceptual framework with research propositions worth to explore. Implications for practitioners, policy makers, and researchers are discussed in Section "Conclusion" and we offer some concluding remarks in Sect. 5.

Literature Review

This section firstly presents the causal approach in marketing and the then effectual approach and entrepreneurial marketing are discussed. Some variable interesting to both realms are also discussed to then propose a conceptual framework with research propositions.

Causal Approach

The business and management research was born taking as a basis the assumption of rational behaviour depicted by the choice theory of neoclassical microeconomics field (Varian, 1992). Rational behaviour builds on a linear process through which individuals make decisions. The attributes of rational behaviour are as stated below:

- They need to have complete information on the issue at hand.
- Drawing on this information, individuals frame an overall number of courses of action to follow.
- Each course of action associates quantitatively measured pros and cons—the utility function.
- The individual chooses the maximum-utility option.

This approach relies on the planning stage in which business plans and causal relationships are identified (Cooper, 2000). Goal and mission setting is one of the first activities framed by managers and they derive their broad business plan from such goals. Managers develop and adopt a plan ('stick to the plan') to gather and manage resources to achieve such goals (Campbell & Park, 2017). The implementation stage lies at the fact that causal relationships will leverage the resources according to well-established links (for example launching a product that adheres to consumer preferences results in high sales). Particularly important, the controlling stage assumes that—through the business plan—managers are able to predict business outcomes and, what is more important, to control them (Skarmeas, Zeriti, & Baltas, 2016). Therefore, causal approach engages in analyses as forecasting, scenario planning, and 'what if' analysis (Allenby, 2017). A complete risk assessment is conducted before hand to have a clear view on future bottlenecks and risk scenarios for which mitigation strategies can be proposed and deployed if necessary (Pappas, 2016).

Form a cognitive standpoint, the causal approach assumes that the manager has complete information on causal drives, business outcomes, and risks. The manager utilises a causal-logic decision-making that is unaltered by personal preferences or cognitive biases (Bromiley & Rau, 2016). In a sense, different managers would take the same decisions if confronted with a given business scenario in terms of industry, competition, and internal issues.

Marketing

The specialisation of business functions led to the appearance of marketing. Although the initial marketing orientation was sales and product, the function relied on comprehensive market research to plan, launch, and assess products (Dunlap, Dotson, & Chambers, 1988). Specifically, the causal marketing function begins with a comprehensive analysis of the business and company contexts to gather information that enable the marketers to pose suitable positioning strategies. Similarly, the marketing mix is sustained by analytics to estimate future marketing performance. For example, the stream of marketing engineering proposes that marketing models are used before strategy planning (Lilien, Rangaswamy, Van Bruggen, & Wierenga, 2002). In this regard, this approach takes analytics tools such as conjoint analysis to analyse consumer preferences and serve as a basis for product development.

In causal marketing approach, managers take incremental risk-averse decisions that 'stick to the plan' in order to achieve marketing objectives (McDonald & Wilson, 2016). The focus of marketer is to choose the right product for the right segment at the right price. Marketers react negatively towards unforeseen events are included in marketing risk assessments. They seem to be rigid regarding their decision-making style (Matthyssens, Pauwels, & Vandenbempt, 2005).

Changes in the Business Landscape

Causal approaches were utilised in settings characterised by stable business conditions, clear business roles, and foreseeable competition. Market dynamics reflect a higher business complexity. Several changes of paradigms explain the present setting: First, the paradigm of co-opetition reflects blurry organisational boundaries (Walley, 2007). Competitors can be a source of competitive advantage when they become collaborators. Second, the concept of co-creation opens the way to customers to develop and innovate products (Prahalad & Ramaswamy, 2004). Third, the open innovation paradigm relies on creative ideas of many stakeholders. Companies now gather consumer information on preferences to complement internal views (Bogers et al., 2017). Finally, platform markets enable the connection of several companies which take roles of providers and consumers under the perspective of networks effects, that is, the more an innovation is diffused the more value consumers receive (Einav, Farronato,

& Levin, 2016). These changes pose implications for the analytical function of marketing: Forecasts become complex tools to use or they are useful under a restricted scenario. Decision-making under blurred organisation boundaries become ambiguous. Many stakeholders may participate in decision-making which makes accountability difficult to trace.

Besides the previous changes, it is now recognised that individuals lack complete adherence to the rational mindset. Rather, they develop internally coherent rules of thumb (Guercini, 2012)—heuristics—and also may exhibit cognitive biases as over optimism, wishful thinking (Vosgerau, 2010), and overconfidence (Invernizzi, Menozzi, Passarani, Patton, & Viglia, 2017). In this way, the effectuation approach was framed.

Effectuation Approach

The effectuation departs from the assumption that individual can develop such heuristics (Guercini, 2012) trough experience in such a way that they 'adapt' their business plan according to their resources at hand as well as the actual context they are embedded in. Effectual thinking aims at controlling present solutions without relying on analytic techniques. Decision-making focuses on reframing business problems and to convert them in opportunities. Entrepreneurs can adjust their initial objectives during the evolution of the venture; hence, thus, they seem to adopt a flexible decision-making mindset.

Effectual thinking avoids relying on analytical techniques, so decision-making is conducted with limited information, the resources at hand, and involvement of stakeholders. Unforeseen events are perceived as opportunities to reframe business failures. Similarly, competitors are seen as collaborators since resources can be seen as complementary for venture development and success; effectual entrepreneurs even form alliances with competitors willing to participate in the success of the venture. Entrepreneurs appear to receive feedback because it can indicative of issues and underperformance. As a process, effectuation is an evolving and continuously iterative set of loops that among goal setting, resource management, and stakeholders' participation adapts to the existing resources and relationships. Venture risk is assessed from the perspective of affordable losses—evaluating an opportunity by considering if the unfavourable result is acceptable.

Entrepreneurial Marketing

Entrepreneurs are highly motivated individuals who engage high risk-taking activities under interactive environment characterised by networking and flexibility (Hills, Hultman, Kraus, & Schulte, 2009). They leverage resources based conjectures and sales forecasting with limited data. Since its beginning, the concept of entrepreneurial marketing—a theoretical approach characterised by merging entrepreneurship and marketing (Hansen & Eggers, 2010)—has been useful to understand the exploration and exploitation of business opportunities within changing market dynamics (Gardner, 1994). Further, Hills and Hultman (2013) note that one of the foundational characteristics of EM comprises the entrepreneur's decision-making.

In this line, Ahmadi and O'Cass (2015) analysed the differences between exploratory-innovation activities and exploitative-innovation activities with a focus on knowledge and skills. By collecting data from new technology-based ventures in India, they identified that such activities influence the performance of a new product. Moreover, selecting a suitable international competitive strategy regarding entrepreneurial orientation can moderate the relationship between entrepreneurial orientation and marketing capabilities (Hernández-Perlines, Moreno-García, & Yañez-Araque, 2016). Whalen et al. (2016) proposed a contingency theory-based framework for entrepreneurial marketing in which they identify that dimensions of size, speed, market, opportunity, risk, and uncertainty are different from the standard view of marketing. In all, from an effectuation perspective (Sarasvathy, 2001), entrepreneurs tend to be risk-averse (Ye, 2016); unexperienced entrepreneurs may rely on predictive techniques over heuristics (Read et al., 2009). A similar lack of expertise in entrepreneurs leads to the increasing probability of using heuristics and cognitive biases in entrepreneurs' marketing decision-making (Nouri, Imanipour, Talebi, & Zali, 2017). Whalen et al. (2016, p. 3) propose that entrepreneurs engage in a 'combination of innovative, proactive, and risk-taking activities that create, communicate, and deliver value to customers, entrepreneurs, their partners, and the society at large'.

Towards a Set-Theoretical Model of Venture Performance

The previous discussion shed light on two different approaches to managerial and entrepreneurial decision-making. While there are some marked differences, there is a need to understand some variables

involved when individuals engage in each decision-making process. The following section introduces some research propositions as starting point to better understand when and how entrepreneurs select between causation and effectuation approaches and venture performance in relation with the main stages of opportunity exploration and opportunity exploitation. The conceptual model presented refers to a set-theoretical model (Fiss, 2007; Ragin, 2008) in which rather than proposing linear conclusive relationship, we attempt to find all causes of venture performance based on causation alone, effectuation alone, or in the intersection of both. That is, we look for complex patterns of entrepreneurial behaviour rather than a conclusive, one-explanation, and linear model.

Competitive Landscape Versus Stakeholders' Commitment

While the causation approach refers to other business players as competition (Armenia, Pompei, Pupillo, & Nonino, 2018), causation approach maintains that they can participate in the venture on the basis of resource complementarities (Sarasvathy, 2009). For example, one entrepreneur may possess a valued financial resource (e.g. angel funding) while other entrepreneurs may have access to a large market. Folta, Cooper, and Baik (2006) analyse this issue regarding public and private equity offerings in ventures in reference to the number of alliances achieved whereas George, Zahra, and Wood (2002) find a positive relationship between net sales and products on the market with the number of links as measured through the number of alliances formed. Other studies (Bamford, Dean, & Douglas, 2004) find that there is a positive relationship between the number of outside members of ventures' boards with the number of deposits and deposit growth in financial start-ups. Stakeholders will be willing to participate in ventures provided; they anticipate benefits for each of them. Hence, the following proposition can be framed:

RP1a Entrepreneurs would engage in a competitive analysis when resources are non-complementary and they are in the exploitation stage.

RP1b Entrepreneurs would engage in stakeholder's commitment when resources are complementary and they are in the exploration stage.

Controllability Versus Uncontrollability

Managers under the causation approach expect to have a high degree of control on the venture's outcomes (McDonald & Wilson, 2016). As they anticipate a number of activities in the planning stage and connect them with business outcomes, they expect to directly influence the venture's performance (Lilien et al., 2002). In contrast, effectual entrepreneurs assume a lower level of controllability of outcomes (Sarasvathy, 2001). Importantly, when an individual makes perceived control of the outcomes, the cognitive process at hand refers on subjective aspects of the surrounding issue rather than on an objective reality (Guercini, 2012). Thus, the perception of control is more important than the actual control on the outcome. Therefore, the following proposal is framed:

RP2a Managers in the causal approach perceive they have more control on venture's outcome in the exploitation stage than in the exploration stage.

RP2b Managers in the effectuation approach perceive they have less control on venture's outcome in the exploitation stage than in the exploration stage.

Risk Aversion Versus Affordable Loss

Causal approach focuses on risk management while effectual approach assesses affordable losses. While the first approach distinguishes between risk avoidance and risk seeking, the affordable loss is primary a risk seeking function. For example, Tan (2007) analyses the performance and profitability of new ventures as a function of defensiveness and risk-taking and finds a negative relationship between these variables. Similarly, Bamford et al. (2004) finds a negative relationship between money liquidity and the leverage of the risk position with the amount of money deposited in financial ventures. Entrepreneurs as risk seeking individuals tolerate higher level of losses as compared to managers in the causal approach. Hence, the following proposition can be framed:

RP3a Managers in the causal approach engage in more risk avoidance in the exploitation stage than in the exploration stage.

RP3b Managers in the causal approach engage in more affordable loss in the exploitation effect than in the exploration stage.

Predictability Versus Unpredictability

As managers in the causal approach assume that venture's outcome can be predicted, they can be deemed as future-oriented individuals while effectuation disregard such assumption (Abu-Rahma & Jaleel, 2017), it is reasonable to assume that entrepreneurs are present-oriented individuals. This has implications for the performance of managerial tasks as well as the approach to decision-making. For example, Flammer and Bansal (2017) show that long-term executive incentives create value for companies which is correlated to higher investments in innovation. Therefore, the following research proposition can be framed:

RP4a Causality-focused managers are approach decision-making from a future-oriented perspective for both stages exploration and exploitation.

RP4b Effectual-focused entrepreneurs approach decision-making from a present-oriented perspective for both stages exploration and exploitation.

Flexibility Versus Rigidity

Managers in the causal approach 'adopt the business plan' (Shane & Delmar, 2004) while entrepreneurs in the effectuation approach 'adapt the plan' (Haber & Reichel, 2007). The former has implications in the way they approach business opportunities and the way they implement the business plan. While the exploration stage is associated with the planning stage, casual-focused managers can exhibit less rigidity that when implementing the business plan. One of the underlying reasons is that market and financial assumptions can be adjusted easily. Hence, the following proposition can be framed:

RP5a Managers in the causal approach exhibit less managerial rigidity in the exploration stage that in the exploitation stage.

RP5b Entrepreneurs in the effectual approach exhibit more flexibility in both the exploration and the exploitation stage.

Figure 17.1 depicts the set-theoretical model for exploration and exploitation stages. In this model, there are several paths for venture performance to occur. In line with the research objective of this chapter, the

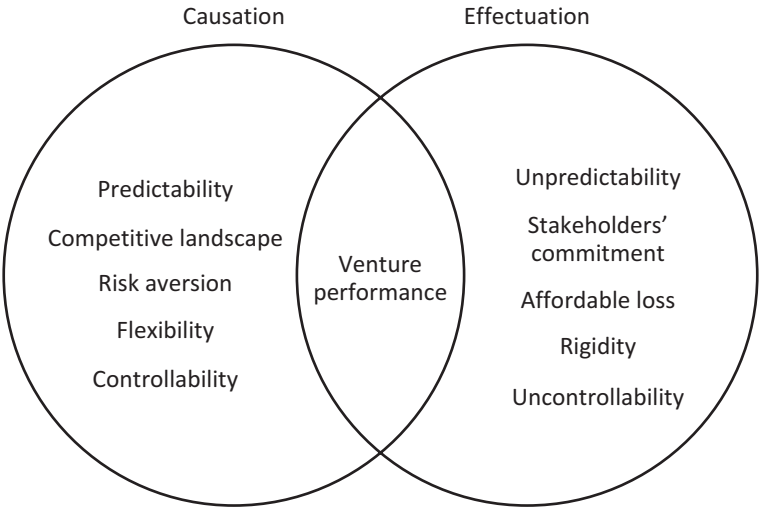

Fig. 17.1 Effectuation and causal approaches and venture performance (Source: Authors' own elaboration)

model depicts two sets and one intersection. The rationale for this design is that we aim a proposing several ways in which causal and effectual approaches interact rather than offering a conclusive model.

Research Prospects and Implications

Prospects for Testing the Set-Theoretical Model

To answer these research propositions a two-stage methodological approach can be conducted. The first is in-depth interviews. We would perform in-depth interviews with 25–30 recently incubated entrepreneurs in India at different early stages of their life cycle. Topics guide would include the following constituents:

- Stage of maturity, innovation capabilities, pro-activeness, and risk profile
- Planning, adaptability, and improvisation activities (causation and effectuation variables)
- Resource leveraging, networking activities, venture demographics, and performance

Data would be analysed using an iterative open-coding approach (Strauss & Corbin, 1998) with a focus on the key words that reflects interviewees' perceptions on the variables of interest mentioned above. We would stop the iterations when saturation of categories is reached. Two researchers would independently code the variables numerically (1–7 scale) according to the frequency and strengths of phrases in the qualitative analysis. Only the variables with high inter-coder reliability would be used in the following stage. The second is qualitative comparative analysis (QCA). Using the numerically coded variables, we would utilise QCA (Ragin, 2008) to understand how the combination of different variables leads to venture performance. QCA is a case-oriented method suitable to analyse small- and medium-sized samples. The analytical approach relies on the paradigm of causal complexity in which, rather than finding a linear path of cause-effect link, multiple causal combinations may lead to a given outcome. QCA is suitable to identify necessary and/or sufficient antecedents that lead to venture performance. Moreover, QCA is suitable to build theory, so the output of this stage would present the causal and effectuation combinations of variables that lead to venture performance. The main deliverable would be a table showing which variables are necessary and sufficient to reach venture performance under the effectuation and causal approaches. This would shed light on the complexities of entrepreneurial decision-making.

Implications for Research

The set-theoretical model proposed in this model goes beyond the existing research, which is focused on causation and effectuation as an exclusive model in which venture performance can be explained by one of the approaches. This chapter is also inclusive in the sense that there may be a hybrid path to venture performance. This hybrid approach may enrich the existing literature on entrepreneurial marketing given that the pervasive approach of causal marketing remains at the core of literature. However, by shedding light upon causal combination of variables, many research avenues rather than a one-size-fits-all approach can be inclusive of several types of ventures such as subsistence entrepreneurs, high-tech entrepreneurs, family business, and small and medium enterprises.

Implications for Practitioners

The proposed model can illuminate strategy implementation as well as capacity building. As causal and effectual approaches can have different impact on venture performance, practitioners can gain awareness on which approach is more effective during exploration and exploitation stages.

Conclusion

This chapter is not without limitations. First, as the conceptual model is theoretical in nature, it lacks the discussion of different types of entrepreneurs. Research shows that novice entrepreneurs engage in causation and effectuation in different ways. Similarly, high-tech entrepreneurs are more prone to use causal approaches than non-tech entrepreneurs. Noteworthy, there is a lack of literature on how subsistence entrepreneurs may engage in such approaches. Issues such as competitive intensity, type of industry, and consumer segments are left out of the scope of this chapter but other researchers may further test the combinations of variables in different settings. We hope that we can awake a fruitful debate on how causation and effectuation can coexist rather than being treated as separate instances.

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CHAPTER 18

Competency Evaluation for Social Media Usage: A Comparative Study of Male and Female

Sourabh Sharma and Megha Sharma

Introduction

Social media is all about association and sharing information, ideas, and content. Social media is the reason behind the explosion of content on the Internet, as several channels have allowed anyone with an Internet connection to create and share content effortlessly and for free.

Researchers of different backgrounds have identified several benefits and use of social media activities. They define "social media" as a series of both hardware and software technological innovations (Web 2.0) that facilitate creative online users' inexpensive content creation, interaction, and interoperability (Berthon, Pitt, Plangger, & Shapiro, 2012). The fundamental nature of social media as a platform for consumers to interact with and influence one another has a more direct impact on brand com-

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munities, and it produces higher response rates and greater customer engagement than traditional marketing methodologies that focus only on firm–consumer relationship (Trusov, Bucklin, & Pauwels, 2009).

Regardless of the veracity of the information, the shared content and tone via social media, specifically on social networking sites, is extremely powerful; there is no question about it, this information can influence, impact, sway, users' opinions, social media activity and, ultimately, decisions. Further, it can have effects on politics, social activism (Tufekci & Wilson, 2012; Van Dijck & Poell, 2013), and consumer activism (Lovejoy & Saxton, 2012), amongst many others. Therefore, the information presented on social media is powerful, to say the least. The real-world uses of social media can be described according to the framework proposed in Grewal and Levy's (2014) 4E model. This framework highlights that social media has four main purposes: to excite customers with relevant and engaging offers; to educate them about the firm, products/services, and offers; to allow customers to experience the products/services in some fashion, and to continually stay engaged with them.

As per Internet and Mobile Association of India (IAMAI) statistics, India has 480 million Internet users out of which 200 million users are active on different social media platforms. The most popular social networks in India are YouTube and Facebook, followed by social app WhatsApp. Facebook is projected to reach close to 319 million users in India by 2021. While globally women tend to dominate usage on major social networking websites, the trend is reversed in India. India's Facebook population, comprising 75% men and just 25% women, is more gender-skewed than that of neighboring Nepal and Bhutan.

Literature Review

Social media applications are also transforming the role of online users from passive consumers of information to active participants in creating and sharing information with one another. Nearly 30% of online users participate in some form of self-created content sharing (e.g. videos, stories, and photos), and even more post comments on websites (Lenhart, Purcell, Smith, & Zickuhr, 2010). In addition to facilitating interpersonal communications, social media applications have enabled customers to interact with business organizations and have empowered them to take an active role in co-creating their experiences (Prahalad & Ramaswamy, 2004). Currently, managers are charged with integrating social media

applications into existing customer relationship management (CRM) systems to develop new capabilities that improve customer experiences and satisfaction (Trainor, Andzulis, Rapp, & Agnihotri, 2014). This merger of existing CRM systems with social media has extended the concept of CRM to incorporate a more collaborative, interactive, and network-focused approach for managing customer relationships (Trainor et al., 2014). The recently coined term "social customer relationship management" defines and describes this new way of developing and managing customer relationships (Greenberg, 2010). Marketing scholars define social CRM as "the integration of customer-facing activities, including processes, systems, and technologies, with emergent social media applications to engage customers in collaborative conversations and enhance customer relationships" (Trainor, Rapp, Beitelspacher, & Schillewaert, 2012, p. 319). Organizations have recognized the potential of social CRM and have made considerable investments in it in the past 2 years (Trainor et al., 2014). Although current research focuses on social media applications, the effectiveness of social CRM systems remains largely unknown and underexplored (Trainor et al., 2014). Researchers have shown that CRM technologies alone rarely add value directly to firms and are most effective in doing so when combined with other firm resources (Chang, Park, & Chaiy, 2010; Jayachandran, Sharma, Kaufman, & Raman, 2005; Srinivasan & Moorman, 2005; Trainor et al., 2014). However, to date, scant research examines how social media technologies interact with CRM systems and marketing strategies to enhance firm value.

Possible motivations to use Facebook have been summarized early, for example by Joinson (2008) as "Looking at, looking up or keeping up with people" (p. 1027). Joinson used a study design with around 500 participants to identify fine-grained motivations such as "virtual people watching," "viewing photos," or "playing games" (p. 1031). Other analyses stay on a more general level and try to create theoretical frameworks for Facebook usage. Cheung et al. (2011, p. 1340) describe Facebook usage by applying the theoretical concepts "social influence theory, the use and gratifications paradigm, and social presence theory" and identify "social related factors (maintaining interpersonal interconnectivity and social enhancement) and entertainment value" as important motivations. Based on a literature review, Nadkarni and Hofmann (2012, p. 243) create a theoretical framework in order to distinguish two fundamental motivations for Facebook usage: "(1) The need to belong and (2) the need for self-presentation."

For Twitter, an early examination of user types is available by Java, Song, Finin, and Tseng (2007). The authors worked with user data from Twitter and analyzed network properties and geographical distribution to derive a taxonomy of user intentions which includes "daily chatter," "conversations," "sharing information/URLs," and "reporting news" (Java et al., 2007, pp. 62–63). Toubia and Stephen (2013) use a field experiment to study whether the audience size (based on follower numbers) affects the user motivation from an intrinsic one to an image-related one. They find that non-commercial users tend to post less content once their follower network becomes stable. Both for Twitter and Facebook, more studies on user behavior and motivation can be found, for example also focusing on specific user groups (e.g. educators in a survey by Carpenter & Krutka, 2014). Similarly, fundamental studies on user motivations and platform usage can be found for other popular social media platforms such as YouTube (Burgess & Green, 2009; Gill, Arlitt, Li, & Mahanti, 2007) or Wikipedia (Kuznetsov, 2006).

Research Gap and Embedded Objectives

From the literature review the author found different research on Social Media Impact and Usage but did not find any specific research on the perception of male and female about social media usage. Here, the author is undertaking a unique survey of performing the competency mapping among male and female for the use of social media. It will be a comparative study to evaluate the competency mapping for both the genders and to find the causal effect of the same. Based on the review of literature and gaps identified, the major objectives of this study are as follows:

- To investigate the dimensions of social media competency (Scale)
- To study the difference between male and female with reference to social media competency dimensions

Research Methodology

The descriptive research methodology has been used in this study. By the term descriptive research, we mean a type of conclusive research study which is concerned with describing the characteristics of a particular individual or group. It includes research related to specific predictions, features or functions of person or group, the narration of facts, and so on.

Measure

Social media competence (SMC) was measured using 21 items scale developed by Gianfranco Walsh, Schaarschmidt, and von Kortzfleisch (2016). The scale has five dimensions: Technical competence (TC), Visibility awareness competence (VAC), Knowledge competence (KC), Impact assessment competence (IAC), and Social media communication competence (SMCC). Items of dimensions are given below:

1. Technical competence (TC): Ability to use social media, settings, and all technical features available on social media in a proficient manner. Items under these dimensions are:
   - TC1: I find it easy to understand the technical side of my profile settings.
   - TC2: I find it easy to find my way around in social media.
   - TC3: I find it easy to change my profile settings in social media.
   - TC4: It is easy to block other people from accessing my profile.
   - TC5: I know how to conceal personal information in social media such as pictures, texts, and personal data from other users.
2. Visibility awareness competence (VAC): Ability to realize that one's communication on social media is visible to others, including a potentially large number of strangers. Items under this dimension are:
   - VAC1: I am conscious of the fact that my public comments on social media are read by people I do not know.
   - VAC2: I know that a great number of people can follow my activities in social media.
   - VAC3: I know that my profile is visible to people I do not know.
   - VAC4: I know that through social media I am connected worldwide.
3. Knowledge competence (KC): Tendency to contribute to discussions on social media only when one possesses sufficient knowledge in relation to a subject area. Items under this dimension are:
   - KC1: I only comment on subject-specific contributions of other users when I am well-versed in the subject area.
   - KC2: I only participate in discussions on social media when I have knowledge of the subject area.
   - KC3: I only make a counter-argument in a discussion on social media when I know my argument is correct.

- KC4: I only post comments when I am sure that they are correct.

4. Impact assessment competence (IAC): Awareness that one's contributions on social media could have unwanted effects. Items under this dimension are:
   - IAC1: Before I write something in social media I try to picture possible consequences.
   - IAC2: I think in advance of how my comments or posts might affect other users' thoughts and emotions.
   - IAC3: I give thought to how other people might take to my contributions and comments.
   - IAC4: Before I write something in social media, I consider how other people might perceive my contribution.
5. Social media communication competence (SMCC): A communication style that is generally viewed as appropriate (i.e. polite and non-confrontational) in social media. Items under this dimension are:
   - SMCC1: I respond to impolite and insulting messages with courtesy and respect.
   - SMCC2: A pleasant conversational tone is important to me when communicating in social media with other users.
   - SMCC3: It is important to me that my contributions, comments, or posts do not attack anybody personally.
   - SMCC4: To emphasize what I write in social media I sometimes use expletives.

Study Design

Snowball sampling technique was used for data collection. An online questionnaire containing 21 items of social media usage under 5 competence dimensions were circulated among the active social media users. In response, the filled up questionnaire were received from 410 respondents divided into 221 Males and 189 Females.

Results and Discussion

Objective 1: To Investigate and Check Reliability of the Existing Scale Used for Social Media Competency in Indian Context

To check reliability of scale, the Cronbach alpha test is used (Tables 18.1, 18.2, 18.3, 18.4, 18.5, and 18.6).

Table 18.1 Technical competence

	Scale mean if item deleted	*Scale variance if item deleted*	*Corrected item-total correlation*	*Cronbach's alpha if item deleted*
TC1	14.68	10.933	0.498	0.771
TC2	14.83	9.813	0.628	0.731
TC3	14.80	9.336	0.632	0.727
TC4	14.75	9.821	0.546	0.755
TC5	15.15	8.924	0.555	0.759
Cronbach alpha = 0.789				

Table 18.2 Visibility awareness competence

	Scale mean if item deleted	*Scale variance if item deleted*	*Corrected item-total correlation*	*Cronbach's alpha if item deleted*
VAC1	13.25	4.367	0.615	0.691
VAC2	13.07	5.227	0.589	0.705
VAC3	13.19	4.456	0.625	0.683
VAC4	12.88	6.016	0.480	0.759
Cronbach alpha = 0.768				

Table 18.3 Knowledge competence

	Scale mean if item deleted	*Scale variance if item deleted*	*Corrected item-total correlation*	*Cronbach's alpha if item deleted*
KC1	12.19	7.749	0.671	0.735
KC2	12.10	7.715	0.642	0.749
KC3	12.14	7.393	0.691	0.724
KC4	11.91	9.222	0.495	0.814
Cronbach alpha = 0.807				

Cronbach alpha for "Technical Competence" is 0.789. The values in column labeled "Corrected Item-Total Correlation" are all above 0.3. All the items under "Cronbach's Alpha if Item Deleted" contain less value than the original Cronbach alpha value that is 0.789 and as this value denotes reasonable degree of reliability, no item in this factor is required to be deleted.

Table 18.4 Impact assessment competence

	Scale mean if item deleted	*Scale variance if item deleted*	*Corrected item-total correlation*	*Cronbach's alpha if item deleted*
IAC1	11.63	6.362	0.293	0.703
IAC2	11.76	4.932	0.488	0.586
IAC3	11.69	5.447	0.507	0.575
IAC4	11.70	5.104	0.547	0.544
Cronbach alpha = 0.673				

Table 18.5 Social media communication competence

	Scale mean if item deleted	*Scale variance if item deleted*	*Corrected item-total correlation*	*Cronbach's alpha if item deleted*
SMCC1	11.90	4.092	0.243	0.374
SMCC2	11.15	4.678	0.344	0.279
SMCC3	10.89	5.289	0.294	0.343
SMCC4	12.18	4.595	0.154	0.474
Cronbach alpha = 0.435				

Table 18.6 Social media communication competence

	Scale mean if item deleted	*Scale variance if item deleted*	*Corrected item-total correlation*	*Cronbach's alpha if item deleted*
SMCC2	4.48	0.622	0.476	–
SMCC3	4.22	0.893	0.476	–
Cronbach alpha = 0.638				

Cronbach alpha for "Visibility Awareness Competence" is 0.768. The values in column labeled "Corrected Item—Total Correlation" are all above 0.3 and the values in column labeled "Cronbach alpha if Item deleted" shows that none of the item related to "Visibility awareness competence" is increasing the reliability if that item is deleted.

The overall Cronbach alpha is 0.807 for knowledge competence. The value in column labeled "Corrected Item—Total Correlation" is all above 0.3 and none of the items related to knowledge competence is increasing the reliability if that item is deleted.

The overall Cronbach alpha is 0.673 for Impact assessment competence. The values in column labeled "Corrected Item—Total Correlation" are all above except IAC1. The values in the column labeled "Cronbach's Alpha if Item Deleted" shows that if we delete IAC1, the reliability for Impact assessment competence will be increased to 0.703.

The consequence to delete this item will not impact much as the other three items are sufficient enough to determine the "Impact Assessment Competence."

The Cronbach alpha value for "Social Media Communication Competence" is 0.435 which is far below the accepted reliability value. Based on the values of column labeled "Corrected Item—Total Correlation" if we delete the two items having the lowest value and recalculate the reliability the following result will appear:

The revised value of Cronbach alpha after deleting two items is 0.638 for "Social Media Communication Competence." The values in column labeled "Corrected Item—Total Correlation" are all above 0.3. This is the highest reliability one can get for this factor.

Cronbach alpha value obtained in this study for social media competence demonstrates satisfactory results varying from 0.638 to 0.807 and total items have reduced from 21 to 18 by deleting three items from 5 factors to increase the reliability of the scale.

Objective 2: To Study the Difference Between Male and Female with Reference to Social Media Competency Dimensions

To address the objective, independent sample *t*-test is employed. Two independent samples are male and female social media users. The number of male and female social media users are 221 and 189, respectively. The table below shows the dimension-wise result of independent sample *t*-test (Table 18.7).

The result of *t*-test reveals statistically significant difference between the mean of male and female social media users with reference to five competence dimensions.

As per Table 18.2, for dimension one, there is a significant difference for "Technical Competence" among male and female bank employees. The mean score for male is 3.967 and for female mean value is 3.412 so we can say that male experience more Technical Competence than female. The technical knowledge of social media usage is found more for male than the female users. The mean score for male users (M = 3.967) significantly

Table 18.7 Independent sample *t*-test results examining differences between male and female social media usage

Dimensions	*Group*	N	*Mean*	*SD*	*Std. error mean*	t-*test*	*Sig (2-tailed)*
1. Technical competence (TC)	Male	221	3.967	0.7581	0.0510	7.982	0.000
	Female	189	3.412	0.6494	0.0472		
2. Visibility awareness competence (VAC)	Male	221	4.363	0.6844	0.0460	−0.083	0.934
	Female	189	4.369	0.7599	0.0553		
3. Knowledge competence (KC)	Male	221	4.057	0.8926	0.0600	0.679	0.498
	Female	189	3.995	0.9418	0.0685		
4. Impact assessment competence (IAC)	Male	221	3.478	0.8337	0.0561	−12.386	0.000
	Female	189	4.340	0.5670	0.0412		
5. Social media communication competence (SMCC)	Male	221	4.314	0.7211	0.0485	−1.079	0.281
	Female	189	4.394	0.7732	0.0562		

greater than female users ($M = 3.412$) at 5% significant level ($t = 7.982$, $p < 0.05$). Technical competence defines the ability to use social media, settings, and all technical features available on social media in a more proficient manner. Female finds it more complicated to change profile settings and privacy settings as compared to male.

Finding related to second dimension which is "Visibility Awareness Competence," reveals that there is no significant difference between male and female social media users. The mean score of male users ($M = 4.363$) almost equals to the mean score of female users ($M = 4.369$) at 5% significant level ($t = -0.083$, $p > 0.05$). These dimensions define that both male and female social media users have the ability to realize that one's communication on social media is visible to others, including a potentially large number of strangers.

In dimension three, under knowledge competence, there is no significant difference between male and female social media users. The mean score of male users ($M = 4.057$) almost equals to the mean score of female users ($M = 3.995$) at 5% significant level ($t = 0.679$, $p > 0.05$). Knowledge competence describes the tendency to contribute to discussions on social media only when one possesses sufficient knowledge in relation to a subject area. The perception of social media users is that—people really should only write about certain topics if they have expert knowledge.

Result for Impact assessment competence in dimension four, indicates that the mean score for female social media users ($M = 4.340$) is signifi-

cantly greater than male users ($M = 3.478$) at 5% significant level ($t = -12.386$, $p < 0.05$). Female social media users in advance try to picture possible consequences of writing any comment or post on social media platforms. Before female write something in social media, they consider how other people might perceive my contribution. On the other hand, male social media users are more straightforward and do not think much before any post or comment.

In the last dimension, that is dimension five, there is no significant difference between male and female social media users for Social media communication competence. The mean score of male users ($M = 4.314$) almost equals to the mean score of female users ($M = 4.394$) at 5% significant level ($t = -1.079$, $p > 0.05$). Both the users believe that a pleasant conversational tone is important for them when communicating in social media with other users. It is important that their contributions, comments, or posts do not attack anybody personally.

Managerial Implications

In today's time, it is important to know the impact which social media has on an individual and to the organization. It is also important to understand the behavior of social media users on various competency parameters like technical, visibility awareness, impact assessment, communication, and knowledge. According to conventional managerial wisdom, employee social media use produces a range of benefits to the company, because it affects relevant non-monetary and monetary outcomes. Gruber et al. (2015, p. 168) thus maintain that "the power of social media is an important force to be recognized, both by scholars and practitioners, as it can have a huge negative or positive impact on an organization's reputation." This research will help an organization and an individual to know the difference between the social media usage pattern of male and female. The research will display the gap areas in competency level of male and female social media users and would suggest the measures to be taken to fill those gaps. This research will enhance the usage of social media by male and female individuals and employees. Because social media is positively associated with positive word-of-mouth but negatively associated with bad-mouthing behavior, it is of concern to companies. By specifying the most relevant reputational dimension, companies can take appropriate steps to avoid negative reputation outcomes. Companies may increase employee reputation related to social media competence and strengthen

employees' social media-related technical competence so that they may be in a better position to increase their overall reputation. By analyzing employee social media competence (SMC) dimensions and their relationships with relevant outcomes, companies can better focus on appropriate SMC dimensions.

Conclusion

Both marketing practitioners and scholars recognize that social media are useful tools for engaging employees and their contributions to organizational goals. This research does the competency mapping among male and female for the use of social media and this competence can explain variation in relevant outcomes.

The results of this study reveal that male social media users find it easy to understand the technical side of their profile settings as compared with female users. Both male and female are conscious of the fact their public comments in social media are read by people they do not know. Both the users contribute to discussions on social media only when they possess sufficient knowledge in relation to a subject area. Although regarding awareness that one's contributions on social media could have unwanted effects, female think in advance of how their comments or posts might affect other users' thoughts and emotions. Both male and female social media users believe that communication style is generally viewed as appropriate (i.e. polite, non-confrontational) in social media posts and comments.

This research is not without limitations that suggest some research opportunities. First, this study included only respondents (male and female) from India. In India, this research was limited to the sample size which is considerably low in comparison to the population using social media. Time was also a constraint as the study was done in a limited provided time. There may also be some response biases of respondents because some of them were in a hurry during data collection.

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CHAPTER 19

Effect of Computer Efficacy, Motivation and User Satisfaction on Continuance Intention of E-Training System

Shalini Garg and Shipra Sharma

Introduction

Numerous amount of research has happened in the area of e-learning and has been well documented in literatures. E-learning is explained as an entirely new environment of learning that goes beyond the traditional learning methods such as classroom learning (Ramayah, Ahmad, & Hong, 2012). E-learning method can also be used to train employees in an organizational setup which can be referred to as e-trainings. E-trainings refer to learning to attain specific skills; according to Ramayah, Ahmad and Hong (2012), it resembles to e-learning in many ways such as in the use of technology and delivery method. Like e-learning, e-training also uses web-based technology; it generally comprises web-based training and video-conferencing.

The organizations strive to sustain themselves in the competitive market by enhancing the skills of employees. Technology innovation being highly dynamic, organizations require quick and prompt response to meet

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the changes in the business environment. E-trainings have helped the organizations to reap benefits by upgrading the skills of employees from time to time at trainee's pace. The benefits of e-learning are widely described in various studies. Abaidoo and Arkorful (2014), Oluborode and Olofintuyi (2014) and Pande, Wadhai, and Thakare (2016) have described various benefits that include flexibility in time and pace, enhancing the efficacy of knowledge and qualifications, cost-effective and self-pacing.

Although e-learning has many benefits, but it becomes important to understand employee's intention to continuously use the system for their training and development. Therefore, the main objective of the study is to analyze the relation between user satisfaction and continuance intention.

Theoretical Framework

The research framework for the study is based on expectation-confirmation model, generally this model applies to understanding the consumer's intention to repurchase the product or service (Anderson & Sullivan, 1993; Oliver, 1980). This theory of expectation-confirmation is employed to understand the employee's intention to continuously use e-training system. Bhattacherjee (2001) suggests that the consumer's repurchase decision and Information System (IS) user's continuance intention can be considered similar as both decisions depend on previous experience. Based on expectation-confirmation theory, the research framework advances with the identification of two constructs; computer efficacy and motivation to learn are believed to be significantly influencing the user satisfaction of e-training methods. The research also tries to investigate the effect of user satisfaction on trainee's continuance intention.

Computer Efficacy and Motivation

According to Alqurashi (2016), computer efficacy indicates learners' confidence in their capability of using computer and other related technology skills. Many research studies have indicated significant relationship between computer efficacy and user satisfaction. Chien (2012) investigated the influence of system and instructor factors on e-learning effectiveness with reference to computer efficacy. The responses were collected from the financial services industry in Taiwan and found significant to e-learning

effectiveness; it further demonstrated the moderating effect of learners' computer self-efficacy on the relationship between system functionality and training effectiveness. Ramayah et al. (2012) state that computer efficacy affects the intention of users to continuously use the IS system. It also indicates that the employees with a higher level of computer efficacy prefer to use IS system more frequently than the employees with low level of computer efficacy skills.

Motivation can be referred to as "the specific desire of the trainee to learn the content of the training course" (Ramayah et al., 2012). It has also indicated that the users who are motivated tend to do well and are also satisfied with the use of system (Ramayah et al., 2012).

User Satisfaction and Continuance Intention

User satisfaction refers to "Affective state related to the information system usage" (Ramayah et al., 2012) and continuance intention is defined as the intention to continue using e-training system (Mohammadyari & Singh, 2015). Various research studies have demonstrated significant relationship between user satisfaction and continuance intention (Wang, 2010; Weng, Tsai, & Weng, 2015). Bouznif (2017) indicates that satisfaction plays a vital role in the prediction of continuance intention.

Research Framework

Hypothesis:

H1 Computer efficacy has a significant relationship with user satisfaction.

H2 Motivation has a significant relationship with user satisfaction.

H3 User satisfaction has a significant relationship with continuance intention.

Research Methodology

The population of this study comprised of employees working with telecom companies that include telecom operators, telecom vendors and telecom infrastructure companies who have already experienced in using

e-training system. Therefore, the research follows purposive sampling type and the primary targets for this research were the employees working in companies who have already implemented e-training system. Individuals who had experienced e-training system were considered as the unit for analysis. A total of 260 samples were used for the study (Table 19.1).

The study was based on cross-sectional research design. The data were collected using structured questionnaires. The collection of data was based on samples who had previous experience in using e-training system at their workplace. The study used linear regression and ordinal regression techniques to draw inferences through SPSS version 20.

Table 19.1 Demographic profile of samples

Participant details	*Number*	*Total sample (%)*
Age		
18–25 years	95	36.54
26–35 years	124	47.69
36–45 years	34	13.08
46–55 years	7	2.69
56 and above	Nil	Nil
Gender		
Male	187	71.92
Female	73	28.08
Educational level		
Graduate	125	48.08
Post-graduate	122	46.92
Doctorate	8	3.08
Others	5	1.92
Experience		
1–10 years	133	51.15
11–20 years	88	33.85
21–30 years	31	11.92
31–40 years	8	3.08
E-training system usage (total hours spent in a week)		
1–3 hours	121	46.54
4–6 hours	62	23.85
7–9 hours	59	22.69
More than 9 hours	18	6.92
Total participants	260	

Results

Reliability and Validity of Measures

The construct validity was evaluated by exploratory factor analysis (EFA) using principal component method with varimax rotation. EFA resulted in four factors named as computer efficacy having eight items, motivation with four items, user satisfaction was identified as the third factor having four items and continuance intention was another factor, that had four items out of which one was dropped because of the low factor loading (<0.06). Therefore, continuance intention has three items with respective factor loading shown in Table 19.2. The items were considered with factor loadings greater than 0.06. The factor reliability was examined by Cronbach's alpha, the constructs were found to be reliable with Cronbach's alpha for computer efficacy, motivation, user satisfaction and continuance intention values as 0.832, 0.863, 0.826 and 0.796, respectively.

The standard values for Cronbach's alpha (DeVellis, 2012) are as shown in Table 19.3.

Table 19.2 Results of exploratory factor analysis and reliability

	Rotated component matrix				*Cronbach's alpha*
Factors	*1*	*2*	*3*	*4*	
CE1	0.833				0.832
CE2	0.802				
CE3	0.904				
CE4	0.853				
CE5	0.744				
CE6	0.737				
CE7	0.872				
CE8	0.868				
Mot1		0.711			0.863
Mot2		0.897			
Mot3		0.929			
Mot4		0.921			
US1			0.849		0.826
US2			0.873		
US3			0.945		
US4			0.946		
CI1				0.928	0.796
CI2				0.937	
CI4				0.939	

Table 19.3 Internal consistency using Cronbach's alpha

Cronbach's alpha	*Internal consistency*
$0.9 \leq \alpha$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

Source: DeVellis (2012)

From Table 19.2, the internal consistency of factors (computer efficacy, motivation and user satisfaction) is found to be above 0.9 and Cronbach's alpha for continuance intention is also found to be above 0.7 which is acceptable as per DeVellis (2012) (Table 19.3).

Findings

Since the factors were ordinal in nature, we employed factor loadings to describe the variable into a single factor. First, the dependent variables were considered where user satisfaction was acting as a dependent variable. In the second level, continuance intention was assumed to be dependent variable. Computer efficacy and motivation were considered as independent variables. The analysis was conducted in two steps; the relationship between computer efficacy, motivation and user satisfaction was first analyzed. In the second step, the relationship between continuance intention and user satisfaction was analyzed using ordinal logistic regression (OLR). An OLR analysis was conducted to see the effect of independent variables on user satisfaction. Results of OLR analysis are presented in Tables 19.4 and 19.5.

OLR analysis results, as presented in Tables 19.4, 19.5, and 19.6 show that all predictors were significant ($p < 0.001$) with an overall reliable model: −2 Log likelihood = 129.623. Parameter estimates represent the significant p values for each cut-off scale (Likert scale), where 1 refers to "strongly agree", 2 indicates "Agree", 3 is measured as "neither agree nor disagree", 4 represents "disagree" and 5 describes "strongly disagree". The likelihood ratio test showed that independent variables contribute to the probability of user satisfaction with e-training system and their continuance intention to e-training system at the workplace. Table 19.5 indicates that

Table 19.4 OLR model fitting information

Model	*−2 Log likelihood*	*Chi-square*	df	*Sig.*
Intercept only	288.559			
Final	129.623	158.936	8	0.000

Table 19.5 OLR parameter estimates

		Estimate	*Std. error*	*Wald*	df	*Sig.*
Threshold	[US = 1]	8.577	1.369	39.232	1	0.000***
	[US = 2]	6.465	1.356	22.742	1	0.000***
	[US = 3]	4.410	1.322	11.121	1	0.001***
	[US = 4]	0.714	1.061	0.452	1	0.001***
Location	CE	4.065	2.113	3.703	1	0.054
	Mot	4.951	1.802	7.552	1	0.006**

***$p < 0.001$, **$p < 0.05$

Table 19.6 OLR parameter estimates

		Estimate	*Std. error*	*Wald*	*df*	*Sig.*
Threshold	[CI = 1]	26.543	0.775	1173.028	1	0.000***
	[CI = 2]	23.723	0.722	1079.626	1	0.000***
	[CI = 3]	20.230	0.476	1803.338	1	0.000***
	[CI = 4]	17.884	0.420	1815.251	1	0.000***
Location	US	27.845	0.812	1175.259	1	0.000***

***$p < 0.001$

motivation is one of the major factors that affect user satisfaction. The estimate and p value for computer efficacy are demonstrated as (estimate = 4.065, $p > 0.05$) which is found to be insignificant with user satisfaction. Whereas, in case of motivation (estimate = 4.951, $p < 0.05$). Table 19.6 demonstrates the positive effect of user satisfaction on continuance intention (estimate = 27.845, $p < 0.001$).

Conclusion

The main objective of the study was to understand the effect of computer efficacy and motivation on user satisfaction and their intention to continue using the e-training system as shown in Fig. 19.1. The research results

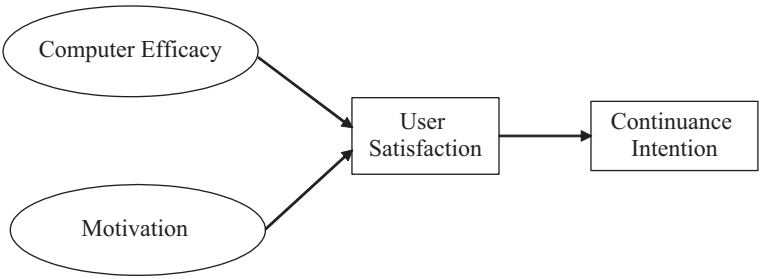

Fig. 19.1 Conceptual framework

demonstrated that computer efficacy does not have a significant impact on user satisfaction. This phenomenon can be explained on the basis of the respondent's demographic profile, the average hours spent on e-training per month was 5.64 hours. Therefore, as the users have gained experience in using the e-training system, the concern on the level of computer efficacy may no longer be a concern and hence, do not have an impact on user satisfaction. Whereas motivation showed a significant impact on user satisfaction, this indicates that when the trainees have high motivation toward e-trainings, they will show high concern toward e-training system. The results were found to be consistent with (Long, DuBois, & Faley, 2008; Ramayah et al., 2012). Similarly, user satisfaction and continuance intention exhibit linear relationship. This implies, if one increases the other will also increase. Therefore, if the users are satisfied using e-training system for their development, they would continue using it for their growth and development.

The research has two-fold implications. First, implication of the research study is to understand the factors affecting continuance intention to use e-training system. The second implication of this study is that it will help the telecom companies to focus on the individual's computer efficacy skills and motivate them to use e-training system for their continuous development.

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CHAPTER 20

Impact of Culture, Community, Communications, and Leadership on Social Enterprises Effectiveness in Africa

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Introduction

Social enterprises represent a form of businesses that is a carrier of social innovations and social progress (Saxunova & Schurmann, 2015). Social enterprises play a pivotal role in promoting initiatives and building social capital to address economic and social challenges in regions and local communities (Patel & Wilson, 2004). Some scholars argue that social enterprises catalyze social change depending upon socioeconomic, institutional,

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and cultural environments (Mair & Marti, 2006). Others find that social enterprises are a result of market or government failure (Helmsing, 2015; Moizer & Tracey, 2010), fulfilling social needs that are mostly created by poverty, informality, colonial history, and ethnic group identity (Rivera-Santos, Holt, Littlewood, & Kolk, 2015). Many social or environmental problems are also created by a country's environment and economic failure. The failure is even more pronounced in Africa where economic and political climates are unstable and as a result, most social enterprises do not survive the harsh climate beyond the first five years (Galvin & Iannotti, 2015). In fact, 26 countries ranked among the 30 poorest countries in the world are in Africa (International Monetary Fund, 2013). For example, in South Africa, social enterprises have unequivocal applications where traditional government initiatives are unable to satisfy the entire social deficit, where challenges to non-profit accountability are acute, and where the survival of many non-governmental organizations is at stake (Gugerty, 2010). Indeed, the African continent is characterized by serious social issues, which give rise to several opportunities to social enterprises (Rivera-Santos et al., 2015).

Over several decades, the African continent has received aid from China and the Western governments to stimulate economy. Further, the recent capital inflows from international financial institutions, sponsor-donors, and humanitarian assistance from such as Red Cross foundations, churches, and philanthropies are expected to stimulate and empower indigenous African entrepreneurs. Furthermore, there is an entrepreneurial revolution spreading throughout the African continent that involves social entrepreneurs establishing enterprises to produce social good of a higher value than real earnings. In fact, the Global Entrepreneurship Monitor (GEM) estimates that sub-Saharan Africa has the highest proportion of social entrepreneurs in the world except for Australia and the USA. Unlike the rest of the world, Northern and sub-Saharan Africa record more early-stage social entrepreneurs than commercial entrepreneurs among 18- to 34-year-olds (Bosman, Schøtt, Terjesen, & Kew, 2016).

Despite these facts, there are barriers to the start-up and scaling of social entrepreneurs in these regions. The GEM data demonstrate that African social entrepreneurs are less educated than their counterparts worldwide and their investments of personal funds in their enterprises are much smaller packages. They also have limited access to opportunities, ventures, and bank loans, and the shortage of professional management tools and expertise, and most importantly the lack of specialists to mentor

them. In response, a few Western, Central, and Eastern European and Asian universities and corporations have established partnerships with African institutions to assist them with the training called the program of assistance for social entrepreneurs in Africa. An entrepreneurial ecosystem encompasses resources of finance, processes of obtaining business-based skills, effectiveness of activities for creating markets, education, infrastructure, and regulatory frameworks. The most frequently discussed barriers to igniting social entrepreneurship are (1) difficulties in accessing financial resources to fund their operations and growth; (2) high taxes and levies; (3) high costs of essential inputs (energy, delivery and transport, machinery, and material); and (4) the lack of skilled labor availability. However, social entrepreneurs in Africa are interested in skills and professional development training, knowledge building exercises, starting incubators, and peer-to-peer interactions (Mirvis & Googins, 2018).

Social enterprises and the not-for-profit sector emerge when both markets and governments fail (Hansmann, 1980; Santos, 2012). Market failures have detrimental impacts on regions in terms of demand-supply imbalance, inefficiencies in manufacturing, a lack of trust, and shortage of poor infrastructure. Thus the government intervention such as regulating markets and providing public goods leads to the collapse of the government or its inability to tackle and solve unmet societal needs. In this mix, social enterprises may get the opportunities to meet the social needs which are not necessarily dependent on market pricing or predictable profits. A study of 384 social enterprises operating in 19 sub-Saharan African countries documents how economic and socio-political conditions influence the formation and self-definition of social enterprises in the region (Rivera-Santos et al., 2015). It reports a strong association between the poverty level in a country and the likelihood that an organization defines itself as a social enterprise and targets its goods and services at the poor and disenfranchised people. These social enterprises emphasize and prefer community development training, consultancy with their poor clientele, and transferring knowledge to them to making sales per se (Mirvis & Googins, 2018).

It is evident that social enterprises have proliferated to address the growing social problems and the increased demand for such services (Sakarya, Bodur, Yildirim-Öktem, & Selekler-Göksen, 2012), and have attempted to measure their effectiveness by evaluating process, behavior, initiatives, and tangible outcome of the enterprise, among others (Haugh, 2005). Yet, it is argued that the definition of a social enterprise must reflect

two critical features of a social as opposed to a mainstream enterprise; that is, the project has social goals rather than profit, and revenue is used to support social goals instead of shareholder returns (Harding et al., 2005). For the purpose of this chapter, we follow the generally accepted definition of a social enterprise that has a mission instead of profit and uses its income to achieve the mission instead of maximizing shareholders' returns on their investments.

The purpose of this chapter is to examine factors that contribute to enhancing social enterprise effectiveness in the context of Africa. Although a few scholars have focused on social enterprises and studied their impact assessments in African context (Berthon, Pitt, Plangeer, & Shapiro, 2012; Rivera-Santos et al., 2015), this chapter has important implications as it examines the four factors—culture, community, communications, and leadership—that contribute to social enterprises effectiveness in Africa. These factors contribute to literature by offering the promise of empowering marginalized segments of the population in Africa through social enterprises. Examining the factors in African context is unique as it offers the ability to obtain fresh insights, expand theory and increase understanding by incorporating more contextualized considerations (Amendola, Garofalo, & Nese, 2011). In the following sections, we provide a theory and conceptual framework, proposition development relating to *culture*, *community, communications*, and *leadership* followed by a discussion and implications for managers.

Theory and Conceptual Framework

For the purpose of the chapter, we use the Identity theory which is based on symbolic interactionism and assumes that society shapes social behavior (Stryker, 1980). According to the theory, different people from different culture apply to themselves as role players (e.g., social entrepreneur) or group members (e.g., community), and individuals (e.g., culture and communications) (Stryker & Burke, 2000). Therefore, two people (e.g., two social entrepreneurs in two different cultures) may seem to hold identical attitudes, but their *most preferred* and *least preferred* alternatives may still differ (Nebergall, 1966). In the context of this chapter, it focuses on social entrepreneurs who are enthusiastic, communicators, and players, and not driven by profit. They have ideas and take potential employees from their communities with no work experience or those with disabilities. Also, these entrepreneurs have personal experience and psychological

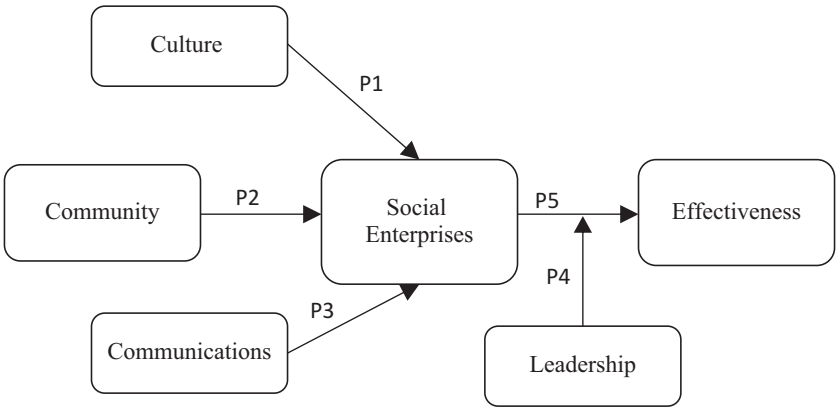

Fig. 20.1 The conceptual framework

knowledge about the people with barriers that can still contribute significantly to effectiveness of social enterprises despite the challenges (Saxunova & Schurmann, 2011). Past studies have suggested linkages between role identities and social workers (Battilana & Dorado, 2010). The Identity theory applies to our conceptual framework (Fig. 20.1) in that effectiveness of social enterprises depends on the extent to which social entrepreneurs align themselves with different logical factors (Thornton, Ocasio, & Lounsbury, 2012). Through literature survey, we identify such factors as culture, community, communications, and leadership.

Culture and Social Enterprises

Culture predicts cultivated human behavior that results from the learning and social experiences of an individual (McNeill, Fam, & Chung, 2014; Rana & Sharma, 2013). Different scholars have different views on culture. Triandis (2001) classifies cultures as horizontal individualist (HI), vertical individualist (VI), horizontal collectivism (HC), and vertical collectivism (VC), whereas Hofstede (1983) cultural dimensions are: individualism/collectivism, masculine/feminine, power distance, and uncertainty avoidance. Yet, House, Hanges, Javidan, Dorfman, and Gupta (2004) propose the nine dimensions of culture based on the GLOBE (Global Leadership and Organizational Behavior Effectiveness) study: uncertainty avoidance, power distance, institutional collectivism, in-group collectivism, gender

egalitarianism, assertiveness, future orientation, performance orientation, and humane orientation. Further, some scholars believe that the culture has become global and homogenous due to the advancement of technology and the communications systems. So people use similar cognitive processes as they are exposed to the similar ideas, products, and services through television and the Internet (LeBlanc & Herndon Jr, 2001; O'Donnell & Jeong, 2000). Yet, others argue that the culture is a myth as people act in a different way in different culture (Kastanakis & Voyer, 2014). The differences in the views necessitate the need to examine the impact of culture on the behavior of social entrepreneurs. In general, literature suggests that culture predicts human behavior (Herskovits, 1969; Michon & Chebat, 2004). For this chapter, we define culture as the values, beliefs, norms, practices, and behavioral patterns of a community (House et al., 2004). When a person adopts a pattern of unique identity of the culture, they are motivated to act in accordance with its behavioral standard. Identity-consistent behavior produces feelings of competence and self-worth, while discordant acts lead to negative emotions, giving rise to internal accountability pressures (Stryker & Burke, 2000). Studies have shown that African entrepreneurial environment is more influenced by ethnic culture than the other parts of the world (Herbst, 2000). For example, in the prevalent *ubuntu* ethnic culture in Africa, human interdependence and reciprocity are much more important than individualism (Mangaliso, 2001; West, 2014). Thus, social enterprises are expected to be effective in inclusive culture and work toward achieving a common social mission. Hence, we propose that

P1 Culture affects social enterprises.

Community and Social Enterprises

Social enterprises, supported by their members, serve the needs of community to achieve a given social mission (Moizer & Tracey, 2010). This concept is different from most business models that deal with mainstream consumers. One of the emergent missions in Africa is to reduce the gap between unskilled and skilled labor which has caused unequal wealth distribution (Ward, 2004). Unskilled labor force is most likely made up of poor people. Because social enterprises engage in social missions, they are likely to target poor people within these marginalized communities (Seelos & Mair, 2005). Another related issue is aid dependence which hampers

skills development. As a result, many social entrepreneurs have been found to inform their respective communities of the negative implications of being solely dependent on charities and government aid. Instead of holding the common narrative of *waiting for help to arrive*, young entrepreneurs aim to dispel old ways of doing businesses and usher into the new wave of social empowerment through social entrepreneurship in the community (Thorgren & Omorede, 2015). If a social enterprise has a positive effect on the community, the people of the community are more likely to support and engage themselves in the mission of the enterprise when high levels of poverty are present, because the members are compassionate about the relevance of the mission of the social enterprises connected to the community (Miller, Grimes, McMullen, & Timothy, 2012). For example, the development of the multipurpose community center (MPCC) initiative in South Africa was found to be very effective as the community felt a sense of inclusiveness. Social enterprises are also more likely to engage the poor in a more inclusive manner if community issues directly relate to them, as members work toward a compassionate mission rather than salary (Pless, 2012). However, if a country, which is the case in the African continent, lacks sufficiently educated members to join social enterprises, it will be challenging to recruit them who are effective enough to advance missions of community-based enterprises. Further, it is important to not only recruit the right individuals for the job but also treat them right so they feel valued and welcomed within the confines of the institution. It is found that most social enterprises realize that the way the staff interacts with public is almost a reflection of how they are treated as employees of the enterprise. The last thing a social enterprise needs is a bad review from the consumers, community, or donors (Chan, 2016). Hence inclusiveness and relevance of community issues affect social enterprises in achieving their mission. We propose the following proposition that

P2 Community affects social enterprises.

Communications and Social Enterprises

Social media-based communications are defined as a collection of web pages and applications that are designed to allow users to interact with their friends and easily create, edit, or share content (Brown, 2012; Roberts, Piller, & Luttegens, 2016). Social media is effective communication strategies for all organizations, particularly for social enterprises as

they can collect donations, gain company awareness, and gather information at a reasonably low cost (Given, Forcier, & Rathi, 2013). Social media allows social enterprises to keep their information up to date about their missions and continue to share improvements, changes, or successes that occur in their enterprises. Social media is also able to reach larger communities than traditional marketing strategies, and thus can also be used to initiate social campaign to generate funds to keep social enterprises afloat (Galvin & Iannotti, 2015). However, in the context of Africa, the Internet may have limited availability or may be prohibitively expensive (Berthon et al., 2012). Thus, relying only on social media-based communications may adversely affect operations of social enterprises, as social enterprises require highly skilled employees to perform different tasks effectively. For example, past studies suggest that selling financial products to people who do not have previous adequate knowledge about it requires high interpersonal skills to deal with various psychological barriers that they might have. Without education being prominently available in a country, a social enterprise may have challenges recruiting skilled employees, making them ineffective (Battilana & Dorado, 2010). Indeed, imparting interpersonal skills on social media may be challenging and ineffective in achieving social enterprises missions. A lack of and high costs of communications may affect social enterprises' ability to achieve their missions. So we propose that

P3 Communications affect social enterprises.

Moderating Effects of Leadership Between Social Enterprises and Effectiveness

Enthusiastic and inspiring leaders develop clear vision, set direction, and create the appropriate organizational conditions to achieve vision. Effective leaders of social enterprises should be able to communicate their vision to others, mobilize resources, and create a team to achieve the mission. More importantly, social entrepreneurs should be able to create the culture of developing relationships to bind people together to achieve social objectives. Studies find a strong association between having a tribal ethnic identity and the poor and disenfranchised local community. Members of the tribe show more respect to the enthusiastic leader than their members themselves. The successful leader knows the community well and shows respect to its members, contributing to increasing the value of a social enterprise of the community (Elkington & Hartigan, 2008). Therefore,

social entrepreneurs and their enterprises not only arise amidst market and government failures but also, to an extent, remediate those (Yunus, 2011). Indeed, Africa is a continent of many nation states with numerous ethnic groups in each country. Many of the ethnic groups operate in a very complicated tribal and political systems. There operations and impact on economic development are profound. Some scholars argue that Africa operations in terms of politics and tribe are not only deep but also very high. In some countries such as Kenya, at least in the recent past, the world witnessed the ascendancy to political power of illiterate tribal leaders who could only use their thumbs to sign documents. Such leaders have assumed very high level positions in state institutions such as State Owned Enterprises (SOEs). Most are accused of using their leadership positions to reward their tribal followers with jobs and contracts. Hence, we propose that

P4 Leadership moderates the relationship between social enterprise and effectiveness.

Social Enterprises and Effectiveness

Social enterprises are non-profit and mission-oriented, yet they are expected to be effective in delivering services while maintaining mission and constitutional accountability—the extent to which a social enterprise is effective in following them effectively. As such, a social enterprise is a complex, demanding, and constantly morphing balancing act. It requires skilled people at all levels who can look at things from more than one angle in order to achieve social enterprises missions (Lynch Jr. & Walls, 2009). Thus the skill gap between the employees who are being hired, and the skills that are required to accomplish the task will affect the effectiveness of the social enterprise. As such, social enterprise effectiveness is intangible and thus extremely difficult to measure (Kanter & Summers, 1987). Some of the examples of intangible achievements of social enterprises could be, for example, enhancing confidence of the target segment which may not be quantifiable in the short term, but in the long-term, the confidence may lead to a higher self-efficacy which can result in high-paying career jobs. In general, if a social enterprise constantly operates at a loss or does not properly manage its cash and accounts, it is ineffective, but it can sustain a loss if compelling reasons exist for such a crisis (Bagnoli & Megali, 2011). Although effectiveness of enterprises can be measured by several indicators such as input, output, and geographical reach, among others, enterprises' impact on community is the best way to measure their

effectiveness (Higgins & Finnie, 2010). For some social enterprises, scaling up their operational activities may be an indication of effectiveness of their social enterprises. Another indicator of social effectiveness could be social capital, defined as those resources (both actual and potential) derived through an individual's network of relationships, which could be leveraged to improve social enterprises effectiveness (Nahapiet & Ghoshal, 1998). However, social enterprises need to respect the laws of the country that specify the conditions for their existence, without which social enterprises cannot be effective (Kerlin, 2006).

The multiple constituency model advocates the processes that measure social enterprises' effectiveness and its social impact on stakeholders. In this model, the most adequate social impact measure is matched to the most relevant stakeholder. The five-step multiple-stakeholder approach in the model, presented in Table 20.1 identifies and categorizes stakeholders based on their interests, and then develops matrices to measure the extent to which the stakeholders are successful in contributing to social enterprises (Costa & Pesci, 2016).

Hence we propose that

P5 Social enterprises' effectiveness varies.

Table 20.1 Tool of measuring social enterprise effectiveness

Multi-constituency model					
Donors	**Managers**	**Beneficiaries**	**Investors**	**Workers**	**1. Identifying & classifying stakeholders**
Money/financial capital invested into/or product by social enterprise					
If and how money is spent? **Appropriateness**	Will the goal be achieved by social enterprise? **Capability to achieve it**	Is evaluation of the quality of the product/ service good? **Satisfaction**	Financial support for the activity with higher **Social impact**	Is a job of social enterprise a good offer? **High-quality job**	**2. Comprehending nature of stakeholders' interest**
Cost-benefit analysis SROI	Y (Gama) model	Social Accounting & Auditing (SAA)	Engaged X project SROI	Social Accounting & Auditing (SAA)	**3. Evaluating relevant metrics**
↕	↕	↕	↕	↕	
4. Considering feedback from stakeholders					

Source: Adapted by the authors from Costa and Pesci (2016)

Discussion

The African continent is ideal for studies on social enterprises because of its uniqueness and the fact that social enterprise is growing by leaps and bounds due to a combination of factors such as institutional failure and decline, corruption, poor governance systems, and bad politics, among others. Further, the continent provides a particularly apt illustration of how an environment constituted of political, economic, social-cultural, technological, legal, and geographical factors can influence social enterprises in unique ways. There are great variations among African countries. For example, Egypt, Nigeria, Ethiopia, Kenya, Botswana, and South Africa are among the rising states of Africa in terms of economic development.

The purpose of this study was to examine the factors that contribute to enhancing social enterprise effectiveness in the African context. Using Identity theory which is based on symbolic interactionism and assumes that society shapes social behavior, we propose the four pertinent factors—culture, community, communications, and leadership—that the managers should pay attention to enhance social enterprise effectiveness. Some cultures such as the Maasai people in Kenya and Tanzania have mostly defied civilization. This has influenced enterprises both negatively and positively in regard to considerations such as cultural tourism. Cultural practices such as Female Genital Mutilation have had a negative impact on development. Culture remains a significant factor in the success of social enterprises.

The African continent is characterized by serious and profound social issues, which can become opportunities for creation of social entrepreneurs. Lack of resources, poverty, frequent famines, overreliance on agricultural exports for most countries, institutional rot, and poor governance among other factors are likely to present particular challenges for social enterprises. It is a truism that African countries face unique challenges in their economies. In spite of the variation across, and within, countries, African countries are typically characterized by high levels of poverty, government failures, and poor infrastructure, market failures, and a large informal economy, with many countries ranked among the 30 worst countries to do business in. Furthermore, it is well known that the African institutional environment is characterized by lingering colonial influences and by particularly strong ethnic group identities. Unique issue sets Africa apart from other developing and emerging country contexts. Nevertheless the African environment is likely to create many opportunities for social

enterprises to emerge in new and creative forms that reflect the institutional variability and constraints.

On average GDP growth in Africa has been impressive. In spite of relatively high GDP growth rates, especially in sub-Saharan Africa, the African continent is still characterized by severe socioeconomic problems. Africa and especially sub-Saharan Africa has the poorest countries on earth. These are the Democratic Republic of Congo, Zimbabwe, Burundi, and Liberia. Economic and social challenges are often compounded by conflicts, such as those in Northern Mali, Somalia, Sudan, Democratic Republic of Congo, and the Great Lakes region, as well as high economic inequality. Poverty in Africa is not just economic but is apparent in matters of life such as the wider aspects of wellbeing, including health and education. Generally speaking, starting and growing enterprises in most countries of Africa is also typically more difficult than in other parts of the world, linked to poor infrastructure, relative cost, ethnicity, party politics, and bureaucracy. Challenging business conditions alongside weak institutional structures lead to high levels of informality. Overall, this co-existence of opportunities and challenges is likely to have important implications for social enterprises emerging to address them.

Community development through government policies in African countries also tends to be more complex than in many parts of the world, even though substantial variations exist across countries. Africa suffers from weak formal institutions. Those who manage and control institutions mostly do so through patronage and rent-seeking behaviors. It is a well-established fact that the political games that are played in most African countries are deadly, to say the least; serious opponents sometimes get eliminated and elections are mostly sham exercises that are controlled by the ruling political classes. Ethnicity is a phenomenon to behold in the African continent. Most scholars in many quarters in Africa and elsewhere have advanced the common view that there is a strong correlation between the current levels of economic development and the geographic prevalence of slave raids, as well as the impact of these raids on present-day cultural patterns (Robinson, 2009). Trading patterns at the moment generally reflect the colonial legacy. It is safe to state that in most African countries complex institutional layers seem to be specific to the continent, at least to some extent.

The issues of communications and technology development and diffusion cannot be overlooked. While technology has been embraced in significant ways in Africa, the continent has not really benefited from what

might be described as appropriate technology and many areas of development such as mining and agriculture remain in serious need of technical support skills. From the foregoing, it is apparent that the African context seems to exhibit particularly interesting characteristics for social enterprise development.

Recommendations for Managers

This study has a few recommendations for social enterprise managers. First, the managers should determine whether or not their enterprises' activities are connected to their missions, constitutions, the needs of the stakeholders and rules of the land. Following the focus on the mission's needs, a social enterprise can have the potential to maximize its profit. Although profit maximization is not a goal, it would contribute to the enterprise's growth scalability, a vital sign of the enterprise's effectiveness. Second, the lack of government failure in Africa means that there is generally a lack of social programming and education for poor people, unlike the west where government assistance is available. Indeed, education at all levels should incorporate the elements of solidarity in their curriculum. This gives social enterprises an opportunity to fill the needs of the segment by understanding the culture of the community, and by developing public- and community-oriented products and services, and by setting a benchmark to measure the enterprises' effectiveness and their overall impact. Third, efforts should also be made by social enterprise managers to ensure that their products and services are distributed quickly and understood easily by communities. Thus, social enterprises need to invest in proper research mechanisms, find an unserved need, come up with a strategy, examine all the resources currently at their disposal and outweigh them against cost limitations. Fourth, the recent emergence of social media as communications tools has offered unprecedented opportunities for breaking down knowledge silos in organizations and has facilitated knowledge-sharing across boundaries more effectively and efficiently (Kane, 2017). We also recommend that social enterprises use social media platform which is very effective in Africa. Social enterprises, when creating their market plans, should pay attention to culture, community, and research what is the most preferred social media channel for communications within that culture, community, and country. It is found in South Africa that many people in this country use mobile phone technology to access online services (Swanepoel & Thomas, 2012). So social enterprises

would have greater success if they used mobile social media platform to market their enterprises and enhance their effectiveness.

Social enterprises face a rapidly changing market forces in which they must compete with public sector, for-profit, and traditional non-profit organizations to be effective. Social enterprises effectiveness has been usually measured in terms of their performance relative to other businesses within the same sector or across the sector. The comparisons, particularly between social enterprises and private sector companies, offer better insights into the social businesses as to what works and what does not. This enables the spread of good practices and the control of bad practices across the social enterprise sector in addition to guiding procurement authorities' decisions in the allocation of government contracts (Bertotti, Sheridan, Tobi, Renton, & Leahy, 2011). Indeed, the social enterprise sector's primary goal is to create social value, but it should also create economic value and wealth to allow them to self-maintain and sustain over a long period.

In sum, social enterprise managers in Africa should emphasize their core characteristics of running the social enterprises while respecting the principle of solidarity and cohesion; suppressing the primary goal of profit maximization; providing effective social services to gain financial resources to support sustainability of their enterprises; and reinvesting gained financial resources in furthering mission of social enterprises while taking into account social-psychological characteristics of employees.

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Index[1]

[1] Note: Page numbers followed by 'n' refer to notes.

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