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The Business Model of Banks: A Review of the Theoretical and Empirical Literature

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7.1 Introduction

The business model (BM) has become a key concept in banking literature. The topic's relevance is due to the impact of the crisis on bank profitability and risk levels, leading to new challenges for bank managers, analysts and regulators.

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From the managerial point of view, the crisis has caused an in-depth review of banks' strategies and enhanced their ability to change/adapt both their business mix and their market positioning in the different strategic areas where they compete.

In the years since the outbreak of the crisis, three main drivers have spurred a significant change in banks' strategic plans.

Firstly, a new adverse economic context, with a combination of slow economic growth and historically low levels of interest rates. Both phenomena depress the prospects for traditional bank intermediation, since they lead to less, higher-risk lending while simultaneously squeezing profit margins on the loans–deposits circuit.

Secondly, the re-regulation introduced in the wake of the crisis is triggering strategic changes in BMs to adapt balance sheet structures to new regulatory requirements: liquidity, high-quality capital, more stable funding resources and bail-inable debt.

A third driver concerns the structural configuration of the main banking systems, which affects banks' ability to handle the fast pace of technological innovation and its impact on products and distribution channels.

This Darwinian economic context opens the question of which banks are in the best position to succeed and, at the same time, which banks are going to become the victims of this much more competitive arena.

Business model analysis (BMA) has become the conceptual framework used by analysts and regulators in the attempt to identify banks' main strategic behaviours and their implications in terms of competitiveness and future performance and stability.

As far as banking regulation and supervision are concerned, BMA is the basis for a proactive response and aims to reveal the key vulnerabilities of the different banking business models (BBM). This conceptual framework, embedded in the Supervisory Review and Evaluation Process (SREP), has a central role in the 2015 and 2016 Thematic Review by the Single Supervisory Mechanism (SSM). In banking supervision, BMA is an important tool for revealing a bank's main vulnerabilities in the short run and the viability and sustainability of its strategic plans in the short and medium terms. The supervisory assessment not only regards the risks each bank has undertaken and therefore its vulnerability (idiosyncratic

risk in a microprudential perspective), but also its contribution to systemic risk, in a macroprudential perspective.

For financial analysts and investors, the BM is an important factor in the evaluation of banks' ability to create value. In a phase of high financial market volatility and high equity capital needs, it is crucial to understand how the market assesses and evaluates a bank's restructuring process and its changes in strategies and business mix.

A key issue in BMA is the identification of banks' BM types: which variables and typical characteristics should be considered? Can these variables be clustered into relatively homogeneous groups to develop a peer analysis aimed at identifying the relative strengths and weaknesses of different BMs?

These questions are at the centre of recent banking literature, which has revealed wide differences in the approaches used to classify the strategic variables on which BM definition is based. This diversity originates from conceptual schemes that are not always made explicit in the literature and this means that results are not always easily comparable.

Our review of banking business model (BBM) literature aims to deepen and specify the definition of BMs by drawing on the main concepts adopted in strategic management literature.

Relying on a definition of BM that takes into account what banks do and how they do it, we classify the plurality of contributions that address the subject of banking BM themes and summarise our main findings. In doing this, we specify the nexus linking BM literature with other approaches to bank strategic choices, mainly in diversification studies.

Lastly, we relate the main pointers obtained from the literature reviewed to the assessment scheme adopted by supervisory authorities to evaluate the viability, sustainability and key vulnerabilities of banks' current BMs.

7.2 The Definition of Business Model

In management literature, the use of BM analysis has increased significantly since the mid-nineties under the pressure of technological innovation and the expansion of traditional competitive areas through virtual networks.

The BM concept has been examined in depth in different fields of economic literature, such as Information and Communication

Technologies (ICTs) and e-business management, organisation theory and strategy studies. This variety of approaches implies that, even now, there is not a widely accepted definition of BM and there are many meanings of the keywords "business model" (Klang et al. 2014).

7.2.1 ICT and e-Business Stream

In the last two decades, the BM has become a focal concept for researchers in the e-business stream; they consider it as a way of analysing competitive behaviour and explaining firms' performance in competitive environments characterised both by intensive use of ICTs in production and distribution processes and by a rise in the importance of stakeholder networks (suppliers, partners, customers, etc.) in value creation.

This literature has developed a BM concept that aims to embrace all the elements and relationships that enable IT-based or Internet-based firms to generate value. It follows the idea that the system (a sort of *gestalt*) creates more value than the sum of its individual parts and the BM is essential to enhance it (Amit and Zott 2001; Zott et al. 2011). Therefore, according to these analyses, a BM is interpreted as a representation of the set of decisions, activities and relationships between them that explain how an organisation creates, delivers (to its stakeholders, including customers) and captures value (Osterwalder and Pigneur 2012), building a sustainable competitive advantage in specific markets (Morris et al. 2005).

Often these contributions tend to give greater emphasis to specific components of this systemic representation. Some stress how firms generate value, i.e. the value proposition (Baden-Fuller and Haefliger 2013), or how they optimise the cost/revenue structure (i.e. value capture); others focus on the way in which relationships with the enterprise's network (suppliers, customers, delivery channels, partners, competitors) increase value.

Notwithstanding the different focus on BM components, there is consensus on the idea that BM has value at the corporate level and offers a useful holistic perspective for understanding not only what businesses firms do (e.g. what products and services they produce to serve the needs of customers in addressable market spaces) but also how they do it (e.g. how they bridge resources and product markets in serving the needs of

customers). So that BM becomes a new unit of analysis which puts emphasis on a firm's activity system to create value as well as to capture it (Zott et al. 2011).

7.2.2   Organisational Theories and Resource-Based View

In organisation theory, the BM concept has been developed as an integrated presentation of the company, in order to contribute to process management and process-based organisation design. Not much has been published from the organisational point of view, and the role of this approach is marginal in comparison with the management or strategy streams. In these works, the BM concept focuses to a greater extent on the business's operational aspects and value creation within the firm. In this stream of the literature, the BM generally refers to the firm overall and its structural components (Wirtz 2011). It has been seen as a tool for the abstraction of an entire company and its architecture.

Various works within the e-business stream concentrate on the components of a systemic representation of the firm, with a resource-based view (RBV) approach, considering the firm as a combination of resources and competences. A RBV approach is also used by Osterwalder (2004) in his BM ontology, in order to represent the knowledge and exchanges of both tangible and intangible resources (competences, services, etc.) between organisational players to identify the ways in which the firm generates value (Chen et al. 2014). However, resources only represent a firm's potential. They are necessary but not sufficient for success. Competitive advantage derives from the ability of the company in its entirety to activate, coordinate and integrate resources to achieve performances better than those of its competitors (Penrose 1959).

Although useful for representing a firm's organisation, the RBV is insufficient to describe the ability to generate value without the aid of a BM. Resources in themselves do not generate value for the customer; value is generated by relationships and transactions with the customer based on them. DaSilva and Trkman (2014) define the BM as a representation of "a specific combination of resources" which through

transactions generate value for both customers and the organisation, combining the RBV with transaction cost economics. The resource-based approach runs through many works, but its theoretical rationale has difficulty in understanding how a BM is able to create value in a way that differs from other management literature concepts (DaSilva and Trkman 2014). One BM theory, in which a firm's organisational outcomes are affected by managerial competences, expertise, ability to learn and execution, is very appealing. Nevertheless, in the literature, there is no agreement on the nature of the individual components and this approach does not clearly explain the contribution of internal resources and cannot be precisely distinguished from managerial literature (George and Bock 2011).

7.2.3 Strategy Stream

Traditionally, the strategy stream approach relates a company's creation of value to its ability to identify a strategy (or combination of strategies) able to provide a competitive advantage.

Taking the competitive environment as a reference, strategy is the creation of a unique, valuable position for the firm through the development of a competitive advantage. Strategy involves a different set of activities and the choice of the specific way in which the firm competes (Porter 1996; Teece 2010). It is useful to analyse the concept of strategy on two different levels.

At the first level, there is a corporate strategy (Ansoff 1965), which concerns the choice of the size and diversification of the company's business portfolio. This level involves the definition of the various strategic business areas (SBAs) which reflect the product–market–technology combination chosen.

Corporate strategy refers to the firm's high-order (first level) long-term choices in terms of diversification, vertical integration, internationalisation, growth (acquisitions and new ventures), size, governance structures, capital allocation to the different SBAs and disinvestment. It answers the question "Where are we going to compete?"

At the second level, there is the business strategy, which identifies how to compete and how to achieve competitive advantage in each SBA. The business strategy's specific objective is the sustainable competitive advantage a company can achieve and the relationship between that advantage and the industry, by which it is defended. It answers the question "How are we going to compete?"

The SBA identifies the actual (physical or virtual) situation where the business strategy is applied. It is a combination of customers, products and internal resources, where the specific internal relations need a particular entrepreneurial and strategic approach.

Within the "strategy stream", two different meanings of BM can be identified.

On the one hand, in a more operational perspective, the BM is a way of representing and analysing (and, not least, validating, through analysis of internal consistency) the value generated by the strategies, and on the other hand, it is a way of maximising value through the best operational structure and articulation (Shafer et al. 2005). Business strategies focus on the market and external competition, while the BM concentrates on the ability to optimise the business internally and/or within the network. It defines the activities through which the objectives defined by the business strategies can be pursued to improve or optimise competitive advantage (Mottura 2011).

An alternative systemic perspective positions the BM closer to strategy. It can be defined as the concrete choices that derive from the actual combination of corporate/business strategies and the various activities and economic levers involved (price variables, control of costs, customer segments, quality, distribution channels, degree of relationship, technology, productive processes, etc.).

This second approach provides the rationale for connecting the key company strategic choices to their main consequences. BM is the representation of a subset of key choices implemented and their main consequences. Choosing a specific BM (policies, assets and governance) means choosing a specific way of operating and creating and capturing value for the firm's stakeholders. Strategic choices establish the BM. Therefore, the BM is not the strategy, but is the direct result of the strategy a firm implements (Casadesus-Masanell and Ricart 2010).

7.2.4 Strategic Groups

According to the strategy stream literature, one way to analyse the firm within a specific industry is to compare its performance with that of its main competitors, in order to identify any strategic groups. The literature tells us that a strategic group is made up of firms which follow the same or similar behaviour along key strategic dimensions, with regard to specific criteria such as product range, size, internationalisation, technology and vertical integration (Porter 1996).

The group of firms builds mobility barriers on these key strategic dimensions and the investments they require to separate the individual group from the external competition. These barriers help to explain firms' competitive advantage, their performance and the effects of the external context on their profitability.

Recent empirical literature has led to the identification of the strategic group with the BM, as in the large number of studies which employ cluster analysis to group similar strategic behaviours and performance. The empirical results of these analyses are controversial, and their methodology is not always considered effective for analysing differences in firms' performance within the strategic group (Short et al. 2007; Leask 2004).

The employment of cluster analysis has usually focused on economic variables which only provide a very indirect, sketchy picture of actual strategies, and therefore, the attempt to classify firms' strategies on the basis of very broad differences between firms is able to identify general but not specific strategies.

At the same time, the finer the classification criteria used, the more homogeneous but also the narrower the groups become in terms of profitability and strategic behaviour. Moreover, when the analysis deals with strategies as context specific, as specific actual choices bounded by available resources, competitive position, management attitude to risk and industry structure, the strategic group BM is replaced by the individual firm.

In Fig. 7.1, we classify the different approaches in management literature with respect to BM definitions, in order to assess their usefulness
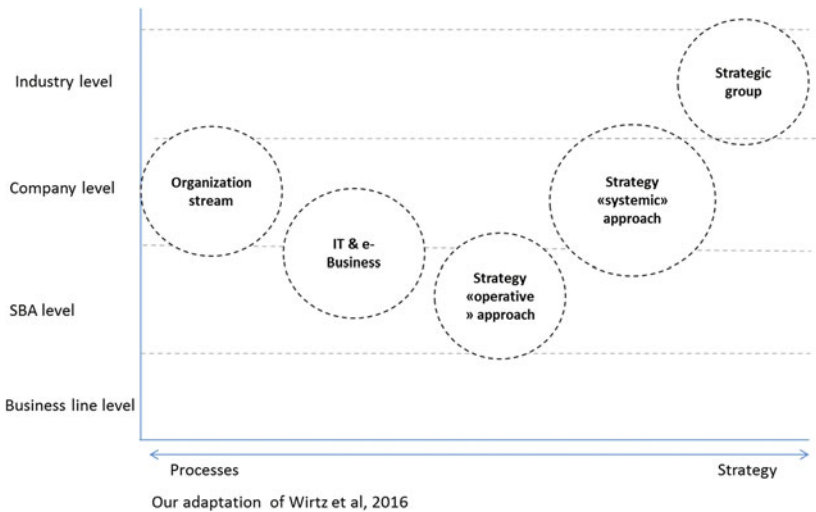
Fig. 7.1   BM definition: the different approaches in the management literature

in relation to the firm's operations. They are arranged on two axes: we place the operational/strategic level on the horizontal axis and the firm's level of organisation, from industrial sector through to individual lines of business, on the vertical axis.

7.3   The BBM Literature

Following the broad conceptual perspective of strategic management studies and its adaptation to bank strategic studies, we review and classify the BBM literature, taking as reference a definition which considers the set of both bank portfolio choices and management abilities intended to exploit market positioning in the different business areas.

  Portfolio choices are indicated by the different mix of SBAs, which reflects how "first level long-term strategies" (like growth, diversification, internationalisation and attitude to risk) translate into organisational features of different combinations of products/customers/resources. These strategies, also referred to as *corporate strategies*, reflect the firm's history, its experience and capabilities and the competitive context.

Long-term strategies—stable in a stable economic context—were stressed in the pre-crisis era when banks set their strategic plans against the prospect of continuous growth in the demand for financial services. Then, after the crisis burst, retrenchment and a consequent deep revision of growth, diversification and internationalisation strategies prevailed, along with a strengthening of capital positions. This was followed by significant changes in the business mix, which affected the composition of banks' assets and liabilities as well as their earnings.

At a second strategic level, we set *business strategies*, the managerial choices that pursue revenue enhancement through customer segmentation and product differentiation, cost efficiency and risk management in the different business areas, capturing value from the business mix adopted. How these strategies are successfully implemented will depend on the specific managerial abilities of the bank's organisation.

Both long-term and business strategies are affected by macroeconomic, competitive and regulatory variables. These context variables have ex ante effects on banks' strategies and their BMs in so far as they influence the hypothesis the strategic plans are based on. Ex post they directly affect the way in which business strategies achieve the targeted results.

In Fig. 7.2, we show the different strategic levels through which we represent the concept of the BM. This schema enables us to classify the main contributions to BBM literature and underline how the different approaches focus on a different identification of strategic variables.

An initial classification of the literature is based on the different emphasis placed on the identification of bank peer groups sharing similar BMs.

Several studies follow the literature on strategic groups and aim to find evidence of how the banking industry can be classified using just a few different bank BMs with different performance with respect to economic and financial context.

The main characteristic of these studies is the distinction between what the bank is doing and how the bank is doing it, so that business composition is identified with the BM concept, whereas other strategic variables are considered as the outcome of portfolio choices. Under our
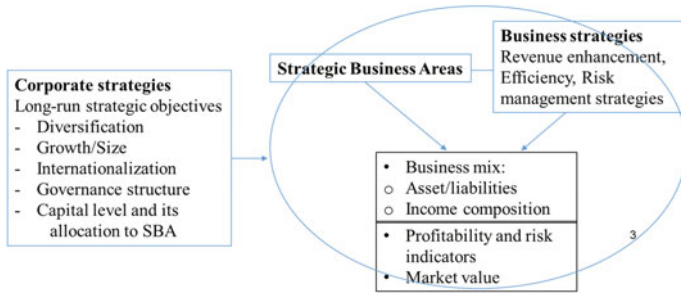
Fig. 7.2   Strategic components of banking business model (BBM)

schema, this approach implies a representation of the BM in terms of SBAs, which are approximated by asset/liabilities and/or income composition, whereas business strategies are implicitly evaluated in the outcome analysis. It is important to underline that this definition of BM can lead to the attribution of performance results to the business mix even when the former are due to the bank's skill in managing the single business areas.

This approach can be traced in the work of Ayadi and Groen (2014) and Ayadi et al. (2016a). Following the pioneering work of Passmore (1985) and Amel and Rhoades (1988), these authors employ a two-stage procedure for the BM analysis of European banks. The first step adopts cluster analysis to group banks on the basis of asset and liability composition. Then, they evaluate how the bank clusters perform with respect to a very broad set of indicators concerning both performance results and strategic behaviours such as risk exposure, loan growth and internationalisation. Six indicators of asset and funding composition used in cluster analysis identify four large, distinct groups that differ from each other in their retail and financial market orientations. A comparison between bank clusters on the basis of risk-return frontier confirms that investment banks have higher risk and volatility, while diversified retail banks seemed to perform better during the financial crisis thanks to their higher revenue stability.

Roengpitya et al. (2014) also use the cluster algorithm, along with the adoption of some selection criteria and balance sheet ratios, to classify the BMs of a large sample of listed and non-listed banks from 34 countries, during 2005–2013. They compare three distinct bank clusters with respect to outcome variables. When valued in terms of performance, the retail-funded group (high share of loans on total assets and high reliance on deposits) displays the highest average level and the lowest variability of profitability over time. The trading banks (half of the assets in tradable securities and predominantly funded in the wholesale market) are the group with the highest volatility of return on equity and cost base. The wholesale-funded group stands between the other two groups in terms of return levels and volatility. The study finds significant shifts across different BMs before and after the crisis: two-fifths of the banks classified as wholesale funded or trading in 2007 ended up with a retail-funded BM in 2013. The performance statistics show that the change in banks' BM induced a prevailing worsening in profitability.

A different result with respect to migration between bank clusters over time is shown by a study presented in the ECB Financial Stability Review (2016) in the classification of European banks during 2007–2014. Comparing the bank clusters based on size, asset/liability and income composition indicators, they find that most banks remained in the same group, revealing "sticky" BMs which have difficulty in adapting to a changing environment or the anticipation of stress.

De Meo et al. (2016) adopt an original fuzzy clustering technique based on a broad set of asset/liability mix indicators of listed and non-listed European banks (77 for 15 countries) for 2006–2014. They identify three main clusters of banks: retail, diversified and investment banks. Each group was then subdivided on the basis of four EBA classification criteria (systemic relevance, dimension, organisational complexity and cross-border activity) considered by the authors to be attributes of strategic choices. Among the eight resultant peer groups, retail banks show the highest return on assets in the years preceding the financial crisis but the worst performances at the peak of the sovereign

debt crisis, due to the deterioration in credit quality. Among them, small banks with limited cross-border exposure and a low degree of income diversification (non-complex retail banks) were hardest hit by the increasing credit risk. The study analyses the effects of macroeconomic variables on the performance of the different peer groups: as expected, economic growth, yield curve and sovereign risk are the most significant variables affecting retail banks, whereas due to their dependence on non-interest income, investment and diversified banks displayed a significant exposure to financial markets. One methodological aspect of the analysis must be underlined: probabilistic clustering tends to make the performances of different BBM more similar, a sign that bank-specific strategies may be more important than membership of a strategic group in explaining bank performance.

The specificity of bank strategies is the focus of Mergaert and Vennet's (2016) analysis. They define BM in terms of the strategic variables that reflect the management's long-term choices (latent strategies) with regard to asset and liability composition, capitalisation, income structure and the bank's risk profile. The common variances of these variables define two broad BBM: retail and diversified. The authors underline the fact that these models are graduated and use common factor analysis to evaluate both how these long-term strategies are implemented and their impact on performance. The authors conclude that there is a substantial variation in the effects of the BM between different bank types and show that retail-oriented banks perform better in terms of both profitability and stability and that diversification improves profitability, but also increases the likelihood of distress.

A different approach to the grouping of European banks is employed by Bonaccorsi et al. (2016). They classify 112 significant European banks following a step procedure based on threshold values of balance sheet parameters including size, lending propensity and international credit exposure. The authors use data published by the European Banking Authority (EBA) and the European Central Bank (ECB) further to the comprehensive assessment, which allows them to define portfolio composition by counterpart type, showing that large domestic and other lending banks are more exposed towards SMEs and retail real estate

secured loans than large international or diversified banks. This composition explains the higher level of profitability of lending banks but also their greater cyclical sensitivity. The study points to macroeconomic conditions as the main driver of current differences in profitability across bank types, whereas riskiness seems to reflect both differences in borrowers' risk profiles and the extent to which banks use IRB models. In particular, the ratio between risk-weighted and unweighted exposure (risk density) is lower for large banks able to both tailor riskiness to each individual position more effectively and, in some cases, manipulate risk weights, thus creating a bias towards lower risk density.

How the management of risk weights is linked to banks' chosen BM is the theme of the study by Ayadi et al. (2016b). Applying the Ayadi et al. (2016a) cluster approach and using the same group classification, the authors provide evidence of the different degree of regulatory arbitrage across bank BMs. Notably, IRB adoption seems to have a positive effect on the riskiness of retail diversified banks, signalling that regulatory arbitrage is occurring within this banking BM.

An alternative strand of BBM literature adopts a wide definition of BM that combines portfolio choices with many other business and context variables. According to our schema, this approach has the merit of considering many strategic aspects of a BM, although these studies often fail to make a clear distinction between long-term strategies, business mix and business strategies.

A second feature of these studies is their emphasis on banks' different strategic behaviours rather than the identification of strategic groups. In some cases, BM variables are compared across the main institutional bank groups or considering different bank sizes.

A further characteristic of this approach is the focus on bank riskiness and the identification of which BM variables most affect bank vulnerability. The focus on risk reflects the perspective of bank supervisors and their concern for the consequences of bank strategies on default events.

This approach is central to the work of Altunbas et al. (2011), who use a broad set of bank characteristics to identify BMs. Three risk measures of a large sample of European and US banks are regressed on groups of indicators collected in the pre-crisis period. These should denote different banks' BMs: asset, funding and income composition variables along with

indicators like loan growth, capital ratio, total assets and a number of variables that account for major macroeconomic and institutional factors. Therefore, their definition of BM includes business mix variables along with some other strategic variables concerning growth, capitalisation and size. These strategic variables, along with the reliance on short-term market funding, are statistically significant in explaining bank distress. The main indication concerns the significant, high impact on banks' risk of the aggressive expansion in loan growth in the pre-crisis years, as evidence of the relaxation of credit standards and a deterioration in asset quality. In addition, the ratio of loans to total assets is positively related to bank risk as well as bank size. With regard to funding and income composition, the study finds evidence that relying on deposit funding reduces the probability of a bank rescue, whereas non-interest income reduces the likelihood of distress during the crisis. Conversely, the use of wholesale funding increases the bank's risk.

Köhler (2014) follows a similar approach, relating Z-logscore to business mix and loan growth variables for a large sample of European banks. The analysis evaluates the relationship to the main institutional bank categories: commercial, saving and cooperative, and investment banks, with a focus on listed banks. In Köhler (2015), the same risk indicator is regressed on two main business mix variables (non-interest income share and non-deposit funding as a fraction of total assets) and then integrated with many other control variables. The approach is similar to that adopted by Demirguc-Kunt and Huizinga (2010) for an international sample of 1334 banks in 101 countries leading up to the 2008 financial crisis. The econometric study by Köhler confirms some results found in the bank diversification literature, which point to the risk of shifting a bank's operations onto the financial markets (securities and wholesale fund market). For savings and cooperative banks, a larger share of their income from non-traditional activities generates more return stability, but the banks themselves become less stable due to the increase in their share of non-deposit funding. This contrasts with investment banks, which become riskier when they increase their non-interest income and will be significantly more stable if their share of non-deposit funding rises. This may be because retail and investment banks diversify

in different ways. The latter derive most of their non-interest income from securities-related activities that incorporate a market risk, whereas the former earn their diversification revenue mainly from banking-related services. This signals the importance of keeping these two fundamentally different types of activities separate when studying the relationship between bank risk and diversification (DeYoung and Torna 2013; Brighi and Venturelli 2014). Along with diversification, lending growth is also an important determinant of bank risk that significantly differs across countries, due to both the different aggregate credit growth and the reduction in bank lending standards and collateral requirements during booms.

A ECB study (2016) of a sample of 143 Euro area banking groups during 1995–2014 also regresses the z-score variable on several bank-specific BM characteristics, including some business mix measures (including retail ratio, income diversification and short-term borrowing), cost-to-income ratio, a leverage ratio and size. Other explanatory variables regard macroeconomic conditions and structural market features. Pre-crisis, income diversification is associated with higher default risk, whereas during and after the onset of the financial crisis more diversified banks displayed lower default risk levels. During the whole period, a higher default risk for global systemically important financial institutions (G-SIBs) contrasted with an overall reduction in riskiness for smaller, less complex banks. This result is in line with Köhler's findings that diversification is beneficial up to a point, beyond which banking group complexity is prejudicial to bank stability. Increasing recourse to short-term borrowing also has significant riskiness implications for G-SIBs, whereas if they shift their funding mix towards deposits, they are able to reduce their risk exposure.

The bulk of these studies focuses on the nexus between BM variables and individual bank risk, and only a few of them deal with the effects of strategic choices on systemic risk.

An analysis of the nexus between BM variables and measures of individual and systemic bank risk based on market values is proposed by Van Oordt and Zhou (2014), who rely on stock market data from CRSP of US Bank Holding Companies from 1991 to 2011. Drawing on the literature on market risk, the authors identify two aspects of banks'

systemic risk: bank tail risk and the linkage between a bank's tail risk and severe shocks in the financial system. As expected, they find a stronger dependence between large banks and systemic risk, with a positive association between size and sensitivity to severe shocks in the financial system (approximated by severe changes in the financial sector index). The same positive relationship with severe financial shocks is found for non-interest income share, confirming that banks' involvement in these activities is relevant not only for microprudential but also for macro-prudential regulation. With regard to asset/liability composition, the study points out that lending-focused BMs are significantly associated with higher levels of tail risk, but with lower systemic linkage. For the deposits-to-assets ratio, they find similar results on the relationship to financial shocks. Growth strategies are associated with an increase in sensitivity to large shocks in the financial system, whereas banks with higher capital ratios show a significantly lower exposure to systemic risk.

   As already underlined, the analysis of the interrelations between systemic risk and some main bank characteristics has considerable implications for regulation: the breakdown of systemic risk clearly indicates that regulators must choose the right balance between micro- and macroprudential objectives.

7.4   The Literature on Bank Diversification: The Nexus with BBM Analysis

The review provided above demonstrates that the literature on bank BMs is closely linked to that on diversification strategies. The link clearly emerges from the empirical analysis centred on the nexus between diversification activities and measures of banks' performance, with the former usually approximated by asset/liability and income composition indicators and in particular by the distinction between net interest income and non-interest components. These measures thus highlight the scope of corporate strategy, or in other terms, the results of the strategic portfolio banks decide to develop. At the same time, the so-called control variables (i.e. size, economic efficiency and risk profile) used in

diversification studies can be considered as a proxy for bank choices at the business strategy level.

If the focus is on the main commercial banks, it is reasonable to assume that the differences in their BMs concern mainly the different intensity with which the functional diversification[1] process, in terms of an array of products and services and customer segments, has been carried out. In recent decades, the development of financial markets and the increasing complementarity between the banking and securities segments of financial intermediation have contributed to the characterisation of banks' BMs: the securitisation process is emblematic of this change. In many countries, the development of the asset management business has been favoured by banks' diversification strategies. Banks are also the main investors in bonds and in particular have continued to play an important role in the coverage of sovereign debt.

For these banks, decisions about their BM and the competitive advantages that may result are interwoven with key strategic decisions concerning size/growth and diversification.

The goal of achieving optimum size and exploiting economies of scope in the offering of a wider range of products and services was central to the strategies of many banks, at least until the outbreak of the financial crisis. In retrospect, it is easy to see that this approach was based on an over-estimation of the prospects for growth in the demand for banking products and services, and a clear underestimation of the operational complexity and risk profile related to larger size and wider SBAs.

From a theoretical point of view, the existing banking literature focuses on the question "should banks diversify their portfolios or should they specialise?" since both pros and cons can be identified. Among the recognised benefits, the possibility of exploiting economies of scope may lead to an increase in performance through cost savings or revenue improvements (Teece 1982; Herring and Santomero 1990; Llewellyn 1996; Klein and Saidenberg 1997; Campa and Kedia 2002; Elsas et al. 2010), along with a reduction in the degree of information asymmetry (Diamond 1984, 1991; Rajan 1992; Stein 2002) and the agency costs of managerial discretion (Stulz 1990; Stein 1997; Gertner et al. 1994). These benefits have to be traded off against the costs associated with

diversification. In particular, increasing the size and scope of a bank's activities introduces the "cost of complexity", which at some point may outweigh the benefits that can be achieved (Rajan et al. 2000; Graham et al. 2002). Moreover, diversified institutions can suffer (DeYoung and Roland 2001) from earnings volatility, lower switching costs for clients and higher operational and financial leverage (Demsetz and Strahan 1997; DeYoung and Roland 2001), increasing the volatility of earnings and hampering risk-adjusted performance measures.

While the theoretical literature has effectively addressed the reasons for and economic effects of greater diversification of business, empirical studies only estimate the implications of functional diversification at a general level, by testing the nexus between some aggregated indicators of business mix and measures of banks performance.

Most studies are centred on the US banking industry, following the implementation of Gramm Leach Bliley in 1999. With few exceptions,[2] these contributions find that a shift towards non-interest activities worsens the risk-return trade-off because the costs of diversification outweigh the benefits, mainly due to the increased volatility of these activities (DeYoung and Roland 2001; Stiroh 2004; Stiroh and Rumble 2006; Laeven and Levine 2007; Goddard et al. 2008); moreover, this finding is valid for both financial holding companies and smaller institutions such as credit unions.

Fewer studies deal with European banks and those which are available provide similar results regarding the effect of diversification on bank performance. Among them, Mercieca et al. (2007), examining a sample of 755 small European banks for the period 1997–2003, find that small European banks do not gain from their diversification strategy because the higher volatility of net interest income outweighs the benefits of diversification, implying lower risk-adjusted returns, and this is linked to small banks' lack of expertise in managing new lines of business. Lepetit et al. (2008) find that for a set of European banks from 14 countries during 1996–2012, expansion into non-interest income-generating activities displays higher risk and higher insolvency, and this is particularly true for smaller banks and those driven by commission and fee activities. Baele et al. (2007), using a sample of listed banks from 17 European countries during 1989–2004, confirm Stiroh's finding (2006)

that banks that rely more on non-interest sources of income have systematically higher market betas and hence higher systematic risk.

These findings may be affected on the one hand by measurement problems linked to the definition of diversification used and on the other hand by the lack of consideration of the possible interaction between diversification and banks' other characteristics.

In this sense, the degree of information granularity disclosed by banks in relation to the nature of fee-based revenues allows a more precise evaluation of the nexus between diversification and performance and can affect the final results.

Gallo et al. (1996) showed the importance of distinguishing between the different components of non-interest income. In particular, combining bank and mutual fund activities improved the profitability and reduced the risk of US bank holding companies during 1987–1994.

More recently, DeYoung and Rice (2004), DeYoung and Torna (2013) recognise that different fee-generating activities show different production and risk-return characteristics and hence are likely to have different impacts on the probability of financial distress and insolvency. The authors identify three categories of non-interest income, and the results point out that higher involvement in asset-based non-traditional activities such as venture capital, investment banking and asset securitisation is associated with higher probability of failure for financially distressed US banks and that an increase in pure fee-based non-traditional activities such as securities brokerage and insurance sales reduced the probability that banks would fail during the crisis.

The recent studies on the diversification of Italian banks benefit from detailed, public data on bank income composition. Cotugno and Stefanelli (2012) use a panel data set comprising 4038 observations relative to Italian banks for 2005–2010 and find a positive relationship between product diversification and bank performance, also in terms of risk-adjusted measures. On a sample of 145 Italian banks during 2006–2008, Vallascas et al. (2012) reveals that institutions that were diversified within narrow activity classes before the financial crisis experienced large declines in performance during it. By contrast, diversification across broad activity classes, such as lending and capital market activities, did not cause performance losses during the crisis. Brighi and Venturelli

(2016) use bank-level data on 491 Italian banks during 2006–2012 to investigate the impact of functional and geographical diversification on bank performance during the 2008 financial and the 2010 sovereign debt crises. Both crises negatively affected bank profitability, but banks that were more diversified, in terms of both revenue and geographical diversification, were less penalised in terms of risk-adjusted profitability. Results differ for the sample of mutual and non-mutual banks, with the former benefiting more from geographical and the latter from functional diversification.

The importance of the degree of information disclosure is captured well in a recent study by Williams (2016), which models the relationship between bank revenue composition and bank risk using data drawn from the confidential regulatory returns of Australian banks. At first glance, consistently with previous international evidence, it is seen that banks with lower levels of non-interest income as a proportion of total bank revenue and higher revenue concentration are less risky, but at the same time, some types of non-interest income are risk reducing when the effects of bank specialisation are considered. To study this in greater detail, bank revenue is broken into six categories, and the results underline the existence of some portfolio diversification benefits from trading and investment income.

Turning to the theory that findings relating to diversification may be influenced by a failure to consider interactions between diversification and banks' other long-term choices, the possible effect of interaction between size and diversification is accurately described in De Jonghe et al. (2015). Examining a panel of 16,507 bank-year observations, distributed over 15 years and 76 countries, the authors identify a negative interaction between size and non-interest income in their relationship with systemic risk. In other terms, non-interest income reduces large banks' systemic risk exposures, whereas it increases those of small banks. In particular, small banks are more likely to lack the expertise needed to handle a wide array of products and services or manage complex financial products. Moreover, they are not subject to in-depth external scrutiny, so they may be more inclined to engage in riskier activities; on the other hand, larger banks are typically subject to more external scrutiny, which may discourage excessive risk taking, and they

can count on more sophisticated risk management techniques and a more experienced management team. So the concepts of size and scope should not be analysed in isolation, since they are strictly interrelated.

Summing up, the results of diversification studies are strongly influenced by the consideration of the nature of non-interest income and the simultaneous interaction with banks' long-term choices. As a consequence, BMA cannot limit its scope to the same metrics used in the diversification literature, since from the heterogeneity of the results it is clear that there is an optimal mix between size, risk and revenue diversification that calls for an integrated approach extended to the analysis of diversification, which is just one component of BMA. These findings also influence the measurement aspect of BMA; from a methodological point of view, BMA requires the implementation of techniques that enable the simultaneous consideration of the different dimensions involved: long-term strategies, business mix and business strategies.

7.5   Banks' Key Vulnerabilities in the Supervisory Assessment Scheme

The analysis of the recent developments in BBM literature suggests interesting key points on the conceptual framework adopted by supervisory authorities: how they are approaching this theme and to what extent they share the perspectives emerging from the studies discussed above.

To this end, it is first of all interesting to trace the birth and evolution of BMA as a proactive supervisory instrument.

The increasing interest of supervisory authorities in BMA stems from the crisis (2007–2008). BMA was pioneered in the UK after the Northern Rock crisis and the failure of the "light supervision" applied by the Financial Services Authorities (FSA). The Turner Report (FSA 2009) named the FSA's supervisory approach, based on the idea that BM risks were better assessed and balanced with returns by top management and boards of directors (BoD) than by bank regulators and supervisors, as one of the causes of the crisis. "Light supervision" was focused mainly on the

operation of appropriate systems and controls within the supervised institutions. Changes in the supervisory philosophy were put in place from 2009 onward, with the introduction of a more intrusive, systemic revised approach to be implemented by a new authority: the Prudential Regulation Authority (PRA), operative since 2013. The revised supervisory approach is based on an "Intensive Supervision" model with the pendulum shifting from trust in market discipline, with supervisory intervention mainly after something had gone wrong, to a proactive regulatory and supervisory action, with a forward-looking perspective (Moloney 2012).

Within the new approach, PRA (Bank of England FSA 2012) gives an important role to BMA as a proactive, forward-looking instrument with two main aims: from an idiosyncratic point of view, to examine the threats to the viability of a bank's BM and its key vulnerabilities; from a systemic point of view, to identify possible adverse effects on other participants in the system from the way in which the institution conducts its business. The key aspects for identification of a bank's vulnerabilities are an assessment of its sources of revenues, the related risks and funding, and the analysis of its strategy and the business plan. The second step is peer analysis to identify each bank's position within its strategic group and evaluate any outlier BMs and management practices, and their contribution to systemic risk.

BMA is now embedded in the SREP, Pillar II of the Basel Capital Accord, and is intended to reveal a bank's key vulnerabilities in the short run and the viability and sustainability of its strategic plans in the short and medium term. The aim of BMA is to assess not only each bank's risks and therefore its vulnerability, meaning its idiosyncratic risk in a microprudential perspective, but also its contribution to systemic risk, in a macroprudential perspective. Within this framework, BMA was introduced by the EBA (2014), as the first of four key elements, followed by the assessment of internal governance and institution-wide control arrangements, risks to capital and adequacy of capital to cover these risks, and risks to liquidity and adequacy of liquidity resources to cover these risks.

The ECB also identified BMA as a key area of the supervisory activity of the SSM in its Thematic Review in 2015 (ECB Banking Supervision

2015) and in greater detail in 2016. Under EBA Guidelines (EBA 2014; ECB Banking Supervision 2016), the elements of BM analysis are: identification of banks' main activities; assessment of the business environment; analysis of the forward-looking strategy and financial plans; assessment of the BM's viability (within one year), sustainability (within three years) and sustainability over the cycle (more than three years); and assessment of key vulnerabilities (Lautenschlager 2016; ECB Banking Supervision 2016). Through this analysis, the supervisors aim to understand the implications of BM characteristics for banks' overall riskiness. The peer analysis follows.

The SSM approach is based on both quantitative and qualitative analysis and should incorporate a forward-looking perspective, linked to financial planning, business plan analysis and macroeconomic and market trends. The scheme of analysis identified by the EBA is quite exhaustive, and different aspects are considered when focusing on the BM adopted by each bank, with the aim of revealing its viability, sustainability and key vulnerabilities due to risk assumptions. The specific levels of granularity of information on different aspects, product/business lines, breakdown of income and cost streams, impairment provisions and key ratios required by the SSM are not disclosed; the criteria for the definition of peer groups, and the banks included, are also not officially disclosed. The BMA of supervisory authorities is currently being developed from basic to more sophisticated analysis.

Interesting points for consideration emerge from the scheme of analysis provided by the EBA guidelines (2014), concerning the theoretical and methodological framework underlying the work of the supervisory authorities, also in relation to the main findings of the theoretical and empirical literature on BMA, set out above.

One initial comment relates to the methodological approach of the SREP, where BMA precedes and supports the three subsequent analysis stages, assessment of governance, ICAAP and ILLAP. BMA (EBA 2014) is intended to pinpoint the determinants of BMs and the adequacy of their returns over time, while the other three areas analyse risks, risk management models and risk governance. In fact, the assessment of these areas should aid in the overall assessment of the viability of the current BM and the sustainability of the strategies, the main objective of BMA,

which, therefore, should combine with rather than complementing an evaluation that investigates the strong and weak points of the BM adopted at the various strategic levels. Thus, a holistic approach is needed in BM evaluation, linking risk analysis to the main strategic areas, both corporate, where the guidelines for the types and amounts of risk to be taken are decided, and at the business strategy level, with regard to risk management in the various business areas. Above all, it is essential to maintain a close connection between business mix decisions, the allocation of resources and risk management. A multidimensional, transverse approach is the way to strengthen the final synthetic evaluation, with banks classified into four groups and an additional class for "*failing or likely to fail*" institutions, for which specific supervisory measures must be defined for each bank.

Another point of reflection stems from an assessment of the BM's sustainability and viability through two levels of analysis: "corporate/first level long-run strategies" and "business strategic level", related to managerial choices concerning revenue enhancement policies, cost efficiency objectives and risk management processes. The first level of analysis should consider a time span long enough to take into account changes in the economic cycle, which are intertwined with and determine strategic corporate choices, such as growth, internationalisation and diversification before the crisis, and deleveraging, capital saving and different sources of funding after the crisis. This approach could help to strengthen a forward-looking approach, preventing the static assessment of corporate strategies in terms of profitability and risk assumption. One example is the different negative impact of the two phases of the crisis on bank performance in Europe: in 2008–2009 notably higher for wholesale and investment than for retail banks; the opposite after 2012 with lower profitability for retail banks mainly serving the SME segment, worst affected by the economic recession. Moreover, this latter effect was more serious in peripheral countries than in core countries with better economic trends. This last finding is also relevant for country-specific factors that should be taken into account when explaining lower bank profitability. Since macroeconomic conditions seem to be the main driver of current differences in profitability across the country bank binomial

(Bonaccorsi et al. 2016), a key question arises concerning the effectiveness of peer analysis for taking these factors into account.

A further reflection arising from the literature review concerns the different behaviour of banks in relation to their size and diversification and the different analysis required by regulators. This distinction is evident from the BMA developed by the ECB for significant banks and that adopted by the National Competent Authorities (NCAs) for less significant banks. In the first case, a high degree of granularity of information at the second strategic level is a key element in verifying the sustainability of corporate strategies, especially for systemic banks displaying high complexity in the BMA conceptual framework. Peer analysis must carefully consider banks' different dimensions in terms of complexity and diversification: the granularity required is a strong argument in favour of one bank-one BM. For these banks, given the variety of their strategic choices, a rough definition of clusters, based on too few overly generic variables, could lead to a misallocation of banks and/or an inadequate framework for their evaluation (Gualandri 2016). On the other hand, a less complex BMA approach is envisaged by the NCAs, with lower granularity, for the large amount of small banks with a higher degree of homogeneity of strategies and asset mix.

Another consideration is that capital adequacy is a key element considered by supervisory authorities, bank management and also the market from slightly different but complementary perspectives. Supervisors evaluate capital strength for its effect on idiosyncratic and systemic risks, managers as a basis for strategic decisions such as growth and diversification. In the new regulatory context, the level of capital and its allocation become a more long-term strategic variable, strictly interrelated with corporate strategies. As a consequence, from the supervisory point of view the forward-looking perspective adopted in BMA should be reinforced with a further analysis aimed at evaluating the market's capacity to absorb capital-intensive strategies (Calomiris and Nissim 2014). Analysis based on market value measures may be used to highlight the nexus and distinction between BM variables and measures of individual and systemic bank risk. In particular, recent research has identified a stronger relationship between large banks and systemic risk, with a positive association between size and sensitivity to severe shocks in the financial system.

The capital, corporate strategy nexus clearly reveals how regulation may influence strategic choices, especially those regarding portfolio mix and risk assumption and management, determining an important linkage between diversification and regulatory arbitrage. In the literature, this theme is exemplified by capital arbitrage behaviour affecting levels of risk density, which is determined at a twofold level: at the corporate strategy level, the focus is on strategic areas requiring less capital absorption than others, while at the business strategies level the management of risk weights depends on the BM adopted. Peer analysis may give supervisors some indicators of possible regulatory arbitrage across BMs via Basel risk weights manipulation. This kind of analysis could help SSM in the targeted review of internal models (TRIM) to assess the reliability and comparability of internal rating systems and models. The project is scheduled by 2019.

Finally, the two perspectives of micro- and macroregulations should be deepened and cross-analysed to appreciate, at the microlevel, the viability and sustainability of a bank's BM and, at the macrolevel, each bank's contribution to systemic risk. To this end, in a supervisory perspective, appropriate BM diversification within the system is an important factor in reducing risk arising from external shocks. A key point is the definition of the characteristics and composition of peer groups as already under-lined, where more in-depth analysis is required on systemic banks. Information on BM variety is fairly significant, especially in the case of systemic banks where variety helps to reduce systemic risk.

7.6 Conclusions

Evolving market conditions, technological innovations, regulatory changes and current monetary policy stances challenge the sustainability of banks' BMs. The "business model question" is increasingly grabbing the attention of bank managers, regulators, investors and financial analysts. The need to use the BM concept as a tool for analysing a bank's performance and assessing its viability requires, first of all, a clear understanding of what "business model" means, since the existing literature does not offer a uniform picture.

We start by drawing on strategic management studies to deepen and specify the concepts of corporate strategy, business strategy and BM. Three different strands of the literature deal with BMs: IT and e-business, strategy and strategic groups. In the first, the BM symbolises how a firm creates, distributes and captures value; in this holistic perspective, BM and business strategy often overlap. In the second field of studies, strategy, the foundation of competitive advantage and value creation, is implemented at two levels: corporate (what) and business (how). Corporate strategy delineates the breadth and diversification of the company's business portfolio in terms of SBAs; it is the set of high-order (first level) long-term choices such as growth, size, governance structures, diversification and internationalisation. Business strategy (second level) identifies how to achieve competitive advantage in each SBA. Some scholars see a clear distinction between strategy and BM: strategy focuses on the market and external competition, while BM has a more operative nature, focusing on the internal consistency of strategic choices (operative approach). For others, BM and strategy are different but strongly related, since BM is the direct result of a firm's implemented strategy (systemic approach). A systemic approach is detectable in the latter strand as well, but with reference to groups of companies with similar strategies (strategic groups) instead of single firms. Cluster analysis of data at the firm level is adopted to identify strategic groups; since the input data are usually the result of both strategic and operative choices, the overlap between strategy and BM is amplified.

This theoretical framework guides our review of the BBM literature. In banking, corporate strategy (what) leads to SBA choices reflected in the business mix (asset & liability composition and income composition), while business strategy (how) relates to the management of revenues, efficiency and risk in each SBA. Business mix and business strategy are the components of the BM and the factors affecting performance indicators (profitability, risk levels, market value).

The first group of studies we review can be traced to the strategic group literature, in its attempt to classify banks in a small number of BM archetypes with different performances. However, this approach is based on a distinction of *what* the bank is doing (proxied by asset/liabilities

and/or income composition), from *how* the bank is doing it (revenue enhancement, efficiency and risk management strategies), so that the BM concept overlaps with the business mix, whereas other strategic variables (revenues, efficiency and risk strategies) are implicitly regarded and evaluated as outcomes of portfolio choices. This BM definition can lead to the attribution of performance results to the business mix and obscure the role played by the bank's skill in managing the individual business area.

A second stream of the BM literature in banking relies on a wide definition of BM that combines corporate and business strategies with context variables, but fails to make a clear distinction between long-term strategies, business mix and business strategies. The primary aim of this approach is to identify which BM variables affect banks' vulnerability, reflecting the supervisors' concerns for the consequences of bank strategies on default events. Most studies deal with the risk of individual banks. When the analysis extends to systemic risk, important implications for regulators emerge: some BM variables have opposite effects on a bank's tail risk and its exposure to severe shocks in the financial system, signalling the need for the right balance between micro- and macro-prudential objectives.

The BBM literature is clearly linked to that exploring diversification strategies. On the one hand, both consider the business mix, particularly the distinction between interest and non-interest income. On the other hand, some control variables (i.e. efficiency and risk profile) popular in diversification studies may represent the business strategy level. As a consequence, our review extends to the literature on diversification in banking to gain additional insights into the BM debate by considering the pros and cons of diversification.

BM analysis has recently become a supervisory tool. After tracing the birth and evolution of BMA as a proactive supervisory instrument, we propose some reflections on the scheme adopted by the supervisory authorities to evaluate the viability, sustainability and key vulnerabilities of banks' current BMs.

Overall, the main lessons stemming from our review of the literature and the supervisory viewpoint are the following.

- The literature on bank BMs applies the concepts developed in the strategic management field with some difficulties. The BM is often restricted to the business mix (cluster approach). When the definition of BM is more holistic, there are flaws in the recognition of the different strategic levels (corporate and business).
- Empirically, the degree of reliance on retail deposits and their contribution to the funding of loans are the most significant elements of the business mix in defining strategic groups.
- In our perspective, the shift towards retail funding as a way of dealing with the shrinking of the wholesale market due to the financial crisis is more a change in growth strategy and risk appetite than in business mix (SBAs tend to be quite stable).
- BBM sustainability has to be evaluated over a time span long enough to cover entire business and financial cycles. The BM most resilient in the first wave of the financial crisis (retail banks with loans oriented to SMEs) has been the worst performer in the subsequent economic slowdown.
- In the banking system, as in industry, dichotomous strategies are emerging: to respond to the crisis some banks are restricting their size and scope of activities, others are growing through M&A. The cluster approach does not seem sufficiently effective in capturing this trend.
- The availability of equity capital heavily influences banks' corporate strategy. From this point of view, listed banks and banks with capital market access have a competitive advantage. At the same time, the market evaluation of banks' securities (debt and equity) is important both in influencing banks' strategies and for bank supervisors.
- BM complexity depends on size. Small banks usually have homogenous strategic behaviours and business mix, while big banks tend to adopt specific BMs that require more detailed information to be analysed.
- In a large proportion of the BBM literature and in diversification studies, business mix is proxied by income composition. In general, greater diversification means greater risk, not always rewarded with higher profitability. However, diversification in terms of non-interest income share seems to be beneficial when commissions and fees come from traditional banking services and detrimental if they derive from

asset-based non-traditional activities such as venture capital, investment banking and asset securitisation. Therefore, the granularity of data on the income from services is essential for analysing the influence of BM on bank risk.

BMA perspectives rely on the intersection between the literature on BMs and the literature on diversification to get a more integrated representation of banking, able to explore both corporate and business strategies and their connections. At the same time, more detailed data are needed to allow a deeper understanding of the different elements that define banks' BMs.

This holistic and systemic approach to BM valuation is only partially detectable in the SREP guidelines, where the BM is one of the four areas under assessment (alongside internal governance and institution-wide control arrangements, capital adequacy and adequacy of liquidity), rather than representing the framework for the risk profile analysis of corporate and business strategic choices, with a limited view on how business mix and risk and resource management interact.

On the subject of better BM disclosure, it is worthwhile mentioning the recent (July 2016) statement of the Financial Reporting Council: "*We encourage clear disclosure of a company's business model as part of the strategic report, including a description of the main markets in which the company operates and its value chain*". This form of transparency helps both academic research and the judgements of analysts and investors, with positive effects on the information and signalling content of stock and bond market prices, useful for supervisory authorities in preventing crisis and for bank managers in acquiring market expectations.

Notes

1. In the literature (for a review see Rossi et al. 2009), diversification is analysed using two main parameters linked to income sources and geographical areas. The term functional diversification usually refers to the profile of the diversification between interest and non-interest bearing activities.
2. See Stiroh (2009) for a review of the literature.

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