



POLICY PAPER

Bank business models in Europe: why does it matter for the future of regulation and resolution?

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Introduction

Since the inception of the financial crisis of 2007-09, the banking sector in Europe has been undergoing fundamental changes. Following the major fallouts of large banking groups - in particular those with excessively risky business models, combined with the trillions incurred in losses and subsequent taxpayer-funded government bailouts to keep the European banking sector afloat - a wave of re-regulation was undertaken to restore eroded market confidence and to safeguard financial stability. This led to major restructuring and waves of deleveraging with fundamental implications for the future of the European banking sector and financial intermediation.

In this changing context of evolving market structures and regulations, the bank business models analysis can provide market participants, depositors, creditors, regulators and supervisors with a useful tool to better understand the nature of risk attached to each bank business model and its contribution to systemic risk throughout the economic cycle.

This policy paper explains the relevance of the business models analysis in banking for the future of regulation and resolution. First, it provides a quick background, a snapshot of the definition, methodology and findings relating to a comprehensive sample of European banks and second it delves into the importance of bank business models analysis for regulation and resolution in Europe.

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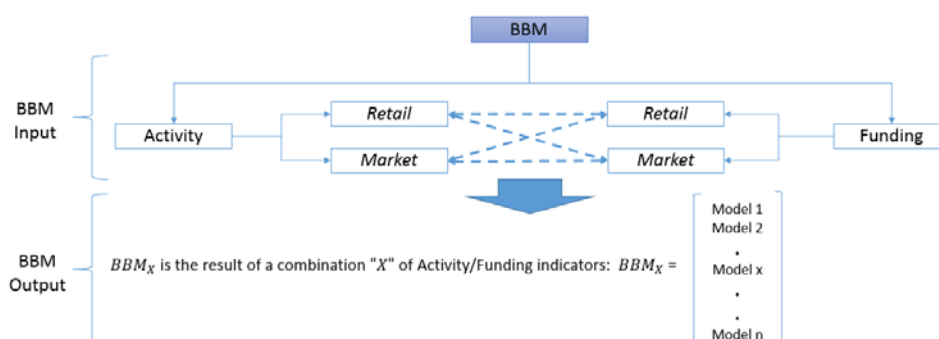
Background

The *business models analysis* was first introduced by Ayadi et al (2011) in an initial attempt to identify the business models of 26 European banking institutions and to assess their performance between 2006 and 2009. The main finding indicated that the retail banking model has seemingly fared better through the crisis, compared to the other identified business models, namely investment and wholesale banks. Business models analysis also proved to be relevant in that it demonstrated the unsuitability of one-size-fits-all regulatory requirements. In a subsequent research work on “*Regulation of European banks and business models: Towards a new paradigm*”, Ayadi et al (2011) shed light on the potential limitations of the Tier-1 capital ratio and, hence, the Basel II risk-weights system. The publication recommended the inclusion of a legally binding leverage ratio and confirmed that regulatory requirements should be adapted to bank business models to ensure they are better aligned with the underlying risk profiles of banks. The authors further recommended an annual monitoring exercise of bank business models to better understand their evolution within macro and micro economic contexts. The first pilot exercise, monitoring the business models of 147 banks, was released in December 2014 in Ayadi & De Groen (2014), to test the relevance of this approach. For the first time, a diverse dataset of banks of differing sizes and ownership structures was analysed, based on a new analytical framework for assessing business models. The findings reinforced previous conclusions and prepared the ground for more generalisations with larger samples and more countries.

A more comprehensive monitoring exercise was launched in January 2016 (in Ayadi et al (2016)), which extended the sample from 147 banks to 2,542 banks, covering more than 95% of total assets of the European Union plus EFTA countries from 2005 to 2014 and accounting for 13,040 bank-year observations. The European Bank Business Models Monitor attempted to address the diversity of bank sizes and ownership structures in European countries and, hence, to identify the response function of each model in a crisis situation. The same exercise can be extended to all regions and countries in the world thanks to a novel and broad definition adopted to define a business model in banking.

Defining a bank business model

A novel definition of a bank business model emphasises the activities on the asset side and the funding on the liability side. It provides a holistic view as to how a bank behaves in the market while transforming its funding (retail, market or mixed) into retail, market or both financing and investment opportunities (see graph 1).

Graph 1: Bank business model definition

Source: Ayadi and al (2016).

The following defining activity/funding features of a business model in banks from an asset and liability standpoint were used in the Ayadi et al (2015 and 2016).

On the asset side, three key defining features were identified:

1. *Loans to banks (as % of assets)*, measuring the scale of wholesale and interbank activities, which proxy for exposures to risks arising from interconnectedness in the banking sector.
2. *Customer loans (as % of assets)*, identifying the share of customer loans to non-bank customers and indicating a reliance on more traditional banking activities.
3. *Trading assets (as % of assets)*, defined as non-cash assets other than loans; a greater value would indicate the prevalence of investment activities that are prone to market and liquidity risks.

On the liability side, two additional defining features were identified:

4. *Debt liabilities (as % of assets)*, defined as non-equity liabilities other than deposits and derivatives. Although bank liabilities are comprised of short-term interbank debt, the broader debt liabilities indicator provides a general insight into the bank's exposure to market funding.
5. *Derivative exposures (as % of assets)*¹ aggregating the carrying value of all negative derivative exposures of a bank, which are often identified as one of the key (and most risky) financial exposures of banks with heavy investment and trading activities.

More indicators and defining features can be used depending on the level of granularity of data available under each of the five instruments chosen and beyond. It is very important to note that more granular data will allow a better understanding of business models in banking.

¹ Total derivative exposures are defined as the summation of positive and negative fair values of all derivative transactions, including interest, currency, equity, OTC, hedge and trading derivatives.

Identifying bank business models in Europe

To identify the bank business model, state-of-the-art clustering analysis is used, applying a unique definition. Cluster analysis is a statistical technique for assigning a set of observations into distinct clusters. In this case, a particular bank-year observation is assigned to a business model. By definition, observations that are assigned to the same cluster share a certain degree of similarity in their instruments, while the formation of the clusters ensures that they are distinct. Hence, to create the clusters, the initial step is to determine a set of instruments (or the defining features of a business model) which identify any similarities or distinctions. The second step is to determine the method used to define the clusters, as well as the so-called 'stopping rule' for the appropriate number of clusters.

Assuming that banks consciously choose their business models, any cluster analysis should be based on instruments over which the banks can have a direct influence. For example, a bank is likely to have a great amount of choice over its general organisational structure, balance sheet and financial position and some of the risk indicators. In turn, most of the performance indicators are related to instruments that are beyond the bank's control, such as market conditions, systemic risks, consumer demand, etc. This was one of the principal reasons why details on income sources (i.e. interest vs. non-interest income) were not used as instruments in the identification of the clusters.

Five bank business models were identified in European banking in Ayadi et al (2016): these are retail focused, retail diversified type 1, retail diversified type 2, wholesale and investment. Each bank year observation is assigned a business model from the period 2005-2014.

The **focused retail banks** provide traditional services, such as customer loans and are funded by customer deposits. This is also reflected in their income, which consists mostly of net interest income and commission and fees, while trading income and other income are only minor components. The share of the banks that were identified as focused retail remained similar during the crises. These banks have an ownership structure that is slightly tilted towards stakeholder value banks (cooperative and savings banks).

Diversified retail (type 1) banks combine lending to customers with a moderate percentage of trading activities (i.e. 31% on average) and they primarily use customer deposits. These banks are modest in size. The ownership structure is slightly tilted towards stakeholder value banks.

Diversified retail (type 2) banks' activities consist primarily of lending to customers, mainly using debt liabilities and customer deposits. Notwithstanding that the largest share of assets is allocated to customer loans, this category of bank obtained twice as much from trading activities than the other retail-oriented banks. They are relatively large in size and internationally active, as compared to the other retail-oriented banks.

Wholesale banks engage in interbank lending and borrowing and are mainly categorised as shareholder value banks. However, they also include the central institutions of

cooperative and savings banks that provide liquidity and other services to both local banks and public banks. They are among the smallest and most domestically oriented group.

Investment-oriented banks engage in trading activities while relying on debt securities and derivatives for funding. They are the smallest in number, but the largest in size and the most internationally oriented banks among the five models.

It is important to notice that all these banks regardless their business model are universal banks which combine at different percentages, retail, investment and, in some instances, insurance activities. The clustering performed only focuses on the degree of which they are retail, investment or wholesale.

Assessment of business models in European banks

From the comprehensive analysis of the pre and post crises in Europe in Ayadi et al (2016), it is clear that shareholder value banks, which are more of an investment and wholesale nature, are more oriented towards financial performance. They also tend to accelerate the accumulation of risk at a system level and are less resilient to extreme stress conditions. In turn, retail-oriented banks, which are more stakeholder-oriented institutions, are more inclined to contribute to the real economy. At the same time, they maintain equivalent levels of financial performance and contribute at a lesser level to the accumulation of risk at a system level and are more resilient to extreme stress conditions.

Overall, the findings also show that a diverse system is seemingly more resilient than a system that tends to converge towards one business model. The case of Belgium is revealing. Before the crisis the investment bank business model was dominant. At the onset of the financial crisis, the banking system would have virtually collapsed, were it not a massive government intervention (Ayadi et al (2016)).

Do bank business models matter for regulation and resolution?

Ayadi et al (2016) findings shed light once again on the continuing misalignment of the regulatory indicators, in particular the risk weights and the Tier-1 capital ratio, to the underlying risks of European banks. As confirmed in their latest research, Ayadi, Ferri and Presic (2016) showed a potential for regulatory arbitrage enjoyed by the diversified retail banks type 2. Moreover, the zero risk weights that European government exposures still continue to enjoy despite the sovereign crisis in Europe are another dimension that makes the risk weights obsolete.

This means that further improvements to the risk weights ought to be made to ensure that this misalignment is dealt with and to rethink the extent to which banks are allowed to use the Internal-Ratings-based Approach (IRB).

This subject must be at the top of the agenda of the Basel Committee on Banking Supervision (BCBS) and European policy makers, to ensure that further misalignments are identified and dealt within the Basel Accord and the Capital Requirements Directive and Regulation for Europe. In particular, the regulation must align as much as possible with the underlying risk profiles of investment banks and also for retail diversified type 2. This means that a comprehensive review of their balance sheet and off balance sheet is an essential step before adapting regulatory requirements to these bank business models.

Moreover, it seems that market perceptions are more aligned to the viewpoints of the regulators than to the intrinsic risk characteristics of banks. Market makers do not seem to be able to take account of the business model risk factors associated with banks. As a consequence, this can be largely explained by the fact that the results are tilted towards the listed and larger banks, which are required to provide more data to the market. Smaller and non-listed banks do not provide sufficient market data to allow better judgment of their business models and their risk profile based on market indicators. Such misalignment is bound to stay if the transparency of small and non-listed banks does not improve and if supervisors are not forthcoming in sharing supervisory data with the market participants.

Continued monitoring of bank business models is essential to improve the understanding of this concept and, ultimately, to detect the accumulation of risk at a system level and hence be able to counter it. The nationalised banks were predominantly a mix of investment and diversified retail (type 2). This subset of banks under these two business models seems to have taken excessive risks - they appear to be highly leveraged and poorly capitalised and simply not resilient to extreme stress conditions. These characteristics have triggered massive and unprecedented bail-outs borne by taxpayers.

Based on Ayadi et al (2016) analysis, it seems that in each business model, there are better and worse performing cases, depending on the overall macro and micro economic conditions in which banks are operating. Further research is being conducted in order to shed light on the characteristics of the best performing banks within each business model, with which the worst performing banks within each business model and between should converge in the long run.

The business model analysis can prove useful in the policy debate on proportionality in bank regulation and structural reforms of the EU banking sector. As a matter of fact, a large number of small and medium-sized banks, which were identified as predominantly retail-oriented institutions (in particular focused retail and diversified retail type 1) seem to concentrate on traditional financial intermediation. There is a presumption that for these banks the complexity of Basel regulation would drive compliance costs upward, which might hamper their prime role of financing the real economy in the long run. Further research on this matter is needed to make viable assertions. In turn, for large investment banks, which have grown too complex and too large because of their market oriented and international nature, Ayadi et al (2016) evidence shows that the worst performing institutions might accelerate the accumulation of systemic risk. Furthermore, because of their lack of resilience to extreme shocks, these institutions could be subject to further bailouts if the eligible bail-inable instruments prove to be insufficient. For these latter cases, structural reforms is the way forward to minimise the risks of significant bail outs although in the long run it is unclear whether this will be a viable solution.

The business model analysis also has a predictive power that is essential for regulators and supervisors to detect excessive risk accumulation at a system level over a period of time and, especially, when external shocks are simulated. One scenario that should not be underestimated relates to a change of monetary policy in Europe and an increase in interest rates. Our prediction is that the five bank business models would respond differently to this shock and some might be less resilient than others in particular the market funded business models (retail diversified type 2, investment and wholesale). Moreover, understanding the systemic risk accumulation process is paramount to achieving a targeted macro-prudential regulation in close cooperation with active supervision. Grouping into a business model those institutions that have a tendency to drive systemic risk upward, and acting accordingly with the appropriate regulatory and supervisory measures, would be the beginning of a new dynamic and targeted regulatory and supervisory framework. This would complement the current framework, which when improved, would work together in tandem to prevent massive bank failures.

Equally, transparency and public disclosure practices remain an important concern. Ayadi et al. (2011, 2012) and Ayadi & De Groen (2014) concluded that the disclosure practices of banks, which are of fundamental importance to cross-border banking reviews and comparisons, were largely incomplete and incomparable. They presented many examples that highlighted the differences in definitions, limited disclosure, and thresholds in the obtaining of data. The transparency and disclosure issues are largely comparable across business models. Since undertaking the previous three studies, the situation has slightly changed, but primarily for the larger banks. Taking into account that the sample has been extended, to include a lot of smaller banks that are subject to less extensive reporting requirements, during the collection of the data, almost the same differences in definitions were found and a slightly larger share of the data was available. The public dissemination of supervisory data, which already happens in the US, and the implementation of standard disclosure formats, i.e. XBRL, could solve most of the data related issues. However, there might still be an issue with the application of different accounting standards, as well as with the extent and detail of the information.

If prevention fails, resolution must, at least, be well designed to ensure an orderly resolution and liquidation, without putting taxpayers in line to save banks, as was done previously. In Europe, in order to implement the Bank Recovery and Resolution Directive (BRRD), in July 2015 the European Banking Authority (EBA) released the Regulatory Technical Standards (RTS) for the determination of Minimum Requirement on own fund and Eligible Liabilities (MREL). This was set out in the Directive as an additional regulatory requirement for credit institutions in the European Economic Area (EEA). The MREL is a loss absorption requirement on a going concern basis. Compliance with MREL will imply that banks in Europe issue enough bail-inable liabilities to make possible a smooth resolution that relies as little as possible on taxpayers' money or the resolution fund (which will not be sufficient to deal with another major financial or banking crisis). The scope of MREL is broader than that of the scope of the Total Loss Absorption capacity (TLAC) standard put forward by the Financial Stability Board (FSB), because the MREL requirement applies to all institutions, not only to the global systematically important banks (GSIBs). Calibrating the MREL and also the TLAC to business models is essential to ensure that, in the resolution phase, there is no mis-calibration that would be largely detrimental to the overall recovery of the financial system. In their paper Ayadi and Ferri (2016) provide an initial estimation of the MREL, based on business models, and recommend a calibration to bank business models.

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