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Competition and Risk in Financial Institutions and the Implications for Financial Stability

by

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Summary

In Europe, banks' business activities span the areas of banking, securities, and insurance. Various regulatory features underpin these activities, the main one being the Second Banking Coordination Directive enacted in 1989. The Directive was intended to create a level playing field for bank competition by introducing a single banking license within the EU. This directive also laid the groundwork for functional diversification of European banks. Since then, banks are allowed to operate broad franchises, combining commercial banking, securities, insurance and other financial activities in one business entity. In subsequent years, this regulatory framework was extended with regulation in areas such as investment services, insurance, capital adequacy and the prudential supervision of financial groups.

As a result of these regulatory changes, from the early 1990s onwards, European banks have pursued a variety of different business strategies. Some European banks have opted to remain active in traditional financial intermediation, focusing on branch based lending and deposit-taking. By contrast, other banks have diversified into investment banking, comparable to the situation in the US where some of the large banks have set up investment banking subsidiaries. Several European banks have pursued pan-European and global strategies in investment banking expanding sometimes through acquisitions. The range of diversified financial groups in Europe extends well beyond investment banking. Since the early 1990s, a number of banks have opted for the so-called bancassurance model, combining commercial banking and insurance activities, both underwriting and distribution. Moreover, a large number of banks are also active in brokerage activities, asset management, corporate finance, and venture capital. All these non-traditional activities generate non-interest revenues in the form of fees, commission income or trading income.

The issue of how these different business models evolve is important to different groups of stakeholders. A bank's management is concerned about how different revenue streams contribute to bank profitability, both in the short and long-term. Bank-shareholders are interested in this and a bank's risk profile to the extent that it affects returns on their investment. Public authorities responsible for promoting financial stability are interested in how these developments influence financial system stability. Therefore, Chapter 1 and 2 of this dissertation focus on how income diversity is related to bank franchise value, bank risk in normal economic conditions as well as extreme movements in banks' equity returns as a proxy for banking system stability.

This exclusive focus on the banking sector is warranted. Not only is the banking sector a par-

ticularly important sector for the stability of the financial system (due to their interrelatedness with other types of financial intermediaries), banks occupy a central spot in every economy. They play a central role in the money creation process and in the payment system. Moreover, by providing loans they contribute to the financing of investment and growth. Disruptions in the smooth functioning of the banking industry tend to exacerbate overall fluctuations in output and banking crises are associated with significant output losses. Hence, preserving banking sector stability is of utmost importance and the priority task of banking supervisors. While evidence on the relationships between macro-economic conditions, regulatory variables and banking crises is more widespread, the results in Chapter 1 and 2 may help regulators in understanding why some banks are better able to shelter from the storm.

In Chapter 1, we investigate whether or not functionally diversified banks have a comparative advantage in terms of long-term performance/risk profile compared to their specialized competitors. To that end, we use market-based measures of return potential and bank risk. We calculate the franchise value over time of European banks as a measure of their long-run performance potential. In addition, we measure risk as both the systematic and the idiosyncratic risk sensitivities derived from a bank stock return model. Finally, we analyze the return/risk trade-off implied in different functional diversification strategies using a panel data analysis over the period 1989-2004. The effect of diversification on market-based measures of performance (and the risk/return trade-off) is positive, which implies that banks with a higher share of non-interest income in total income are perceived to perform better in the long-run. Their franchise values, as measured by Tobin's Q ratio are positively related to diversification. Hence, stock market investors anticipate that financial conglomerates are able to generate higher current and future profits. The finding of a revenue-based diversification benefit may be attributed to the fact that diversified European banks have a longer track record and have committed sufficient operating and managerial resources to all these activities. More importantly, this diversification of revenue streams from different financial activities increases the systematic risk of banks i.e., the stock prices of diversified banks are more sensitive to movements in a general stock market index than non-diversified banks. However, the effect on the idiosyncratic risk and total risk measure is non-linear and predominantly downward-sloping. This reflects the main idea behind revenue diversity: a combination of banking, insurance, and securities activities could lead to a more stable revenue stream. This is because the revenues from different business lines in a conglomerate are usually less than perfectly correlated. As a result, expanding banks' activities may reduce total

and idiosyncratic risk. To sum up, most of the available evidence identifies relationships between functional diversification and bank risk in normal economic conditions. However, it is not as clear how diversified financial institutions will behave in adverse economic situations and what the overall impact of revenue diversification on banking sector stability is in these circumstances. We address this issue in Chapter 2.

In Chapter 2, we analyze how banks' divergent strategies toward specialization and diversification of financial activities affect their ability to shelter from adverse economic conditions. To this end, market-based measures of banks' extreme systematic risk are generated, using techniques developed for extreme value analysis. Extreme systematic risk captures the probability of a sharp decline in a bank's stock price conditional on a crash in a market index. Subsequently, the impact of non-interest income (and its components) on this risk measure is assessed. The estimation results reveal that the heterogeneity in extreme bank risk can partially be attributed to differences in banks' reliance on non-traditional banking activities. We establish that the shift to non-traditional banking activities, which generate commission, trading and other non-interest income, increases banks' co-crash probabilities and thus reduces banking system stability. Interest income is less risky than all other revenue streams. However, the impact of the alternative revenue shares does not differ significantly from one another. The estimation results reveal that other indicators of bank specialization in traditional intermediation corroborate the finding that traditional banking activities result in lower extreme systematic risk. Banks with a higher interest margin or higher loans-to-asset ratio are perceived to be less affected by extreme market shocks since higher values of these ratios reduce banks' tail betas. There is both a direct and an indirect effect. The shift to non-traditional banking activities has increased banks' systematic risk and as a consequence their tail beta, which causes an indirect effect. However, there is also an additional and, on average, equally large effect of non-traditional banking activities on banks' tail betas, after controlling for a bank's risk profile in normal economic conditions. Hence, we can conclude that banks that profitably focus on lending activities are less prone to extreme systematic risk than diversified banks. This questions the usefulness of financial conglomeration as a risk diversification device, at least in times of stock market turmoil. In addition, smaller banks and well-capitalized banks are better able to withstand large adverse economic conditions.

As mentioned before, the Second Banking Directive was intended to create a level playing field for bank competition by introducing a single banking license within the EU. In addition, the Eu-

European banking sector has been characterized by a number of profound changes over the last two decades. Advances in technology, financial liberalization, the ongoing economic integration and the wave of bank mergers and acquisitions have affected the competitive environment, their operational efficiency and their ability to expand in other business lines. In chapter 3 and 4, we respectively investigate whether these evolutions affect banks' long-run performance and their pricing policies.

In chapter 3, we analyze how stock market investors perceive the impact of competition and efficiency on banks' long-run performance. To that end, a modified Tobin's Q ratio is introduced as a measure of a bank's franchise value. This measure is forward-looking, long-run oriented and corrected for noise inherent in market valuations. This measure is applied to discriminate between the Market Structure and Efficient-Structure hypotheses in a coherent forward-looking framework. The long-run perspective and the modification of the performance measure overcome most of the drawbacks associated with testing these hypotheses in a multi-country set-up. The Relative-Market-Power hypothesis and the X-Efficiency hypothesis are strongly supported, both economically and statistically. That is, using a forward-looking market-based performance measure, we obtain that market share may be a long-term generator of superior future bank profits rather than having immediate impact on current profitability. Moreover, a concentrated banking market does not impact all banks equally. Rather, the interaction between concentration and market share is found to be a significant driver of bank franchise value. Hence, based on the stock market assessment, large banks in concentrated markets are judged to possess a superior long-run profit potential. On the other hand, concentration may even harm the banks with the smallest market shares. Moreover, cost efficient banks reap higher profits, now and in the future. Banks with superior management or production technologies are valued higher by stock market investors. Since this effect is economically important, banks have clear incentives to improve their level of productivity and efficiency. Controlling for bank risk in testing the market power hypotheses turns out to be important. Capital serves multiple purposes and the stock market appears to value two different strategies. More capital makes banks less risky. On the other hand, higher leverage may create a better alignment between the interests of managers and shareholders. Finally, the findings are robust to controlling for differences in regulation, supervision and the macroeconomic environment across the countries of the European Union (EU15). Notwithstanding the international expansion of bank activities, the harmonization of regulation and the macro-economic convergence, we still find that country-specific macro-economic variables have a significant impact on bank performance. Our findings indicate that there is a trade-

off between competition and stability that should be taken into account when assessing mergers or acquisitions.

Finally, chapter 4 addresses competition, monetary transmission and banks' pricing policies. We advocate a heterogeneous approach to measuring the pass-through from market interest rates to retail bank interest rates and apply it to the Belgian banking market. We find that heterogeneity is substantial in retail interest rates. In contrast to what homogenous studies tend to find, the incorporation of heterogeneity reveals that banks adjust their retail interest rates fast and incomplete. Hence, the results suggest that the long-term pass-through is typically less than one-for-one, rejecting the completeness hypothesis. A change in market interest rates is not entirely transmitted to banks' retail interest rates. A substantial proportion of the heterogeneity in bank pricing policies can be explained by the bank lending channel and the relative market power hypothesis. On the one hand, we find that banks with the largest market shares price their products least competitively, which is supportive of Berger's (1995) relative market power hypothesis. On the other hand, both loan and deposit prices of well capitalized and highly liquid banks are least responsive to changing market conditions, as predicted by the bank lending channel. Hence, at the source of heterogeneity are differences in banks' financial structure and market power. On the bank asset side, corporate loans are priced more competitively relative to consumer products. With respect to bank liabilities, the interest rates of demand and savings deposits are very rigid, while this is far less the case for time deposits and savings bonds. We also find evidence of non-linearities in the speed of adjusting retail interest rates. While there is no convincing evidence for asymmetry in retail rates, large deviations from equilibrium mark-ups are faster reduced than small deviations. Specifically, larger deviations from equilibrium interest rates are more swiftly corrected. Moreover, while the speed of adjustment for loans is relatively symmetric, deposit interest rates tend to be more rigid upwards. Banks are quicker to revise their deposit rate downwards than upwards in response to changing market rates. Although our approach is applied to the Belgian banking market, some of these results may pertain to retail interest rate analysis more generally.