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Bank Competition, Banking Cost, Banking Market, Economies of Scale

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Abstract – Competition in banking is entirely different from other sectors of the economy due to the special function of banks in the financial system. The standard competition paradigm in favour of competition regarding cost minimization and allocative efficiency is not entirely valid for banking because many market failures distort the nature of competition and its outcomes. The uniqueness and fragility of banks, business models in banking and competition paradigm in banking is discussed. Finally, the different reviews of competition frequently used in the empirical literature on banking are studied.

Keywords: Banking, Competition, Developed Markets, Liberalization, Deregulation, Bank Fragility etc.

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1. INTRODUCTION

Banking Industry is one of industry which usually has high concentration that majority of industry asset owned by few big banks. In order to increase efficiency and market share this big banks tend to acquire another banks or other financial institution that cause concentration level of banking industry become more higher and form a financial conglomerate.

The banking sector is entirely different from other sectors of the economy due to its specific functions which make it prone to tight regulations, supervision, and public intervention. Banks are vulnerable to instability due to their special functions in the financial system. They intermediate between investors and borrowers by achieving a unique maturity transformation in their balance sheets. While bank panic runs and systemic crises create a source of bank instability from the liability side; risk-taking behavior of banks generates another source of instability from the asset side [1] [2]. The stability of banking industry is very crucial because any instability may spread by contagion to the whole economy by distorting the interbank lending market and credit availability, and ultimately can lead to recessions [3]. The standard competition paradigm in favour of competition regarding cost minimization and allocative efficiency is not entirely valid for banking because many market failures distort the nature of competition and its outcomes. The main market failures include asymmetric information, switching costs and networks in retail banking and two- sided competition in deposits and loans. The liberalization and deregulation process in developed markets after the 1970s has altered the focus of banks from gathering deposits and providing loans to conducting a diverse range of activities, such as asset management, underwriting equity and debt issues, securitization, and insurance, which brought a competitive environment. The competition was limited in banking from the 1930s to the 1970s. After the 1970s, the process of liberalization and deregulation has resulted in increased competition in banking arising from both inside and outside banking industry, mainly from nonbank financial intermediaries, market-based finance and from the recent competitors emerging as fin-tech companies.

As banks exert a fundamental role in the financing of the economy, banking competition impacts on economic development. A higher degree of competition in banking markets is expected to provide welfare gains through the reduction of prices of financial services and hereby accelerating investment and growth. These gains should in fact come from two channels of transmission. On the one hand, a higher degree of banking competition should result in a lower monopoly power of banks, and therefore a decrease of banking prices. On the other hand, a heightened competition should encourage banks to reduce their costs, i.e. their cost inefficiencies. This latter channel is particularly promising in terms of welfare gains, as the order of magnitude of cost inefficiencies in the banking sectors from transition countries has been shown to average around 30 and 50%. However, the literature emphasizes some potential negative effects of banking competition through excessive risk-taking of banks, which may hamper financial stability [3].

The issues regarding banking competition and its effects are therefore of particular interest in transition countries, as bank credit there is by far the largest source of external finance for companies [4].

Since investment is particularly sensitive to the decrease of loan rates, the reduction of monopoly rents and cost inefficiencies would consequently impact on investment and economic growth.

Furthermore, the transition countries have undergone major changes of their banking sectors during the 1990s. Two main tendencies distinguished the transformation of the banking sectors of these economies: a considerable number of bank failures, and a banking sector gradually acquired by foreign investors. It is therefore of utmost interest to investigate how banking competition was influenced by these changes in transition countries.

2. THE UNIQUENESS AND FRAGILITY OF BANKS

Typical functions of banks include intermediary services between lenders and borrowers by gathering deposits, providing loans, transaction and payment services and financing entrepreneurial projects. Banks are vulnerable to instability, mainly due to the unique maturity transformation they undertake in their balance sheets [1] [2]. They take on various risks through the qualitative asset transformation (QAT) in which the characteristics of a bank's assets are different in many terms from its liabilities.

Sources of bank instability originate from both the liability side and the asset side. Bank instability from the liability side occurs through bank runs and systemic crises. Banks provide demandable contracts to depositors that can be withdrawn in a fixed amount, and if such withdrawals exceed the total amount available to banks from short-term investments, then banks need to sell illiquid assets, potentially initiating a bank run. Moreover, a systemic crisis may occur if the bank defaults spread to the whole economy, which can happen as a result of contagion effects. While contagious runs are the diffusion of a single bank run to other banks, domino effects result from difficulties of distressed banks spreading to other banks through interbank market commitments and payment systems. Another channel of contagion is that a banking crisis may negatively affect the whole economy through the feedback effects between financial and real sectors with a credit crunch. When a substantial part of the financial system has problems, it may lead to systemic risk, which causes fragility in the whole economy because of the central function of financial institutions.

Instability from the asset side arises from excessive risk-taking. Agency theory implies that when the objectives of the principal and the agent do not match, the agent does not always act in line with the principal's expectations. While the agency problem occurs in all leveraged firms, banks are more prone to the problem due to the opacity of bank assets, making them vulnerable to misallocation of resources. Moreover, the allocation of bank debt among small and uninformed depositors prevents their effective monitoring, which in turn leads banks, subject to limited liability, to engage in risky behavior without being easily detected [1] [2].

3. BUSINESS MODELS IN BANKING

The liberalization and deregulation process in developed markets after the 1970s has altered the focus of banks from gathering deposits and providing loans to conducting a diverse range of activities. These activities include the provision of services to investors and firms such as asset management, underwriting equity and debt issues, securitization, consulting, and insurance and proprietary trading [5]. Instead of investing in branches, banks started investing in information technology, communication networks, and specialized human capital. The relative weight of trading increased in the bank's balance sheets, replacing traditional relationship banking.

Information technology brought securitization, which allowed transforming illiquid loans such as mortgages into tradable instruments, and banks were able to extend more credit to investors and spread credit risk to investors with different risk profiles. Meanwhile, through securitization, banks were able to reduce capital requirements by off-balance sheet financing [6]. Banks' incentives for risk-taking and the intensity of competition have increased as larger scale operations became available. For instance, some institutions took hidden tail risks through highly leveraged positions in securitized subprime mortgages, which led to extreme losses during the 2007-2009 financial crises [7].

Liberalization and the more recent consolidation trend have also increased the size of the largest banks and differentiated their business models from the rest of banks. In particular, large banks business models are characterized by lower risk-weighted capital, more non-interest income, a lower deposit share in the total liabilities, more market-based activities and more complex organizations [8].

4. COMPETITION PARADIGM IN BANKING

The standard competition paradigm in favour of competition regarding cost minimization and allocative efficiency is not entirely valid for banking because many market failures distort the nature of competition and its outcomes. The main market failures include asymmetric information, switching costs and networks in retail banking and two-sided competition in deposits and loans.

The first market failure in banking is asymmetric information between banks and potential borrowers during the process of providing loans. Hughes (2013) analyses the effect of competition in the loan

market and shows that the competition mechanism does not work properly for banks. When a bank increases its loan rate above those of its competitors, it increases its earnings. On the other hand, the quality of firms which apply for loans declines, reducing the bank's profits, shows that competition decreases the in formativeness of signals that banks receive on the borrower's loan quality, which leads to decreased bank portfolio quality and financing of less efficient investment projects. Moreover, Mester (2013) shows that competition from new entries deteriorates bank portfolio qualities because banks then reduce their investment on improving the quality of the borrower screening tests [9].

Banks also gather information on borrowers through the course of a relationship which creates another informational asymmetry. When a borrower needs to reapply for a loan, he chooses the incumbent bank, which grants that bank an informational monopoly. The borrower does not exert adequate effort, and the expected return on the investment projects diminishes. The presence of adverse selection through heterogeneous borrowers and the information acquisition through lending generate endogenous fixed costs, keep other banks out of the market, and limit competition. While the literature on competition under asymmetric information does not directly address the consequences of bank stability, it provides initial perceptions on their relationship.

The second market failure inherent in banking and distorting competition outcomes is switching costs, which is a crucial source of bank market power and consists of costs incurred by consumers when switching from one bank to another. On the one hand, banks desire lower switching costs because new customers can easily apply to them. On the other hand, they do want higher switching costs to lock in customers and discourage them from changing their bank.

Another banking market failure that disrupts competition is network structures. Banks sharing Automatic Teller Machine (ATM) networks is an example of a strategic variable that influences competition, using a two-period model, show that depositors have easier access to their deposits in a shared ATM network and banks, in turn, gain from offering lower deposit rates. On the other hand, an ATM network ensures that banks are substitutable and increases price rivalry when possibly higher rates are offered by a rival bank. Banks choose to share ATM networks when the ATM is used less frequently in transactions. Equilibrium occurs by either no sharing or partial sharing of ATM networks due to maintaining some differentiation. The possible threat of new entrants may further encourage banks to share their network to obtain a concentrated structure and monopoly prices. Similar findings are reached by Kovner and Vickrey (2014) in a context where the bank customers can use different types of remote access, such as telephone or postal services. Introducing remote access steals depositors from rival banks (stealing effect). On the other hand, the substitutability of banks is promoted (substitution effect), and which of these two effects dominates defines the equilibrium [10].

Banks compete in deposit markets to attract new depositors and also compete in loan markets to provide new loans to customers, which may lead to a final bias in competitive behavior. Wheelock and Wilson (2012) shows that banks aim for gaining market power in one of these markets and offer non-competitive prices in the other market.

5. ECONOMIES OF SCALE IN BANKING

This conceptual framework emerge from Efficient-Structure paradigm that state efficient bank will be a winner in banks competition, accumulate profit and capital, and expand its market share so that banking industry will become more concentrated. Bank efficiency is affected by bank's asset size. Big bank can achieve economies of scale and has a natural competitive cost compared to its competitors [10]. Beccalli, Anolli, and Borello (2015) show that big banks in European countries operates as a big financial conglomerate with broad financial services and far more efficient than their smaller competitors [12]. Asongu, (2017) found same result in USA banks. Their studies show that USA big banks had achieved their economies of scales and were able to minimize cost. It shows banks' economies of scale that reflected on banks' profitability, were not only affected by bank asset size but also by corporate culture, bank risk profile and banking industry concentration [13].

Other studies show different result. Small banks and big banks were on extreme U-shaped average cost. Small banks were not able to achieve their economies of scale so they have relatively higher cost. On the other hand, big banks were not efficient also because their asset were far above economies of scales. Only medium size- banks are operated in their economies of scales. USA bank economies of scales were around US$300 million that were at 6th percentile or around 60% bank asset distribution in 1990. There has similar result that bank average cost curve was U shaped that relatively that in the middle curve so small and big banks have diseconomies of scale. Big banks were not operationally efficient because of very wide chain of command and geographically very dispersed bank branch locations. Big banks also tend to take higher risk because its managers believe government always helps them when these systemic banks have serious problems.

De Young et al (2011) show that big bank cost function is different from smaller banks because they serve different market segments and different type of banking services [14]. Bigger bank size, documented by Wheelock and Wilson (2012), they less depend on expensive traditional time deposit, were more

active raising capital through capital market instrument. Cost function difference between large bank and small one implied that every bank can achieve their specific economies of scale. Banking economic scales can be reached not only by large banks but also by medium and even by small ones [11].

6. REVIEW OF LITERATURE

Wibowo (2016) states banking sector efficiency in a country is directly influenced by regulations that set up by the banking authorities in that country, especially what kind of banking industry structure that regulator intend by those regulation. Indonesian Banking Architecture which encourages mergers and acquisitions of smaller banks has a clear target that Indonesian banking industry should have a leaner industry structure with fewer numbers of banks but with relatively large assets, higher industry concentration higher and more tighter competition. This policy is driven by the regulator's belief that Indonesian banks has not achieved its economies of scales and competition is relatively low so that the Indonesian banking operating costs are among the highest among Asian countries. The opposite actually happened in the USA where the regulator is precisely to prevent mergers between major banks due to economies of scale bank in the United States has been exceeded. The research results showed the group of large banks in Indonesia is more efficient than medium and small banks and the efficiency is more due to economies of scale than caused by the concentration of the industry and the level of competition between banks [15].

In the study of Asongu & Odhiambo (2017) there is a growing body of evidence that interest rate spreads in Africa are higher for big banks compared to small banks. One concern is that big banks might be using their market power to charge higher lending rates as they become larger, more efficient, and unchallenged. In contrast, several studies found that when bank size increases beyond certain thresholds, diseconomies of scale are introduced that lead to inefficiency. In that case, we also would expect to see widened interest margins. This study examines the connection between bank size and efficiency to understand whether that relationship is influenced by exploitation of market power or economies of scale. Using a panel of 162 African banks for 2001–2011, we analyzed the empirical data using instrumental variables and fixed effects regressions, with overlapping and non-overlapping thresholds for bank size. We found two key results. First, bank size increases bank interest rate margins with an inverted U-shaped nexus. Second, market power and economies of scale do not increase or decrease the interest rate margins significantly. The main policy implication is that interest rate margins cannot be elucidated by either market power or economies of scale [13].

This study of Kasman (2002) uses a three input–three output Fourier-flexible cost function specification to investigate cost efficiency, scale economies, and technological progress in the Turkish banking system over the period 1988-1998. Our findings suggest that the Turkish banking system has a significant inefficiency problem. Although the annual inefficiency average decreased over the sample period due to the financial liberalization, commercial banks in the sector operated more inefficiently than their U.S. and European counterparts. The results suggest the existence of significant economies of scale for all groups in the sample and no evidence of diseconomies of scale even for larger banks. The results also indicate the existence of technological progress between 1988 and 1991 [16].

Qayyum & Khan (2007) aims at empirical investigation of the x-efficiency, scale economies, and technological progress of commercial banks operating in Pakistan using balance panel data for 29 banks. As banking sector efficiency is considered as a precondition for macroeconomic stability, monetary policy execution, and economic growth. We also make efficiency comparisons between the domestic and foreign banks and big banks. Our results indicate that the domestic banks operating in Pakistan are relatively less efficient than their foreign counterparts for the period 2000-05. The scale economies for small banks, especially foreign banks are higher. Our results suggest the existence of technological progress for all groups of banks for the year 2000 and onward. It was lowest for big banks in 2000 and highest for foreign banks in 2005. Again, technological progress is lower for domestic banks relative to foreign banks. The results show also that the market share of big five banks are declining over the period but average interest spread shows fluctuations. The main conclusions that can be drawn from these results are that mergers are more likely to take place, especially in small banks. If the mergers do take place between small domestic banks and foreign banks, these will reduce cost due to scale economies as well as x-efficiency (because foreign banks are x-efficient relative to small domestic banks). Even if mergers do take place between small and big banks, cost will reduce without conferring any monopolistic power to these banks. This will also help in stability of the financial sector, which is an important concern of the State Bank of Pakistan (SBP). So the best policy option for SBP is to encourage mergers, while keeping a check on interest spread, so that the benefits from reduction in cost due to mergers are passed on to depositors and borrowers [17].

Chandanani, Singh and Majumdar (2017) states the significance of the banking industry in the economy has generated a vast body of research on the study of competition within the industry. Especially with the deregulation and subsequent re-regulation of the banking sector in a large number of economies as well as the constant attempt towards consolidation

via mergers and acquisitions, the changing structure of this crucial sector has become an area of interest for researchers. Traditional economic theory supports the view that efficient market structures facilitate competition in an industry. With this as base, the current paper discussed the theoretical foundations of measuring competition; it discussed the classical industrial organization theory on market structures in banking via the Structure-Conduct-Performance paradigm as well as the neo-industrial organization approach towards the structure in the banking industry. It reviewed the literature on previous studies that were conducted in this regard to measure competition and market structure in the banking industry with a view to identify the scope for further research on the changing market structure of the Indian banking sector [18].

According to Pruteanu-Podpiera, Weill and Schobert (2007) states banking competition is expected to provide welfare gains by reducing monopoly rents and cost inefficiencies, favouring the reduction of loan rates and then investment. These expected gains are a major issue for transition countries in which bank credit represents the largest source of external finance for companies. With the use of exhaustive quarterly data for Czech banks, this paper aims at providing evidence on the effects of banking competition in the Czech Republic. First, we measure the level and the evolution of banking competition between 1994 and 2005. Competition is measured by the Lerner index on the loan market, by using data on loan prices. We find no improvement in banking competition during the transition period. Second, we investigate the relationship and the causality between competition and efficiency. We perform a Granger-causality-type analysis which supports a negative causality only running from competition to efficiency. Therefore, our results reject the intuitive 'quiet life' hypothesis and indicate a negative relationship between competition and efficiency in banking [19].

Owen and Pereira (2016) expanding access to financial services holds the promise to help reduce poverty and foster economic development. However, little is still known about the determinants of the outreach of financial systems across countries. Our study is the first attempt to employ a large panel of countries, several indicators of financial inclusion and a comprehensive set of bank competition measures to study the role of banking system structure as a determinant of cross-country variability in financial outreach for households. We use panel data from 83 countries over a 10-year period to estimate models with both country and time fixed effects. We find that greater banking industry concentration is associated with more access to deposit accounts and loans, provided that the market power of banks is limited. We find evidence that countries in which regulations allow banks to engage in a broader scope of activities are also characterized by greater financial inclusion. Our results are robust to changes in sample, data, and estimation strategy and suggest that the degree of competition is an important aspect of inclusive financial sectors [20].

Accordig to Arrawatia et al. (2017) banks in India have been gone through structural changes in the last three decades. The prices that bank charge depend on the competitive levels in the banking sector and the risk the assets and liabilities carry in banks' balance sheet. The traditional Lerner Index indicates competitive levels. However, this measure does not account for the risk, and this study introduces a risk-adjusted Lerner Index for evaluating competition in Indian banking for the period 1996 to 2016. The market power estimated through the adjusted Lerner Index has been declining since 1996, which indicates an improvement in competitive condition for the overall period. Further, as indicated by risk-adjusted Lerner Index, the Indian banking system exerts much less market power and hence is more competitive contrary to what is suggested by traditional Lerner index [21].

7. CONCLUSION

The liberalization and deregulation process in developed markets after the 1970s resulted in increased competition in the banking sector. Banks expanded into new and risky lines of business and new locations due to increased competitive pressure, which has resulted in individual bank defaults and crises in various countries. The standard competition paradigm in favour of competition regarding cost minimization and allocative efficiency does not hold for banking due to the market failures such as asymmetric information, switching costs and networks in retail banking and two-sided competition in deposits and loans. The uniqueness and fragility of banks and business models in banking are discussed. Moreover, competition paradigm in banking and historical overview of competition in banking is presented.

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