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**Is Bigger Better? Concentration and Performance
in Mexican Banks. 1945-1980**

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Abstract

This article argues that industrial concentration of Mexican banking affected the performance of this sector during the period 1945-1980. First, it explains the historical sources of industrial concentration in Mexican banking. Second, this article tests the hypotheses that banks with more market penetration were more profitable, but they were not necessarily banks with higher expansion of loan portfolio. To test these hypotheses, historical statistics of Mexican banking were reconstructed and panel regression methods were employed to analyze the relationship among industrial concentration and bank performance. Bigger banks tended to proportionally hold more liquid assets than loans due to regulations and business strategies.

Resumen

Este artículo argumenta que la concentración de la industria bancaria en México afectó su desempeño durante el período que va de 1940 a 1980. En primer lugar, se explican las raíces históricas de la concentración industrial en la Banca Mexicana. En segundo lugar se demuestran las hipótesis de que los bancos que tenían mayor penetración de mercado eran más rentables que los bancos pequeños, pero no necesariamente eran aquellos que tenían mayor expansión de su cartera de crédito. Para ello se reconstruyeron estadísticas históricas, e hicieron tests con regresiones de panel con los que se analiza la relación entre concentración y medidas de desempeño. Los bancos proporcionalmente más grandes tendían a mantener más activos líquidos que préstamos en su cartera por regulaciones y estrategia de negocios

*Introduction**

The financial scenario of twentieth-century Mexico has been dominated by a highly concentrated banking system. Despite the internationalization of finance, and the changes and crises that the Mexican economy has undergone in the past thirty years, today the banking industry is still concentrated among a few, leaving little room for competition. Between 1945 and 1982 the year when private Mexican banks were expropriated by the government, the banking industry experienced an unparalleled growth. However, the industrial organization of the Mexican banking system during that period depicts a story of increasing concentration. Few scholars have studied this problem in depth. In this paper I intend to answer the question of how the banking industry became increasingly concentrated in its formation stages and the implications of this in the banking system performance.

Larger banks were not necessarily more effective in the promotion of financing. I will show how banks with greater market penetration tended to be more profitable but had lower expansion of loans than smaller banks. Larger banks tended to retain more funds in the form of liquid assets in their portfolios. Certainly the increasing concentration responded to economies of scale and scope in banking; however, due to regulations on reserve requirements and portfolio strategies of large banks, it was not favorable for the expansion of intermediated credit in the economy. While admitting that the relevance of concentration of the financial sector is a topic of endless debate, the following story shows how the contextual combination of industrial concentration and regulatory factors significantly influenced financial system performance.

Although the development of the banking industry experienced progress and the number of commercial banks had burgeoned, it is noteworthy that the four largest firms had a relatively stable place from the 1940s onward. At the same time, industrial concentration increased, as shown by market shares and Herfindahl-Hirshman indices. Concentration was strengthened with the consolidation of financial intermediaries into the multi-banks in the 1970s. Increasing concentration deviated from the original intent of financial regulators to have a banking system composed of relatively symmetrical entities.

Although banks with larger market penetration tended to be more profitable, they also tended to hold proportionally fewer loans and more

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liquid assets than smaller entities. Two factors that help to explain this, are the reserve requirement policies and the strategies of large banks to hold a significant amount of securities. First, many banks were established in Mexico City, the economic center of the country. This is particularly true for banks that eventually followed a strategy of expansion. Although many pursued regional expansion, provincial banks were principally oriented toward financing local entrepreneurs or regional business groups. This does not mean that all Mexico City banks were large, but that the largest banks were headquartered there. To spread credit throughout the country, the government relaxed reserve requirements on banks outside Mexico City. Reduced reserve requirements served as a credit incentive in the provincial regions of Mexico, where banks were scarce. However, because banks with the greatest expansion were located in Mexico City, they also were subject to higher reserve requirements. This partly contributed to the fact that larger banks held more liquid assets.

Although Mexico witnessed remarkable financial growth between 1940 and 1982, there were few alternatives to obtain financing in Mexico and the situation did not significantly improve in that period. In fact, concentration in the banking sector only limited options to an even greater extent. A consequence of the concentration of banking industry is that even though the average Mexican bank might have been working as efficiently as possible, Mexico increasingly limited its alternatives for financing economic growth.

The increasing concentration of the financial system and the debate surrounding it figure largely in the history of the Mexican financial system. This paper analyzes the industrial structure of the most important financial intermediaries: commercial banks. I will explain how the market was distributed among different players of the banking industry, as well as how and why some players had different positions in the industry, and what this meant for the banks performance.

This paper is organized in the following manner: the subsequent section explains the concentration of the Mexican banking system, provides measures, and explains the mechanics of market penetration of banks. Section three explains the implications of concentration on bank performance. Section four includes concluding remarks.

2. Concentration: Its Relevance in the History of Mexican Banking

Different forms of industrial organization of the financial system can produce different outcomes in economic efficiency. There is no specific rule

concerning the relationship between industrial structure and performance, and outcomes have tended to be contextual¹. Nevertheless, although concentration is not a problem in itself, it could become one in the contextual combination of other factors (e.g., poor regulation and surveillance, lack of alternatives to banks), which could compromise the efficiency of the entire financial system.

In Mexico, after the mid-1960s, it was common to find analysts and policymakers expressing concern over the increasing concentration of the banking system in newspapers and specialized publications. Although this discussion had occurred in previous decades, it was more urgent at this time. This new anxiety was a response not only to increasing patterns of concentration, but also to the formation of conglomerates within the financial system. The trend of public opinion showed concern over the implications of concentration².

In a study of that time, Richard Eckaus (1974) asserts that "...[w]hile there have been a number of references to the existence of monopoly power in the Mexican financial system, there have been few, if any, specific studies of its existence and significance"³. While this is true, in this particular period it was difficult to prove how financial firms exercised market power within the context of a closed economy with interest fixed rates. In such a context, intermediation margins remained relatively homogeneous. Moreover, although it was known that banks had a captive market that permitted them to discriminate among their clientele (thus controlling the expansion of credit), for contemporary analysts it was difficult to ascertain whether a counterfactual situation would improve efficiency.

Regulators had a wide range of ideas for handling the problem. For example, Rodrigo Gómez, Director of *Banco de México*, the central bank, stated at the 1969 National Banking Convention that the government would not permit the existence of monopolies or oligopolies in the banking industry. Furthermore, Gómez believed that the expansion of bank branches would lead to increased operational costs⁴. However, that same year, Antonio Ortíz Mena, the Minister of Finance, recommended that bankers should form large

¹ For instance, the German and the Canadian banking systems are highly concentrated, but have a relatively good performance and stability. Also, indiscriminate expansion of banks of issue in the 19th century United States lead to problems of opportunistic actions and systemic risk. Cfr. Bordo, M., Rockoff, H. and Redish, A., 1994; Swary, I. and Topf, B., 1985.

² El Nacional, 24-Feb-1970; El Universal, 13-Nov-1973; Excelsior, 18-Dic-1974. Archivos Económicos-SHCP.

³ Eckaus, R., 1974, p.7.

⁴ Excelsior, 15-Mar-1969. Archivos Económicos-SHCP.

financial conglomerates⁵. Clearly, policy-makers held many conflicting viewpoints at the time. On the one hand, regulators at *Banco de México* and *Secretaría de Hacienda* intended the banking system to expand credit in the economy. On the other hand, there was a consensus among bankers and some policymakers that a strong national financial system, protected from foreign competition, was necessary⁶. In the late 1960s and 70s there were fiscal incentives—and even disguised subsidies—for large and medium-size banks to absorb smaller banks⁷. A contradiction emerged in these viewpoints because protection would favor the existing pattern of concentration and the possibility of unchecked market power.

In the 1970s, many policy makers began to express reservations about concentration. This change of opinion not only reflected the situation of the banking industry at that time, but also how public officials perceived the problem⁸. For example, in April 1973, Ramón Beteta, Minister of Finance, declared at the 39th *Convención Bancaria* that: “...[t]he disproportionate expansion of a small number of banks is a trend that will not benefit the financial system, nor the society [...] it might unbalance not only the banking system, but also the whole economy because it concentrates financial decisions in very small groups”⁹. However, other policy makers compelled small banks to merge with larger entities, this was particularly true during the formation of multi-banks after 1975.

According to Javier Márquez (1987), the government aimed at promoting a banking system composed of medium-size firms with an average market share between 15 and 7%¹⁰. However, instead of regulating concentration of activity, policy makers regulated the concentration of ownership. In December 1973, a reform to the Banking Law stated that the acquisition of 25% or more of the shares of a financial firm must be approved by the *Secretaría de Hacienda*, regardless of whether the operation was completed gradually or all at once¹¹. However, the measure was ineffectual in that most banks belonged to business groups and/or were controlled by kinship and family networks. Moreover, the criteria used to decide authorizations or restrictions were legally unspecified¹².

⁵ Novedades, 14-Nov-1969. Archivos Económicos-SHCP.

⁶ Interview 3.

⁷ Interview 2 and Interview 3.

⁸ The presidential regime of Luis Echeverría brought a new crew of financial policy-makers with different ideas. See Babb, S., 2001, for an explanation on the nature of the changes in the ideological trends of public officials.

⁹ Márquez, J., 1987.

¹⁰ Márquez, J., 1987.

¹¹ Legislación Bancaria-LGDIC, Art. 3o.-bis, Reform of Dec-31-1973.

¹² Legislación Bancaria-LGDIC, Art. 3o.-bis, Reforma Dic-31-1973; Reforma Dic-1978. This is an example of lax regulation in which implementation would be based on bureaucratic and political resolutions. The rationale behind

Concentration did not necessarily mean less competition; however it was an important part of the competitive nature of banking. Therefore, discussions of the concentration and of the competitive status of banks went hand-in-hand. On one level, some financial regulators sought a financial system that promoted growth and more efficient financial intermediation. Criteria of economic efficiency dominated their viewpoints. However, bankers and many policymakers had a different opinion: they believed that the priority was to maintain the financial system in relative isolation. This opinion could reflect a rent-seeking behavior of the bankers; however, it also was indicative of the whole conceptual model of the import substitution industrialization policies of the time. Indeed, although measures that protected banks from foreign competition dated from the Cárdenas regime, it was only in 1965 when bank ownership was permitted to Mexican citizens exclusively¹³.

Paradoxically, as a result of internationalization of financial activity throughout the world, in the late 1960s and early 1970s the number of foreign bank representative offices in Mexico increased. Consequently bankers, as well as other business groups, were quite active in lobbying for protection from the government. For example, in 1970 bankers presented a complaint to the *Secretaría de Hacienda* to restrict operations of foreign financial firms, in particular those attracting savings from Mexican citizens. Their argument was that "...[t]hey operated in a fiscal paradise and represented competition to Mexican banks"¹⁴. The bankers' community looked benignly the presence of foreign banks as associates to be represented by them, but never as competitors. Certainly the lack of participants from abroad in the banking industry facilitated concentration and a less competitive environment.

3. Concentration: Working Definitions and Measures

There are different ways to define industrial concentration. It is canonical to measure it using production of firms, but in the case of banks and financial firms the definition of production is very broad. In this section, I will focus on the concentration of production of financial services by commercial banks. My purpose is to describe how the concentration in different markets evolved. In particular, I will show how concentration evolved in the context of a growing industry protected from competition.

this regulation presupposed that it was more important to regulate the concentration of decision-making power in banks rather than the size of a given bank.

¹³ Ramos Garza, 1971; Legislación Bancaria-LGDIC.

¹⁴ Excelsior, 22-Mar-1970. Archivos Económicos-SHCP.

Approaches to concentration in banking have been diverse. During the period under analysis, many who warned about the problem referred not only to the concentration of banking activity, but also to the fact that different types of intermediaries (mortgage banks, trusts and non-bank banks) together with commercial banks were integrating into *grupos* or financial conglomerates. When analysts of that time studied all ramifications of financial groups, their analysis of concentration also tended to be a warning about the concentration of decision-making and wealth in a few hands¹⁵. They referred to concentration generally, leaving its implications in a very broad range of possible scenarios. The implications of linkages among different firms are not irrelevant because these inter-relations of intermediaries evolved towards the consolidation of the financial system. When we consider that many commercial banks and *financieras* worked together, the real extent of concentration in the credit market of loans might be underestimated¹⁶.

The first approach to industrial concentration is the market share that different sizes of firms have in a segment of the market. For example, the four-firm ratio shows the market shares for the four largest firms. Here I use the four largest firm ratios, the fifth to fifteenth largest firm ratio, and the ratio for the rest of the firms in the industry (from the fifteenth to the Nth firms). In the case of commercial banks, the position of the four largest firms was quite stable. A different story occurred with the remainder of the banks; although most small firms tended to remain small, their position within the industry often changed.

Chart 1, Chart 2 and Chart 3 show market shares for different groups of banks classified by size. Size is measured as the current value of their total equity. Equity is a canonical measure for size in financial firms. The charts show the market shares of loan portfolio, net equity and financial holdings from the public¹⁷. Tables corresponding to these charts are at the end of this paper.

¹⁵ Quijano, J. M., 1983, analyzed concentration in Mexican banking focusing on concentration of wealth. However, in his work he does not go far in terms of measuring concentration and its implications.

¹⁶ For instance, Eckaus, R., 1974, explained that "...[t]he calculation of concentration ration for banks and *financieras* separately may misrepresent and underestimate the degree of concentration in the financial system as a whole because of the extensive interconnections among the two types of institutions. It is difficult to establish the existence of such interconnections from available sources and impossible to determine their significance."

¹⁷ Financial holdings from public are the aggregation of public and corporate deposits and memorandum accounts. That sum represents the amount of money that every bank attracted from individuals and corporations in exchange for financial services. In other words, it permits to see to what extent a bank can administer funds and offer financial services.

Chart 1, Chart 2 and Chart 3 present an interesting and complex panorama. First, in Chart 1 the market shares for loans remain relatively stable for most of the period. The four largest firms enjoyed nearly 50% of the market for loans, a share that increased slightly after the mid-1960s. The position of the fifth to the fifteenth largest firms oscillated between 30 and 40% of the market, while the remainder of the industry barely controlled 20% of the market. Indeed, the share of small banks declined after the late 1960s. Considering that the number of banks increased, we may conclude that new firms were not necessarily taking market portions from the established ones. There perhaps emerged a path-dependent effect in industrial concentration, due to the first-comer advantages of established large banks.

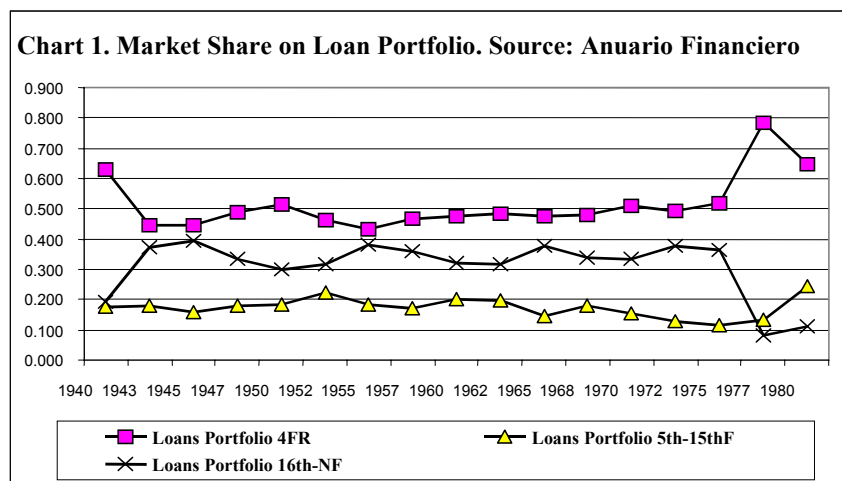
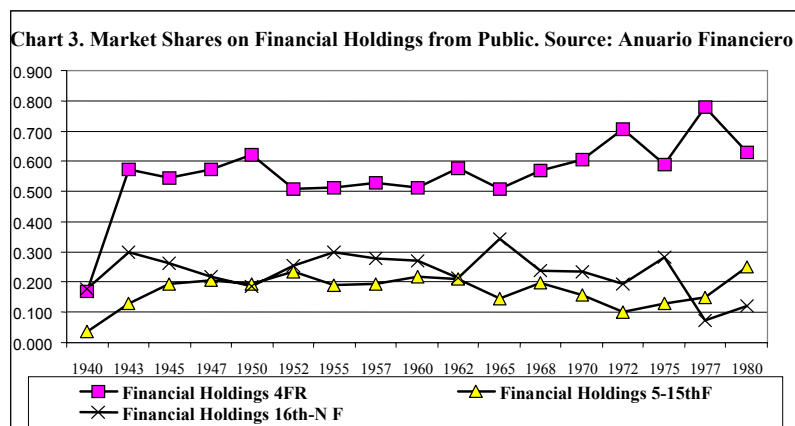
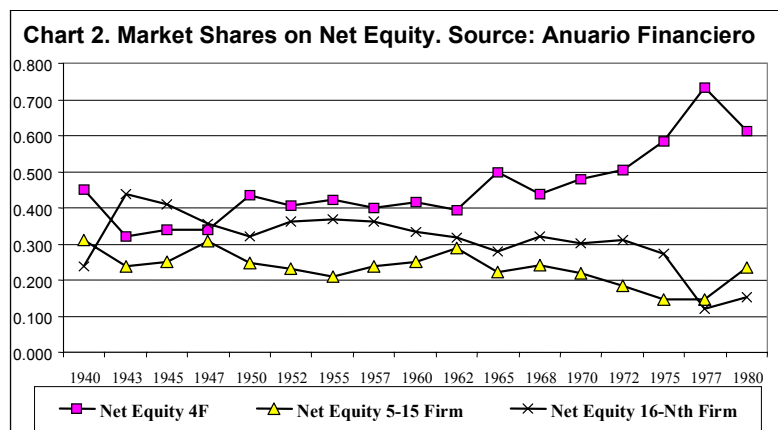


Chart 2 shows the market share in terms of net equity. Although net equity does not refer to the direct production of services, it is a good indicator for the size of a bank and its possibilities for expansion and growth. The four-firm ratio remained relatively stable during the 1950s, but it had a sustained increase during the 1960s and 70s, from a stable 40% to more than 60% of the market in the later part of the period. The fifth to the fifteenth firms had a decreasing presence in terms of equity. The remainder of the industry had with no more than the 30%, and its market share actually declined after the 1960s.

Chart 3 shows the financial holdings of banks. The difference between large and small banks is more significant here. Again, after the relative stability of the 1950s, the 1960s present a declining pattern of market share of smaller banks and an increasing pattern for large banks. The situation is explained in part by the expansion of branches made by the two largest banks. New branches permitted more deposits per bank to be made than in the smaller firms. Additionally the absorption of trust organizations, as well as

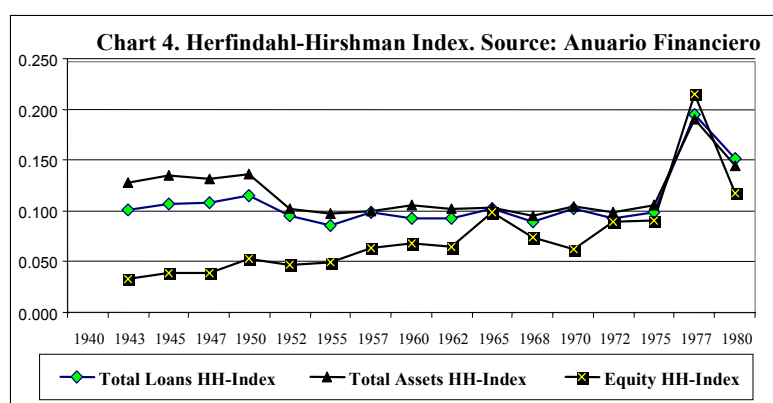
the formation of trust departments (principally by large banks), contributed to a more significant expansion of memorandum accounts in these firms.



Firm ratios provide a picture of the market share for different segments of the industry. However this measure is independent of the number of firms. An alternative and more accurate measure for concentration is the Herfindahl-Hirshman index (HH-index). The HH-index weights market shares with respect to the number of firms participating in the industry. In other words, the index shows how the market is distributed among the different firms, giving a more precise measurement of concentration than firm ratios. Chart 4 shows the HH-index for total assets, equity and, financial holdings of commercial banks.

Chart 4 demonstrates that after the 1940s there was a drop in concentration of total assets and financial holdings, and the level of concentration remained relatively stable until the formation of multi-banks in

1975. To the contrary, equity shows an increasing pattern of concentration since the early 1940s. The index reflects two interesting phenomena. First, a dropping HH-index on financial holdings throughout the 1950s shows how new and smaller banks were entering the industry and participating in both savings and trust markets. During that decade trust organizations tended to disappear slowly and commercial banks opened trust departments. Second, the stability of concentration levels in assets contrasts with the increasing concentration in equity. This shows how some banks were taking over the market, which did not necessarily affect how assets were distributed in the industry.



The effects of the formation of *bancos múltiples* (multi-banks) on the structure of the industry after 1975 are reflected in the previously discussed charts. The initial increase in concentration of 1975 and 1977 is due to the early consolidation of large banks into multi-banks. There was a period of adjustment after 1977, when smaller banks started to merge into multi-banks; consequently, as demonstrated in the charts, medium size banks (fifth to the fifteenth) lost market share, whereas smaller firms gain market share. However, as seen in Chart 4, the HH-index shows a much more concentrated industry after the formation of multi-banks. That is, despite the fact that small banks merged into larger units, creating the possibility of a more balanced industry with medium-size entities, the actual result was a more concentrated banking system.

The behavior depicted in the charts also helps to explain how the range of banks had different compositions of assets. As opposed to large banks, smaller banks tended to present a declining pattern of market penetration after the 1960s in the cases of loans, equity, and financial holdings. However, for large banks there is a difference in market share patterns of loans versus those of equity and financial holdings. The explanation for this difference is straightforward: large banks were assuming a greater presence in the market.

However, the expansion of their assets had more to do with business unrelated to loans with high liquidity.

4. Historical Construction of Industrial Concentration

Creating Concentration: the Large Banks

Large banks had stable position in Mexican markets. Table 1 shows the four largest banks for the period 1940-1970¹⁸. Banco Nacional de México and Banco de Comercio were (and continue to be) the largest entities, followed by Banco de Londres y México and Banco Comercial Mexicano.

Table 1
Four largest firms (measured size as equity)
 Source: Anuario Financiero de México, years 1940-1970

1940	Banco Nacional de México, Banco de Comercio, Banco de Londres y México, Banco Algodonero
1945 □	Banco Nacional de México, Banco de Comercio, Banco Internacional, Banco de Londres y México
1950 □	Banco de Comercio, Banco Nacional de México, Banco Comercial Mexicano, Banco de Londres y México
1955 □	Banco de Comercio, Banco Nacional de México, Banco de Londres y México, Banco Internacional
1960 □	Banco de Comercio, Banco Nacional de México, Banco de Londres y México, Banco Comercial Mexicano
1965	Banco Nacional de México, Banco de Comercio, Banco de Londres y México, Banco Comercial Mexicano
1970 □	Banco Nacional de México, Banco de Comercio, Banco de Londres y México, Banco Comercial Mexicano

A bank is big or small only in comparison to the size of the economy in which it operates. But contrasting banks in different economies helps to provide a broader perspective of the problem. For instance, large Mexican banks do not seem too large when compared with banks in developed economies. In 1963, American Banker ranked Banco Nacional de México as the 226th largest bank of the world. Again, in 1969 a newspaper reported that Nacional de México was ranked the 186th and Banco de Comercio, together with its affiliate banks,

¹⁸ In Table 1 Banco de Comercio is considered separately from its system of associated banks, which did not merge until 1975.

the 170th¹⁹. Compared to the large U.S. intermediaries, such as Bank of America and Chase Manhattan, which in 1963 were more than thirty times larger than Nacional de México, the Mexican firms were small. In 1963 a large Mexican bank was similar in size to the First National Bank of Denver, then the 99th largest bank in the U.S.²⁰. However, compared to banks in other Latin American countries they were not so small. In 1963, only Banco de la Nación Argentina (ranked 202nd) was bigger than the largest Mexican banks. Banco Nacional de México was similar in size to United Dominions Trust, the 18th largest bank of England, and Banco de Santander, the 6th largest of Spain, but was far smaller than Banco de Vizcaya, then ranked 5th. During the 1960s Banco Nacional de México and Banco de Comercio rose in these ranks, but no other Mexican bank made it into the 300 largest banks of the world²¹.

Although rankings such as these above provide very superficial information about the banking system, they help to draw a better picture of the banks in their context. Policy makers were inclined to pay attention to this type of indicator to stress the competitive position of Mexican banks in international markets (although Mexican banks were not competing in them). For many policy makers a big bank by international standards was synonymous with a solid one²². In fact, this served as one of the justifications for encouraging commercial banks to merge into large units during the 1970s.

There is no simple answer to the question of whether or not the large banks were always big, or why. The answer is contextual to each bank. For instance, Banco Nacional de México was the biggest bank since Porfirian times. Banco de Londres y México, the first bank in Mexico and the second largest Porfirian bank, required the aid of the government to survive after the financial breakdown caused by the Revolution. Banco de Londres y México needed several injections of capital from the government and private parties to maintain its position in the market²³.

Although Banco de Comercio and Comercial Mexicano emerged in the 1930s as modest-sized banks, they pursued a strategy of expansion. Banco Comercial Mexicano had the advantage of being tied to a powerful business group. Banco de Comercio, purposively sought a strategy of growth through the establishment of affiliate relationships with small provincial banks. This strategy permitted Banco de Comercio to form a network of affiliates that

¹⁹ Excelsior, 12-Ago-1964; Excelsior, 3-Ago-1970. Archivos Económicos-SHCP.

²⁰ The American Banker, June-1963.

²¹ The American Banker, June-1963, July-1970, and July-1990.

²² Opinions at EMSEM-Banamex and journalistic notes at Archivos Económicos-SHCP show an interest to have large banks (in international standards).

²³ Hamilton, N., 1983.

merged when the bank changed into a multi-bank. In this manner, these banks sought greater market penetration.

The Mechanics of Market Penetration

What explains the behavior of market penetration? How did banks capture new markets? Indicators of market penetration represent direct expansion of banks into unexplored segments of the market. These segments were principally geographical. Banks could enter new spatial segments by opening new branches. But mergers and acquisitions also were part of the expansion strategies of some banks; hence, they help to explain concentration. Broadly speaking, the banks that had an explicit strategy to gain new markets demonstrate a pattern of either opening branches or merging other entities. Banks that remained small tended to have a strategy focused on a local market, usually linked to the interests of regional business groups.

Economies of scale and scope permit financial intermediaries to enlarge their business without proportionally increasing their costs. Many banks also increased the number of their branches. In these times, most of a commercial bank's business was carried out at the branches. Thus, new branches meant more business. Although new branches required the authorization of the *Secretaría de Hacienda*, there were not any significant barriers to opening new ones. The big players developed a national strategy of branching, whereas the remainder of the banks operated at a local level. New branches provided increased market penetration for large banks.

For instance, the two largest banks, Banco Nacional de México and Banco de Comercio, engaged in aggressive branch competition across the national market after the 1950s. Initially, Banco de Comercio took the lead opening new ranches in Mexico before the 1950s. While Banco Nacional de México focused on a more centralized, corporate-oriented business, Banco de Comercio based its growth on affiliating local and state banks, and branch expansion in Mexico City. After a corporate change in 1952, when Agustín Legorreta became its CEO, Nacional de México began to more aggressively challenge the branch competition of Banco de Comercio²⁴. Table 2 shows the branch expansion of Banco Nacional de México and Banco de Comercio between 1950 and 1970. These banks had the most extensive network of branches, and their process of expansion reflects the way that large banks were able to gain larger market shares.

²⁴ Interview 1a.

Table 2 shows how operational aspects of banking activity were directly related to the purposeful actions of the decision-makers that ran the banks. It was a change in the managerial strategy that permitted Banco Nacional de México to maintain a rhythm of growth similar to that of Banco de Comercio. Branching was a strategic move that generated sunken costs to banks. However, these sunken costs reaffirmed each bank as a big player in the industry.

Table 2.
Branch Expansion. Banco Nacional de México, Banco de Comercio and its affiliates

Source: Anuario Financiero de Mexico, 1950, 1956, 1960, 1970.

Year	Banco de Comercio (Mexico City)	Affiliates of Sistema Banco de Comercio (States)	Banco Nacional de Mexico
1950	28	99	49 Mexico City 61 States
1956	35	199	26 Mexico City 111 States
1960	38	231	36 Mexico City 121 States
1971	81	430	72 Mexico City 184 States

Banks could also acquire other financial firms as a strategy for growth. Indeed, banking is an industry prone to mergers and acquisitions. In the U.S. for example, mergers have been a historical constant in the financial industry. In Mexico of that time, the process of mergers and acquisitions was gradual. There were three types of patterns for mergers. First of all, many commercial banks merged other similar entities. Second, several *financieras* and non-commercial banks converted into new-brand commercial banks to facilitate the merger process. And three, *financieras* and non-commercial banks began to be merged into commercial banks prior to the formation of multi-banks. Some types of intermediaries—for example, mortgage banks and trusts organizations that already had a respectable market share—tended to merge with large banks that had the sufficient funds to acquire them. Large banks had a comparative advantage to extend its operations into a new, already explored, market. In short, this permits us to conclude that the concentration of the banking industry was also a result of the amalgamation of different financial firms into commercial banks.

A case of expansion accomplished through gradual mergers was Banco Comercial Mexicano. In 1948, Comercial Mexicano merged with Banco Industrial; later, in 1949, it merged with Banco Fronterizo de México and with

Banco de Descuento in 1950²⁵. In September 1958, it merged with Banco de la Laguna, which was located in Torreón²⁶. By 1959, Comercial Mexicano had also absorbed Banco de Oaxaca, Banco Comercial de la República located in Tijuana, Banco Comercial de Veracruz and Banco Ganadero de Camargo²⁷. (I have no evidence that Comercial Mexicano would have absorbed other banks following these mergers.)

An interesting case in which a chain of smaller fish is eaten by bigger fish is that of Banco Comercial de la Propiedad. Banco Comercial de la Propiedad was formerly a banking house known as Silva Hermanos, Sucs.; it was chartered as a bank in 1933 and in 1943 re-structured and adopted its new name. In 1952, Comercial de la Propiedad merged with Banco de Guadalajara²⁸. In May 1962, Banco Comercial de la Propiedad was acquired by the group of Banco de Londres y México and Compañía General de Aceptaciones, changing its name to Banco Azteca²⁹. With the consolidation of multi-banks, Banco Serfín absorbed Banco Azteca in July 1977³⁰.

Some *financieras* became commercial banks to widen the scope of their business operations. For example, Crédito Industrial de Monterrey, a *financiera*, acquired and merged with Banco Anglo-Mexicano, a small commercial bank founded in 1941³¹. In 1950, Crédito Industrial de Monterrey was chartered as a commercial bank, becoming Banco Industrial de Monterrey³². Later, in August 1963, Banco de Londres y México merged with Industrial de Monterrey³³.

The behavior of the two largest banks was different. Although Banco Nacional de México had associations and agreements with small regional banks, it did not have other banks as direct affiliates³⁴. Banco de Comercio had a different strategy. Banco de Comercio began a network of associated banks in 1934—two years after its constitution— with Banco Mercantil de Puebla. After that, Banco de Comercio extended its network of associates throughout the country. In 1975 all affiliates of the network were merged into a multi-bank. Before 1975, Banco de Comercio had based its expansion on both national branching and promoting affiliates.

²⁵ Anuario Financiero, 1950; Lagunilla I., 1976. Banco de Descuento before 1942 was Banco Morton-Leishman, a former *banking house* that was chartered as a bank.

²⁶ El Universal, 3-Oct-1958. Archivos Económicos-SHCP.

²⁷ Excelsior, 11-Feb-1959. Archivos Económicos-SHCP.

²⁸ Anuario Financiero, 1952; Lagunilla I., 1976.

²⁹ Excelsior, 6-May-1962. Archivos Económicos-SHCP.

³⁰ Anuario Financiero, 1977.

³¹ Anuario Financiero, 1950.

³² Anuario Financiero, 1950; Lagunilla I., 1976.

³³ Excelsior, 2-Sept-1963. Archivos Económicos-SHCP.

³⁴ Bátiz, B. and Del Ángel, G., 2003.

Needless to say, during the 1970s there was official interest in the consolidation of the financial system. However, this was not perceived with equal enthusiasm by all observers and policymakers. According to some analysts, the modification to the banking law in 1974 to create multi-banks was a step toward eliminating small banks by the way of integrating them into larger financial groups. However, the rationale behind the official actions was to promote a financial system composed of more solid entities³⁵. In fact, in 1979 the President of the *Comisión Nacional Bancaria*, Mr. Creel de la Barra, stated that whereas the 27 most important banks were already multi-banks, 74 financial firms continued to operate in a specialized fashion; hence the government negotiated their merge into larger entities³⁶.

5. Performance

We need to know whether the observed pattern of increasing size and concentration of banks responded to a form of the scale and scope of the economy, as well as what were its consequences. In this section, I will show that the increasing concentration of the banking system can be explained by the fact that bigger banks were more profitable; however, it worked to the detriment of the growth of intermediated bank credit.

Although the presence of scale economies in banking might appear natural, the question of how large a bank should be (within a given context, state of technology, regulations, and organizational form) always remains open to debate. In the literature on banking, there has been a trend exploring this topic that flourished during the mergers of the U.S. banking system in the 1980s³⁷. In spite of the consolidations of the 1970s, literature on this topic was scarce in Mexico. In the early 1980s, González-Méndez (1980, 1981) advanced research on the relationship between concentration and economies of scale in Mexican banking. Later, González-Sánchez (1988) argued that economies of scale existed in Mexican banking. A doctoral dissertation by Chávez (1988) concluded that there was no evidence that economies of scale existed in the banking system as a whole, whereas economies of scope appeared in some specific combinations of products³⁸.

³⁵ Universal, 21-Dic-1974. Archivos Económicos-SHCP.

³⁶ El Universal, 24-Feb-1979. Archivos Económicos-SHCP.

³⁷ Some representative works are Clark, Jeffrey, 1984; Gilligan, T, Smirlock M. and Marshall W., 1984; Yoon Kim, H., 1986.

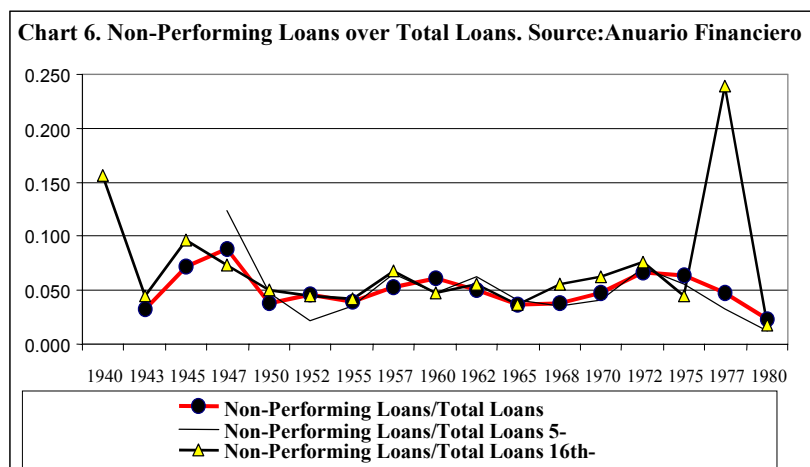
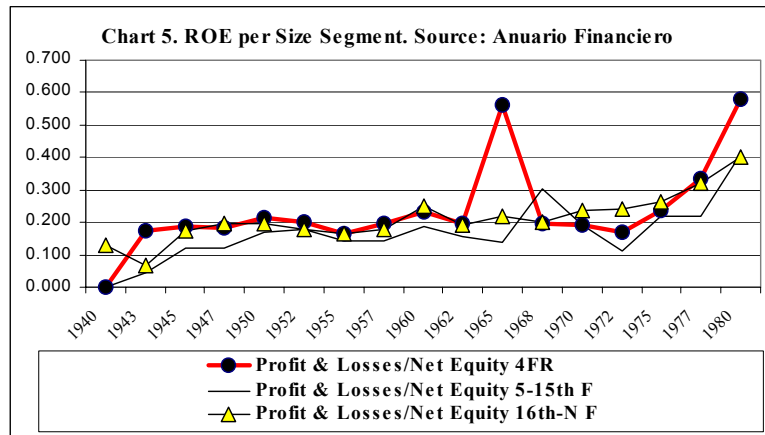
³⁸ González Méndez, H., 1980 and 1981, and González Sánchez, E., 1988, these authors published as research papers from Banco de México, and the latter re-published his paper at CEMLA. Also see Chavez Presa, J., 1988.

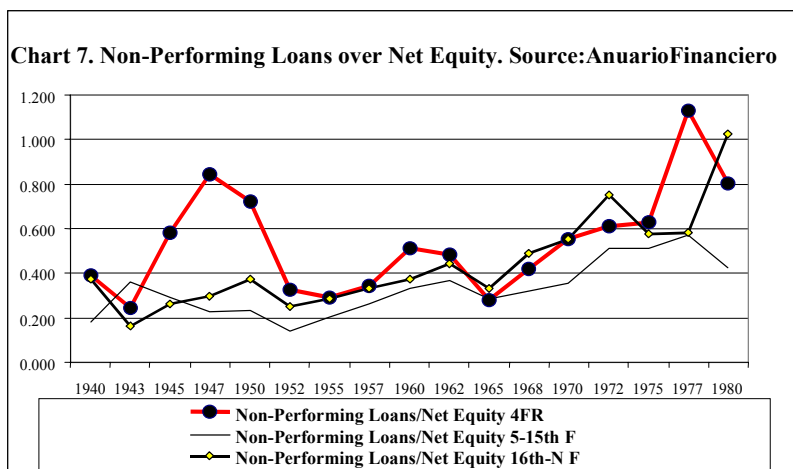
Formally, economies of scale and scope are practically a rule at the interior of financial intermediaries. However, bigger does not necessarily mean better. For instance, small financial firms can have better organizational capabilities than large ones. Smaller banks might exert a closer monitoring of their business processes and enjoy lower operational costs.

There are several perspectives with regard to the efficiency of financial firms. My focus is on the ability of banks to administer their resources in the best available way, whether in the interests of the shareholders (considering that shareholders aim to maximize the value of the bank and maintain a sound operation), or to promote the sound expansion of credit and financial services in the economy. However, there might be some points of conflict in this view, for maximizing the interests of shareholders does not necessarily mean that the banks are expanding financing in the economy. For this reason it is important to contrast several performance measures. In this section I will analyze how financial entities performed their functions in the economy according to their size.

Chart 5 and Chart 6 show measures of banks performance according to categories of size. Banks are classified by size, according to amount of total equity. Chart 5 shows return on equity, the traditional measure of profitability. The group of four largest firms was not significantly more profitable throughout the period than the majority of banks. However, there are some segments of the period in which small firms over-performed. At the same time, it appears that the segment of medium firms was slightly less profitable than the remainder of the industry.

A good indicator to measure how efficiently banks allocated resources is the amount of non-performing loans in assets. Chart 6 shows the ratio of non-performing loans over total loans. This ratio also indicates the degree of default and credit risks the banks had. According to this measure there was no significant difference between the group of large firms and the groups of small and medium firms. From an aggregate perspective this reflects that there were no significant differences in how efficient one group or another was for allocating their loans. In addition, this means that systemic risk was affecting them in a relatively equal manner. However, using another measure to default risk, such as the ratio of non-performing loans to net equity (shown in Chart 7), we are provided a broader perspective. As shown, default risk tends to be higher for the segment of the four largest banks throughout the period. In short, although large and small banks were managing risks with similar efficiency, large banks were more prone to default risk because they were more leveraged than the segment of small and medium firms.





As shown in Chart 5 and Chart 6, between 1968 and 1975 the group of small banks appeared to be more profitable than the groups of larger firms. At the same time, between 1965 and 1972, the same group had a higher ratio of non-performing loans to total loans. At first glance, it seems that the group of small banks was incurring higher risks but enjoying more profits during that period. The explanation is that it was a period when small banks were expanding activities and as a consequence faced higher idiosyncratic risks.

Testing Performance for Different Bank Sizes

The previously analyzed charts show the financial performance of the banking industry for segments of size. However, more robust evidence of patterns observed in the charts, and more accurate quantification of these relationships, will prove or disprove the traditional hypothesis that a positive relationship exists between a bank's size and its performance; it will also show if it holds for the entire period, and how statistically significant such factors were.

To develop a regression analysis that covers all firms of the commercial banking industry throughout the period under study, we need to pool cross sectional and time-series information. The information will be tested in a linear functional form. One function expressing a relationship between a relative measure of size (market penetration) and performance (I use profitability to approximate performance) is the following:

$$\text{Return on Equity}_{t,i} = \alpha + \beta (\text{market share on assets})_{t,i} + \chi (\text{time trend})_{t,i} + \delta [(\text{time trend})(\text{market share on assets})]_{t,i} + \varepsilon_{t,i}$$

This expression represents the linear relationship between share of the total assets of the industry of each bank ($i = \text{bank}$), with respect to return on equity of every single bank throughout the period ($t = \text{year}$). A time trend and an interaction variable are added to the regression to ascertain whether the relationship was increasing or decreasing over time. The regression will be estimated with a least squares panel regression. The dependent variable is return over equity, and the hypothesis to test is whether a greater market penetration of banks had a positive effect on the profitability of the banks ($\beta > 0$).

The data used in the regression is financial information from the annual balance sheets of commercial banks. The database includes the balance sheets of practically all commercial banks (or at least the 80%, the most important firms included). The data covers a sample of 14 years from the period that goes from 1943 to 1975³⁹. Total number of observations per variable is 916. All the variables in the regressions were transformed into logarithmic form.

The functional form of the regression incorporates not only the relationship between the two variables to test the hypothesis, but also a time-interaction variable that reflects the evolution of the relationship over time. Something important in the functional form is that it does not test scale economies because it lacks the adequate functional form; the complete set of variables for such test is not available in historical data. Nevertheless, a positive relationship between the two variables will indicate that economies of scale might exist, whereas an opposite result would not allow the assertion that economies of scale do not exist.

Regression results are shown in Table 3. As shown, the overall regression is statistically significant. The coefficient of market share on assets both is positive and statistically significant, which proves the hypothesis that banks with larger market shares tended to perform better than smaller banks. In other words, increases in market share induced increases in profitability. However, since the coefficient is smaller than 1, it was a decreasing effect. The coefficients of time, trend, and the interaction variable show that it is not possible to assert that the relationship had neither an increasing pattern nor a decreasing pattern over time. In addition, the negative constant term shows that there was a minimum level of asset growth necessary to achieve increases in profitability.

³⁹ Originally the entire database covers from 1940 to 1980. I depart from 1943 because is the year when I have most accurate information for some financial variables and end in 1975 because after that year there was a structural change with the consolidation of the multi-banks.

Table 3.
Panel Regression 1. All commercial banks, 1943-1975.
Dependent variable: log of return on equity

Variable	Coefficient	Error	t-statistic
Log of market share on assets	0.145549	0.047563	3.06010
Time trend	-0.204754E-02	0.013559	-0.151008
(time trend)(log of market share on assets)	-0.188167E-02	.251395E-02	-0.748493
Constant	-1.15754	0.252429	-4.58560

R-squared = 0.030027

Adjusted R-squared = 0.026837

Durbin-Watson = 0.434084E-03 [.000,1.00]

We cannot reject the hypothesis that larger banks tended to be more profitable than smaller banks. This is because bigger firms derived technical efficiencies from their size, and also because they could have had more profitable projects at hand for investment⁴⁰. However, profitability is one way to approximate performance, at least from the perspective of shareholders. Yet we need to know whether or not a proportionally larger bank was better for the remainder of the economy. To shed some light on this topic, we need to know whether or not large banks expanded credit at a higher rate than small banks.

Testing Asset Composition and Bank Size

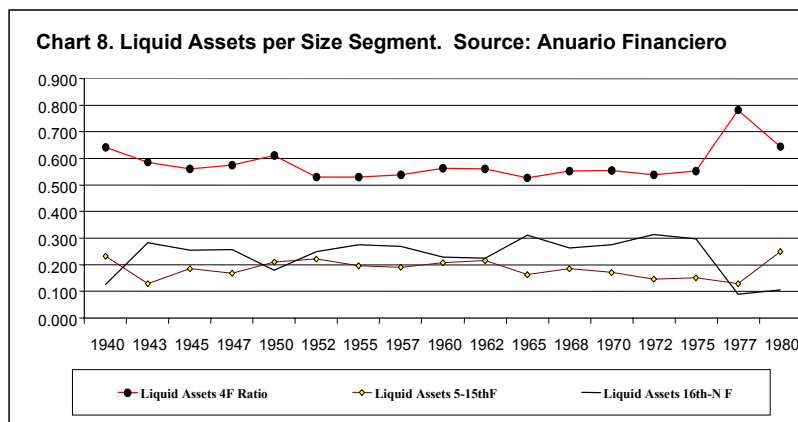
We know that when commercial banks invest their funds in assets, loans are the most plausible alternative. As expected, loans represented a considerable share of the assets of the Mexican banking system. However, banks also invested in liquid assets and fixed assets. Liquid assets were mainly stock and bonds, as well as the reserve requirements of the central bank. Fixed assets such as buildings of corporate offices and branches were an important part of expansion and market penetration. Although branch expansion was an investment, it also represented significant operational costs.

In point of fact, larger banks tended to have a higher proportion of fixed assets than smaller banks. Larger banks tended to have more branches,

⁴⁰ Smirlock, M., 1985, argues that there is few evidence of a relationship between concentration and profitability; banks with large market shares tend to be more profitable because firms with superior efficiency obtain larger market shares.

employees and, after the mid-1960s, they became the benchmark firms investing in the growing field of information technology. The sunken costs of large banks permitted network economies and complementarities at the interior of the banking system.

However, it is not clear whether or not there was a pattern of larger banks tending to hold proportionally more liquid assets than smaller banks. Chart 8 shows the firm ratio of liquid assets. The four largest firms hold most of liquid assets of the industry; this proportion is higher than their ratio of loans of the industry (shown in Chart 1).



Does this mean that larger banks tended to hold more liquid assets and fewer loans than their smaller counterparts? What was the shape of that behavior? To answer these questions for the entire industry throughout the period with statistical consistency, I need to test the direction of the relationship between size and holding of liquid assets. The following functional form will serve for that test:

$$\text{Liquid assets over total assets}_{t,i} = \alpha + \beta (\text{proxy variable of size})_{t,i} + \chi (\text{time trend})_{t,i} + \delta [(\text{time trend})(\text{proxy variable of size})]_{t,i} + \varepsilon_{t,i}$$

As in the previous case, estimation is made with a least squares panel regression. The specific hypothesis to test is that holdings of liquid assets of a bank (proportional to its assets) are positively related to its relative size ($\beta > 0$). I ran different panel regressions with different proxies for size, obtaining very similar results. I used market share on assets and market share on equity as proxies for size. Results are shown in Table 4.

Table 4.
Panel Regression 2. All commercial banks, 1943-1975.
Dependent variable: log of liquid assets over total assets ratio.

Variable	Coefficient	Error	t-statistic
Log of market share on assets	0.093083	0.012772	7.28808
Time trend	-.017120	0.364096E-02	-4.70204
Interaction: (time trend)(log of market share on assets)	-.229576E-02	0.675060E-03	-3.40083
Constant	-.247471	0.067783	-3.65090

R-squared = 0.129112

Adjusted R-squared = 0.126248

Durbin-Watson = 0.144032E-02 [.000,1.00]

The regression shown in Table 4 does not permit us to reject the hypothesis that bigger banks tended to hold a larger proportion of liquid assets at a decreasing rate during the period. The results also show that the relationship was decreasing over time. Larger banks tended to invest more in other types of assets—namely loans and fixed assets—which increased due to the expansion of branching and business centers⁴¹.

Why did bigger banks hold more liquid assets? The amount of liquid assets was part of the financial strategy for asset management. Large banks were important players in bond markets. In particular, they were important institutional investors in government bonds. Large banks were also important investors in stock of firms. These investments were often in firms with ownership linkages to banks.

However, this outcome also had a regulatory component. Liquid assets varied with reserve requirements that banks had to channel to *Banco de México*. Reserve requirement regulations were one of the most important instruments of the government for monetary policy and fund-raising, but their effects were not neutral. Reserve requirements regulations were complicated and continually changing, thus creating implicit costs to banks⁴². And overall, these regulations constrained the availability of funds to commercial banks. An example of this is the extreme situation that emerged between 1978 and

⁴¹ Although after this result we might expect a positive relationship between profitability and the proportion of liquid assets on total assets, there is no statistically significant proof of this. In other words, holding liquid assets was not a direct guarantee for profitability during the period.

⁴² Madero, D., 1998; Brothers and Solis, 1966. In addition, that even the central bank had serious problems and delays to keep track of reserve requirements with regularity. Interview 2, 1999.

1982, when increasing marginal reserve requirements contracted the expansion of credit.

Madero (1998) shows the variations of reserve requirements for the period that goes from 1936 to 1959; commercial banks headquartered in Mexico City were subject to more requirements than local provincial banks⁴³. This scheme was a good incentive for local banks to reproduce and have more funds available for credit. The implications are obvious: large banks were headquartered in Mexico City whereas smaller banks were located in the provinces; hence, larger banks were subject to more reserve requirements than their provincial counterparts. Higher reserve requirements contributed to the higher levels of liquid assets, maintained by the banks as they became larger⁴⁴.

The mechanics of this is quite interesting. Mexico City had the most important business opportunities, and so the banks that sought business expansion headquartered there. Needless to say, the most important Mexican capitalists and financiers lived and/or had social networks there. Economic activity was not the only motive; the proximity to circles of political decision-making and financial policy available there were endogenous reasons for choosing this location.

The government, aiming to generate sources of credit in the states, provided fiscal incentives to local banks in the form of relaxed reserve requirements. However, a reinforcing mechanism was at work: banks that pursued a strategy of national expansion were already established in Mexico City. Consequently, banks that demonstrated more intense growth also faced more reserve requirements. As for small banks, many of them had financial strategies oriented to specific business groups.

Further econometric tests are necessary to prove with greater detail the specific effects of changing reserve requirements on credit expansion. The constraints imposed by this type of regulations. However, at the same time such regulations were important devices for monetary policy, and indeed contributed to monetary discipline and credibility in Mexico for much of the twentieth century⁴⁵. In short, there is no final word concerning the benefit or detriment that reserve requirement policies caused in the economy. Nonetheless, it is a fact that these policies worked in a way that banks

⁴³ Madero, D., 1998. Chp. 1, Table 1.4.

⁴⁴ In fact, it is known that the central bank used to test the waters about the liquidity of banks with the heads of the largest banks before exercising reserve requirements regulations. Interview.

⁴⁵ Cfr. Madero, D., 1998.

appropriating larger portions of the market had to retain more liquid assets and invest proportionally less in intermediating loans.

Concluding Remarks

The main argument of this paper is that the combination of industrial concentration and a regulatory framework on reserve requirements hindered the expansion of intermediated lending activity in the Mexican economy. First, concentration reinforced the existing lack of alternatives to obtain loans and financing in Mexico. Second, the negative effect of reserve requirement regulations on credit made the expansion of intermediated credit with existing patterns of concentration more difficult.

Econometric results show that bigger banks tended to be more profitable. The consolidation into the *bancos múltiples* system suggests that there were advantages to putting together different forms of intermediation. But getting a bigger slice of the market in a closed and protected economy was not necessarily beneficial for the expansion of intermediated bank credit.

It is impossible to disentangle concentration trends from both the strategic action of the business groups to which banks belonged and the interactions between the government and the banking community. After all, many small banks remained so because they were established to fundamentally serve the financial needs of particular business groups, and grew accordingly with those business groups. The performance of those small banks varied—some of them shut down while the efficient ones continued. On the contrary, large banks were oriented to constitute open financial entities and play a key role in the financial system, in addition to the fact that they were tied to powerful economic interests.

By the early 1970s the government pushed commercial banks to merge and form large entities. The government wanted to have larger financial firms—but in an industry with significantly less concentration. The historical outcome was the opposite of what the government wished. From the perspective of the government, bigger banks were easier to monitor and, above all, easier to regulate and control for taxation purposes. In addition, some policy-makers believed that a solid banking system meant large units. Needless to say, the government tended to assist and have close reciprocal dealings with big banks. At the same time, bankers representing large entities were an important interest group.

Some additional questions have emerged from this research. For example, if there were scale economies working on the side of big banks, we must ask why the picture did not evolve toward an industry dominated by medium size banks—as indeed was expected following the multi-bank consolidation of

1975. Was it a complex historical accident, a result of purposive actions, or a predetermined technological outcome? Additionally, questions of whether or not banks exercised market power, and, if they did, to what extent, remain unanswered. If banks enjoyed monopoly rents, in what way could competition be enhanced? All these are questions also topics for further research.

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