Playing with Fire? The Internationalization and Condition of Mexican Banks Prior to the 1982 Debt Crisis

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Abstract

The current European sovereign debt crisis has put the banking sectors of troubled economies into the spotlight. The close association between government debt problems and weak domestic banking sectors has increasingly been recognized in the economic histories of countries ranging from developing to industrial. This article focuses on the Mexican banking system in the decade leading up to the outbreak of the 1982 international debt crisis. It shows that the condition of the domestic banking system deteriorated in the wake of the crisis, and that its fragility can be related to the involvement of leading commercial banks in the international capital markets. The internationalization of Mexican banks emerged as an exit option to domestic funding problems and increasing competition from foreign bank loans, in a context of growing needs for financing and foreign exchange in Mexico. The paper provides new insights on the domestic and international political economy of a lending-borrowing mechanism that led to what became one of the largest global financial crisis since the Great Depression.

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1 Introduction

The sovereign debt problems that began in the Euro area in 2009 have brought the banking sector into the foreground of the analysis of the current European crises. The financial system of debtor countries, including the role and condition of leading domestic banks, has become a crucial element in the cases of sovereign debt payment difficulties faced by peripheral European economies. Specifically, scholars have shown that in virtually all troubled countries, the problems of weak banking sectors and government indebtedness are interconnected (Mody and Sandri, 2011; Shambaugh, 2012; Merler and Pisani-Ferry, 2012). Moreover, in a number of these countries, such as Greece and Spain, these problems have been mutually reinforced, activating a vicious spiral that has exacerbated the crises (Attinasi, Checherita, and Nickel, 2009; CGFS, 2011).

Indeed, links between banking and sovereign debt problems can be traced back in economic histories of both developing and industrial countries. In their 2009 book, *This Time is Different*, Carmen Reinhart and Kenneth Rogoff underline the close association that has historically existed between global banking meltdowns and sovereign defaults on external debt in various countries.[1] In later research, these two authors corroborate the bond between debt and domestic banking crisis, in both advanced and emerging countries histories alike (Reinhart and Rogoff, 2010).[2] According to their study a banking crisis usually precedes or coincides with a sovereign debt crisis and the impacts can run either way. For instance, if a banking crisis leads to a currency crash, then the solvency of private and sovereign borrowers could be undermined, triggering a debt crisis.[3] The same could follow if a government took on a considerable amount of debt from troubled banks, as occurred in many countries after the 2007-08 financial crisis.[4] A sovereign debt crisis could also put the banking sector at stake if, for example, domestic banks hold important volumes of government debt.

The importance given to the banking sector by recent research on sovereign debt problems blatantly contrasts most accounts of the international debt crisis of the 1980s. Although extensive literature exists on this topic, with the bulk of the scholarship dating back to the time of the crisis or immediately after, the role and condition of the domestic banks in troubled countries has been largely neglected.[5] This is unfortunate because in conjunction with the 1980s sovereign debt crisis, a number of borrowing countries, especially in Latin America, the region at the heart of the storm, suffered from serious banking difficulties during the 1980s.[6] Systemic banking crises broke out in Argentina in 1980, Chile and Uruguay in 1981, Colombia and Ecuador in 1982, Peru in 1983 and, sometime later, Bolivia in 1986.[7] There are good reasons, therefore, to look at the domestic banking sectors of debtor economies and explore their situation in the years preceding the outbreak of these crises.

This study focuses on the situation of the Mexican commercial banking system during the lead up to the 1982 debt crisis. Mexico is an unavoidable, though not immediately apparent case study to examine these issues. On one hand, Mexico was not only a major debtor and the country responsible for unleashing the 1980s international debt crisis, but its banking sector and commercial banks were also among the largest in Latin

[1] See Reinhart and Rogoff (2009), Chapter 5.

[2] Borensztein and Panizza (2008), though within a different framework, also find a positive association between defaults and domestic banking crisis.

[3] Kaminsky and Reinhart (1999) document the extent that currency and banking crises tend to happen simultaneously.

[4] See Honohan, Donovan, Gorecki, and Mottiar (2010) and Special Investigation Commission (2010) for accounts of the Irish and Icelandic case respectively.

[5] A major exception is Diaz-Alejandro (1984) who shows the close connection that existed between large financial assistance provided by the Chilean government to troubled banks in 1980-81 and the later sovereign debt crisis.

[6] See Fernández (1983), Sundararajan and Baliño (1991) and Rojas-Suarez and Weisbrod (1995b,a).

[7] See Laeven and Valencia (2008) for a brief characterization of the crises.

America.[8] On the other hand, unlike most of its neighbors who faced similar difficulties, it did not suffer from a systemic banking meltdown or even a bank failure during the crisis. This does not mean, however, that the situation of the banking sector was positive in Mexico, or that there were no potential damaging links between the banks and sovereign debt problems. On the contrary, previous research has shown that leading domestic banks were crucially entangled in the country's external indebtedness process and that, in running their international businesses, they accumulated substantial currency, maturity and interest rate mismatches on their balance sheets (Alvarez, 2015).

This article investigates the internationalization process of the Mexican banking industry and implications this process had on the health of the domestic banking system. To shed light on this matter, I draw on a number of historical sources that have not been used for these purposes before. To evaluate the role and condition of Mexican banks, I rely on data from their balance sheets, as published in the Monthly Bulletin of the Financial Analysis Unit of the Comision Nacional Bancaria y de Seguros (CNBS). The bulletin, first issued in December 1978, provides the most detailed information available on Mexican commercial banks. This collection is housed in its entirety in the Library of the Banco de Mexico, the central bank. Data from annual reports and a series of historical financial statistics from the Banco de Mexico are also used to accomplish the analysis. My account is also based on documents and records from the historical archives of Banamex - one of the two largest private commercial banks - in particular, minutes from the meetings of the Executive Committee. Finally, and with the view of complementing the regulators' perspective, I draw on the minutes of the Banco de Mexico Governing Board, which are available at its historical archive.

Until now, the involvement of debtor countries' banks in international capital markets has received very little attention in the literature on international finance in the 1970s.[9] This study shows that after two long decades of expansion and increasing penetration in the domestic economy, domestic fundraising problems linked to rising inflation and increasing competition from foreign banks loans pushed Mexican banks to reach the international capital markets in the early 1970s. First, as a shareholder of London-based consortium banks, then through their own London and U.S. branches, leading domestic banking institutions were able to improve their lending capacity and meet the domestic demand for credit by borrowing in Eurocurrency interbank markets. In a context of strong economic growth, high fiscal deficits and a deteriorating current account, the internationalization of domestic banks promised to be instrumental. Not only would it provide the country with much needed financing, but it would also support the balance of payment. While the engagement of Mexican banks in foreign finance emerged as an exit option for domestic financial disintermediation, this also proved convenient for the federal government and national financial authorities.

An increased reliance on foreign interbank borrowing for funding created new risks and vulnerabilities for the domestic banking system during the second half of the 1970s. The larger the weight of external liabilities, the higher the exposure of the banking sector to currency risks and to shifts in lending conditions in the international money markets. In parallel to greater foreign exposure, changes in the domestic funding base also weakened the financial position of the banks. On one hand, the maturity structure of term deposits was considerable shorter, making the funding base less stable. On the other hand, sight deposits, which were the least expensive non-equity fundraising instrument available for commercial banks, progressively decreased their share as a source of funds as the crisis approached. This paper shows that domestic fundraising problems had especially affected banks involved in international finance, and that foreign wholesale liquidity provided them with the resources they were losing domestically. Financial analysis based on balance sheet ratios displays a relatively larger deterioration in the risk position of these institutions compared to banks that

[8]Four of the ten largest Latin American banks were Mexicans around that time. See Morris (1990), *"The Top 300,"* The Banker, June 1976, 653-695, and *"The Top 500,"* The Banker, June 1981, p. 153-181.

[9]Main references are Helleiner (1996), Kapstein (1994), Lipson (1981), Moffitt (1984), and Wellons (1987) just to mention a few examples.

operated at only a national level.

This study of Mexican banks stresses the importance of considering the situation of domestic banks during the run up to the sovereign debt crisis of the 1980s. Section Two provides a historical background, while Section Three describes the consolidation and internationalization process of Mexican banks that began in the early 1970s. The expansion of the banking industry and its deeper involvement with foreign finance, as developed in Section Four, came along with increasing fragility and new exposures, as discussed in Section Five. Section Six shows the extent to which the weakness of the system was based on asset liability mismanagement by large banks involved in foreign businesses, which, as argued in Section Seven, limited their ability to fund themselves with less risky domestic liquidity. Despite increasingly leveraging foreign funding for expansion, I suggest that while these banks were not necessarily fueling the crisis through bad lending, they became a dangerous force of instability because of their greater risk positions.

2 The Historical Context of the Mexican Banking Industry

From the postwar years up to 1982, the Mexican banking sector experienced a stable and continuous enlargement of its intermediating activities. After the collapse and destruction of the financial system during the Mexican Revolution at the beginning of the twentieth century and its subsequent reorganization and reconstruction during the 1920s,[10] Mexico's banking system would take on an unprecedented level of growth during the following decades. As documented by del Angel (2002), both in terms of the number of the institutions established and in the volume of transactions and lending activities they carried out, beginning in the 1930s, the domestic banking sector underwent a powerful expansion.

The foundation for the Mexican banking system was laid in the two decades that followed the revolution. One of the most important measures was the creation of a central bank in 1925, Banco de Mexico, which would become the institution at the center of the financial system. The Comision Nacional Bancaria, later renamed as the CNBS, had been created the previous year and was the supervisory agency of the baking sector. In terms of the legal framework, new legislation and amendments were passed during the 1920s and 1930s, which were further defined with the adoption of the Banking Law of 1941. This law established a system of specialized banking in Mexico that ruled the banking industry until 1975, when the legislation went through its first substantial modification.[11] Around the same time, the creation of development banks, such as Banco Nacional de Credito Agricola in 1926 and Nacional Financiera in 1934, were also major events in the development of modern Mexican financial system.[12]

The Mexican banking sector grew and also gradually consolidated during the postwar era (del Angel, 2010). The Banking Law of 1941 divided Mexican banks into three main types of financial intermediaries: mortgage banks, *financieras* (similar to industrial banks), and deposits and savings banks, otherwise known as commercial banks.[13] Each of these had a specific set of operational boundaries, their own balance sheet, and was a separate legal entity. Despite strict regulatory constraints in terms of their funding instruments, reserve requirements and lending activities, commercial banks managed to enlarge the scale of their operations beyond the scope of their original grant of authority. As Gustavo del Angel explains, they were able to "bypass these restrictions by taking over other intermediaries and using them as their legal mandates to channel funds

[10]See Anaya Merchant (2002) and Goldsmith (1966) respectively.

[11]See del Angel (2002), chapter 4.4.

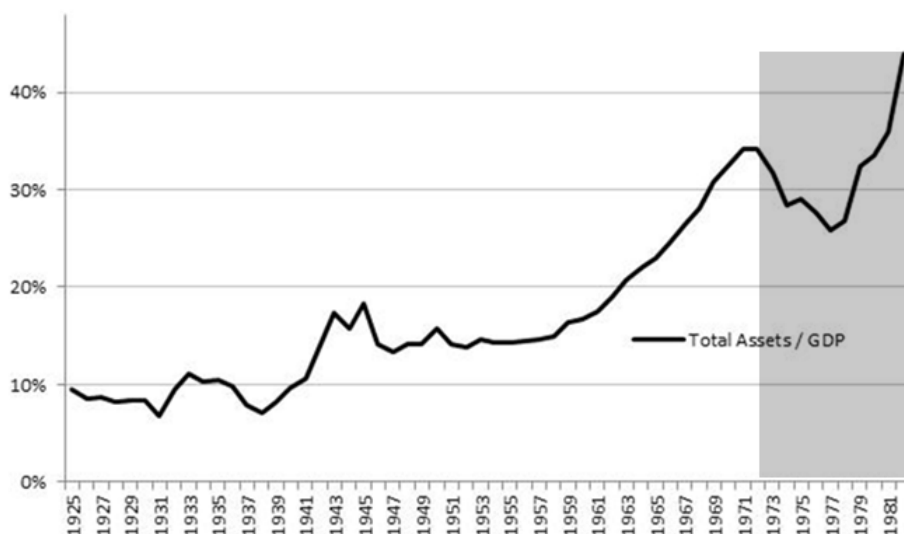
[12]Development banks were state-owned financial institutions that differed legally from the private intermediaries and were not regulated by the Banking Law.

[13]The other, less important, financial firms were thrift institution, trust organizations and residential mortgage banks. See Acosta Romero (1978) for a detailed account of the different financial entities contained in the Code.

with greater flexibility."[14] By the 1960s, commercial banks and their associated firms had formed financial conglomerates or holdings - legally recognized with the banking law amendment of December 1970 - which became, in general, the financial units of larger business or economic groups.[15]

But the consolidation of the banking sector not only related to the amalgamation among financial intermediaries. It also strengthened their position within the domestic economy. The development and enlargement of banking activities during this period took place in a time when the Mexican economy experienced a remarkable expansion, with growth rates that often exceeded those observed in the banking sector. Particularly between the late 1950s and early 1970s, the banking sector deeply penetrated the national economy and solidified its position role in the economic development of the country. While in 1958, total assets of private financial intermediaries represented approximately 15 per cent of the GDP or US$ 1.5 billion, by the end of 1972, they reached as much as 34.1 per cent or US$ 15.3 billion (see Figure 1).[16] This rapid pace of expansion came along with an increased concentration of the banking industry and consolidation among the country' leading banks.[17]

FIGURE 1: EVOLUTION OF THE MEXICAN BANKING SECTOR, 1925-82



Source: Estadisticas Historicas de Mexico, INEGI (1985).

Two private banks stood out from the rest of the financial institutions of the sector. The first of these was Banco Nacional de Mexico, known as Banamex. Founded in 1884 as the result of the merger between Banco Mercantil Mexicano and Banco Nacional Mexicano, Banamex was one of the oldest banks in the country and a leading player in the domestic commercial banking market. The other was Banco de Comercio, known as Bancomer. Created during the early 1930s in Mexico City, Bancomer would quickly expand its activities to the national level, becoming a major actor in the banking industry and the main competitor of Banamex. Whereas originally established as commercial banks, these two institutions progressively acquired, created, or grouped with other financial firms, such as *financieras*, mortgage banks, brokerage houses, leasing agen-

[14]del Angel (2002), p. 95.

[15]See Hamilton (1983) for a description of economic and financial groups in Mexico around that time and del Angel (2006) for detailed account of the connections between commercial banks and business groups.

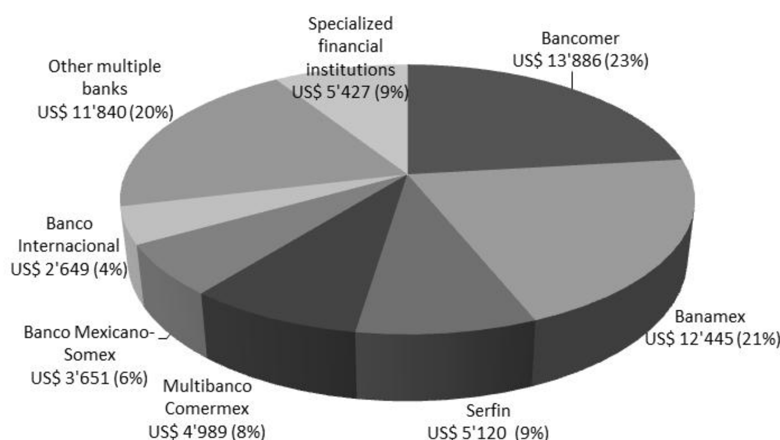
[16]See del Angel (2010), Chart 15.1, p. 637. When compared to other similarly sized economies, such as those of Argentina and Brazil, penetration of the Mexican financial system was relatively modest.

[17]See del Angel (2002), Chapter 6.

cies, insurance companies, among others, and covered a vast network of financial services, becoming the two biggest banking groups in the country.

The position of Banamex and Bancomer, as well as of other leading banks, and the concentration of the industry were further strengthened by the reorganization of the Mexican banking system during the mid-1970s. With the passage and enactment of the Multiple Bank Law in 1975-1976, banking groups were legally permitted to consolidate their different financial institutions into one single banking entity, called a multiple bank. The reform was aimed at transforming the previous arrangement, which had included a great number of specialized financial companies. The goal of this law was to create a universal banking system composed of a small number of large banks. By the beginning of the 1980s, multiple banks represented as much as US$ 54.6 billion or 91 per cent of the total assets and liabilities of the entire banking sector, and Banamex and Bancomer alone accounted for almost a half of this, with similar shares (see Figure 2).

FIGURE 2: COMPOSITION OF THE BANKING MARKET IN THE EARLY 1980S
Total Assets in December 1980, in millions of dollars



Source: Bulletin of the CNBS and Banco de Mexico's Annual Report.

Mexico's third largest private bank was Banca Serfin, which controlled nearly one tenth of the country's total banking market. Serfin was created in July 1977, after the huge conglomerate Valores Industriales SA (VISA group) acquired Financiera Aceptaciones, Mexico's largest industrial bank, and merged it with Banco de Londres y Mexico and three regional banks, forming Banca Serfin. Multibanco Comermex was the fourth largest bank, followed by Banco Mexicano-Somex and Banco International, both of which were majority-owned by the Mexican government. As for the remainder of the banking sector, it was mainly made up by multiple banks, but there were also a number of deposits and saving banks, financieras and mortgage banks which had not evolved into multiple banks and kept their previous legal figures.[18] Together these six institutions accounted for over a quarter of the Mexican banking system's total assets (see Figure 2).

A special remark needs to be made with respect to foreign banks and their participation in the Mexican domestic banking market. Contrary to Porfirian times, when Mexico's domestic banks were essentially foreign, the financial system that was reconstructed during the aftermath of the Revolution was almost entirely Mexican. With the Banking Law of 1941, the ownership of financial institutions operating in the domestic market was legally restricted to Mexicans. Citibank was the main exception, as it was the only foreign bank allowed to establish full branch facilities and commercial banking operations in the country. As for other foreign

[18] According to a survey carried out by Márquez (1987), by the time the Mexican banking system was nationalized in September 1982, there were 35 multiple banks, 14 deposit and saving banks, 11 financieras and 1 mortgage bank.

banks, they could only open representative offices. These representative offices, although forbidden from collecting savings from the public, could provide loans and other financial services on behalf of their parent banks. They could also associate with national banks and leverage this network of correspondent banks to conduct business. The presence and activities of foreign banks in Mexico remained relatively discrete during the first few decades that followed the reconstruction of the banking system, and it wasn't until the late 1960s and 1970s that they began to open representative offices and engage in lending activities in Mexico.[19]

3 Incursion into Foreign Finance, 1972-1976

A salient feature in the evolution of the Mexican banking industry during the post-World War II era was the major disruption it suffered during the 1970s. As evident in Figure 1, after decades of stability, expansion and increasing penetration in the national economy, the rise of the commercial banking sector came to a halt around 1972. In the years following the historic peak of 34.1 per cent in 1972, the banking system's total assets relative to the GDP progressively diminished until 1977, when it reached 25.8 per cent, the lowest value of the decade. This trend, which Mexican scholars have named the financial disintermediation process, would be reverted in coming years.[20] By the early 1980s, commercial banks had already surpassed the loss participation of the previous period.

The underlying factor behind the contraction of banks' total assets was a slowdown in bank fundraising. Estimates from Quijano (1987, p. 177) show that during the 1956-1960 and 1964-1970 periods, while commercial banks' domestic funding increased, respectively, by 10.2 and 18.1 per cent annually in real terms, the average annual growth rate between 1971 and 1978 was a much more modest 1.7 per cent.[21] By 1971-72, about 93 per cent of the banks' funding base consisted of local deposits and savings from the private and public sector, 4 per cent were transactions between domestic financial institutions and the remaining 3 per cent was made up by other domestic liabilities.[22] This funding structure and weak performance in terms of domestic funding, in the context where the Mexican economy expanded at an annual rate of 5.6 per cent, implied a relative decline in the financial resources available to banks.

The minutes of the Executive Committee of Banamex witness the serious difficulties the banking sector experienced in terms of domestic financial resources. During their weekly Wednesday meeting, Banamex's General Director Agustin Legorreta would periodically talk about the scarcity of cash resources and the slow evolution that deposit accounts showed during 1971 and 1972. Funding difficulties went beyond the case of Banamex, since, as he stressed, "the situation was not exclusive to [their] bank, but general to all the credit institutions of the country, particularly affecting small institutions, which have been failing to meet their legal deposits."[23] Bank fundraising difficulties were also a matter of concern for national financial authorities who, in looking for a solution, introduced a reform to the Banking Law in December 1973, which authorized Banco the Mexico to "equip the Mexican banking system with more and more flexible fundraising instruments."[24]

[19] See Sánchez Aguilar (1973) and del Angel (2002), Chapter 5.4.

[20] See, in particular, del Angel (2010), p. 637 and Quijano (1987), p. 170-180.

[21] Buffie and Krause (1989) estimate that the total stock of real bank funds fell 13.3 per cent from 1973 to 1976.

[22] Banco de Mexico, Annual Report of 1972, Table 20, p. 73.

[23] Banamex's archives, Libro No. 2 de Actas de la Comision Ejecutiva, August 11, 1971 Meeting.

[24] Acta No. 2406, February 1974. New saving regimes were then introduced by Banco de Mexico, that, in the words of Governor Fernandez Hurtado, aimed to "provide domestic savers with a wider range of investment opportunities, in terms of timing and performance, and tried to encourage fundraising by putting emphasis, not so much on important increases in the return on investment, but on a more adequate timing structure, covering the gap that was currently observed in that structure and giving the Mexican banking system a more competitive position, without representing excessive costs for the institutions."

The causes of the banks' domestic fundraising problems were related to inflation and the interest rate policy followed by the central bank. For many years, until the late 1960s, inflation in Mexico was low (below 4 per cent annually), but it had started to rise in the early 1970s, with rates oscillating between 4 and 6 per cent, and became a real problem beginning in 1973, when prices rose by 21.4 per cent over the course of the year. High inflation was a problem for banks because of the difficulties adjusting interest rates on deposits and savings instruments upwards. 1972 was the last year with positive real interest rates. As shown in Table 1, from 1973 onwards, nominal rates were persistently below inflation rates. In Mexico, as in many other Latin American countries, this was a period of heavy financial regulation, or *financial repression*, and interest rates were not market-determined, but instead, established by the monetary authority. In this respect, as Buffie and Krause (1989, p. 146) observed, "whereas real deposit rates were maintained at positive levels throughout [the era of Stabilizing Development],[25] after 1972 this policy was allowed to lapse."[26]

TABLE 1: MACROECONOMIC AND BANKING INDICATORS 1972-76 (%)

	1972	1973	1973	1975	1976
MACROECONOMIC VARIABLES					
GDP real growth rate	8.5	8.4	6.1	5.6	4.2
Inflation[a]	4.9	12.1	23.8	14.9	15.8
Devaluation[a]	0	0	0	0	23.2
Fiscal Deficit/GDP[b]	4.5	6.3	6.7	9.3	9.1
Current Account/GDP	-2.9	-3.2	-4.7	-5.0	-4.0
External Indebtedness/GDP[b]	16.4	18.1	19.8	23.0	29.3
BANKING SECTOR					
Interest rate[d]	7.9	8.8	11.5	12.0	12.1
Total lending / GDP	19.3	17.4	14.9	14.7	14.0
Domestic funding / GDP	32.1	30.0	26.9	27.4	25.7
Foreign borrowing / Total liabilities	0	0	0	0.7	2.7

[a] Annual rate.
[b] Public sector borrowing requirement (includes public financial sector) from Negrete Cárdenas (1999).
[c] Total external debt from World Bank's World Developing Indicators.
[d] Average annual interest rate of bank's domestic fundraising instruments from Banco de Mexico's Historical financial statistics.

Source: Banco de Mexico and INEGI.

These funding difficulties gnawed away at the lending capacities of the banks. Bank lending was further affected by the decision made by financial authorities to increase reserve requirements, which, according to

[25]Stabilizing Development - *desarrollo estabilizador* - is the name given to the economic program that prevailed in Mexico between the beginning of the Mateo Administration in 1958 and the end of the Diaz Ordaz Administration in 1970, in which the country experienced high levels of growth and low inflation. See Izquierdo (1995) or Ortiz Mena (1998).

[26]In fact, the minutes of the Governing Board show that determining domestic interest rates was pretty much made based on the evolution of interest rates in international capital markets, in particular in the U.S. and the Eurodollar, in order to keep domestic instruments at competitive levels and avoid outward flows of capital. Although inflation was a matter of discussion, it didn't come up during the talks on interest rate policy. See, for instance, Actas No. 2401 (July 1973), 2407 (April 1974) and 2420 (January 1976). This is consistent with the position of the central bank, which addressed banks' fundraising instruments through the introduction of new saving instruments and not by raising interest rates, as previously mentioned.

Buffie and Krause (1989), rose from about 31.3 per cent in 1970 to 51.1 per cent in 1976.[27] As a matter of fact, between 1972 and 1976, the bank loan portfolio declined from 19.3 to 14 per cent of the GDP (see Table 1).[28] This was unfortunate, as the domestic economy continued to grow and the demand for credit expanded. Along with other Latin American economies, Mexico was undertaking the final stages of the import-substituting industrialization (ISI) process and bank lending was a major piece of the funding strategy.[29] For the banks, as Banamex' General Director pointed out, the lack of funding was further enhanced by the rising demand for credit that banks faced from both the private and, especially the public sector, which, as he pointed out "was exerting strong pressures on the credit institution for financing."[30]

In a context of rising demand for credit and insufficient domestic supply, the financing that domestic banks were not able to provide was filled by foreign banks. At that moment the country had been borrowing in the international capital markets for some time, but the boom in international lending began in earnest with the oil shock of 1973 and the rise of the petrodollar recycling process that Mexico, and Latin American generally, experienced.[31] Green (1998) shows how Mexico's external debt, both from the public and private sector, started to accelerate vigorously beginning in 1973. For instance, while between 1970 and 1972 the Mexican public sector had raised US$ 2.08 billion in the international capital markets, in 1973 alone, it borrowed US$ 2 billion, and during the following three years, it borrowed a total of US$ 12.5 billion.[32] To put it differently: in each successive year between 1973 and 1976, the Mexican public sector took on five times more foreign loans than during the entire 1970-73 period. Of these amounts, about 80 per cent came from international banks operating in the Euromarkets.

In the eyes of leading Mexican banks, the increasing role of foreign banks in lending to Mexico was a major threat. Their position was that, as Legorreta explained to Committee members, if they were not involved in the international capital markets "they would be condemned to be a mere supplement to foreign banks," which were ready to provide the funding the country was demanding to finance its economic development at lower very attractive interest rates.[33] It is within this context of poor domestic funding, rising competition, and the loss of market share to foreign institutions in terms of lending, that Mexican banks turned to the international capital markets. In fact, as the minutes of Banamex's Executive Committee show, "the impossibility of meeting the domestic demand for credit with domestic resources" was a crucial factor in the decision of the bank to look at the Euromarkets and to get involved in international banking.[34]

The case of Banamex, a pioneer and leading financial institution in Mexican international finance, illustrates the path Mexican banks followed to reach the Euromarkets. During early 1972, the Executive Committee started to discuss alternatives to enter the international capital markets and, eventually, decided the best way

[27]The Reserve requirement system was a very complex network of ratios, in which different specialized institutions, such as mortgage banks, *financieras*, deposit banks, etc., and each of the fundraising instruments was subjected to specifics coefficients. There were, indeed, several increases in reserve requirements between 1970 and 1976, which were motivated as anti-inflationary measures. These increases also provided additional resources to finance the public sector. See, in particular, Acta No.2410, October 1974.

[28]The level of 1971-72 was a historical peak after years of vigorous expansion since the mid-1950s when the ratio of banks' loan portfolio to GDP was around 7.5 per cent. See del Angel (2002), Chart 2.2, p. 24.

[29]See Bértola and Ocampo (2012).

[30]Banamex's archives, Libro No. 2 de Actas de la Comision Ejecutiva, August 11, 1971 Meeting. By way of an example, in the August 29, 1973 meeting, Agustin Legorreta informed the Committee of a conversation he had had with Ernesto Hernandez Hurtado, Governor of the Bank of Mexico, concerning the financial needs of the Federal government. Hernandez Hurtado had told him that the government would need 2 billion pesos (approximately US$160 million) to cover public spending until the end of the year and that he was expecting leading private banks to provide the financing. See Acta No. 2399, April 1973.

[31]See Devlin (1989).

[32]See Green (1998), Table I.12, p. 42.

[33]Banamex's archives, Libro No. 3 de Actas de la Comision Ejecutiva, February 9, 1971 Meeting.

[34]Ibid.

to do it was through the creation a London-based multinational bank associated with large foreign banks.[35] The International Mexican Bank (Intermex) was finally opened in April 1, 1974, with Banamex as the main shareholder holding 38 per cent of the bank's initial capital.[36] Around that same time, Bancomer and Banco de Londres y Mexico (which later became Banca Serfin), the two other largest Mexican banks, also founded their Consortium banks, the Libra Bank and the Euro-Latinamerican Bank (Eulabank) respectively.[37] These banks, particularly Intermex, would take a predominant role in international lending to Mexico during the upcoming years.[38]

But the internationalization of Mexican banks could not have been accomplished, let alone started, without the consent and support of the Federal government and financial regulators. In 1974, an important amendment to the banking law was passed that permitted Mexican banks to access international capital markets.[39] More specifically, the amendment explicitly empowered domestic banks to participate in the capital stock of foreign financial institutions and to open agencies and branches upon receiving authorization from the Secretary of Finance. For Mexican banks willing to get involved in the Euromarkets, this was a major reform as up until that point, domestic bank participation in international finance was not contemplated in the national banking law. These changes aligned with other measures taken by the Mexican financial authorities at that time that tended to soften controls on banks and liberate the domestic financial sector.[40]

For the Mexican government, the involvement of domestic banks in foreign finance was desirable for at least two reasons. First, the public sector was confronting a steep increase in the fiscal deficit - it rose from 4.5 per cent of the GDP in 1972 to 9.1 per cent in 1976 (see Table 1) and thus was in need of financing. As previously noted, the government had been putting pressure on the banks for financing that banks were not able to afford with domestic financial resources. Second, given the fixed exchange rate and growing inflation, the Mexican economy was also suffering from capital flight and a worsening current account, which both deteriorated the balance of payment position. In this context, letting banks access international money markets promised to be useful, not only because it would provide them with funds to finance the government (and the ISI policies), but also because foreign exchange could help to bridge the peso gap. A currency crisis would nevertheless break out in 1976, leading to the first devaluation of the peso after 22 years of stable parity with the dollar.[41]

4 From Domestic to Foreign Funding, 1977-1982

1977 marks a turning point in the evolution of the Mexican banking system during the 1970s. After half a decade of contracting activities and losing presence in the national economy, the banking industry started to recover. Total assets, which represented 25.8 per cent of the GDP in 1977, grew to 32.4 per cent in 1979, and 35.9 per cent in 1981 (see Figure 1). In terms of lending, as shown in Table 2, the loan portfolio of

[35]The alternatives under consideration were: a) to open a branch in London, b) to organize a society in London controlled by the bank, and c) to associate with other European and American banks to create an institution in which Banamex held an important share. In the opinion of the Director, the last option "was probably the most convenient solution because of the advantages it represent[ed], in terms of prestige and appropriate contacts among other." Banamex's archives, Libro No. 3 de Actas de la Comision Ejecutiva, February 2, 1972 Meeting.

[36]Bank of America, Inlat, Deutsche Bank, Paribas International, The Dai-Ichi Kangyo Bank and Union Bank of Switzerland were the other founders and shareholders of Intermex.

[37]The arrival of Mexican banks in London was part of a general trend among a handful of developing countries' banks that established consortium banks there between 1972 and 1974. See "Consortium Banks on Course," The Banker, February 1976, p. 170-171.

[38]See Negrete Cárdenas (1999), Table B17: Leaders in Bank Syndicated Loans to Mexico, 1973-82, p. 400-404.

[39]Borja Martínez (1978), p. 431-342.

[40]See Kaminsky and Schmukler (2003).

[41]Negrete Cárdenas (2015) argues that the crisis of 1976-77 was, in reality, a short-lived debt crisis that passed mostly unnoticed.

domestic banks rose from 12.8 to 19.2 per cent of the GDP between 1977 and 1981. By the beginning of 1982, the domestic banking sector had not only regained the ground it has lost during the years of financial disintermediation, but its weight in the national economy was even greater than the historic highs it had reached in 1972.

The revival of the domestic banking sector was possible because banks succeeded in reversing the trend of previous years and increased their funding base. In December 1976, Gustavo Romero Kolbeck was named Governor of Banco de Mexico, and from the beginning of his mandate, he emphasized the need to strengthen the funding and financial capacity of the domestic banking system.[42] In order to so, Banco de Mexico proceeded to create and restructure financial instruments available to attract savings from the public, with an emphasis on encouraging long term funding in the national currency. Nominal interest rates were also revised upwards, and in 1977, "for the first time since 1972, the interest rate of longer term deposits became positive in real terms."[43] Interest rates on domestic fundraising instruments would be periodically revised, especially beginning in late 1979, and adapted to inflation levels. As a result, by the end of 1977, domestic funding of the banking sector has increased by 18.6 per cent in real terms, and would continue to expand at a rate of 8.8 per cent per year between 1978 and 1982.

At that time, expanding the lending capacities of the banks was important both because it was believed necessary to support economic growth and also because it helped companies with liquidity problems. With the devaluation of 1976, a number of firms indebted in dollars abroad fell under payment difficulties and relied on financing from domestic banks to cover their financial needs. Romero Kolbeck explained to Banco de Mexico board members that the mechanism "observed in the business sector consisted in obtaining credits in national currency and using those amounts to pay liabilities in foreign currency."[44] During the last four months of 1976, Banco of Mexico had already been supporting the banking system assist companies with cash flow problems, and in January 1977, it made up to 1.7 billion of pesos (U$S 770 million) available for the banks in order to maintain their credit capacity.[45]

A step forward to improving bank lending capacity was the reform of the reserve requirement regime. On April 1, 1977, a unified reserve requirement system replaced the complex old structure of multiple coefficients with one single rate for all liabilities in national currency. The process of homogenization of reserve requirements came along with a general reduction of coefficients, which was more important for multiple banks than for specialized financial institutions. Up until March 1977, the average reserve requirement ratio had been about 50 per cent; that April it was unified and reduced to 39.5 for multiple bank institutions and later reduced to 37.5 per cent in August of the same year.[46] With these measures, the financial authorities aimed to both simplify a system that has become very inefficient and also expected to release considerable amounts of resources that would become available to banks for lending.[47]

While domestic funding was important, the recovery of the banking sector after 1977 was also based on the

[42]See Actas No. 2430 (March 1977) and 2438 (July 1977).

[43]Banco de Mexico, 1977 Annual Report, p. 49. This was not, however, the case for all savings instruments, since, on average, interest rates continued to be lower than the annual rate of inflation (see Table 2). Two factors are worth mentioning with respect to the new interest rate policy adopted in 1977. A clear separation was introduced between savings instruments in foreign and domestic currency. Since March 22, 1977, interest rates for dollar saving instruments were determined daily at one point above the interest rate of its equivalent instruments in the Euromarkets. As for savings instruments in pesos, interest rates were to be revised more frequently, and determined as ceilings and not as fixed rates, like before.

[44]Acta No. 2432, July 1977.

[45]Banco de Mexico, 1977 Annual Report, p. 45. See also Acta No. 2428, January 1977.

[46]The process of conversion into a universal banking system began in December 1976 and by the end of 1977, multiple banks accounted for 71 per cent of the resources of the banking system. See Banco de Mexico, 1977 Annual Report, p. 42.

[47]In contrast, while also unified, the reserve requirement for liabilities denominated in dollars was raised from 30 to 75 per cent as a measure to prevent the dollarization of the banking system. See Acta No. 2432, July 1977.

increased use of foreign finance. The Banco de Mexico 1976 Annual Report shows that US$ 492.3 million or 2.7 per cent of the liabilities of the banking sector that year consisted in loans from foreign banks while in 1975, this type of liability had only represented US$ 176.9 million or 0.7 per cent of the sector's obligations (see Table 1). Although clearly limited in scale, foreign banks' reliance on external borrowing as sources of funding would be strongly intensified during the following years. As shown in Table 2, while in 1977, foreign loans accounted for U$S 630 million or 3.1 per cent of the funds raised by the banking sector, they progressively increased up to 1982, when they reached US$ 8.53 billion or 20.1 per cent of the sector's total liabilities.

TABLE 2: MACROECONOMIC AND BANKING INDICATORS 1977-82 (%)

	1977	1978	1979	1980	1981	1982
MACROECONOMIC VARIABLES						
GDP real growth rate	3.4	8.2	9.2	8.3	7.9	-0.5
Inflation[a]	29.1	17.5	18.2	26.4	27.9	58.9
Devaluation[a]	46.5	0.6	0.3	0.8	6.7	121.9
Fiscal Deficit/GDP[b]	6.1	6.0	6.8	7.5	14.1	16.9
Current Account/GDP	-2.4	-3.0	-3.4	-5.4	-6.2	-3.2
External Indebtedness/GDP[c]	35.9	32.6	29.6	26.5	32.1	52.9
BANKING SECTOR						
Interest rate[d]	14.0	15.9	17.5	24.3	31.8	46.1
Total lending / GDP	12.8	13.3	17.8	17.9	19.2	23.1
Domestic funding / GDP	24.1	27.2	28.7	28.7	30.5	34.5
Foreign borrowing / Total liabilities	3.1	8.7	9.1	12.0	13.0	20.2

[a] Annual rate.
[b] Public sector borrowing requirement (includes public financial sector) from Negrete Cárdenas (1999).
[c] Total external debt from World Bank's World Developing Indicators.
[d] Average annual interest rate of bank's domestic fundraising instruments from Banco de Mexico's Historical financial statistics.

Source: Banco de Mexico and INEGI.

In this case, the example of Banamex is representative of the general pattern. After its first incursion in the Euromarkets as shareholder of Intermex, Banamex eventually decided to become involved in the international capital markets on its own. In April 1974, after reporting his presence at the opening of Intermex in London, Banamex's Director brought a proposal to open a branch in Los Angeles, California to the attention of the Executive Committee, as part, as part of the development of the international operations of the bank.[48] The project consisted in replacing the existing representative office with a branch, and the reasoning given was that this upgrade made it "eligible for loans from American banks that could be invested in the United States, Mexico or in another country."[49] The Los Angeles branch was finally opened in February 1975, and soon after, the representative office of the bank in New York was also converted into a branch status. In 1978 a new branch facility was created in London. Like Banamex, other banks that developed a similar network

[48] Banamex's archives, Libro No. 6 de Actas de la Comision Ejecutiva, April 17, 1974 Meeting.

[49] Ibid. The other advantages mentioned in support of branch status were the capacity to intermediate between U.S. residents doing businesses in Mexico or Mexican residents that needed to make payments in the U.S., as well as in handling collections in both countries. They were not authorized, however, to take deposits from the public.

of foreign agencies and branches included Bancomer and Banca Serfin, and to a lesser extent, Multibanco Comermex, Banco Mexicano-Somex and Banco International. By doing so, these banks opened up sources of funds overseas and became able to borrow in the international wholesale interbank markets.[50]

Initially permitted by the amendment of the Banking Law in 1974, the participation of Mexican banks in foreign financial markets was further favored by the reforms contained in the Multiple Bank Law. Because it implied the consolidation of assets of many financial institutions into a larger one, as argued by Cardero, Quijano, and Manzo (1983, p. 96), multiple banks were in much better shape to place themselves in the world capital markets as bigger players and display a much higher volume of businesses. Size and name seemed to have been determining factors in the ability of banks to raise fund in the international money markets.[51] Access by domestic banks to foreign currency outside Mexico was convenient to the national financial authorities for at least two reasons. First, it helped to provide dollars to the private sector that were needed to reimburse their foreign debts without putting pressures on the exchange rate.[52] It also contributed to expand the lending capacity of the domestic banking system in a context of high economic growth and increasing demand for credit in Mexico.

Financing was a fundamental underlying component of Mexico's economic growth between 1977 and 1982. The development of the economy relied on recently discovered oil reserves and great amounts of investments were needed to exploit this wealth.[53] Increasing demand for financing came from both the public sector, whose public deficits were reaching extremely high levels (see Table 2), and also from the private sector, which had considerably expanded its borrowing towards the end of the decade.[54] For Mexican banks, domestic sources proved insufficient to satisfy the loan needs of both the public and private sectors, which encouraged them to expand fundraising abroad. The words of Banamex' General Direction during a meeting of the Executive Committee in March 1980, illustrate the situation: "[the bank] could not serve nor meet the need of their big clients if [they] could not count on resources coming from abroad."[55]

5 The Underlying Risks of Mexican Banking

Foreign borrowing as a recourse for financing limitations created new vulnerabilities in the Mexican banking system. As previously mentioned, and developed in detail in Alvarez (2015), external fundraising instruments consisted of credit lines or interbank placement from foreign banks operating in the Euromarkets or the U.S. international money market and was mainly conducted through overseas agencies and branches. Maturities were usually very short, between overnight and six months, and consisted of dollar denominated instruments, arranged at variable interest rates. By resorting to foreign liquidity, the domestic banking system became vulnerable to conditions on the international capital markets. The larger the weight of foreign

[50] See Alvarez (2015) for a description of the international business model that Mexican banks developed through their foreign agencies and branches.

[51] The words of Marquis Gilmore, agent and senior Vice President of Banco International's agency in New York, are illustrative: "since the parent bank is the smallest of the six Mexican banks operating in the U.S. and since it is not well known, the agency is unable to raise funds in the money markets directly, but has been able to obtain the needed funds through its international bank correspondents." FRBNY's archives, File: Mexican Government 1917-1984, Office Memorandum, August 25, 1982. See BIS (1983) for a description of the lending and borrowing practices in the international interbank market.

[52] As stressed by Romero Kolbeck, one of the problems of the practice of borrowing in national currency from domestic banks to pay foreign debts was that it "result[ed] in significant pressures on the exchange rate." Acta No. 2438, July 1977.

[53] See Cárdenas Sánchez (1996).

[54] Private sector foreign debt increased from US$ 7.1 billion in 1978 to US$ 15 billion in 1980, while in the same period, the public sector external debt rose from US$ 26.2 billion to US$ 33.8 billion.

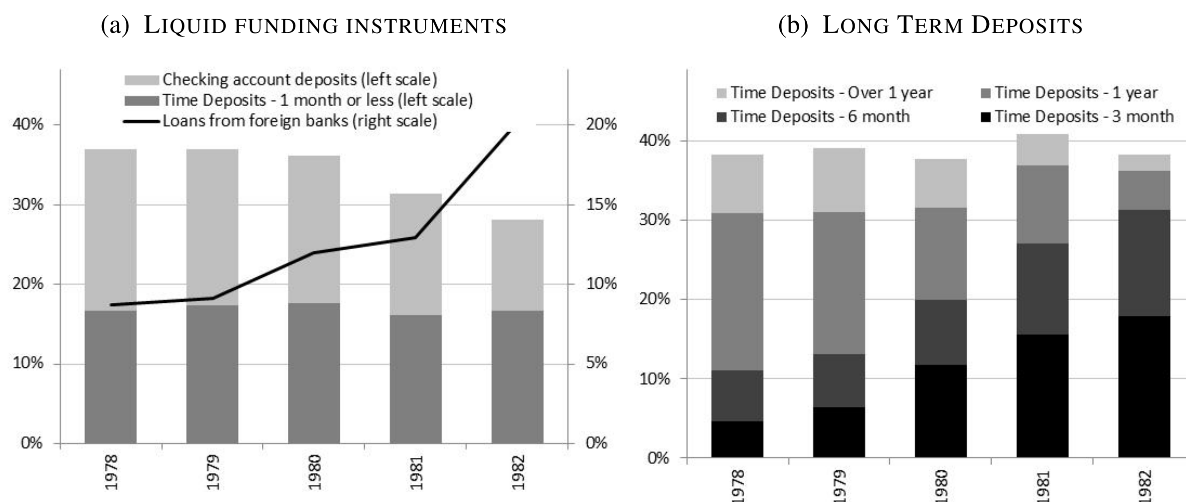
[55] Banamex's archives, Libro No. 12 de Actas de la Comision Ejecutiva, March 12, 1980 Meeting.

interbank liabilities in the funding structure, the larger the exposure to currency risks and liquidity or funding strains in the international money markets.

The involvement of Mexican banks with international finance through London-based consortium banks did not create such vulnerabilities. Although these banks relied heavily on international wholesale liquidity for funding,[56] they were separate institutions with their own capital base and legally independent from shareholders banks. Unlike foreign agencies and branches, their borrowing and lending activities were not consolidated in the balance sheets of parent banks. The connections were the shares that were exhibited as assets of the owner banks and standby facilities that the Bank of England normally asked shareholder banks to commit as support in case of emergency.[57] But since this was not a formal requirement, these back-up lines of credit were not legally binding. Had the consortium bank become distressed and want to draw on these lines, shareholders banks could refuse to grant them, if for some reason they found it inconvenient.[58] Thus, for the Mexican banking system, the international operations of its consortium banks were not a major source of vulnerability as, indeed, was the direct involvement that domestic banks carried out from the headquarters in Mexico or through their agencies and branches overseas.[59]

FIGURE 3: LIABILITY STRUCTURE OF THE MEXICAN BANKING SYSTEM, 1978-82

(a) LIQUID FUNDING INSTRUMENTS (b) LONG TERM DEPOSITS



Source: Banco de Mexico's Annual Reports (several issues).

The vulnerability of the banking system was also accentuated by the deterioration in the domestic funding

[56]For instance, in 1975, 15 per cent of Intermex's liabilities consisted of primary deposits from clients, while the remaining 85 per cent were funds raised in international money markets. See Banamex's archives, Libro No. 8 de Actas de la Comision Ejecutiva, February 18, 1976 Meeting.

[57]In November 1974, Banamex had committed US$ 9 million in favor of Intermex as stand-by credit line, which had been authorized by Banco de Mexico, and was to be registered "as a credit at a term of two years term, with the possibility to renew it one or more times, and that would be used only in case of emergency to strengthen the liquidity position of Intermex." Banamex's archives, Libro No. 7 de Actas de la Comision Ejecutiva, November 6, 1974 Meeting. This stand-by credit line was later increased to US$ 15 million in 1977 and to US$ 15.8 million in 1979, but was never used by Intermex.

[58]As stressed in a Bank of England report, it was possible that when distressed banks "most wanted to draw on these lines, the banks granting the standby lines might decide to cut back or cancel them, in order to safeguard their own position." Bank of England archive, Apocalypse Now 3A143/1, June 1980.

[59]This makes a big difference in the exposure of the banking system to crisis. In the 1976 crisis, when most of the Mexican bank involvement in the international capital markets had been done through consortium banks, as the network of foreign agencies and branches had not yet been developed. In the 1982 crisis, the banks were directly involved in international finance.

base. On one hand, between 1978 and 1982, liquid saving instruments from the non-banking private sector persistently reduced their share as source of funding. More specifically, as evident in Figure 3a, the decline of checking account deposits explains this contraction. While in 1977, sight deposits represented over 20 per cent of the funds of the sector, by the early 1982 their weight has fallen to just under 10 per cent. As for the rest of the liquid fundraising instruments, made up of savings accounts and a variety of term deposits with short maturities (one month or less), were maintained at around 17-18 per cent of total liabilities. In terms of the funding structure of the banking system, domestic liquidity was substituted with international liquidity: declining sight deposits, which were the least expensive non-equity source of funding for commercial banks, were replaced by larger interbank foreign borrowing that entailed higher risks (see Figure 3a).

On the other hand, although stable in terms of liabilities, the internal composition of long-term funding also suffered important transformations (Figure 3b). While time deposits of one year and over accounted for 70 per cent of total illiquid liabilities in December 1978, they represented 26 per cent by end-1981 and around 18 per cent in 1982. Conversely, time deposits with maturity of less than one year accounted for 30 per cent in 1978, but represented as much as 82 per cent by 1982. Within this category, three-month deposits were the more dynamic component, increasing their share from 12 to 47 per cent over the period. The concentration of shorter term deposits was the result of a yield structure in which nominal interest rates of saving instruments at different maturities were similar, and even converged throughout the period.[60] It thus seems logic that, in a context of rising inflation (see Table 2) and diminishing spreads between long and short term deposits, people would prefer the saving instrument with shorter maturity. For the banking system, this shortening of the maturity structure of term deposits implied a weakened and less stable funding base.

Apart from these changes in funding, the build-up of risks in the banking system was also associated with a more general deterioration of the balance sheet structure. Figure 4 displays the evolution of the leverage ratio and the debt-to-equity ratio for the Mexican domestic banking system: they both show increasing levels of risks between 1977 and 1982. The debt-to-equity ratio, calculated as the ratio between total liabilities and paid-in capital, indicates the extent that the banking sector relied on debt instead of equity to finance the expansion of its assets. The ratio passed from 33.4 per cent in the early 1977 to around 60 per cent in 1980, and to 82.8 per cent by the beginning of 1982: a 2.5 increase in the 5-year period of exchange rate stability. Because of the growing share of dollar liabilities with the foreign sector, ratio values would become much higher after the devaluation of the peso in February 1982.

Although these figures give a clear sense of the deteriorating trend they say less about how dangerous the values were. The case of Intermex, which operated in London under the regulation of Bank of England, provides an interesting benchmark. At the end of 1974, the year of its creation, Intermex had a capital base of 2.5 million pounds and liabilities that represented 10 times its capital. By 1976, liabilities had increased up to 19 times the level of paid-in capital, which pushed shareholder banks to increase its capital to 5 million pounds, diminishing the debt-to-equity ratio to 14.[61] In 1977, Intermex's liabilities had climbed up to around 130 billion pounds "giving a debt to equity ratio of 26 to 1, which was outside the policy of the Bank of England, who consider[ed] a ratio of 20 to 1 between debts and capital manageable."[62] With these figures in the background, the numbers for the Mexican banking system look quite worrisome: debt to equity was already 50 per cent higher than the level the Bank of England considered prudent by early 1977.

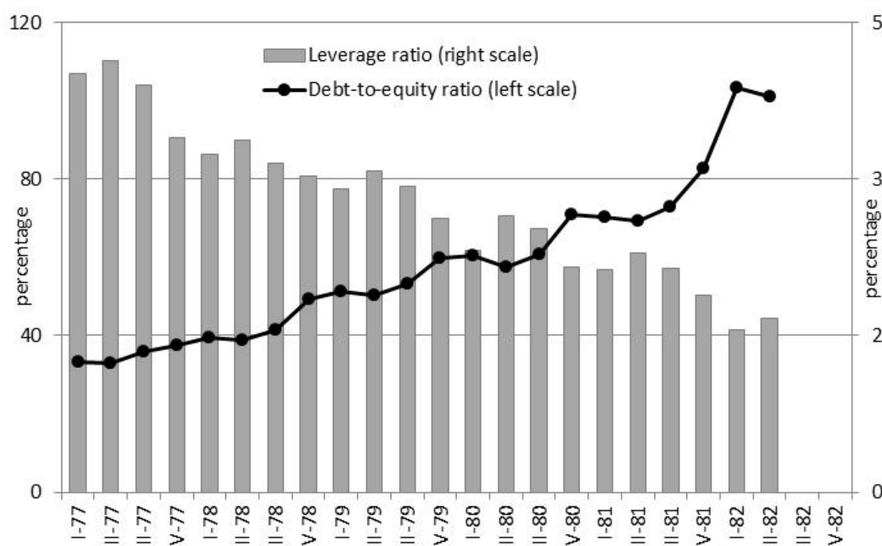
The evolution of the leverage ratio also displays increasing risk levels in the banking system. Between 1977 and the beginning of 1982, the ratio of equity and reserves to total assets was reduced by half, passing from

[60]In 1978, the average interest rate of three month deposits was 11.2 per cent and 15.5 per cent for 18 month deposits. These rates were, respectively, 13.2 and 15.7 per cent in 1979, 20.6 and 22.8 per cent in 1980, 29.6 and 32 per cent in 1981, and 43.6 per cent in 1982 for both instruments.

[61]Banamex's archives, Libro No. 8 de Actas de la Comision Ejecutiva, February 8, 1976 Meeting.

[62]Banamex's archives, Libro No. 10 de Actas de la Comision Ejecutiva, January 5, 1977 Meeting.

FIGURE 4: RISK INDICATORS FOR THE MEXICAN BANKING SYSTEM, 1977-82



Source: Banco de Mexico's Annual Reports (several issues).

4 to 2 per cent (see Figure 4). This ratio complements the debt-to-equity perspective. It shows that not only was the banking system relying more on debt than equity to finance the development of its activities, but that reserve levels were not improving either. In other words, the banking sector was taking on more debt to increase its assets without proportional increments to its capital base. Naturally, lending was the banking sector's main activity, with a loan portfolio representing between 50 and 55 per cent of the assets during the period. While in 1977, dollar lending accounted for about 20 per cent of total lending (the balance consisted of credits denominated in pesos), by the early 1982, however, its weight has increased to 30 per cent and to 42 per cent after the devaluation of February. As discussed in Alvarez (2015), the bulk of these dollar loans consisted of syndicated or direct loans funded in the international wholesale markets through the network of foreign branches and agencies.

6 Inspection at the Bank Level

This section analyzes whether higher risk in the Mexican banking sector was a homogeneous phenomenon. Did this risk affect some banks or groups of banks differently than others? To investigate banks' risk position, I use quarterly bank-level information from the Comision Nacional Bancaria y de Seguros' (CNBS) Monthly Bulletin and analyze a number of financial ratios reconstructed from the balance sheets of the banks.[63] The covered period begins in June 1979, the sixth month after the first Bulletin was published, up to June 1982, before the announcement of the Mexican government's temporary debt moratorium and the later nationalization of the banking system.[64] The analysis includes 23 multiple commercial banks, for which there is complete and consistent information for the entire period.

[63]They were published by the Unidad de Analisis Financiero (Financial Analyses Unit) under the name of "Boletin mensual de indicadores y estados financieros de las instituciones de creditos" from 1978 to 1979 and "Boletin de indicadores financieros de la banca multiple privada y mixta" from 1980 onwards. Publications are available at the Banco de Mexico Library.

[64]The two first quarters are discarded because the bulletins do not include as many banks as the following ones, which would necessitate a considerable reduction of the sample in order to have a complete time series.

TABLE 3: TOTAL ASSETS OF 23 MULTIPLE BANKS BY JANUARY 1982, MILLIONS OF US$

DOMESTIC-ORIENTED BANKS[a]	13’096.2	**INTERNATIONAL-ORIENTED BANKS**[b]	58’849.7
Banco del Atlantico	1’618.3	Bancomer	18’624.2
Banpais	1’519.4	Banamex	17’145.2
Banco B.C.H.	1’470.1	Banca Serfin	7’355.5
Banco de Credito y Servicio	1’237.0	Multibanco Comermex	5’841.4
Banca Cremi	1’127.4	Banco Mexicano-Somex	6’161.8
Multibanco Mercantil de Mexico	1’037.6	Banco Internacional	3’119.5
Banca Confia	979.9	Banca Promex	602.2
Credito Mexicano	573.6		
Banco Regional del Norte	552.2		
Actibanco Guadalajara	542.7		
Unibanco	529.9		
Banco Continental	477.0		
Banco Mercantil de Monterrey	472.1		
Banco del Noroeste	437.4		
Banco Sofimex	332.1		
Banco Occidental de Mexico	189.6		

[a] Banks operating at only a national level
[b] Banks operating at both national and international level

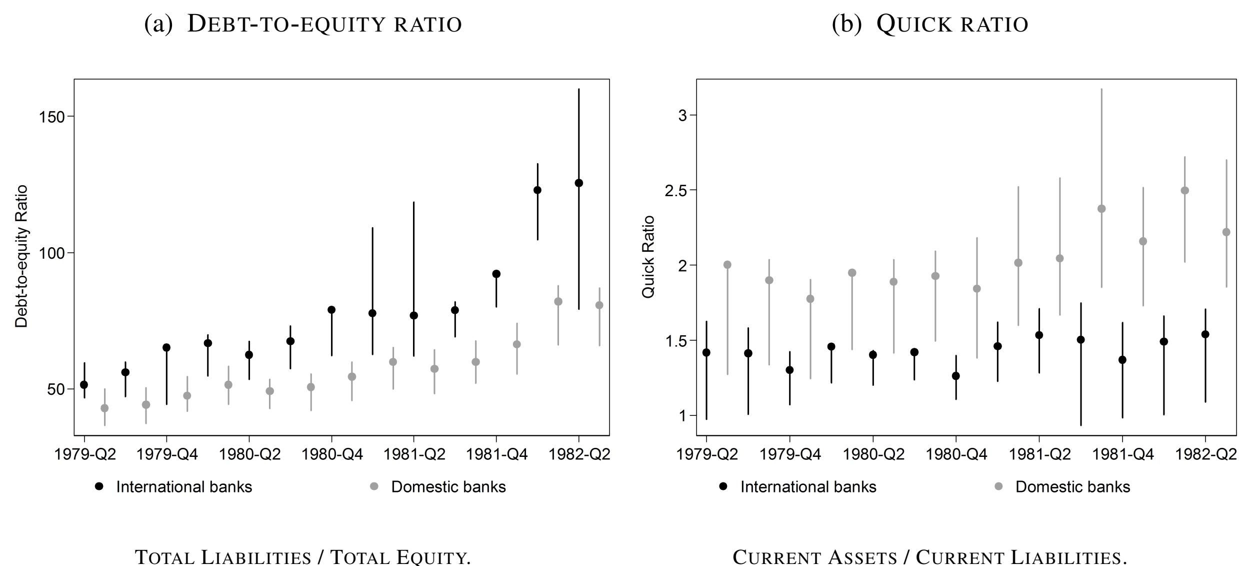
Sources: CNBS, Monthly Bulletin.

As of early 1982, the 23 banks considered here accounted for US$ 71.9 billion or 95.8 per cent of the assets of multiple banks, and as much as 90 per cent of the total commercial banking system. In Table 3, the banks are classified as international or domestic, depending on whether they were involved with foreign finance or not. The group of international-oriented banks contains Mexico’s largest institutions: Bancomer, Banamex, Serfin, Comermex, Mexicano-Somex and Banco Internacional (Banca Promex was part of the banking group Mexicano-Somex). As previously discussed, these were the banks that were engaged in international banking activities. On the contrary, the group of domestic-oriented banks is made up of smaller institutions that operated at only a national level. This group accounts for 16 of the 23 banks of the sample but only 18 per cent of the assets, with Banco del Atlantico, Banpais and Banco B.C.H. among the biggest. At an industry level, the segment of international-oriented banks represented three-quarters of the commercial banking system, and domestic-oriented institutions made up the remaining quarter.

Distinguishing between these two groups of banks is useful because it allows for an evaluation of the role of international activities in the deteriorating health of the Mexican banking system. On one hand, access to international wholesale liquidity, which was identified as a potential source of vulnerability in the previous section, was available to international banks, but not to those operating at a national level. On the other hand, as previous research has shown, Mexico’s six largest banks incurred serious maturity, interest rate and currency mismatches on the balance sheet of their foreign agencies and branches while developing their international banking activities (Alvarez, 2015). Had international financial intermediation been a veritable source of additional vulnerability, one would expect the international bank group to exhibit higher risk levels than domestic-oriented banks.

Since there is no information available on financial terms or the composition of the loan portfolio and funding instruments, I evaluate the risk position of the banks through a comparative analysis of balance sheet ratios. Figure 5a and 5b plot the mean weighted by size of bank (total liabilities) and the 50 per cent central distribution of the debt-to-equity ratio and the quick ratio respectively for the group of international and domestic banks. Both ratios show considerably higher risk levels for international-oriented banks than for those operating only in the domestic market. The first figure shows that international banks had been much more aggressive than domestic-oriented banks in financing their growth with debt instead of shareholders' equity, and that they quickly became more leveraged toward the end of the period. Access to the international capital markets gave international banks the possibility of finding new sources of funding to further expand their activities. The second figure also displays higher levels of risk for the international bank group: the lower levels of the quick ratio indicate a much more reduced ability to meet their short-term obligations with liquid assets, and thus a worse short-term liquidity position.

FIGURE 5: RISK LEVELS OF INTERNATIONAL VS DOMESTIC BANKS, 1979-82



Source: CNBS Multibank Bulletin (several issues).

Greater risk levels for international-oriented banks are further confirmed when considering a larger number of balance sheet ratios. The appendix develops a Principal Component Analysis (PCA) based on ten financial ratios that are usually used in finance to conduct financial statements and banking analysis, and have been identified in the literature as important indicators on bank risk management (see Table A.1).[65] PCA proves to be a useful methodology here, because it allows us to extract the most relevant information from the series of financial ratios and to identify the sources of bank vulnerabilities, as well as risk factors behind their balance sheet structures. The analysis shows that on average, international banks displayed slightly worse capitalization levels than domestic-oriented banks, and suffered from a much more pronounced deterioration of capital ratios toward the end of the period (Figure A.1a). Significant differences also exist when comparing the liquidity position of the two groups of banks. While domestic-oriented banks' ability to meet their

[65]These ratios were chosen and defined in order to have a comprehensive representation of the banks' assets and liabilities structures and the risks underlying their balance sheets. Similar indicators have been also employed by historians to assess the situation of banking institutions in times of financial distress or crisis. See, for instance, Calomiris and Carlson (2014) and White (1984).

financial obligations with liquid assets improved from 1981 up until the end of the period, a deterioration and subsequent modest recovery are observed in the asset liquidity position of international banks (Figure A.1b).

Discrepancies are also observed with respect to funding structures. The maturity composition indicator of the banks' funding base shows a relative larger concentration in short-term instruments for the international bank group. Higher reliance on liquid fundraising instruments cannot be explained by broadening sight deposit base, but instead, because of increasing interbank borrowing. Indeed, sight deposits had actually decreased their share as a source of funding for international banks all along 1978-1982 period.[66] As previously posited and clearly shown in Figure 6, international wholesale liquidity seems to have been providing these banks with the resources they were losing in their checking accounts.[67] In contrast, domestic-oriented banks that were also suffering from significant declines on sight deposits, such as Banco Occidental de Mexico, Multibanco Mercantil de Mexico, Banco Mercantil de Monterrey and Banco Continental, did not increase interbank borrowing. Instead, their balance sheets exhibit offsetting changes on time deposits accounts, which indicates a change in the composition in retail deposits that did not necessarily imply a less stable and riskier funding base, as in the case of international banks.

FIGURE 6: CHANGE IN THE SHARE OF DEPOSITS AND BANK BORROWINGS TO TOTAL LIABILITIES, 1978-81

Source: CNVS Multibank Bulletin (several issues).

As for the condition of the banks in terms of the quality of their assets, no clear distinction can be made between the two groups. If anything, the indicator of banks' asset quality shows a slightly better performance by international banks, with the two groups displaying worsening levels during the last two quarters of the period (Figure A.1d). T-tests performed on the principal component scores show that the differences between

[66] Of the remaining 16 domestic commercial banks considered here, only Multibanco Mercantil de Mexico and Banca Continental followed a similar trend. As for the rest, sight deposits either consistently increased their share as a source of funding, such as in the case of Credito Mexicano and Banca Cremi, or alternated years of increasing or declining share in the banks' liabilities.

[67] Recall that Banca Promex belonged to the Mexicano-Somex Group.

the means are not statistically significant in any of the quarters of the investigation period. Similar results are obtained when evaluating the ratios of troubled assets to total assets and return on total assets separately, as well as when comparing the banks in terms of their values. Thus, it seems that no differences existed in the quality of the loans issued by international and domestic-oriented banks; the risks associated with their asset portfolio were similar. This suggests that international banks, despite taking on more debt, did not necessarily make worse lending decisions and their foreign loans were not a source of additional risk. In fact, the devaluation of the peso in early 1982, which looks like the factor behind the rising deterioration of banks' assets quality, seems to have affected all banks, not just those involved in international lending.

7 An Econometric Interlude

The declining share of sight deposits as source of funding, as mentioned above, deserves closer scrutiny. Difficulties in deposit-taking seem to have been, indeed, a point of concern for banks. At the Mexican bankers' annual convention in Acapulco in June 1980, they underscored the hard time banks were having in capturing and absorbing new deposits. Bankers argued that this problem was due to the inflationary process affecting the country, to the direct competition for savings that came from government papers such as the certificados de tesoreria (Cetes) and, to a lesser extent, from the stock exchange. For their part, the reply from officials to the delegates' complaints hinted at trouble in the banking sector that could potentially be linked to reluctant depositors. At the meeting, Gustavo Romero Kolbeck, the central bank president, pointed out that Banco de Mexico "has been assisting banks that have over-committed themselves in the extension of credit to customers."[68] It is thus worth investigating the underlying factors behind the performance of sight deposit accounts.

This section analyzes whether difficulties in obtaining new deposits were related to the higher risks observed on banks' balance sheets. The empirical strategy is to relate the evolution of sight deposits with a number of variables that account for bank risk levels. The basic idea is to test whether bank risk level is associated with differential changes in sight deposits accounts. The statistical model employed is a panel data regression where the dependent variable is the quarterly percentage change of sight deposits from the domestic non-banking sector with the bank. The explanatory variables are the first four principal components in the prior quarter. As discussed above and developed in much more detail in the appendix, these components are identified as risk indicators: capital adequacy (PC1), liquidity position (PC2), maturity structure of the funding base (PC3), and asset quality (PC4). The Consumer Price Index (CPI) and the ratio of Cetes yield to the average interest rate of banks deposits are also included to evaluate the effects of inflation and alternative saving instruments. Finally, a variable for total assets is considered to account for the effect of the size of the bank. A negative relationship between growth rates of liquid deposits and risk indicators would suggest, that everything else equal, the difficulties in obtaining deposits might have been due to concerns on the part of customers about the health of the bank.

A number of reasons favor the use of the first four principal components instead of the original financial ratios as explanatory variables. First of all, the principal components provide much clearer and more robust indicators of a bank's risk level, than the balance sheet ratios they were derived from. Second, many of the original financial ratios are very similar measures; it is not clear which of these should be included in the regression and which should be left out. That is the case, for instance, in the ratios such as equity to total assets, total capital to total assets and reserves and equity to total liabilities, which are all indicators of

[68] In fact, by that time Bank of Mexico was providing significant amounts of funds in special "auctions" to help commercial banks meet reserve requirements. *"Bankers' hard-luck stories fail to move government,"* Latin American Weekly Report, WR-80-25, 27 June 1980, p. 7.

bank capitalization levels. Finally, based on the above-mentioned reasons, as well as the fact that financial ratios vary between zero and one, a high degree of multicollinearity is observed when running panel data regressions on the original variables. In short, not only is the risk perception given by principal components clearer, but they also provide uncorrelated predictors that incorporate most of the information contained in the original financial ratios.[69]

TABLE 4: REGRESSION ANALYSIS: DOMESTIC FUNDING CAPACITY AND RISK LEVEL

	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Dependent variable is sight deposits growth rate				
Capital adequacy[a]	-0.00502	-0.0108	-0.0181	-0.0131
	(0.0043)	(0.0142)	(0.0164)	(0.0117)
Liquidity position[b]	0.0737***	0.0587***	0.0559***	0.0394***
	(0.0133)	(0.0133)	(0.0136)	(0.0133)
Funding maturity[c]	-0.0871***	-0.0795***	-0.0738***	-0.0488**
	(0.0196)	(0.0201)	(0.0196)	(0.0186)
Asset quality[d]	-0.0153	-0.0212*	-0.0257**	-0.0229***
	(0.0098)	(0.0114)	(0.0112)	(0.0079)
Inflation[e]		0.361***	-0.701**	-1.645***
		(0.114)	(0.334)	(0.400)
Cetes[e]		-0.0028	-0.0848	-0.192**
		(0.0721)	(0.0794)	(0.0771)
Total assets (ln)		-0.247***	-0.245***	-0.146
		(0.0685)	(0.0717)	(0.0905)
Time			0.0666***	0.118***
			(0.0235)	(0.0236)
Sight deposits growth rate (t-1)				-0.291***
				(0.0693)
Constant	0.0803***	0.709	6.114***	10.18***
	(0.0010)	(0.527)	(2.154)	(1.930)
Number of observations	270	270	270	268
R-squared	0.21	0.24	0.26	0.38
Fixed-Effects	YES	YES	YES	YES
Number of panel (banks)	23	23	23	23
F-statistics	24.7	18.3	17.9	15.1

[a] PC1: Higher values indicate better capitalization levels.
[b] PC2: Higher values indicate a better liquidity position.
[c] PC3: Higher values indicate a shorter term funding structure.
[d] PC4: Higher values indicate worse asset quality levels.
[e] Inflation and Cetes are calculated as the natural logarithm of the CPI and of the ratio of Cetes yield to the average of banks' domestic cost of borrowing respectively.
*Robust standard errors in parentheses. *** indicate significance at p<0.01, ** p<0.05, * p<0.1 levels.*

[69] Recall that these four principal component account for as much as 81.6 per cent of the variation of the financial ratios data set (see Table A.1).

Table 4 reports regression results under four alternative specifications. Model 1 regress sight deposits growth rate on principal components variables only, while Regression 2 includes the variables inflation, Cetes and total assets. Regression 3 adds a control variable for time effect, while Regression 4 includes a lag in the dependent variable for one period, in order to take into account the potential influence of past behavior of sight deposits accounts. All four models include fixed effects for the banks and therefore control for potentially important unobserved heterogeneity among banks.[70]

The results are largely consistent with the idea that the banks with higher levels of risks are the ones suffering the most from deposit-taking difficulties. The coefficients indicate that a worsening of banks' liquidity position (decrease in PC2), a shortening on the maturity of the funding base (increase in PC3) and deterioration in asset quality (increase in PC4) have significant negative impacts on the growth rate of sight deposits accounts in the bulk of the specifications. Contrary to expectations, the coefficient on PC1 is negative, although not statistically significant in any of the regressions: at best, no link is found between bank capitalization levels and deposit growth. As for the rest of the variables, inflation has the expected negative impact on non-interest bearing deposits in Models 3 and 4, while the relative yield of alternative saving instruments to interest rates paid by banks also has a negative effect on deposits and it is significant in Regression 4, which is the most comprehensive model. The coefficient of total assets is negative: the larger the bank, the worse the performance of sights deposits accounts, which is consistent with the previous discussion on international banks being among the most affected by domestic fundraising difficulties. As for the lagged dependent variable, its coefficient indicates that an increase in sight deposits of 1 per cent during the previous quarter is estimated to reduce current deposits growth rate by 0.3 percentage points.

It is now interesting to analyze whether differences existed in the performance of sight deposits accounts in international and domestic-oriented banks due to factors other than those included in the regressions. Since time-invariant factors cannot be directly considered in fixed effect models, interactions of a zero-one variable for domestic-international banks with quarter dummies are included. The estimates of this interaction's terms are calculated under the four models of Table 4 with no clear results. Coefficients alternate positive and negative signs between quarters and between the different regressions, and in the bulk of the cases they are not statistically significant.[71] This means that, everything else being equal, there is no evidence related to differences in deposit growth between both groups of banks. In other words, given the same level of risk and of the other explanatory variables, the performance of sight deposit accounts at international banks was not greater or less than for domestic banks.

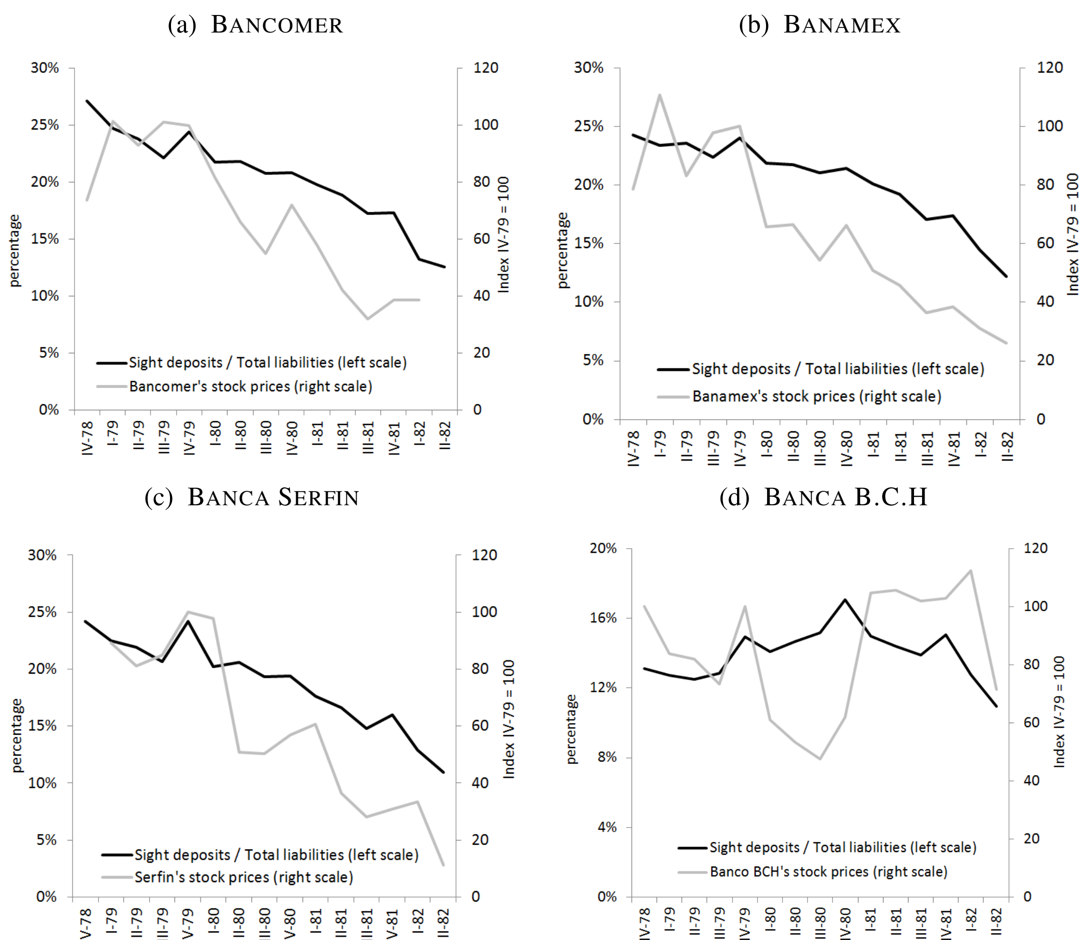
An implicit assumption behind this reasoning is that customers were aware or informed of the financial condition of the banks, and that their deposit decisions depended on the perception of banking as risky. One way to check for this hypothesis is to compare the evolution of banks' sight deposits accounts and their stock prices. Since stock prices were daily knowledge and published in the financial press, had depositors considered the condition of the banks before placing their deposits, one would expect a close relationship between banks' sight deposit accounts and share prices. Figure 7 shows that the declining portion of sight deposits as source of financial resources for Bancomer, Banamex and Banca Serfin went almost hand-in-hand with falling share prices. Banca B.C.H, one of the largest banks in the group of domestic-oriented banking institutions, provides a counter example that confirms the trend: The ratio of sight deposits to total liabilities does not fall and stock prices still fit the overall trend. This would suggest that depositors' behavior cannot only be explained by macroeconomic factors such as inflation or relative yield of saving instruments, but that depositors were rationally reacting to changes in the individual condition of the banks.[72]

[70]The Hausman test has been pursued to evaluate whether fixed effects or random effects should be used, with results indicating that the fix effect specification is the preferred model in all the cases.

[71]Results available upon request.

[72]Unfortunately, it is not possible to generalize this analysis to the whole sample of the 23 commercial multiple banks, as not all

FIGURE 7: EVOLUTION OF SIGHT DEPOSITS ACCOUNTS AND BANKS' STOCK PRICES, 1978-82



Source: CNBS Multibank Bulletin and Anuario bursatil (several issues).

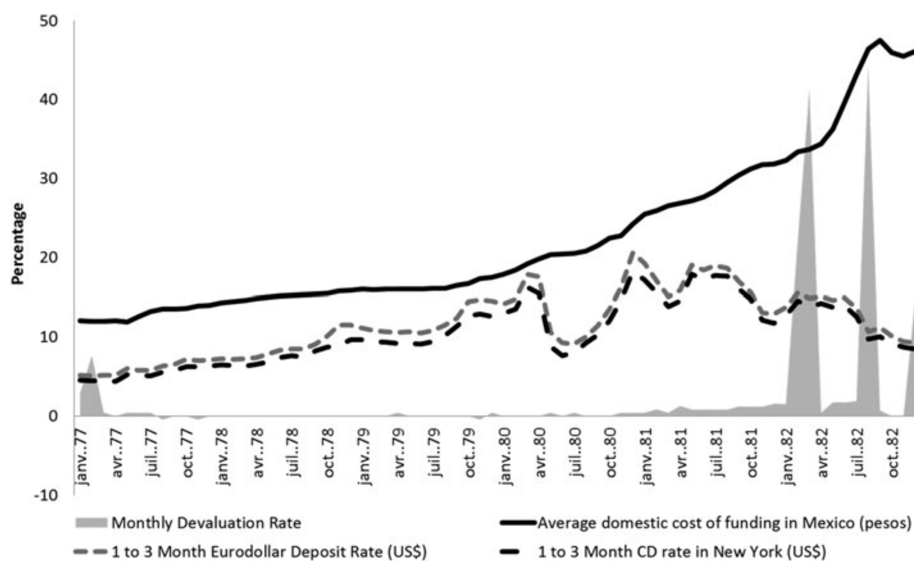
Although regression results confirm the association between deposit-taking and bank risk levels, they do, however, not necessarily prove the direction of causality. The discussion above presumes that the riskiness of the bank is what determined the performance of sight deposit accounts, but causality could also run the other way around. In fact, as argued in previous sections, it seems highly likely that, faced to scarce domestic liquidity, large international banks would use foreign finance as a recourse to make up for the shortfall. But this increasing reliance on foreign interbank borrowing raised the risk position of the bank, which, in turn, damaged their capacity to capture and absorb new domestic deposits even more. Thus, a negative feedback might have been in place, where domestic funding difficulties and banking risks reinforced to each other in a vicious circle.

At a microeconomic level, the relative lower cost of money in the international wholesale markets might have been fuelling this negative dynamic. Figure 8 shows the evolution of the average domestic cost of funding compared to interbank interest rates in the U.S. and London, as well as the monthly depreciation of the pesodollar nominal exchange rate during the 1977-82 period. International interest rates were significantly

of them issued shares, or were mlisted on the stock markets on a monthly basis. In addition to the four banks considered above, Multibanco Comermex and Banca Confia also have a complete series of stock prices for the analyzed period. Similarly, both banks performed in the same pattern.

below domestic levels throughout the entire period. This means that, given a virtually fixed exchange rate, it was cheaper for commercial banks to borrow dollars abroad than to raise pesos in Mexico. In fact, between 1977 and 1982, the cost of funding in London and New York was, on average, between 40 and 60 per cent lower than in Mexico; a difference that would eventually become even greater as the spread between domestic and international interest rates increased in subsequent years. Additionally, the fact that foreign branches or agencies were not subject to reserve requirements either in Mexico or in host countries further reduced the relative cost of foreign borrowing.

FIGURE 8: DOMESTIC AND INTERNATIONAL COST OF BORROWING, 1977-82



Source: Banco de Mexico's historical statistics.

8 Conclusions

This study of Mexican banks shows the importance of considering the condition of the domestic banking system of debtor countries in the lead-up to the international debt crisis of the 1980s. It is revealing that during the years preceding the crisis, the position of the banking sector weakened, and the banks involved in international finance incurred relatively larger asset liability mismanagement than those operating at only national level. These facts suggest that the banking system was in bad shape by the time the crisis broke out, and that international banking was at the core of the problem.

The deteriorating health of the domestic banking sector was twofold. On one hand, liabilities gradually became more concentrated in short-term obligations, which made the funding base of the system less stable. In particular, interbank financing with foreign banks considerably increased its share as a source of funding, and thereby exposed the system to currency risk and to shifts of conditions in the international capital markets. On other hand, the general balance sheet structure of the banking industry also weakened. Between 1977 and 1982, Mexican banks recovered from half a decade of financial disintermediation, but their expansion was attained by an increasing reliance on debt, in particular foreign debt, instead of equity, with no improvement of reserve levels. The worsening of capitalization levels and liquidity position, as well as the shortening maturity of the funding structure more seriously affected large banks involved in international finance than domestic-oriented banks.

This paper raises important issues regarding the domestic banking system's exposure to the 1980s international debt crisis. Through their involvement in foreign capital markets, Mexican banks actively participated in syndicated and direct international lending for their customers in Mexico and other borrowing countries. This implies that the 1982 Mexican default may have not only risked the solvency of commercial banks from creditor countries, but also put its own domestic financial institutions at stake as well. Further research is needed to determine the exposure of large international-oriented banks to debt in Mexico and other defaulting countries, and the extent to which this represented a threat to the domestic banking system. This would also provide new insights into the nationalization of the Mexican banking system, which, although traditionally considered an ideological and economically unjustified decision, could have also rescued a banking sector on the edge of bankruptcy, as a number of scholars have suggested.

A final issue this paper raises is related to the economics and political underpinning of international finance in the decade leading up to the debt crisis. The fact that the Federal government and national financial authorities supported the internationalization of Mexican banks, a process which faced problems and competition for foreign banks, is revealing. They show that not only were international and domestic economic forces pushing the banks to go abroad, but that this step represented an opportunity for policy makers to meet economic policy goals. The arrival of Mexican banks in major international financial centres, however, raises the question about the position of host countries' financial authorities, particularly given the risky businesses they engaged in. Although beyond the scope of this study, it is feasible that allowing Mexican financial institutions to be part of the Eurolending business might have been part of a strategy by creditor governments and major international banks to be able to develop lending deals with Mexican borrowers.

APPENDIX

This Appendix examines the differences in risk levels between international and domestic banks though Principal Component Analysis (PCA). By reducing the dimensionality of the dataset, the main factors driving the variability of the data can be identified. PCA is used here to extract the most relevant information from a series of financial ratios and identify the risk factors underlying the balance sheets of banking institutions. In what follows, I explore the correlation (factor loadings) between principal components and the original financial ratios. This allows me to interpret their meaning and look for patterns or distinctive features among banks, in comparison with bank component scores.

One single application of the principal component method is performed on the entire set of panel data that includes ten financial ratio series on each of 23 commercial banks for the 13 quarters from June 1979 to June 1982. Four components are found to have eigenvalues larger than one and therefore, will be kept to perform subsequent analysis. They account for 81.5 per cent of the variation in the data set, of which 32 percentage points correspond to the first principal component, 22.3 to the second, and the remaining 27 are equally distributed among the last two components. The variation explained by each component, as well as the factor loadings are reported in Table A.1.

TABLE A.1: PRINCIPAL COMPONENTS, FINANCIAL RATIOS AND FACTOR LOADINGS

Financial ratios	Comp1	Comp2	Comp3	Comp4
Troubled Assets / Total Assets	0.1139	0.0745	0.1878	**0.6578**
Loans / Total Assets	0.0005	**-0.6772**	-0.0115	-0.1158
Liquid Assets / Total Assets	-0.0208	**0.6898**	-0.0586	-0.0644
Equity / Total Assets	**0.5027**	-0.0887	-0.2374	0.2229
Total Capital / Total Assets	**0.5135**	0.0565	0.1606	-0.1217
Equity and Reserves / Total Liabilities	**0.5844**	-0.0249	-0.0428	0.0348
Returns on Assets	0.0741	0.0206	0.1062	**-0.6304**
Interbank Borrowing / Total Liabilities	-0.2281	-0.0427	**0.6184**	0.1995
Time Deposits / Total Liabilities	-0.1357	0.1183	**-0.5487**	0.0363
Sight Deposits / Total Liabilities	0.2295	0.1791	**0.4272**	-0.2133
Percent of variation explained	32.04	22.31	13.77	13.46

Note: Factor loadings represent the correlation coefficients between the principal component and financial ratios.

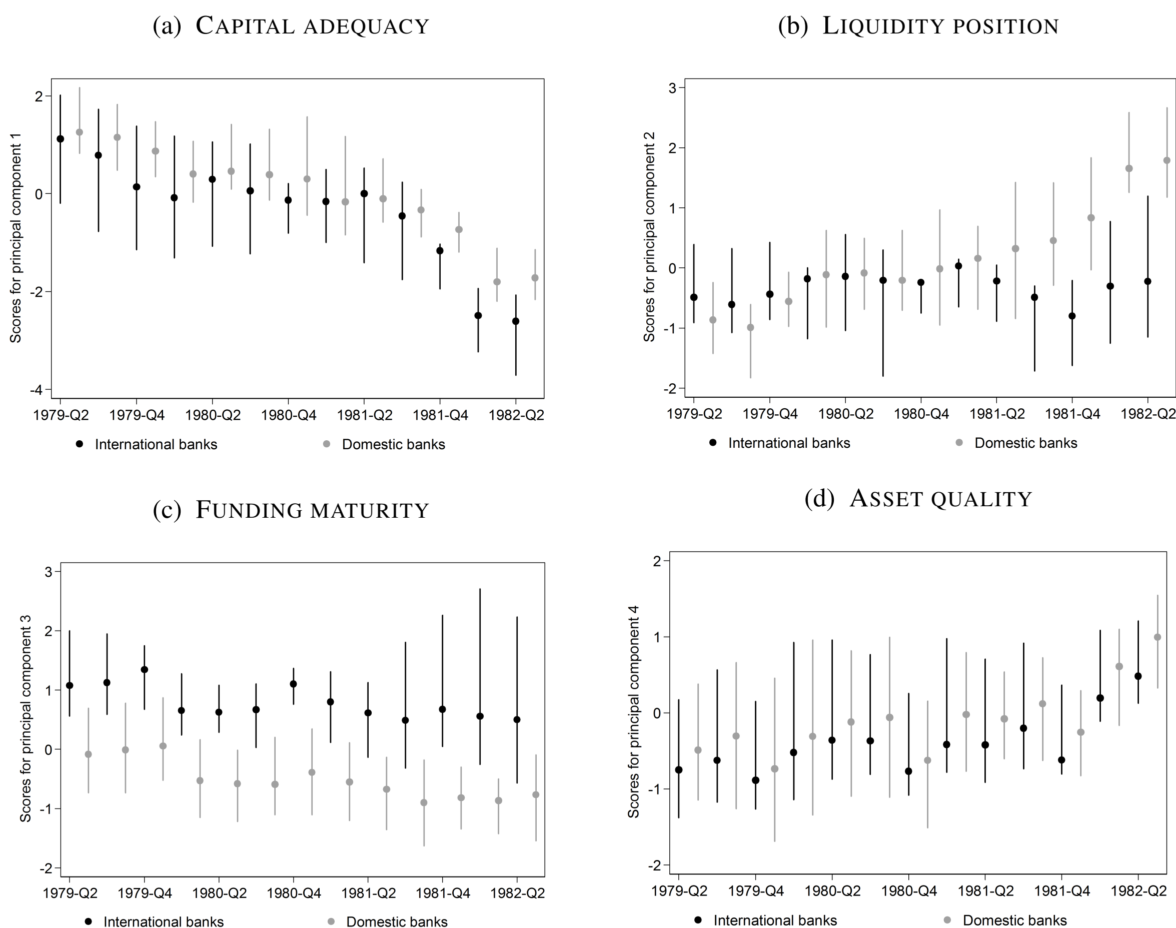
Sources: author's computations based on CNBS.

As observed in Table A.1, three of the ten original financial ratios, those referring to the bank's capitalization levels, are the most strongly correlated with the first principal component: equity to total assets, total capital to total assets, and equity and reserves to total liabilities. The higher the value of the ratio, the more the component increases, which suggests that it can be viewed as a measurement of the capital adequacy of the banks, with lower values indicating worse capitalization levels. Component scores show that no bank or group of banks follows a clear pattern or has consistently higher or lower values than the others. Instead, what can be observed is a general deterioration of commercial banks' capital adequacy throughout the years.

Figure A.1 plots the weight average and the component scores 50 per cent central distribution for the international and domestic banks groups. There is clear downward trend in the scores of the first principal component for both groups of banks (see Figure A.1a), with international banks displaying a slightly lower average and suffering from a more pronounced decline by the end of the period.

The greatest differences between the international and domestic banks groups can be observed in the following two components. Factor loadings for the second principal component show a strong association with the variable loans to total assets (negative) and liquid assets to total assets (positive). Higher values in this component are, therefore, associated with a bank being better able to meet its obligations with most liquid assets and/or with lower exposure to relatively illiquid assets (loans). This suggests that the component can be considered a measure of banks' assets liquidity. Figure A.1b shows no clear differences in banks' asset liquidity until mid-1981, with both groups of banks moving away from each other from at point on. While there was a clear improvement in the component scores of domestic-oriented banks, values for international banks decreased until the end of 1981 and stagnate thereafter. These lower scores of international banks indicate a relatively weaker situation in terms of their liquidity position.

FIGURE A.1: PRINCIPAL COMPONENT SCORES BY GROUP BANKS, II-1979/II-1982



Source: author's computations based on CNBS Multibank Bulletin (several issues).

The third component displays high loadings in the following ratios: time deposits to total liabilities, sight

deposits to total liabilities, and borrowing from banks to total liabilities, all of which are indicators of the banks' funding structure. Correlation is negative with the former and positive with the latter two, meaning that banks with higher values of this component tend to have relatively lower ratios of time deposits and, conversely, higher shares of sight deposits and bank borrowings. This contrast between short-term instruments with long-term ones could suggest that the component provides a measure of the maturity composition of the financing of banks with high scores, indicating a funding base more reliant on short-term funding. Figure A.1c illustrates international banks as a distinctive group in terms of funding structure, with higher average component scores during the entire period. This result shouldn't be surprising since, as previously discussed, during these years, international banks had had increased their reliance on short-term interbank borrowing in the international capital markets as recourse against domestic fundraising difficulties.

Finally, the forth principal contrast the variable return on assets (ROA) with the ratio of troubled assets to total assets. Since the correlation is negative with the former and positive with the latter, it appears that this component represents characteristics accounting for the quality of the bank assets. Banks with higher scores in the component could be associated with lower relative levels of returns and higher shares of troubled assets, and thus poor asset quality. Component scores show no evidence of significant differences between the two groups of banks. It is worth noting that component scores rise for both groups of banks toward the end of the period, indicating a general deterioration of bank asset quality as the crisis approached (see Figure A.1d).

References

ACOSTA ROMERO, M. (1978): *Derecho Bancario: Panorama Del Sistema Financiero Mexicano*. Porrúa, México, D.F.

ALVAREZ, S. (2015): "The Mexican Debt Crisis Redux: International Interbank Markets and Financial Crisis, 1977-1982," *Financial History Review*, 22(01), 79–105.

ANAYA MERCHANT, L. (2002): *Colapso y Reforma La integración del sistema bancario en el México revolucionario 1913-1932*. Universidad Autónoma de Zacatecas - Miguel Angel Porrúa, Zacatecas.

ATTINASI, M.-G., C. CHECHERITA, AND C. NICKEL (2009): "Waht explains the surge in euro area sovereign spreads during the financial crisis of 2007-09?," *Working Paper Series of the ECB*, (No. 1131).

BÉRTOLA, L., AND J. A. OCAMPO (2012): *The Economic Development of Latin America Since Independence*, Initiative for Policy. Oxford University Press, London.

BIS (1983): "The International Interbank Market: A Descriptive Study," .

BORENSZTEIN, E., AND U. PANIZZA (2008): "The Costs of Sovereign Default," *IMF Working Paper*, (WP/08/238).

BORJA MARTÍNEZ, F. (1978): "Desarrollo del derecho bancario mexicano (1968-1977)," in *Jurídica. Anuario del Departamento de Derecho de la Universidad Iberoamericana. Tomo I.*, pp. 414–437. Universidad Iberoamericana, Mexico D.F.

BUFFIE, E., AND A. S. KRAUSE (1989): "Mexico 1958-86: From Stabilizing Development to the Debt Crisis BT - Developing Country Debt and the World Economy," *Developing Country Debt and the World Economy*, pp. 141–168.

CALOMIRIS, C. W., AND M. CARLSON (2014): "Corporate Governance and Risk Management at Unprotected Banks: National Banks in the 1890s," *NBER Working Paper Series*, No. 19806.

CÁRDENAS SÁNCHEZ, E. (1996): *La política económica en México, 1950-1994*. Fondo de Cultura Económica-El Colegio de México,, Mexico D.F.

CARDERO, M. E., J. M. QUIJANO, AND J. L. MANZO (1983): "Cambios recientes en la organización bancaria y el caso de México," in *La Banca: Pasado y Presente*, ed. by J. M. Quijano, pp. 161–220. CIDE, Mexico D.F.

CGFS (2011): "The impact of sovereign credit risk on bank funding conditions," *Committee on the Global Financial System (CGFS) Papers*, No. 43.

DEL ANGEL, G. A. (2002): *Paradoxes of financial development: the construction of the Mexican banking system. 1941-1982*. Stanford University.

——— (2006): "The Corporate Governance of the Mexican Banking System. A historical perspective. 1940-2000.," .

——— (2010): "La paradoja del desarrollo financiero," in *Historia económica general de México: De la Colonia a nuestros días*, ed. by S. K. Ficker, pp. 635–666. El Colegio de México, Mexico D.F.

DEVLIN, R. (1989): *Debt and Crisis in Latin America: The Supply Side of the Story*. Princeton University Press, Princeton.

DIAZ-ALEJANDRO, C. F. (1984): "Latin American debt: I don't think we are in Kansas anymore," *Brookings Papers on Economic Activity*, 15(2), 335–403.

FERNÁNDEZ, R. B. (1983): "La crisis financiera argentina: 1980-1982. Réplica," *Desarrollo Económico*, 23(91), 456–459.

GOLDSMITH, R. W. (1966): *The financial development of Mexico*. OECD, Paris.

GREEN, R. (1998): *Lecciones de la deuda externa de México, de 1973 a 1997 : de abundancias y escaseces*. Fondo de Cultura Económica, México, D.F.

HAMILTON, N. (1983): "México: los límites de la autonomía del Estado," Mexico D.F.

HELLEINER, E. (1996): *States and the Reemergence of Global Finance: From Bretton Woods to the 1990s*. Cornell University Press, Ithaca, NY.

HONOHAN, P., D. DONOVAN, P. GORECKI, AND R. MOTTIAR (2010): "The Irish Banking Crisis: Regulatory and Financial Stability Policy 2003-2008," Discussion paper.

IZQUIERDO, R. (1995): *Política Hacendaria del Desarrollo Estabilizador, 195870*. Fondo de Cultura Económica, Mexico D.F.

KAMINSKY, G. L., AND C. M. REINHART (1999): "The Twin Crises : The Causes of Banking and Balance-of-Payments Problems," *American Economic Review*, 89(3), 473–500.

KAMINSKY, G. L., AND S. L. SCHMUKLER (2003): "Short-Run Pain, Long-Run Gain: The Effects of Financial Liberalization," *IMF Working Paper*, WP/03/34.

KAPSTEIN, E. B. (1994): *Governing the Global Economy: International Finance and the State*. Harvard Univ. Pr, Cambridge, MA.

LAEVEN, L., AND F. V. VALENCIA (2008): "Systemic Banking Crises: A New Database," *IMF Working Paper*, (08/224).

LIPSON, C. (1981): "The International Organization of Third World Debt," *International Organization*, 35(4), 603–631.

MÁRQUEZ, J. (1987): *La Banca Mexicana: Septiembre de 1982-Junio de 1985*. Centro de Estudios Monetarios Latinoamericano, Mexico D.F.

MERLER, S., AND J. PISANI-FERRY (2012): "Hazardous tango: sovereign-bank interdependence and financial stability in the euro area," *Financial Stability Review*, April(16), 1–10.

MODY, A., AND D. SANDRI (2011): "The Eurozone Crisis: How Banks and Sovereigns Came to be Joined at the Hip," *IMF Working Paper*, WP/11/269.

MOFFITT, M. (1984): *World's Money: International Banking from Bretton Woods to the Brink of Insolvency*. M Joseph.

MORRIS, F. F. (1990): "Latin America's banking systems in the 1980s : a cross-country comparison," *World Bank discussion papers*, (WDP81).

NEGRETE CÁRDENAS, S. (1999): *Mexican Debt Crises: A New Approach to Their Genesis and Resolution*. University of Essex.

——— (2015): *Debt and Crises in Mexico*. Centro de Estudios Espinosa Yglesias, Mexico, D.F.

ORTIZ MENA, A. (1998): *El desarrollo estabilizador: reflexiones sobre una época*. El Colegio de México, Mexico D.F.

QUIJANO, J. M. (1987): *México: Estado y banca privada*. CIDE, Mexico, D.F.

REINHART, C. M., AND K. S. ROGOFF (2009): *This Time Is Different: Eight Centuries of Financial Folly*. Princeton University Press, Princeton, N.J.

——— (2010): "From Financial Crash to Debt Crisis," *NBER Working Paper Series*, (No 15795).

ROJAS-SUAREZ, L., AND S. R. WEISBROD (1995a): "Financial Fragilities in Latin America: The 1980s and 1990s," *IMF Occasional Paper*, (No. 132).

——— (1995b): "Financial Market Fragilities in Latin America: From Banking Crisis Resolution to Currency Policy Challenges," *IMF Working Paper*, (WP/94/117).

SÁNCHEZ AGUILAR, E. (1973): "The International Activities of U.S. Commercial Banks. A Case Study: Mexico," Ph.D. thesis, Harvard University.

SHAMBAUGH, J. C. (2012): "The Euro's Three Crises," *Brookings Papers on Economic Activity*, Spring, 157–211.

SPECIAL INVESTIGATION COMMISSION (2010): "Causes of the Collapse of the Icelandic Banks - Responsibility, Mistakes and Negligence," Discussion paper, Icelandic Parliament.

SUNDARARAJAN, V., AND T. J. T. BALIÑO (1991): *Banking crises: cases and issues*. International Monetary Fund, Washington, D.C.

WELLONS, P. A. (1987): *Passing the Buck: Banks, Governments, and Third World Debt*. Harvard Business School Press, Boston, MA.

WHITE, E. N. (1984): "A Reinterpretation of the Banking Crisis of 1930," *Journal of Economic History*, 44(1), 119–38.