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A Brief Modern History of the Mexican Financial System

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The financial services component of the North American Free Trade Agreement (NAFTA) represents a new stage in the financial liberalization that has been occurring to varying degrees in Canada, Mexico, and the United States. All three countries have eliminated interest rate controls, reduced reserve requirements, and lowered barriers to entry for new domestic and international banks. Mexico's financial opening, however, has been much more extensive than Canada's or the United States'.

Ten years ago, few would have expected that Mexico would move to integrate its financial system with those of the United States and Canada. Following the financial turmoil of the early 1980s, many Mexicans concluded that isolating their financial markets would help avoid financial trauma and that international capital controls and bank nationalization were useful policy tools. However, such policies exacerbated financial instability. Global and domestic financial market participants had acquired the power to override such controls. Recognizing this phenomenon, Mexico has moved to create one of the more modern and open financial systems in this hemisphere.

The road to liberalization for Mexico has not been an easy one. It was interrupted by a reversal of financial opening when the government nationalized the banks in the early 1980s. But the main lesson of the following history is quite clear: the Mexican government could only temporarily halt financial opening, growth, and innovation. The recent liberalization effort reflects, to a large extent, the huge growth in the nonbank sectors of the Mexican financial system and the recent reduction of barriers to trade in goods. This history of the Mexican banking system begins shortly after World War II, when Mexico deliberately followed highly protectionist trade policies.

The Financing of Import Substituting Industrialization: 1940–74

Until the 1970s, the Mexican financial system was highly regulated, at least by North American standards. The old regime included quantitative restrictions on interest rates, an array of forced lending programs,[1] large barriers to entry, and high required reserve ratios. The financial system reflected import substituting industrialization, the trade and growth strategy that Mexico and other Latin American countries were pursuing at the time.[2] In the same spirit, the banking sector was effectively protected from direct foreign competition, as Citibank was the only foreign bank since the 1940s to operate in Mexico.[3]

Countries following import substituting industrialization (ISI) tried to diversify their productive bases by protecting domestic producers of formerly imported goods. Protection involved tariffs, quotas, and direct subsidies. The imports had typically been consumer goods, including durables such

[1] Banks were required to lend a certain portion of their deposits to firms in priority sectors.

[2] A succinct analysis of import substituting industrialization can be found in Baer (1992). For a detailed analysis of the Mexican banking system during this period, see Brothers and Solis M. (1966). For a similar analysis of another country, Brazil, which also pursued import substitution, see Welch (1993).

[3] An important point is that Citibank's office was a branch, not a subsidiary.

as automobiles and nondurable luxuries such as clothing and scotch. ISI motivated local financial systems to specialize in underwriting the purchase of the domestic products that replaced these imports. Because such financing was inherently short term and lenders faced significant inflation and exchange rate risk, the financial system's lending horizons were much shorter than those found in the United States, Canada, and Europe.

The private financial sector did not supply long-term financing of industrial activity, and the trade protection given industry bolstered retained earnings. Accordingly, most fixed investment was internally financed. For industries that required investments too large to base on retained earnings and for exporting industries weakened by protectionism (such as agriculture), the government provided long-term funding through a menu of trust funds and state-controlled credit institutions, the most notable being Nacional Financiera. These institutions not only channeled private and public resources into "priority sectors" but also intermediated (as they still do) resources from foreign lenders and investors.

Banks represented the major private sector institutions in the Mexican financial system, but their behavior was tightly regulated. Most importantly, interest rates on loans and deposits were controlled by Banco de México. Additionally, Banco de México controlled the money supply through the use of flexible marginal reserve requirements. If Banco de México wanted to tighten money, it increased the reserve requirement on new deposits.

Reserve requirement adjustments were a particularly important source of policy flexibility because Banco de México could not undertake open market operations. Open market operations require a well-developed market for government debt, and that did not exist. But the policy that was flexible for Banco de México was cumbersome and costly for the commercial banks (Brothers and Solis M. 1966, 59–64). The bank's frequently changing and complex requirements resulted in costly efforts on the part of commercial banks to maintain adequate reserves. Further, to the extent that these reserves did not earn interest, increases in reserve requirements increased the spread between borrowing and lending rates.[4] Cash reserve requirements against demand and savings deposits ranged from 50 percent to 100 percent from the 1940s through the 1960s.

Cash reserves were not the only assets held in required reserves. Banks were forced to maintain a certain percentage of deposits in the form of government securities, creating a captive market for government debt. Banks sometimes had to hold government securities in proportions that ranged from 0 percent to 75 percent from the 1940s through the 1960s. Also, regulations required commercial banks to hold a certain percentage of deposits in the form of credits to the private sector and private sector securities. These directed credits were channeled to what the government deemed priority sectors.

This level of regulation put commercial banks at an increasing disadvantage relative to nonbank intermediaries,[5] especially the

[4] In a perfectly competitive banking system in which profits are zero, the relationship between lending rates, i_L, and deposit rates, i_D, is

$$(1) \qquad i_L = \left[\frac{1}{1-k}\right] i_D,$$

where k is equal to the required reserve ratio.

The spread or the difference between i_L and i_D is therefore

$$(2) \qquad i_L - i_D = \left[\frac{k}{1-k}\right] i_D.$$

If k increases, the spread increases. Notice also that if interest rates rise, so does the spread. For further details of this relationship, see McKinnon and Mathieson (1981).

[5] The term "nonbank intermediary" simply refers to a financial entity that is not a bank but still accumulates funds (by taking issuing bonds, notes, bills, or acceptances) from some sources and then lends or otherwise distributes them to another party.

financieras.[6] *Financieras* became the principle vehicles for financial innovation during this period; they offered high-yielding liquid paper with few of the restrictions that were imposed on commercial banks. Using resources obtained from promissory notes issued to corporations and individuals, *financieras* funded the acquisition of fixed-term obligations, financed working capital and equipment loans, and extended consumer loans.

Financieras were not the only successful financial institutions. Mortgage banks[7] played a significant, but unchanging, role in financial markets during this period. These banks issued special mortgage bonds (*cédulas hipotecarias*) to fund their mortgage lending. Other private financial institutions, such as savings and loan associations and capitalization banks,[8] lost ground because they could not effectively compete for funds (Brothers and Solis M. 1966, 26–39).

With the growth of nonbank financial intermediation, securities markets became increasingly important, but government regulations impeded the development of markets for long-term debt. Although the Mexican government implicitly maintained the liquidity of all fixed-income securities through most of this period, it required them to trade at par. The value was maintained through the loan windows at Banco de México and Nacional Financiera. Because the government proscribed discounting, expected inflation could not be reflected in discount rates, a problem that inhibited the development of a long-term securities market.

While the Mexican financial system—including the nonbank portion—did develop significantly from the 1940s through the 1960s, markets remained very thin by developed-country standards. The trading of fixed-interest instruments on the stock and securities exchange was limited because market makers were banks, *financieras*, mortgage banks, capitalization banks, and, ultimately, Banco de México and Nacional Financiera. Moreover, for the regulatory reasons noted above, the market for long-term obligations was particularly thin.

Market thinness and market-inhibiting financial regulations had resulted in costly intermediation during the 1940s, 1950s, and 1960s. These high credit costs and the scarcity of long-term credit, in turn, inhibited the development of Mexican industry.

Financial system problems worsened in the 1970s with the acceleration of inflation during the presidential administration of Luis Echeverria (1970–76). For the banks, the principal problem during this period was disintermediation.[9] Although disintermediation had occurred throughout the postwar period, during the Echeverria administration the acceleration of inflation exacerbated the adverse effects of the interest rate controls and high reserve requirements on banks. The relatively low level of regulatory constraints placed upon

[6] *Financieras* were financial institutions that resembled banks but with a narrower scope of operation. A *financiera* could be seen as a sort of development bank, which is to say that it focused on making long-term loans to industry. To secure funds, *financieras* accepted time deposits whose minimum duration was one year. *Financieras* also issued their own ten-year (or longer) certificates of obligation called financial bonds (*bonos financieros*). It was not unusual for a private *financiera* to be part of a collection of financial institutions held by a holding company. As such, they were often recipients of large amounts of funds that were able to be employed in the purchase of claims on industrial and consumer borrowers not suitable for direct holding by the financial intermediaries—other types of institutions within the holding company, for example—that made the funds available.

[7] Mortgage banks specialized in home mortgage-based lending and collected funds through the issuance of special mortgage bonds, as noted.

[8] Capitalization banks focused on long-term lending for capital goods.

[9] Disintermediation occurs when funds shift out of one type of financial intermediary (in the case under discussion, banks) and either into another type (here, *financieras*) or out of the financial system altogether. In the United States before the financial deregulations of the late 1970s and early 1980s, restrictions on bank and savings and loan deposit rates caused deposits to flow out of these institutions and into less regulated assets when rates went up.

the *financieras* permitted them to adjust to the resurgence of inflation by paying more to attract deposits. Many of the new deposits were diverted from the increasingly uncompetitive banking system. In response, new reforms were instituted in 1974 and 1975. The structure of Mexico's current financial system has its origins in these reforms.

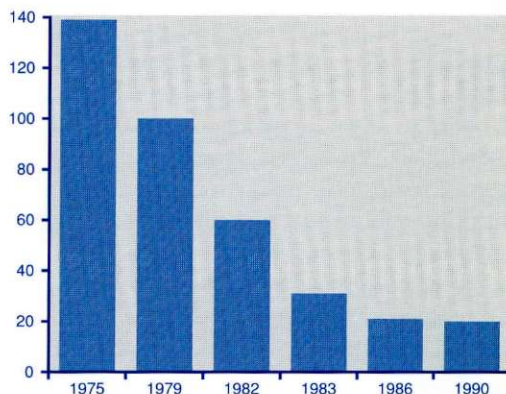
The 1974 and 1975 Reforms

The new Mexican policies of the 1970s supported the consolidation of existing banks and gave them market opportunities formerly restricted to nonbank financial intermediaries. The objective was to allow banks to exploit economies of scale and scope. The means to this objective included a regulatory turn away from a U.S.-style system of strict division between types of financial institutions and toward a Germanic system, in which "supermarket banks," or multiple banks, could offer a wide variety of services.

To this end, financial groups, or conglomerates, were constructed of different types of financial institutions—banks, brokerage houses, insurance companies, and so on—connected through a holding company. In 1974, the new Law on Credit Institutions, in part the result of Finance Minister José Lopez Portillo's efforts, went one step further; it created multiple banks through the merger of these different types of institutions (Banco de México 1992, 81). Reflecting their origins, the new multiple banks could not only perform traditional banking functions but could also provide insurance, brokerage services, and custodial and trust services. Banks were also allowed to take stock positions in industrial companies, a privilege that would become controversial (Tello 1984).

The immediate results of the 1974 Law on Credit Institutions included an increasingly concentrated banking system. As Chart 1 shows, the number of banks in Mexico decreased from 139 in 1975 to only sixty by 1982, when the bank nationalization occurred. This consolidation would con-

Chart 1
Mexico: Total Number of Banks, 1975–90



SOURCE: Banco de México.

tinue even after nationalization.

With the inflation of the 1970s, disintermediation made bank adherence to mandated interest rate ceilings and directed credit programs impracticable. In the mid-1970s, the government reacted by dramatically increasing legal deposit rates, but it did not free them to reach their market levels. The absence of full liberalization gave added impetus to the nonbank sectors of the financial markets, an impetus that was accelerated by the Securities Market Law of 1975.

The Securities Market Law of 1975 created brokerage houses and reorganized securities exchanges under the oversight of the newly revamped National Securities Commission (Comisión Nacional de Valores, or CNV), which was originally created in 1946. Not only did these reforms improve oversight and dissemination of information on traded securities, but they also created incentives for individual brokers and financial conglomerates to create brokerage houses. This sector began to grow rapidly, and expansion accelerated when the government created new financial instruments that could be traded in it (Heyman 1989, 13–17).

Perhaps the most important development in the Mexican securities markets of the 1970s and '80s was the introduction of

government treasury notes, or *cetes*, in 1978. Until then, Petrobonds (created in 1977) had been the major innovation in these markets. Petrobonds represented a share in a trust at Nacional Financiera with rights to certain quantities of government-owned oil, and bond values were accordingly linked to the price of oil (Heyman 1989 and Mansell Carstens 1993). Other innovations of the period included authorization of commercial paper in 1980 and of bankers acceptances in 1981.

Devaluations and the Debt Crisis: 1976–82

Mexican banks had a long tradition of offering dollar-denominated deposits and of extending dollar-denominated loans (Ortiz 1983). Dollarization had decreased during the 1960s and remained low until the mid-1970s, but a burst of inflation during the Echeverria administration provoked fears of an imminent devaluation and a flight back to dollars. The devaluation came in 1976, when the Mexican government elevated the peso price of the U.S. dollar from 12.5 pesos to around 21 pesos. Capital flight and increased dollarization soon followed. The devaluation also precipitated a substantial increase in financial activity, as well as certain financial reforms.

But instead of liberalizing trade to avert future balance of payments problems, the incoming Lopez Portillo administration resolved to uphold the increasingly threadbare import substitution/industrialization policies of the prior two decades. New oil deposits had been discovered, and this administration projected that it could finance further import substitution schemes with rising oil export revenues. The rush to develop these exports touched off large fiscal deficits and an unsustainable increase in foreign debt. Many of the resources that flowed to Mexico during this period were ultimately wasted (Gavin 1991). A surge in world interest rates in 1979 and a plunge in oil prices in 1980 and 1981 pressed on Mexico's debt-servicing ability from both directions. In August 1982, Mexico confessed that it could not service its foreign debt. Accompanying this collapse were massive capital flight, a severe peso devaluation, the imposition of exchange controls, and the nationalization of the commercial banks.[10]

Bank Nationalization and its Aftermath: 1982–89

In 1982, Mexico went through two major devaluation episodes—one in February and March, the other in August and September. Many inside and outside government contended that more drastic measures were in order (Maxfield 1992 and Tello 1984). Candidates included foreign exchange controls, the effective elimination of Mexdollar accounts, and the nationalization of the banking system.[11]

All were implemented by the Lopez Portillo administration in late August and early September 1982. On August 18, the government suspended the transfer of Mexdollar accounts abroad and converted these dollar-denominated accounts to pesos at an exchange rate of 70 to the dollar. Since market rates were around 100 pesos per dollar, this act would—for years to come—create suspicions about what else the government might impose upon the Mexican banking system. On September 1, the government ordained a full array of exchange controls and also nationalized the banking system.[12] To mitigate the

[10] Two commercial banks escaped nationalization—Banco Obrero, which was owned by the unions, and Citibank Mexico.

[11] See Moore (1993) for additional analysis of the pervasive effects of Mexico's high government deficit on the Mexican financial system.

[12] Fifty-eight of the existing sixty banks were nationalized. As noted above, only Banco Obrero, a bank owned by the unions, and Citibank Mexico were spared. When nationalization was implemented, articles 28 and 123 were amended to exclude the private sector from holding a controlling interest in a bank (Bazdresch Parada 1985 and Tello 1984).

damage devaluation had inflicted upon borrowers, a special and highly favorable exchange rate of 40 pesos per dollar was applied to their dollar-denominated loans.

Although most of the Lopez Portillo administration's tactics were conceived to staunch capital flight, they aggravated it. Mexicans forsook Mexdollar deposits for cash dollars and foreign accounts. Banks suffered severe losses in liquidity and contractions in earnings on dollar-denominated loans.

The government's administration of the nationalized banks reflected its concerns about the stability and solvency of the financial system. Mexico implemented bank recapitalization policies and promoted further consolidation. By 1990, of the fifty-eight banks originally nationalized, eighteen remained (Banco de México 1992, 84).

Nationalization, however, did not signify wholesale changes in management. Only the bank directors were removed. The de la Madrid administration, which replaced that of Lopez Portillo only a few months after the nationalization, was less sanguine than its predecessor about the virtues of government ownership. Banks were largely left on their own.

Nevertheless, nationalization did reverse some past trends. Chief among these was the reerection of firewalls between the bank and nonbank sectors of the financial system. For example, the de la Madrid administration reprivatized the nonbank assets of multiple banks but retained control of the banks themselves. In many cases, these nonbank assets were purchased by the prior owners through brokerage houses, using "indemnification bonds" as payment.[13]

The growth in the nonbank financial sector in the 1980s, especially in the money market, was enormous and helps to explain why financial innovation was not stymied by the bank nationalization. Between 1982 and 1988, nonbank financial institutions' assets rose from 9.1 percent to 32.1 percent of total financial system assets.

Recall that the government had begun to issue treasury bonds (*cetes*) in 1978. During the de la Madrid administration, the trading of *cetes* in the securities market (Bolsa de Valores) permitted the government an alternative to forced securities sales, expressed as noncash reserve requirements, to the banks. The growth of this alternative outlet for government finance was a particularly important salve for fiscal imbalances at this time. Restrictive rules and regulations were continuing to inhibit the expansion of the banking sector, so that even forced bank financing threatened to be an insufficient source of funds.

Although much of the initial growth in the securities market can be explained by the increased issuance of *cetes*, these were followed in 1985 by Bank Development Bonds, in 1986 by Mexican (U.S.) dollar-denominated bonds (*pagafes*) and fixed-interest Urban Development Bonds (BORES), and in 1987 by fixed-interest Development Bonds (*bondes*). The bond market and, especially, the money market became increasingly liquid throughout the 1980s (Heyman 1989, 49–102 and 123–60).

However, with the new surge of the nonbank sector, the banking system again required innovation and deregulation to improve its competitiveness in attracting funds. The government responded in 1989 by removing its restrictions on interest rates and permitting a return to universal banking via the Financial Groups Law of 1990. In 1991, the Salinas de Gortari administration began to sell the banks back to the private sector.

At the same time these moves toward deregulation were occurring, new financial instruments were also being developed so that the banks could compete effectively for funds. Money market accounts (*cuentas maestras*) appeared in 1986. In 1987, as part of the effort to recapitalize the banks, the government developed Certificates of

[13] The prior bank owners were indemnified with these bonds, which had a maturity of ten years and an interest rate tied to the CD rate (Heyman 1989, 138).

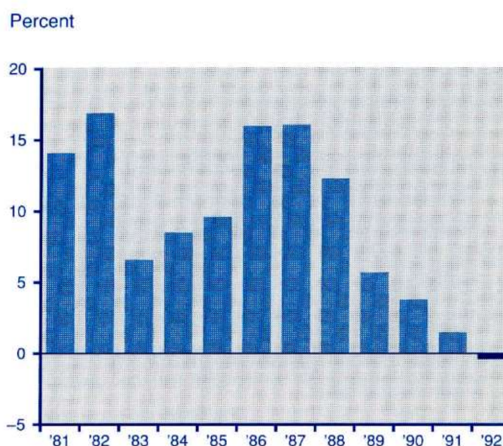
Claim on Net Worth (CAPS).[14] In what was effectively a first step toward privatization of the banks, the government used these CAPS as a vehicle for trading 34 percent of its bank holdings to the private sector. Banks did not pay dividends on these issues but the retained earnings represented a capitalized addition to the net worth (capital) of the banks. The CAPs were issued during a general stock market boom and sold at significant premiums.

Between 1982 and 1987, a combination of high inflation, interest rate controls, and high reserve (liquidity) requirements prompted the growth of a black market for credit.[15] Much of the liberalization that followed could not have taken place in the absence of a major fiscal effort by the Mexican authorities. Public-sector borrowing requirements dropped from around 17 percent of GDP in 1982 to around –1 percent in 1992, a financial surplus (*Chart 2*). Accordingly, the government began to refrain from exacting forced loans from the banks, especially after 1987. Lowering the liquidity ratio (a broader term for required reserve ratio) and liberalizing interest rates improved the banking system's ability to compete for funds.

The first step toward full liberalization and lower reserve requirements was the 1988 liberalization of the issuance of bankers acceptances. Under the new rules, interest rates on these instruments were no longer controlled. Moreover, bankers acceptances were now subject to a relatively low 30 percent liquidity requirement.[16] These conditions gave bankers acceptances an advantage over deposits and CDs in attracting funds. Deposits and CDs were still subject to regulated interest rates and to liquidity coefficients of close to 60 percent.

Additional liberalizations occurred in early 1989. The government removed interest rate ceilings on all deposits and securities and dropped the liquidity coefficient to 30 percent on bank liabilities. Finally, in June 1989, interest payments on checking accounts were allowed (Banco de México 1992, 90–91).

Chart 2
Mexico: Public-Sector Borrowing Requirements as Percentage of GDP, 1981–92



SOURCE: Banco de México.

The Privatization of the Banks: 1990–1992

These liberalizations set the stage for a complete privatization of Mexico's eighteen remaining commercial banks, an act initiated by legislation in 1990. In June, the Mexican Congress amended the constitution to allow private sector control of commercial banks. In July, Congress approved the Credit Insti-

[14] These were issued in the form of "B" shares that can only be held by Mexicans; consortiums cannot form a controlling interest.

[15] The term "liquidity coefficient" refers to required reserves that can be held in liquid interest bearing assets such as CETES. This is different from "required reserve coefficient," which typically refers to the percentage of liabilities that must be held in cash reserves or noninterest (or low interest) bearing deposits at the central bank.

[16] Bankers acceptances in Mexico are short-term (maturity not exceeding 180 days) promissory notes issued on a discount basis by banks. Unlike their counterpart in the United States, bankers acceptances in Mexico are not linked to goods traded internationally (Heyman 1989, 138, 144–146).

tutions Law, which restored the multiple bank system (Mansell Carstens 1993, 18).

The return to universal banking did not completely dismantle the segmentation imposed with nationalization. The new legislation allows the formation of three types of financial groups:

(a) a bank with leasing, factoring,[17] foreign exchange, mutual fund management and origination, and warehousing activities,
(b) a brokerage firm with leasing, factoring, foreign exchange, mutual fund management and origination, and warehousing activities, and
(c) a holding company.

The holding company must have at least three of the following institutions, with no more than one of each type:

(a) bank,
(b) insurance company,
(c) brokerage house,
(d) leasing company,
(e) factoring company,
(f) bonding company,
(g) mutual funds management company,
(h) currency exchange broker, and
(i) warehousing company (Natella et al. 1991, 23–25 and Mansell Carstens 1993, 18–19).

Moreover, while banks can now take equity positions in nonbank enterprises, holdings are limited to 5 percent of a firm's paid-in capital.[18] Loans to principal bank shareholders, managers, or directors—or to firms they own—are limited to 20 percent of a bank's loan portfolio.[19] Additionally, the extension of any such loans now legally requires the express approval of the bank's board of directors.

The Credit Institutions Law defined the terms of the subsequent privatization. Ownership structure was (and remains) apportioned according to three types of shares.[20] "A" shares are common stock held by the controlling interest and can represent up to 51 percent of total shares outstanding of any one bank. These may only be held by Mexican individuals, excluding institutional and corporate investors. "B" shares may be held by Mexican individuals, firms, and institutional investors and may represent 19 percent–49 percent of the total shares outstanding. Finally, "C" shares may be held by all Mexicans and foreigners and may represent no more than 30 percent of the shares outstanding (Natella et al. 1991, 22–23, Banco de México 1992, 96–97, and Mansell Carstens 1993, 18–19). The Mexican government also restricted the share of total bank capital possessed by any individual. Without special approval from the Ministry of Finance, no one may own more than 5 percent of outstanding shares; with approval, an individual may derive title to up to 10 percent.

The eighteen banks sold in fourteen months (June 1991–July 1992) at an extraordinarily high average price-to-book ratio of 3.49 (Trigueros 1992 and Carstens 1993).[21] Meanwhile, the government continued to initiate regulatory reforms. Mexico eliminated its remaining liquidity coefficient of 30 percent in September 1991 and abolished

[17] A factoring company buys a firm's accounts receivable for less than their face value, does its best to collect the payments on the accounts at face value, and profits on the difference.

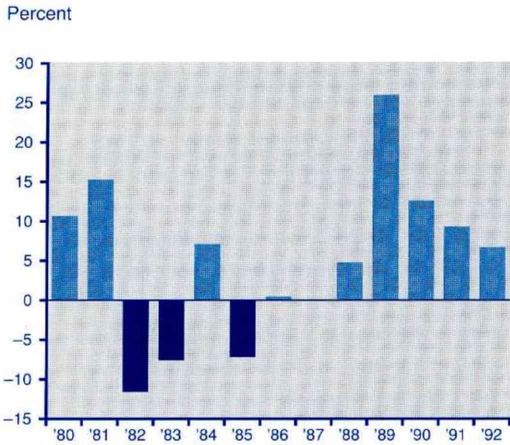
[18] There is one relaxation of this provision. A bank can hold up to a maximum of 15 percent of a firm's paid-in capital as long as possession does not continue for more than three years. Moreover, even three years' possession is permissible only after approval by two-thirds of the bank's board members and authorization by Mexico's Ministry of Finance (Banco de México, 1992, 97).

[19] These loans must be approved by two-thirds of the directors (Natella et al. 1991, 45).

[20] CAPS issued in 1987 were subsequently turned into shares.

[21] See Chart 2 in Gruben, Welch, and Gunther in this issue.

Chart 3
Growth in Real Financial Assets (M4), 1980–92



SOURCE: Banco de México.

exchange controls in December 1991 (Carstens 1993). The authorities also imposed new capital standards that turned out to be stricter than those contained in the Basle agreement.

Concluding Remarks

What has the recent liberalization accomplished? The most striking benefit of the liberalization and the inflation stabilization has been an increase in financial stability, a dramatic fall in interest rates, and robust growth in financial assets. Additionally, a recovery in lending to the private sector for investment is under way. Growth in the broad money aggregate M_4 recovered to high and sustainable rates starting in 1988 (*Chart 3*). Continued liberalization with the implementation of NAFTA should increase further the efficiency of the banking system and help lower the cost of financial intermediation in Mexico.

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U.S. Banks, Competition, and the Mexican Banking System:

How Much Will NAFTA Matter?

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For Mexico, the details of the financial services portion of the North American Free Trade Agreement (NAFTA) are an important part of a broader program of financial liberalization that has been under development for close to a decade.[1] Not only do NAFTA's details represent a major step in Mexico's recent financial liberalization efforts, but the general framework of the agreement also is important.

NAFTA's financial-sector portion commences with an explication of general principles and subsequently focuses on the expression of these principles through the industry-by-industry details of the agreement. In this regard, NAFTA reflects an attempt to apply trade policy concepts to the financial services sector, an innovation stemming from prior efforts to develop the General Agreement on Trade in Services. Sauvé and González–Hermosillo (1993, 4) note that this approach derives from the recognition that the joint pursuit of "business globalization and trade liberalization requires agreement among countries on a guiding set of rules and disciplines relating to matters of establishment, market access, standard of treatment, transparency of regulations and dispute settlement." By establishing both a general framework for greater foreign participation in Mexico's financial markets and particular rules governing that participation, the agreement represents a palpable reduction in the payoff to protectionist lobbying and an increase in the long-term sustainability of financial reform.[2]

This article provides an overview of the financial portion of NAFTA and includes analysis of its potential impact on the Mexican banking system. NAFTA's general framework, combined with the details of the important financial liberalization that NAFTA sets forth, indicates that the agreement will further Mexico's goal of increasing competition and efficiency in the provision of financial services. Differences in the agreement's treatment of various financial services, together with certain characteristics of financial markets in Mexico, suggest that most entries into the Mexican financial

We would like to thank Agustín Carstens and Moises Schwartz of the Banco de México and Yves Maroni of the Board of Governors of the Federal Reserve System for their comments. Of course, all remaining errors are our own and the usual caveats apply.

[1] See Welch and Gruben (1993) for an analysis of the financial liberalizations that occurred in Mexico both over the past ten years and in previous periods of Mexico's modern history.

[2] Also, by increasing the credibility of policy permanence, NAFTA can reduce response time to a policy change. An important reason for having free trade agreements like NAFTA, as Gould clarifies, is that "unlike most legal contracts, enforcement of these agreements is entirely voluntary, and their credibility does not depend on the objectives and interests of only two parties, but on the relative power of competing interests within two or more subscribing countries" (Gould 1992, 20). Incredible policy changes may have neutral or even perverse effects. In the early 1980s, Peru's attempt at trade liberalization lacked credibility. Suspecting that tariffs would rise again, investors imported large quantities of foreign goods and reduced domestic investment (Gould 1992).

sector under NAFTA likely will occur in nonbank areas, especially brokerage. As competition in the provision of nonbank financial services continues to grow, and as more banks—both foreign and domestic—commence operations in the Mexican market, Mexico's banks will be challenged to make strong gains in efficiency.

The Financial Services Portion of NAFTA

One way to facilitate the process of business globalization and trade liberalization, and accelerate the speed of adjustment to a policy change, is to assure that the new policy is easily understood.[3] Accordingly, the two most important doctrines in the financial services portion of NAFTA are relatively simple: each country allows its residents to buy financial services in other NAFTA countries[4], and foreign subsidiary institutions receive national treatment. The first clause implies a promise that Mexico's capital flight restrictions of late 1982, which inhibited foreign financial services' availability to Mexicans, will not reappear. In the second clause, national treatment means that foreign financial institutions[5] are subject to laws, rules, and regulations comparable[6] to those governing domestic institutions in a given host country.[7] The country for which this doctrine signifies the biggest change is Mexico, where NAFTA allows U.S. and Canadian financial services firms to set up wholly owned subsidiaries for the first time in fifty years.

Although the principal tenets of NAFTA's clauses on financial institutions are relatively simple, several complications arise from the past histories of each country's individual financial service industries, such as banking or securities, and from the connections that different countries permit among such industries. Unlike the United States, Mexico permits the same holding company to own banks, insurance companies, stock brokerage houses, funds management firms, bonding institutions, factoring operations, exchange houses, leasing firms, and warehousing firms.[8] As will be seen, these variations in what NAFTA signatories permit invest the agreement with some peculiar clauses. Moreover, under NAFTA, the structure of Mexican financial services firms owned by U.S. or Canadian firms is important. The Mexican firms must be subsidiaries rather than branches of their foreign owners. This rule means that a Mexican bank will have its own board of directors, even if it is owned by a U.S. or Canadian firm. More

[3] NAFTA also represents much effort to ensure procedural transparency; in fact, transparency is one of the general principles on which this principles-based agreement is founded. In processing applications for entry into its financial services markets, each NAFTA country has committed itself to clarifying its requirements for completing applications, to providing information on the status of an application on request, to making an administrative determination on a completed application within 120 days, to publishing measures of general application no later than their effective date, to allowing interested persons the opportunity to comment on proposed measures, and to establishing inquiry points to answer questions about its financial services measures.

[4] NAFTA countries generally have agreed not to increase current impediments to cross-border trade. However, the United States has declined to make such a commitment with regard to cross-border trade in securities with Canada, even though such an agreement does exist between the United States and Mexico. Likewise, Canada has not committed to such a "standstill" agreement with the United States. While NAFTA countries generally have agreed to permit their residents to purchase financial services provided from the territory of another party to the agreement, the transaction must originate at the request of the purchaser. Active solicitation of business from a seller in one NAFTA country to a purchaser in another is not part of the agreement.

[5] The financial services chapter of NAFTA focuses more on institutions than on products. NAFTA's focus is a departure from that of other agreements, such as the General Agreement on Trade in Services, in that NAFTA treats financial services as institution-specific, so that the rules for one type of lending or deposit-accepting institution are different from those of another. Under NAFTA, the same category of service may face different regulations or restrictions in accordance with the category of institution providing the services.

[6] The term "comparable" is important. Sauvé and González–Hermosillo (1993) note that NAFTA borrows from the General Agreement on Trade in Services in defining national treatment in a *de facto* rather than *de jure* sense. A *de jure* national treatment means that the very same laws apply to foreign firms as domestic.

importantly, these subsidiaries can fail, even when the foreign parent bank does not.

NAFTA phases in liberalization. Mexico will allow U.S. and Canadian commercial banks, insurance companies, brokerage firms, and finance companies their fullest access only after a six-year transition period (beginning in 1994), during which the market will be limited. For example, the capital of foreign insurance affiliates may not exceed 6 percent of the aggregate capital of all insurance companies in Mexico during the first year of the transition period, but that share goes to 12 percent on January 1, 1999, and to 100 percent a year later.[9] Similarly, during 1994, bank capital under the control of foreign investors in Mexico may not exceed 8 percent of the value of all bank capital in the country. In the last year of the six-year transition period, this limit goes to 15 percent.

But even after the phase-in period, NAFTA's characterization of national treatment is limited. Mexico will still be able to treat potential U.S. and Canadian-owned subsidiaries somewhat differently than it treats domestic firms. As an example, consider Mexico's banking system. Each of Mexico's two largest banking institutions, Banamex and Bancomer, accounts for more than 20 percent of total bank capital in the country. Together, they account for about 50 percent of total bank capital. After NAFTA's phase-in period for banks, neither Canadian nor U.S. groups may acquire an institution that accounts for more than a 4-percent share of the aggregate capital of all commercial banks in Mexico. In addition, once the six-year transition period is over, the Mexican government has the one-time option of freezing *temporarily* the total level of capital of Canadian and U.S. banks if that capital reaches 25 percent of total bank capital in Mexico.[10]

The United States, likewise, explicitly restricts what foreign financial institutions of NAFTA signatory countries may do, and some of these restrictions reflect differences between Mexican and U.S. financial institutions. The United States will permit a Mexican financial group that before NAFTA's enactment had acquired both a Mexican bank with U.S. operations and a Mexican

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A *de facto* standard takes account of the potential inequality of effects that regulatory requirements might have if they were applied identically to domestic and foreign institutions. Accordingly, *de facto* treatment may allow somewhat different laws and regulations to apply to foreigners than apply to locals, "so long as their effect is equivalent and does not place the former at a competitive disadvantage in the host country market" (Sauvé and González–Hermosillo 1993, 13). Of course, not all parties will agree in every future case on what equal effects are. There is a dispute settlement mechanism to address these potential differences.

[7] The host country provision contrasts with that of the European Economic Community, which allows country A's subsidiary financial institutions operating in country B to behave in accordance with country A's regulations instead of country B's.

[8] See Welch and Gruben (1993) for a description of Mexico's regulations pertaining to financial structure. We should note that NAFTA prohibits U.S. and Canadian banks from investing in credit unions, development banks, and foreign exchange firms

[9] NAFTA also allows foreign insurance providers to enter Mexico through a partial equity interest in a new or existing Mexican insurance company. Under this alternative entry mechanism, the share of a Mexican insurance company's voting common stock owned by foreign insurance providers is subject to limits that are relaxed during the transition period.

[10] The freeze is permitted to last only three years and can only be implemented during the period 2000–2004. NAFTA provides a similar option for Mexico with regard to securities firms, but there the aggregate capital percentage that triggers the option is 30 percent, although the same three-year maximum freeze period holds. Note that Canada exempts Mexican firms and individuals from its prohibition against nonresidents' collective acquisition of more than 25 percent of the shares of a federally regulated Canadian financial institution. Canada had already extended this exemption to the United States as part of the Canada–U.S. Free Trade Agreement. Mexican banks are also exempted from the combined 12-percent asset ceiling that applies to non-NAFTA banks, and also need not seek the approval of the minister of finance as a condition of opening multiple branches in Canada. Financial services commitments of Canada and the United States under the Canada–U.S. Free Trade Agreement will be incorporated into NAFTA.

securities firm with U.S. operations to operate both for five years after the acquisitions. The U.S. securities affiliate, however, will not be permitted to expand through acquisition. Moreover, the United States requires that the majority of directors of a foreign subsidiary bank be U.S. citizens.

With regard to start-up operations in Mexico, one of NAFTA's attractions for Canadian and U.S. firms is the opportunity to carry out operations denominated in pesos rather than dollars, which will enable firms to accumulate peso liabilities to offset their peso-denominated assets.[11]

The breadth of opportunities offered by NAFTA is important. For example, NAFTA signifies that finance companies may ultimately establish subsidiaries to provide consumer lending, commercial lending, mortgage lending, or credit card services. During the transition period, such operations are subject to the restriction that they may not collectively exceed 3 percent of the sum of the aggregate assets of all banks in Mexico plus the aggregate of all types of limited-scope financial institutions in Mexico, a phrase that refers to companies that provide consumer lending or commercial lending or mortgage lending, or credit card services. After the transition period, such firms receive purely national treatment, which is to say they will not be subject to the caps that banks will face after the phase-in.

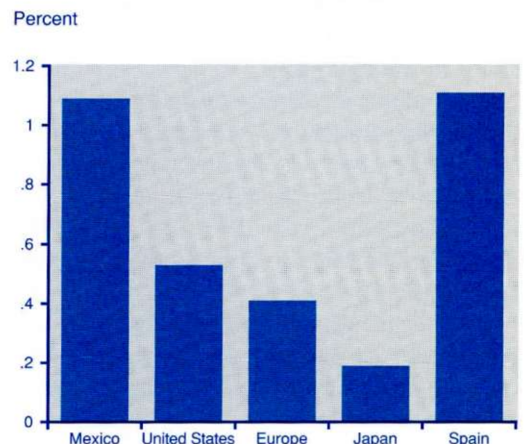
Even during the transition period, some types of auto-related financing are not subject to the caps that other financial operations will face during the phase-in. Accordingly, it should not be surprising to note reports that at least one U.S. nonbank firm is already planning the introduction of auto financing and leasing operations, and that U.S. brokerage firms, meanwhile, are planning cross-border mergers and acquisition activity and the introduction of swaps and options into the Mexican market.

Attractiveness of Mexico for Entry by U.S. Financial Institutions

Are U.S.-based financial institutions likely to be interested in establishing operations in Mexico under NAFTA? A look at the Mexican banking system, as an example, offers an indication of what may make NAFTA attractive to U.S. financial institutions. Mexico's banking system is highly profitable, highly concentrated, not very competitive, fairly inefficient, and somewhat less aggressively oriented toward marketing than some developed-country systems.

Mexican banks are more profitable than U.S. banks and most European banks. In 1992, the net return on assets for Mexican banks was approximately 1.45 percent, versus 0.96 percent for U.S. banks. The return on average assets in 1991 was 1.09 percent in Mexico, compared with 0.53 percent for the United States, 0.41 percent for all of Western Europe, 0.19 percent for Japan, and 1.11 percent for Spain (*Chart 1*). When the Mexican government began to

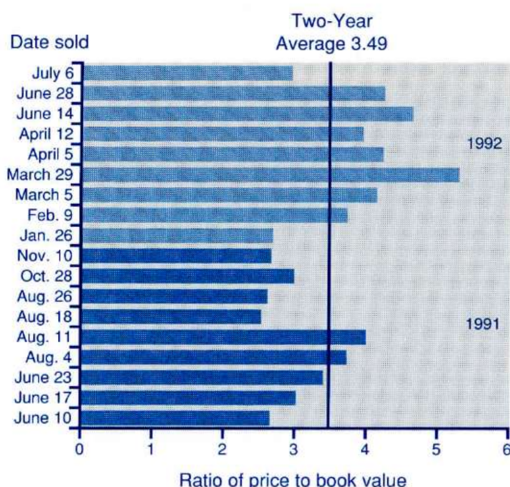
Chart 1
Bank Return on Assets, 1991



SOURCE: Natella et al.

[11] In general, to gain peso exposure, U.S. and Canadian financial institutions must locate operations in Mexico, as offshore peso trading is strictly prohibited. However, certain operations between U.S. and Mexican markets also provide vehicles for peso exposure.

Chart 2
Mexico: Commercial Bank Privatizations



SOURCE: Banco de México.

privatize the formerly state-owned banking system in 1991, some U.S. observers were surprised to see the selling prices of these banks range from 2.6 times book value to 5.4 times book (*Chart 2*). Expectations of future profitability helps explain these prices. Moreover, some observers suspected that privatization would make Mexican banks compete more intensely with one another, paying higher rates on deposits and charging lower interest rates. But instead of narrowing, spreads between interest rates on loans and bank deposits have widened. During the second half of 1990, interest rate spreads averaged about 5 percentage points. During 1992, when inflation rates had declined considerably compared with rates in the 1980s, spreads fluctuated between 7.57 percent and 10.69 percent (*Chart 3*).[12]

The Mexican banking system is currently highly concentrated, especially when compared with the U.S. banking system (*Chart 4*). As of mid-1992, the three largest commercial banks in Mexico—from a total of twenty (counting First National City Bank, or Citibank, and the union-owned institution, Banco Obrero)—held about three-fifths of all Mexican commercial bank assets. In contrast, as of year-end 1992, the three largest U.S. banking organizations held roughly one-seventh of total U.S. bank assets.[13] The level of competition that such concentration implies for Mexico, which lacks a deep nonbank financial market for private debt, may explain why large interest rate spreads persist.[14]

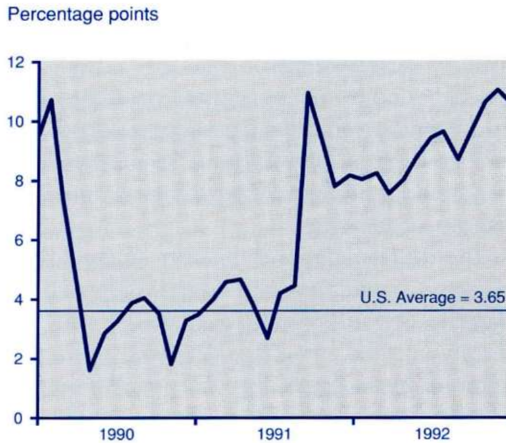
In addition, some indicators suggest that Mexican banks may not have begun to operate very efficiently, at least by commonly applied standards. In 1991, the ratio of noninterest operating costs to assets in Mexican banks was 5.9 percent, versus 3.7

[12] In a discussion of this point, Mansell Carstens notes that spreads have remained high and are likely to stay high over the next two years, not only because of the oligopoly power in the provision of commercial bank services, but because "commercial banks have been moving into high yield consumer lending" (Mansell Carstens 1993, 29). She notes that consumers had not had access to credit since the early 1980s; that banks have enjoyed a seller's market in satisfying the backlog of credit demand; that banks will probably expand their credit card, consumer durable, and mortgage lending programs to middle and lower-income groups; and that such operations typically involve large spreads.

[13] The bank assets of individual U.S. banking organizations are approximated by the sum of the assets of their bank affiliates. U.S. concentration measures based on deposits are similar to the asset concentration figures reported here. Note that the national concentration measures used here do not necessarily reflect the degree of concentration within local market areas in either Mexico or the United States.

[14] Concentration, in and of itself, need not preclude competitive provision of banking services. Shaffer (1992) finds that the Canadian banking system, which is comparable to Mexico's in terms of market concentration, still behaves competitively. The historical difference has been the contestability of Canadian markets for the types of financial services that Canadian banks offer. That is, market entry has traditionally been more viable in Canada, and securities markets for private debt are broader and deeper than those in Mexico. Later in this article, we more fully address problems of Mexico's nonbank private-debt markets in providing competition for the banks.

Chart 3
Mexico: Net Interest Margin, 1990–92



NOTE: Difference between average lending rate and average cost of funds for multibanks.

SOURCE: Banco de México.

percent for U.S. banks.[15] It should be noted that Mexico's 5.9 percent in 1991 represents a decline from 6.3 percent in 1990 and that, for reasons discussed below, this ratio will probably continue to fall.

Other evidence suggests Mexican banks may devote less attention to marketing than is common in the United States and Europe. In 1991, Mexico had one bank branch for about every 18,000 people. In the United States, the number was about one branch per 4,000 inhabitants and, in Europe, about one for every 2,000.[16] Nevertheless, as in the case of other bank characteristics, time may not have permitted recent bank behavior to reflect fully the impact of privatization.

Although these factors suggest that under NAFTA Mexico may attract U.S. banks, it is important to emphasize that the Mexican financial system is anything but static. The circumstances implied by the financial statistics and ratios cited earlier will probably not persist.

The first reprivatization of a Mexican bank did not occur until June 1991 and the last, that of Banco del Centro, took place in July 1992. There is much reason to suspect that insufficient time has elapsed for any bank to complete its transition from a public to private entity. In a study of bank acquisitions by holding companies in the United States, Johnson and Meinster (1973) show that an acquired bank's income and balance sheet ratios do not begin to display statistically significant differences from those of prior management until two years of new ownership. Moreover, the full impact of a change in management appears not to be felt until four years after the acquisition (Johnson and Meinster 1975). As of this writing, only two years have passed since any Mexican banks were privatized.

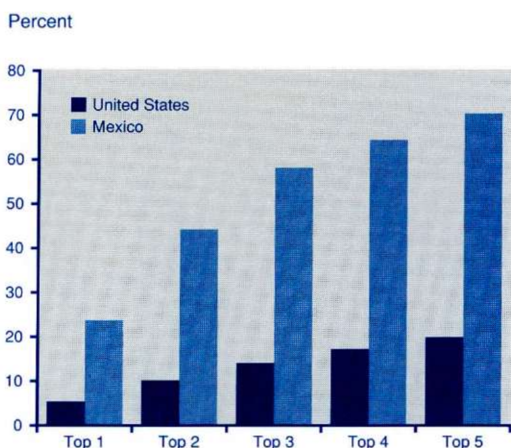
Tenure of ownership is not the only factor contributing to the state of flux in Mexican banking. As of September 1993, applications had been made for the establishment of at least six new (rather than acquired) banks, and five had been approved. Whether or not competition has intensified since bank privatization, the opportunities for intensification are clearly increasing. NAFTA's six-year phase-in to the point at which Canadian and U.S. banks receive their full opportunities for establishment in the Mexican market is likely to offer profound changes in the Mexican financial system, even without any foreign entrants.

In addition to the rapidly changing nature of financial institutions and markets, other factors in Mexico raise questions about the

[15] International comparisons of financial ratios probably offer a general picture of differences between the Mexican banking system and its counterparts in other countries, but care must be exercised and tenths of a percentage point ought not to be taken seriously. For a more extensive clarification of international comparisons of financial ratios in the context of NAFTA countries, see Gavito Mohar, Sánchez Garcia and Trigueros Legarreta (1992). Despite their cautions, those authors still draw conclusions about the essential differences between Mexican and U.S. financial performance, and the conclusions are very similar to those we draw in this article.

[16] See Mansell Carstens (1993) for further discussion of this issue.

Chart 4
Asset Concentration in Top Five Banks
(Share of Total Assets)



SOURCE: Comisión Nacional Bancaria–Mexico; Reports of Condition and Income.

intensity and rapidity with which Canadian and U.S. banks may choose to enter the Mexican market. While Mexico may be underbranched, and while "rising incomes… are expected to increase the demand for banking services by Mexicans, most of whom live outside the major cities and currently have no banking relationship at all" (Laderman and Moreno, 1992, 3), Mexican banks have well-established positions in the retail market, which U.S.-owned institutions may have difficulty achieving.[17]

With regard to wholesale banking, Mansell Carstens (1993) notes that Mexican banks have faced competition from foreign firms in this sector for years. While foreign banks have not been permitted to establish themselves as banks *per se* in Mexico, they have had representative offices. Moreover, Mexican banks, private and public corporations, and the government have relied for decades on these institutions. Mansell Carstens remarks that "for the wholesale banking sector, NAFTA may be a nonevent" (Mansell Carstens 1993, 37).

A related detail may offer a useful perspective on the extent of competition that Canadian and U.S. financial institutions could face from Mexican entities. Although the Mexican bank nationalization that occurred in 1982 formally removed only bank directors and left other employees at their desks, many of these employees departed for securities firms, which took on a rising share of financial activity.[18] Later, Mexican securities firms turned out to be the major purchasers of privatized Mexican banks. Since many securities industry executives were bankers before the nationalization, the recent financial deregulation has meant a reunification of financial products and personnel. Does this mean that Mexican banks have an information advantage that would make a U.S. bank's entry into the Mexican market a highly competitive event? It seems to suggest that, because of personnel movement out of banking and into the securities business and then back, human capital appropriate to the joint provision of securities services and traditional banking products may be particularly abundant in the Mexican financial system.[19]

Perhaps the main barriers to entry by U.S. banks are the minimum capital requirements and the global and individual maximum market share restrictions on U.S. bank holdings. The initial minimum capital requirement for a new entrant into the banking system is 0.5 percent of total paid-up capital plus reserves in the banking system, while

[17] In a discussion of this point, Mansell Carstens (1993) notes that the smallest of Mexico's three largest banking institutions (Banca Serfin) has 596 branches and that both Banamex and Bancomer have more.

[18] See Welch and Gruben (1993) for a description of the Mexican bank nationalization.

[19] The stock of financial experience in Mexico's banks contrasts sharply with that of many U.S. financial institutions in the 1980s. The partial erosion of barriers to competition at that time in the United States led many U.S. thrifts to enter into areas in which they had little or no previous experience. Similarly, the financial deregulation of the 1980s broadened the types of financial controls that U.S. banks and thrifts were required to maintain on their own, leading to substantial financial difficulties at some institutions.

the maximum allowed is 1.5 percent of the sum of total paid-up capital, reserves, and current gross profits.[20] As of December 1992, these requirements convert to about $20 million for the minimum and $90 million for the maximum. Given recent trends in capital growth, these limits easily could rise to $26 million for the minimum and $126 million for the maximum. The minimum capital requirements exclude a number of would-be entrants into the Mexican market (see the box entitled "NAFTA's Implications for U.S. Border Banks"). But the maximum capital requirements are small compared with the rest of the banks in the banking system. If a U.S. firm wanted to buy a Mexican bank, only two of the twenty could be purchased because the remainder have capital larger than the maximum.

The maximum capital allowed for any individual entrant grows to 4 percent by the year 2000. If 4 percent were the maximum today, all but the largest five banks could be bought by an interested U.S. bank. But these five banks command a huge proportion of Mexico's banking system. Hence, the strategy in NAFTA allows U.S. banks to enter in the phase-in period only in a very limited part of the market, mainly in regional retail operations. U.S. banks will essentially have to "grow their own" Mexican subsidiaries because the restrictions on banks that develop a large market share are considerably less stringent.

Current Issues in Mexican Banking

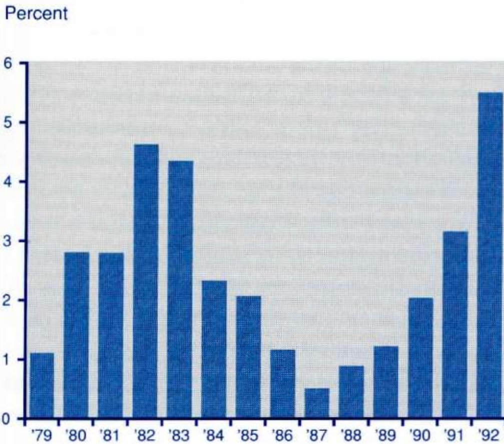
A broader issue involving the development of the Mexican financial system is the connection of this process to other components of Mexico's liberalization programs, which have attracted large influxes of foreign capital into the country. While very little of these international flows have taken place in the form of loans from foreign banks, their implications for banking have been important.

These inflows of foreign capital, and their translation into pesos, have bolstered both the demand for the peso and its rate of exchange against other currencies. Partly as a result of the strong peso (or the weak U.S. dollar), and partly because Mexico has dramatically lowered its barriers to foreign trade in recent years, the United States increasingly has become a low-cost supplier for Mexican buyers. In fact, U.S. producers have begun to out-compete Mexican producers in so many Mexican markets that Mexico's imports from the United States have quadrupled since 1987. As a result of rising U.S. and other foreign competition, Mexican tradeable goods producers have begun to default on their debt to Mexican banks at a more rapid rate than in past years (*Chart 5*). Also, loans with a moderate or higher risk of default rose from 5 percent of total loan volume in September 1991 to 9 percent in September 1992.

Does this mean that increased U.S. sales to Mexico under NAFTA will mean more defaults? In fact, it is hard to separate the various factors that have caused increases in the ratio of past-due loans to overall loans. While foreign competition plays a role, other issues are important as well. A significant portion of the recent rise in troubled assets may be linked to loans booked under the directed credit programs maintained by the Mexican authorities before privatization. The Mexican government created a compensation mechanism, within the privatization program, to reimburse the purchasers of the banks for any initially unreported problem loans. The problem loans associated with these past programs would, in any case, not be expected to reflect accurately any new trends in financial performance generated by the restructured financial system. Nor should

[20] Note that the measure of capital used in determining the maximum is different from that used in determining the minimum. This difference results from the fact that the minimum capital requirement was determined by the Law on Credit Institutions of 1990, whereas the maximum is specified by NAFTA. Also, the Mexican authorities have much discretion in determining minimum capital requirements.

Chart 5
Mexico: Ratio of Past-Due Loans to Total Loans, 1979–92



SOURCE: Comisión Nacional Bancaria–Mexico.

they call to question the solvency or profitability of these banks.

The rise in problem loans also reflects greater risk-taking at Mexican banks. However, some (Garber and Weisbrod 1991) have argued that the important role of banks in Mexico's financial system imparts a substantial franchise value to Mexican banks, particularly those with high market shares and strong reputations. The incentive to protect this franchise value from loss due to failure may partially offset banks' propensities to extend large volumes of high risk loans.

A comparison with recent events in the U.S. financial system helps illustrate the incentive Mexican banks may have to maintain a moderate risk profile. During the 1970s and 1980s, advances in information technology, together with the regulatory restrictions imposed on banks and thrifts, meant savings were more remunerative and borrowing cheaper at other sorts of institutions (Kaufman 1991). The partial financial deregulation that occurred during the 1980s materialized largely in reaction to these forces. In response to the lower charter values brought on by increased competition, U.S. financial institutions took on riskier portfolios (Keeley 1990).

Perhaps similar forces are at work in Mexico. But despite problems of disintermediation qualitatively similar to those in the United States, Mexico's financial reforms occurred in an atmosphere somewhat less hostile to banks. The relatively illiquid nature of Mexico's financial markets continued to offer banks there a central role in supplying liquidity and monitoring the financial condition of borrowers. Moreover, as Mexico's financial markets continue to broaden and deepen, Mexico's relatively unrestrictive regulations pertaining to financial structure offer broader avenues for avoiding the erosion of market share than those afforded U.S. banks in the 1980s.[21] These conditions may help curb the recent rise in problem loans.

Other Mexican Financial Markets

We have suggested that bank concentration need not inhibit competitive provision of banking services but that, up to now, it seems to have done so in Mexico. One reason Mexico's banking system seems to lack competition appears to involve a shortage of contestable markets. That is, the viability of entry by new banking firms or the existence of deep and broad markets for nonbank funding of private enterprise seem not to have been sufficient to discipline banks toward competitive behavior. While stock and securities markets exist in Mexico, and while factoring and leasing operations and other nonbank sources of *de facto* finance for private borrowers have also existed for years, many of these institutions have had problems of their own that have impaired their competitive strength.

Consider the stock market in Mexico. In general, stock markets transfer capital from

[21] See Gunther and Moore (1992) for a discussion of the relatively unrestrictive product and geographic expansion laws that distinguish Mexico's banking system from that of the United States.

savers to investors (the primary market), provide liquidity to owners of fixed capital (the secondary market), and improve the efficiency and performance of firms through the market for corporate control (the secondary market). However, the performance of the stock market depends not only on market access but also on the market's ability to discipline its corporate participants.

The Mexican stock market is small compared with those of developed countries. An important reason involves contestable markets, but of a somewhat different sort than those stressed in our previous discussions. Here, the contest involves the threat of takeover when a company's managers behave in their own interests rather than the stockholders'. McConnell and Servaes (1990) provide evidence that self-serving managerial behavior increases with the percentage of insider ownership and that increases in insider ownership accordingly lower the value of stock.

High insider ownership rates are common in Mexico, and the result has been an illiquid market. Under the current Mexican regime of comparatively loose regulation of company performance reportage, in a milieu of heavy insider stock holdings, participants in the Mexican market are suspicious of managers and discount stock values accordingly.

Moreover, the market suspicions that have been inspired by Mexico's longtime corporate issuers naturally contaminate efforts of new firm entrants to fund themselves efficiently in the equity market. Accordingly, Mexico's stock market is less liquid than that of developed countries and offers even less competition with the banking system than do stock markets in developed countries.[22]

Other forms of private-firm securities likewise play a smaller role in Mexico than in developed countries. As an example, consider commercial paper, an open market substitute for bank loans. The ratio of commercial paper holdings to bank lending is less than one-fourth as high as in the United States. And the banks themselves behave as if they are money market mutual funds. They place their own funds and those of the trusts they operate into commercial paper that they themselves market (Garber and Weisbrod 1991).

More generally, until now the overwhelming share of securities traded in the Mexican Bolsa de Valores has been of government issue. Because of the thinness of nonbank financial markets for nongovernmental borrowers, firms that could go abroad for funding have. It has been common for Mexico's great conglomerates to issue fixed-income securities in U.S. or European markets, and it is not unusual for the government to do the same.

Over time, however, the role of government issues in the Mexican securities market has diminished and will probably continue to decline. Recent innovations, expected developments (such as a Mexican options market), as well as a broadening and deepening of existing markets, suggest a diminishing role for traditional lending services in Mexican financial markets, much as has been the case in the developed world. The worldwide revolution in information processing that has increased the abilities of nonbank financial institutions to tailor securitized debt to the special needs of particular borrowers will likely continue to affect Mexican domestic financial markets (Walter 1992). That is, Mexican firms may be increasingly able to offer services at a level of particularity that up to now has been restricted to bank lending.

However, the same is true for Canadian and U.S. brokerage firms that could enter Mexican markets under NAFTA. Moreover, Canadian and U.S. firms already have experience and technology of the types that Mexican institutions are just now gaining. Accordingly, this is the area of the Mexican financial market that may see the greatest foreign penetration. Growth in such

[22] For further development of these issues, see Welch (1993).

securities and trading by both Mexican and foreign institutions may prevent the fall in the liquidity of the Mexican financial system Garber and Weisbrod (1991) expected to result from reductions in the number of Mexican treasury instruments outstanding. Private issues may offset those of the government.

Another reason most entries under NAFTA will be in securities brokerage is the agreement's relatively favorable treatment of this industry. As mentioned earlier, during the agreement's transition period, the maximum level of start-up capital for a new entrant into Mexico's banking system is 1.5 percent of the sum of systemwide, paid-up capital, reserves, and current gross profits. That limit increases to 4 percent by the year 2000.[23] The comparable restricted maximum for securities firms is more liberal, starting at 4 percent during the transition period before being removed entirely in the year 2000. Similarly, restrictions on the aggregate capital under the control of foreign investors in Mexico also treat securities brokerage relatively favorably. For bank capital, the aggregate restriction increases from 8 percent in 1994 to 15 percent in 1999, as mentioned earlier. In contrast, the comparable restriction for securities firms is 10 percent in the first year of the six-year transition period and 20 percent in the last. The relatively quick opening of brokerage services should facilitate early foreign penetration into that area.

Another possible role in the Mexican financial system for foreign financial firms is that of an offshore banking center. In July 1990, for example, the Law on Credit Institutions changed to allow Mexican banks to create dollar-denominated deposits for nonresident depositors. Currently, however, several factors discourage foreign institutions from establishing offshore operations in Mexico. First, the Mexican income tax for such institutions is 35 percent, a relatively high level compared with those obtaining in traditional offshore banking centers. In addition, Mexican labor laws require any company in Mexico to share 10 percent of its profits with its workers. Inasmuch as financial institutions in general, and offshore banks in particular, realize relatively high profits per employee, these laws may also dissuade potential offshore bankers from establishing operations in Mexico (Mansell Carstens 1992).

Conclusion

Despite much discussion of Canadian and U.S. banks entering the Mexican market, and despite the likelihood that some will, there is reason to suspect that the Mexican banking market may constitute one of NAFTA's least inviting financial market apertures. The Mexicans have taken special care to protect their banks from foreign competition during the long phase-in period. Because of the capital ceilings, the areas open to U.S. banks are the smaller regional banks, which mainly deal in retail banking and consumer financing. Although these areas are extremely profitable, most U.S. banks are not familiar enough with the Mexican market to compete effectively in the retail area. On the other hand, the more liberal treatment given to brokerage, bonding, leasing, factoring, insurance, and warehousing suggests that equity and bond markets will almost surely prove more attractive.

The complexion of the Mexican banking system indicates that in the next ten years most entry will be in these nonbank areas, especially brokerage. Mexico already imports a large amount of brokerage services from the New York Stock Exchange through the floatation of American Depository Receipts (ADRs) and from world bond markets through the large flotations from PEMEX, some large banks, and also some smaller firms. Hence, brokerage operations with strong links to U.S. investment banks will enjoy a strong position not only for arbi-

[23] This 4-percent limit applies only to acquisitions and not to new banks.

trage between the Mexican and New York markets but also to tailor asset and liability products to the needs of firms that conduct business internationally.

Certainly, increasing competition in the nonbank sectors from foreign participation in combination with a number of new Mexican banks will put pressure on banks to improve their efficiency. As we have described, this process is already well under way. The Mexican financial system, although not competitive at present, shows signs that very soon the institutions and markets will offer better financial services at significantly lower cost.

But a number of questions remain. One concerns the role that banks will play relative to securities markets. The remaining statutory barriers to entry in Mexican banking and the problems with the Mexican market for corporate control indicate that banks will maintain a privileged position in the Mexican financial system for many years to come. But the decline of banking in the United States and Europe cannot be explained solely by overregulation, implying that perhaps the importance of Mexican banks may also erode over time. Technological advance in information processing and financial instruments has given securities markets an edge, as witnessed by the major increase in securitization (Kaufman 1991). If U.S. and Mexican specialist institutions can offer nonbank services more efficiently than banks, then one would expect the importance of banks to wane. The favorable treatment of securities brokerage by NAFTA would be expected to promote such a competitive process. These considerations make projections of the future structure of the Mexican banking system extremely difficult. But no matter what the ultimate outcome, the evolution of the Mexican banking system should prove a fertile experiment in financial market liberalization.

NAFTA's Implications for U.S. Border Banks

The greatest opportunities that NAFTA's financial provisions present U.S. firms, at least initially, are outside traditional retail banking. One of the factors that suggests this conclusion is the information advantage Mexican financial institutions have over most U.S. banks in assessing risks and opportunities among Mexico's bank customers. However, because of their proximity to Mexico and familiarity with its markets, U.S. banks along the Mexican border may face a relatively low information hurdle in competing with Mexican financial institutions. Regulatory barriers, not information costs, will limit the capacity of most border banks to enter Mexico under NAFTA.

Border banks' specific knowledge and skills favor their penetration into Mexican retail markets. U.S. banks along the Mexican border generally are familiar with retail banking opportunities in Mexico. The banks' proximity to Mexico enables them to provide deposit services to Mexican citizens, and they extend credit to Mexican businesses. Moreover, the local banking markets on the U.S. side of the border are, in many respects, similar to the banking environment in Mexico.

The familiarity of border banks with Mexican markets should help these banks assess the credit quality of small and mid-size businesses in Mexico. As a result, any information advantage that established business relationships impart to Mexican banks should be reduced. In this regard, the border banks are particularly well-suited for entry into Mexico's growing retail banking market.

Although the proximity of border banks to Mexico enhances their position as potential entrants, other factors suggest that the entry of border banks into Mexico under NAFTA will be limited. Mexican financial companies provide commercial banking, brokerage, and insurance services jointly through an extensive network of branch offices. The established retail market position of Mexican banks increases the difficulty entering U.S. banks will face in attracting a broad base of retail customers. And this barrier to entry may be particularly formidable for border banks, most of which are relatively small.

Perhaps the greatest obstacle constraining the ability of border banks to take advantage of NAFTA's entry provisions is the minimum capital requirement established by the Mexican authorities for new banks. The required minimum level of capital that would apply to new banks established by U.S. financial services providers under NAFTA is, as of this writing, approximately $20 million. Moreover, each of the new Mexican banks recently approved by the Mexican authorities has been established with more than $40 million in capital, suggesting that investments well above the published minimum are encouraged. While this level of capital would not be expected to pose a serious barrier to entry by large U.S. banking organizations, it could represent a problem for smaller institutions along the border that otherwise would be interested in establishing a bank in Mexico.

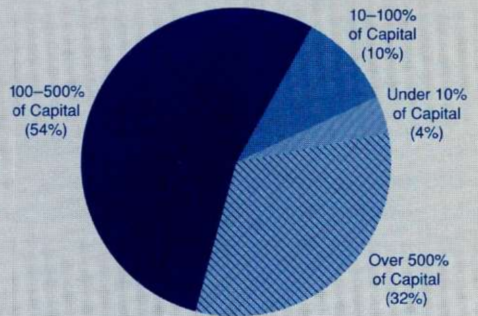
(Continued on the next page)

NAFTA's Implications for U.S. Border Banks—*Continued*

The capital levels of Texas banking organizations near the Mexican border illustrate how the minimum capital requirement may constrain the entry of smaller U.S. banks into Mexico. As of year-end 1992, forty-eight banking organizations operated at least one bank in Texas counties along the Mexican border. As shown in the accompanying chart, the minimum capital requirement of $20 million was more than five times greater than existing bank capital at 32 percent of these banking firms.[1] And the minimum capital requirement exceeded 100 percent of bank capital at 86 percent of the firms. To meet the minimum capital requirement for establishing a bank in Mexico, while maintaining an adequate level of capitalization among their domestic banks, these banking organizations would need to raise large amounts of external capital. And it generally is difficult for small banks to raise equity externally. Similar adjustments would be required of all but the largest U.S. banking organizations that currently operate a bank along the Mexican border.

The regulatory constraint posed by Mexico's minimum capital requirement, coupled with the extensive market resources of Mexican banks, suggests that most U.S. border banks will be unlikely to exploit their familiarity with Mexican markets by establishing banks in Mexico. Rather, the factors considered here indicate that NAFTA represents the greatest opportunity for relatively large U.S. banking organizations. The primary benefit of NAFTA for most of the border banks will be an indirect one resulting from an increase in trade and economic activity in the border region.

Distribution of Texas Border Banks by Minimum Required Capital Relative to Existing Capital



SOURCE: Reports of Condition and Income.

[1] Total bank capital is approximated by the sum of the year-end 1992 capital levels of an organization's individual banks.

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The Government Budget Deficit and the Banking System:

The Case of Mexico

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The change in fiscal and bank regulatory policy in Mexico over the past decade is striking. At its peak in the mid-1980s, the government deficit was equal to roughly one-sixth of the Mexican economy's output. During this same period, the banking system was subjected to numerous restrictions that contributed to a lack of growth in bank lending to the private sector. Reforms initiated in 1987 eliminated the deficit, with Mexico achieving a budget surplus by 1991. The elimination of the deficit was accompanied by changes in bank regulatory policy that contributed to a more than threefold increase in inflation-adjusted bank lending to the private sector between the beginning of 1988 and the third quarter of 1992.

Although difficult to quantify, there were linkages between the deficit and bank lending to the private sector that operated through the deficit's effect on bank regulatory and monetary policies. Part of the government's need to fund the deficit was satisfied through the banking system. When the deficit in Mexico was approaching its peak, the banking system was subject to restrictions that were ostensibly aimed at reducing the government's cost of financing the deficit but that were also likely to have had the unintended effect of contributing to the stagnation of bank lending to the private sector.

In this article, I examine the deficit, restrictions on banking, and bank lending to the private sector. The article begins by briefly reviewing the recent history of the deficit and the banking system in Mexico. Next, it argues that the need to finance the deficit provided an incentive to the government to adopt policies that may have had the unintended consequence of inhibiting bank lending to the private sector. The elimination of the deficit reduced the incentive to pursue these policies, and, consistent with a new policy thrust that favored a greater role for the private sector, the government reversed its restrictive banking policies, which, in turn, contributed to the rapid growth in bank lending to the private sector.

The striking changes in the deficit and in the banking industry in Mexico over the past decade make it an interesting setting in which to examine the influence of a government budget deficit on a country's banking industry.

The Budget Deficit in Mexico

The deficit in Mexico fluctuated dramatically during the period 1983–92. In the mid-1980s, Mexico's deficit roughly equaled 16 percent of its gross domestic product (GDP), implying that to balance the budget, the government would have had to seize roughly one-sixth of the economy's output in additional tax revenue, cut its spending by an amount equal to one-sixth of the economy's output, or pursue some combination of these two policies.[1]

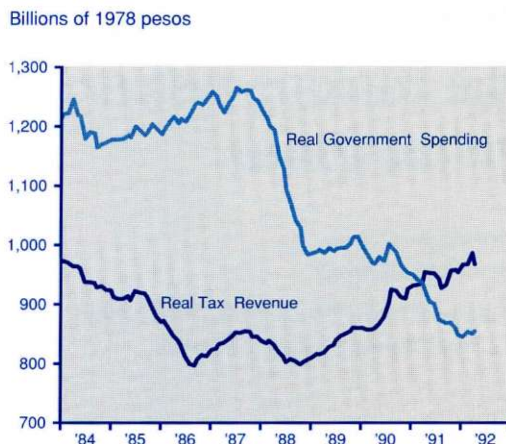
The large deficit contributed to the financial instability that led to the reform package initiated in 1987. Much of the financial turmoil that followed the crash of the Mexican stock market in October 1987 was attributed to the volatility of expectations that prevailed in the high-inflation

[1] During the period 1947–92, the U.S. deficit-to-GDP ratio reached its peak of 6.3 percent in 1983.

environment. The high rate of inflation stemmed from the government's reliance on printing money to finance a significant portion of its deficit. Thus, one of the goals of the reform package was to eliminate the deficit (Ortiz 1991). The reform eventually resulted in the elimination of the deficit, and in 1991, Mexico achieved a government budget surplus of 1.8 percent of GDP.

Chart 1 shows government spending and tax revenue in Mexico after adjusting for inflation.[2,3] The deficit is equal to the difference between government spending and tax revenue. As can be seen in Chart 1, the deficit was large in the mid-1980s and declined sharply in 1988. Continuing improvement has resulted in recent surpluses. The elimination of the deficit was achieved predominantly through sharp reductions in government spending; higher tax revenue contributed only modestly to the deficit reduction. Mexico's economy grew at roughly a 3-percent annual rate during the period when the deficit was being eliminated.

Chart 1
Deficit Reduction in Mexico



NOTE: Centered 12-month moving averages.
SOURCE: SIE, Banco de México.

Mexico's Banking System

The sharp swings in the deficit were accompanied by substantial changes in the banking system, including adjustments to the 1982 bank nationalization and the reprivatization of the banks in 1991–92. The history of Mexico's banking system during 1983–92 can be broken into three periods: the fully nationalized period, 1983–84; the transition period, 1985–90; and the privatized period, 1991–present.[4]

The fully nationalized period. Mexico's banks were nationalized in 1982. Following nationalization, the government replaced the banks' presidents with its own appointees but retained most of the banks' other personnel. Although there was consolidation during the nationalized period, eighteen separate commercial banks were still in operation when the banks were auctioned back to the private sector. The government owned the banks but did not actively manage them on a day-to-day basis. Instead,

[2] Because of the tremendous rise in prices in Mexico during the sample period, it is important to adjust variables measured in pesos for inflation. This adjustment is accomplished by dividing the peso-denominated variables by the price level and multiplying by 100. As an example, a collection of consumer goods that cost 100 pesos in 1978 cost roughly 27,793 pesos in 1991. Thus, while the government spent 232,112 billion pesos in 1991, government spending in 1991 would have been roughly 835 billion pesos ($835 \approx (232{,}112 \div 27{,}793) \times 100$) in 1991 if prices in 1991 had been the same as in 1978. Thus, government spending in 1991 was 835 billion pesos in "real" or inflation-adjusted terms. Unless noted otherwise, in the rest of this article all peso-denominated variables are measured in real terms but the word "real" is dropped; for example, government spending means real government spending. Amounts measured in non-inflation-adjusted pesos are called "nominal."

[3] The raw data for this study run from January 1983 to September 1992. Also, rather than plotting the actual monthly values of government spending and tax revenues, centered 12-month moving averages of the variables are shown. The 12-month centered moving average shows the values of the variables with their month-to-month variability smoothed out.

[4] A more comprehensive history of Mexico's financial system is provided elsewhere in this issue.

the government exercised control through regulations, including interest rate controls, selective portfolio restrictions, and required reserve ratios. The interest rate controls limited the interest banks could pay depositors, thereby hindering banks' ability to attract funds. The selective portfolio restrictions forced banks to extend credit to selected sectors of the economy, including the government sector.[5] The required reserve ratio, as in the United States, required banks to hold some fraction of their deposits as reserves, but unlike reserves in the United States, deposits at the Banco de México earned interest. Reserve requirements reduce banks' flexibility, because they force banks to hold some minimum amount of reserves.[6]

These restrictions on banks may have reduced the government's borrowing cost, as discussed below, but they also limited banks' ability to provide financial services to the private sector; this drawback strengthened the incentive to reduce some of these restrictions and to move toward privatization. In other words, the government may have perceived the reduction in its cost of financing the deficit provided by the restrictions as a benefit of the restrictions, but a cost of the restrictions was the reduction in banks' ability to provide financial services to the private sector. As the government cut its spending and reduced the deficit, it no longer needed to borrow as much as it had before reducing the deficit. This reduction in the need to borrow reduced the government's perceived benefits from the restrictions, and the government reduced the restrictions.

The transition period. One of the goals of the transition period was to create an environment in which banks could better provide financial services to the private sector. During the transition, restrictions on banking were reduced, thus setting the stage for the full privatization that was to follow. As a first step toward reprivatization of the banking system, the government offered minority shares in the commercial banks in 1985. While the government retained a majority interest in the banks, the minority shareholders did establish a base to build on when the banks were later fully privatized.

By 1989, the deficit reduction plan had sharply cut the deficit, thereby reducing the government's borrowing needs, which permitted the government to ease the restrictions on the banking system. One part of this easing was the introduction of liquidity coefficients to replace reserve requirements in April 1989. The required reserve ratio required banks to hold some fraction of their deposits as vault cash or as deposits at the central bank. The change to the liquidity coefficient required banks to hold some fraction of their deposits as vault cash, deposits at the central bank, or as selected short-term government securities. Thus, the movement to the liquidity coefficient gave banks greater flexibility than the reserve requirement regime.

Because of increased flexibility, it was less costly for banks to satisfy the liquidity coefficient than it had been to satisfy the reserve requirement.[7] The reduced burden allowed banks to provide financial services more effectively. Because the liquidity coefficient could be satisfied by holding assets that offered a market rate of interest, it allowed banks to generate higher income on their portfolios than they could under the reserve requirement, thus allowing banks to offer more favorable returns to their depositors. This increased the attractiveness of bank deposits and improved

[5] As an example of a portfolio restriction, at the margin, 35 percent of peso-denominated deposits had to be lent to the government in October 1988.

[6] Reserve requirements are also an important tool of monetary policy.

[7] Although deposits at the central bank did pay some interest, the interest rate offered on short-term government securities was higher, thereby leading banks to satisfy their liquidity requirement largely through holdings of short-term government securities.

banks' ability to provide financial services. As a result of continued improvement in the government's deficit, the liquidity coefficient was eliminated in September 1991, further improving banks' ability to compete for funds.

Although replacement of the reserve requirement with the liquidity coefficient had a favorable effect on banks' ability to provide financial services, it also reduced the subsidy to the government's borrowing cost. In effect, the reserve requirement had forced the banks to lend to the government at below market interest rates. The liquidity coefficient, however, could be satisfied through holding government securities that offered a market rate of interest. Thus, the government was no longer borrowing at the subsidized rates enjoyed under the reserve requirement. The cost to the government of losing the subsidy, however, was limited by the reduction in the government's need to borrow that had been achieved by 1989.

Interest rate restrictions were also relaxed in April 1989. One effect of the interest rate restrictions was that they may have reduced the government's cost of financing the deficit. By limiting the interest rates that banks could pay on deposits, the restrictions increased the attractiveness of alternative assets, including government debt, and may therefore have reduced the government's borrowing cost.[8] But the limits on interest rates decreased the attractiveness of holding deposits in the Mexican banking system, leading to a deposit outflow and weakening banks' ability to compete in the financial services market. The reduction in the deficit that had been achieved by April 1989 reduced the government's need to borrow and thus decreased the perceived benefit of maintaining the interest rate restrictions, but the cost the restrictions imposed on banks' ability to provide financial services remained. This shift in benefits versus costs may have influenced the government's decision to relax the interest rate restrictions.

The privatized period. The elimination of the deficit by 1991 occurred in an environment in which the role of private ownership was being increasingly emphasized.[9] Consistent with this new policy thrust, the banks were returned to the private sector through government auctions held between mid-1991 and mid-1992. The banks sold for a total of more than $12 billion (U.S.)—more than three times their book value—showing the value that the private sector placed on commercial banking in Mexico.[10]

Because privatization occurred so recently, it is difficult to draw empirical conclusions about its effect on bank behavior. The data available, however, do show that the trend toward greater bank credit to the private sector continued through September 1992, coinciding with decreases in the deficit.

The Deficit and Bank Lending

The behavior of the deficit and the amount of bank lending to the private sector, shown in Chart 2, is consistent with the deficit's having a negative influence on bank lending to the private sector. From 1984 until

[8] This argument only accounts for the direct effect on the attractiveness of government debt relative to bank deposits. There is also an indirect effect that operates through the effect of interest rate restrictions on the efficiency of the financial system. By making it less attractive to hold savings within the banking system, it is likely the restrictions made it less attractive to hold savings in Mexico as a whole. Thus, the overall effect of interest rate restrictions on the government's borrowing costs is theoretically undetermined. On the one hand, the restrictions increase the attractiveness of government debt relative to bank deposits, which by itself would reduce the government's borrowing costs. On the other hand, the restrictions decrease the overall attractiveness of saving, thus decreasing the pool of savings, which, by itself, would increase the government's borrowing costs.

[9] In 1991 alone, privatization occurred in a number of industries, including iron and steel, fertilizer, and telecommunications.

[10] Gunther and Moore (1992) provide further discussion of the privatization of Mexico's banks.

Chart 2
The Government Deficit and Bank Loans to the Private Sector in Mexico

Billions of 1978 pesos

NOTE: Centered 12-month moving averages.
SOURCE: SIE, Banco de México.

1988, the period when the government budget deficit was largest, bank loans to the private sector were essentially constant. From 1988 through mid-1992, the period when the government was reducing its deficit and moving to the recent budget surplus, bank loans to the private sector were increasing rapidly.

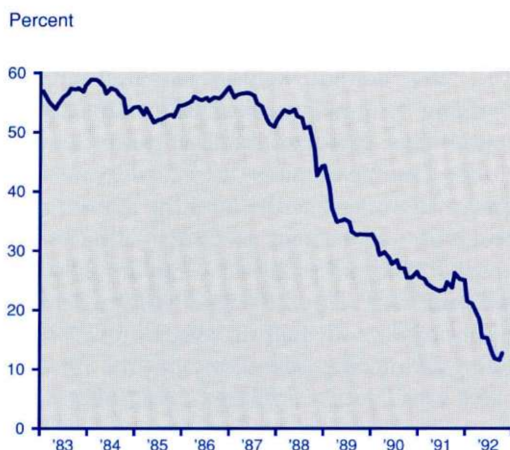
While it is difficult to establish causality, the increase in bank lending to the private sector that accompanied the reduction in the deficit may have been more than coincidental. My contention is that the deficit contributed to the adoption of regulatory and monetary policies that had an adverse effect on bank lending to the private sector, and the elimination of the deficit contributed to the reversal of these policies. Thus, the deficit may have indirectly influenced bank lending to the private sector through the deficit's effect on regulatory and monetary policies.[11]

Regulations on bank portfolios. One way the deficit may have affected bank lending to the private sector was through the deficit's influence on the government's incentives to impose regulations on bank portfolios. Because there were many different reserve requirements, selective portfolio restrictions, and liquidity coefficients—depending on the type of deposit—it is difficult to calculate precisely the total amount of reserves, government securities, and direct credit to the government that the banking system was required to maintain. Rather than calculate the total requirement under these restrictions, I instead examine the total amount of the banking system's reserves, government securities, and direct credit to the government. While not all of the total was required, whatever portion of the portfolio was held in this form was not being lent to the private sector and indicates what fraction of banks' portfolios was directed to the government.

Chart 3 shows the ratio of banks' holdings of government securities, reserves, and direct credit to the government to total assets. As the chart shows, the ratio declines from an initial level in excess of 50 percent to a final level near 13 percent. The decline in the ratio during 1988–92 mirrors the decline in the deficit that was occurring at roughly the same time. In 1988, Mexico began to achieve a reduction in the deficit, thereby reducing the government's borrowing needs, which permitted the government to ease restrictions on the banking system. In other words, as the deficit declined, the government's need for funding declined, reducing the government's incentive to hold down its borrowing cost by requiring the banking system to hold government debt. As these restrictions on bank portfolios were reduced, the fraction of bank assets devoted to funding the gov-

[11] In addition to the channels of influence this article examines, Garber and Weisbrod (1991) argue that the decline in the government securities market relative to the economy made liquidity scarcer, thereby increasing the demand for bank deposits, since bank deposits are a source of liquidity. This is evidence of another link between the government budget deficit and banking activity.

Chart 3
Banks' Holdings of Reserves, Government Securities, and Credit to the Government as a Percentage of Assets



SOURCE: SIE, Banco de México.

ernment declined, and bank lending to the private sector increased.

Interest rate restrictions. Restrictions on interest rates were another regulatory factor that limited banks' ability to compete in the financial services market. The competitive disadvantage interest rate restrictions imposed on the banking system was compounded by the high rate of inflation and nominal interest rates that stemmed from the deficit's influence on the money supply in Mexico. Because the deficit in Mexico led to rapid growth in the nominal money supply, it also resulted in a high inflation rate that peaked near 160 percent in 1987. The high inflation rate, in turn, pushed the market value of nominal interest rates to high levels, with the interest rate on short-term government securities peaking near 150 percent at the beginning of 1988.

These high market values of nominal interest rates were at times accompanied by deposit interest rate restrictions that prevented banks from offering rates on deposits to match the rates available on *Cetes* or other alternative assets.[12] Chart 4 shows the spread between the interest rate on one-month *Cetes* and the interest rate on short-term bank deposits. As can be seen in the chart, the spread was quite volatile, turning slightly negative at times and at other times running as high as 30 percentage points (*not* basis points).

Prior to the elimination of interest rate controls in April 1989, the artificially wide spread between the interest rate on *Cetes* and the interest rate on bank deposits reduced the attractiveness of bank deposits, making it difficult for the banks to raise funds, which, in turn, weakened their ability to extend loans. Rather than depositing their savings in banks, individuals and firms found it preferable to lend directly to the government or private sector borrowers. While interest rate restrictions were in place, a large, unregulated interfirm credit market was developed by the investment banks in Mexico.[13] Because this market was unregulated, it could offer interest rates to savers above the maximum rate allowable for commercial banks, enabling the interfirm market to attract funds that would have otherwise been deposited in commercial banks.

To allow banks to compete with the unregulated interfirm market, several steps were taken to relax interest rate restrictions. The government's fall 1988 financial deregulation package allowed commercial banks to issue bankers acceptances without interest rate restrictions. Moreover, in April 1989 interest rate restrictions were removed on other bank liabilities, with the exception of checking accounts.

The reduction in the deficit contributed to the reduction in interest rate restrictions, because the reduction in the government's need to borrow reduced the desirability of

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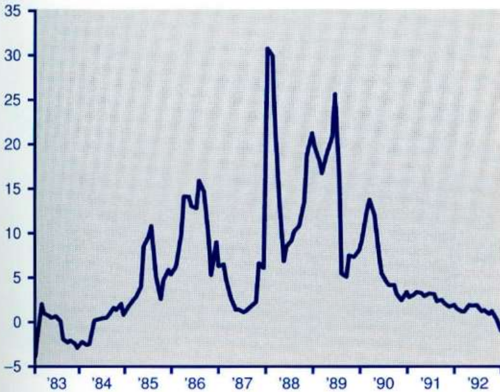
[12] *Cetes* are short-term debt obligations of the Mexican government, analogous to Treasury bills in the United States.

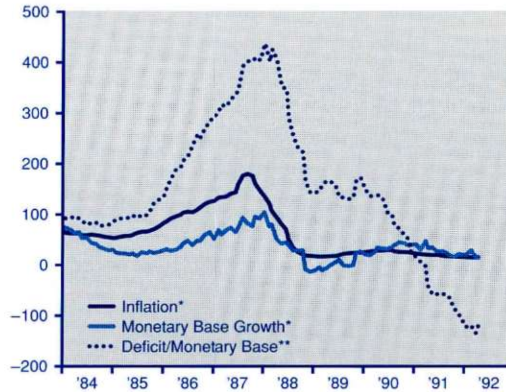
[13] The unregulated interfirm market is also called the "informal" market.

Chart 4
Spread Between *Cetes* and Short-Term Bank Deposit Rates



SOURCE: SIE, Banco de México.

Chart 5
The Government Deficit, Monetary Base, and Inflation in Mexico



* Centered 12-month moving averages.
** Centered 12-month moving sum.
SOURCE: SIE, Banco de México.

imposing interest rate restrictions to hold down its borrowing cost. The reduction of interest rate restrictions allowed banks to compete for funds more effectively, which, in turn, helped facilitate the expansion of loans to the private sector. Thus, one way in which the deficit influenced banking was through policymakers' reliance on interest rate restrictions to attempt to reduce the government's borrowing costs.

Inflation. The deficit may have also affected bank lending to the private sector through its effect on monetary policy and inflation. The effect of a deficit on inflation depends on how the deficit affects the money supply, which, in turn, depends on how a government finances the deficit.[14] Roughly speaking, a government has the choice of financing the deficit by issuing bonds or by printing money.[15]

If the amount of money printed to finance the deficit is large enough to cause rapid growth in the nominal money supply, then high inflation will result. Thus, the potential inflationary impact of the deficit can be measured by the ratio of the deficit to the monetary base.[16] When this ratio is large and the deficit is financed by printing money, then the nominal monetary base will grow rapidly, implying rapid growth in the nominal money supply and high inflation.

Chart 5 shows the ratio of the Mexican deficit to the monetary base, the growth rate of the nominal monetary base, and the rate of inflation. The deficit was near its peak relative to the monetary base in late 1987 and early 1988, when the annual deficit was roughly four times as large as the monetary base. The evidence indicates that a substantial portion of this deficit was

[14] Robinson (1987) provides an analysis of the influence of fiscal policy on monetary policy in the United States.

[15] More precisely, the government may finance the deficit by either issuing bonds to the public or by borrowing from the central bank. Borrowing from the central bank will increase the monetary base; I call this financing the deficit by "printing money."

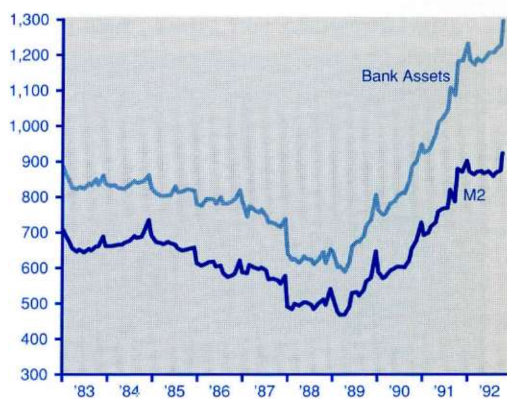
[16] The monetary base is the sum of currency held by the public and in bank reserves.

monetized. The high ratio of the deficit to the monetary base, coupled with reliance on printing money to finance the deficit, resulted in an annual rate of growth of the nominal monetary base near 100 percent at its peak and a rate of inflation near 160 percent at its peak. The peak in the ratio of the deficit to the monetary base roughly coincides with the peaks in the nominal money growth and inflation rates. The reduction in the government budget deficit that began in 1988 was accompanied by corresponding reductions in the rate of growth of the monetary base and inflation. Thus, the ratio of the deficit to the monetary base, nominal money growth, and inflation tended to move together in Mexico.

When a government prints money to finance its deficit, it is, in effect, imposing an inflation tax because the increase in the price level caused by the expansion of the nominal money supply reduces the purchasing power of money.[17] Thus, the inflation tax is ultimately a tax on wealth held in the form of money. Analysts generally expect the private sector to respond to a tax on an asset or activity by reducing its holding of the taxed asset or reducing its participation in the taxed activity. This analysis applies to the inflation tax as well. When the government finances the deficit by printing money and higher inflation results, the cost of holding assets in the form of money increases, and the public responds by reducing its demand for money by substituting away from money to other financial or physical assets.[18]

The decline in the real money supply in

Chart 6
Real M2 and Real Total Bank Assets



SOURCE: SIE, Banco de México.

Mexico, which can be attributed in part to the inflation tax, can be seen in Chart 6. At its low point in early 1989, real M2 had fallen one-third from its value at the beginning of 1983. The downward trend in real M2 from the beginning of 1985 through the end of 1987 roughly coincides with the period when the deficit was growing relative to the monetary base. The decline in real M2 is consistent with individuals behaving as if they perceived the potential inflationary impact of the growth in the deficit and decreasing their demand for money accordingly.

Chart 6 also shows movements in the value of bank assets. Because banks fund their assets using liabilities that make up the money supply, a decline in real money demand makes it more difficult for banks to fund their assets, and hence, a decline in money demand is likely to reduce bank assets. As Chart 6 shows, there is a close connection between movements in bank assets and movements in real M2. Moreover, looking back to Chart 2 reveals that the trends in bank lending to the private sector behave similarly to the trends in real M2. Thus, the deficit may have affected bank assets (including loans to the private

[17] Bailey (1956) provides further discussion of the inflation tax.

[18] Cagan (1956) provides further discussion of the influence of inflation on money demand. More recently, Brock (1989) argues that government may use the required reserve ratio to increase the demand for currency and therefore to extract a greater amount of revenue from the inflation tax than would be possible in the absence of reserve requirements.

sector) through the effect of the deficit on real money demand.

Conclusion

The large government budget deficit in Mexico had a major impact on the country's financial system. Because a significant fraction of the government's budget deficit was financed through money creation, the deficit caused a high rate of growth in the money supply and, hence, produced high inflation. Even after monetizing part of the deficit, the government's need for funds remained massive. Much of this need was satisfied through the commercial banking system, resulting in stagnation in bank lending to the private sector.

The banking system was used to help finance the government's budget deficit in many ways. Selective portfolio restrictions, reserve requirements, and liquidity coefficients created an artificial demand for the government's debt by the banking system. Second, interest rate restrictions hampered banks' ability to compete for funds, and because these restrictions made government debt more attractive relative to bank deposits, they also may have helped reduce the government's borrowing cost. Finally, the reduction in money demand induced by the inflation tax made it more difficult for banks to raise funds, further depressing the growth in banks' assets.

The cut in the deficit reduced the government's need for funding, allowing for reductions in the rates of money growth and inflation and for a restructuring of the banking system. On the regulatory side, the reduction in interest rate controls and the near elimination of reserve requirements and liquidity coefficients improved banks' ability to compete in the financial markets. On the fiscal side, the elimination of the government budget deficit that resulted from sharp reductions in government spending and modest increases in tax revenue helped shift the focus of the banking system from public to private lending. Moreover, the reduction in the deficit and the accompanying reduction in the rate of money growth led to a reduction in the inflation tax, which contributed to an improvement in banks' lending capacity.

The close connection between the deficit and the government's treatment of the banking system stemmed, at least in part, from the government's attempts to finance its deficit through the banking system. As the deficit was approaching its highest levels, the banking system was subject to numerous restrictions that may have been intended to reduce the government's borrowing cost but that had the unintended effect of crippling bank lending to the private sector. In the new policy regime that followed the 1987 reform, the deficit was eliminated, the restrictions on the banking industry were reduced, and lending to the private sector flourished.

The linkage between the deficit and the banking system in Mexico highlights an important, but perhaps underappreciated, effect of deficits. The high deficit may have contributed to the adoption of bank regulatory policies that had the undesirable side effect of suppressing bank lending to the private sector. Eliminating the deficit made it easier for the government to reform its bank regulatory policies, thus improving banks' ability to lend to the private sector.

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