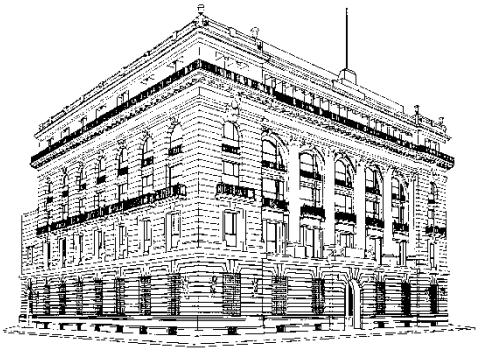
Financial System Report

2007



BANCO DE MEXICO

MAY, 2008

BOARD OF GOVERNORS

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FOREWARNING

Unless otherwise specified, this document has been drafted using information available as of May 31, 2008. Figures are preliminary and may be revised. The Gross Domestic Product figures given in this Report have been calculated using the 2003 methodology.

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1. Introduction

This report covers the period from January 2007 through May 2008. During this time, a substantial segment of the international financial system was hit by a severe crisis. The impact of this crisis on emerging economies, in particular Mexico, has been relatively moderate. However, the last few months have witnessed a drop in the US economy's growth rate and increased inflationary pressure. As a result of this, the risk of a contagion effect on emerging economies and Mexico has intensified.

The extent and the length of US economic slowdown will depend to a large degree on the reaction of consumers in that country to the drop in the value of their homes due to the collapse of the mortgage market.

In the last few years, the US economy has shown that it is both flexible and capable of recovering from the crises that have taken place. The current crisis, however, was preceded by a long period, without precedent in US economic history, of growth in credit and consumption levels. It is now clear that it will take some time to correct the imbalances caused by this period of growth, such as the high current account deficit or low savings levels.

The situation has been further complicated by the substantial energy and grain price hikes. The risk of a contagion effect in credit markets that have so far remained unscathed, such as Mexico, remains. This situation stands in sharp contrast to the favorable external situation enjoyed by our country's financial system in 2006 and most of 2007.

The second section of this document examines the external and domestic environment, in particular the international financial crisis and its possible impact on emerging economies. The third section analyses the sources and uses of funds in the Mexican economy and looks at the financial position of households, firms and the public sector. The fourth section explores the evolution of the debt, foreign exchange, and derivatives markets during the period in study.

The fifth section analyzes the profitability and solvency of commercial banks. Particular attention is paid to the differences found between the six main banks, medium-sized banks and small banks, the small subsidiaries of foreign banks (SSFB) and banks associated with commercial chains (BACC). It also includes an explanation of the main characteristics of the capitalization rules in force as of January 2008 and which include the Basel II guidelines. This section also includes an analysis of the credit, market, liquidity, contagion and legal risks faced by the banking sector. It concludes with a brief look at the regulatory changes made to promote inclusion in the financial system of the population apart from the banking services, as well as to promote the availability and disclosure of information.

The sixth section includes an analysis of Afores (Pension Fund Managers) and insurance companies, while the seventh section outlines the main changes made in large value and small value payment systems. The report then ends with some conclusions.

The purpose of this report is threefold: firstly, to look at the changes taking place in Mexico's financial system and the risks it now faces; secondly, to analyze its evolution and solvency and, thirdly, to fulfill Banco de México's commitment to promote a well-informed debate on financial matters. Because of this, the text includes a series of concept and methodology definitions, so that non-specialist readers can understand it more easily.

2. International and Domestic Economic Environment

This section looks at the evolution of the international and domestic economic environment throughout 2007 and the first quarter of 2008, paying particular attention to the development of the crisis still affecting world financial markets and its impact on the world economy and the Mexican economy.

2.1. International economic environment

In 2007 the world economy grew steadily and was a major contributing factor to the growth of emerging economies. But this growth lost momentum in the advanced economies as the year went on, especially in the United States, where the Gross Domestic Product (GDP) growth rate dropped from 2.9 percent in 2006 to 2.2 percent in 2007. This slowdown became even more marked in the last quarter of 2007, which witnessed a considerable fall in the growth rate.

The difficulties experienced in the real estate market spread to the rest of the US economy. This meant that the annualized GDP growth rate for the first quarter of 2008 stood at 0.9 percent. During the second quarter, real consumer spending fell due to rising unemployment, greater credit restrictions and the worsening financial situation of the general population caused by the real estate crisis. Furthermore, in May consumer confidence (University of Michigan) reached its lowest levels since June 1980. This, combined with the trends revealed by indicators such as employment, purchase orders for capital goods and timely information on real estate investment, suggest continued economic weakness during the second quarter of this year.

In 2007, the Euro Zone's economy grew at a faster rate than the US economy. While the region grew solidly in the first quarter of 2008, analysts are forecasting a slowdown for the rest of the year. The Japanese economy, on the other hand, had been slowing down since the second quarter of 2007 but picked up substantially towards the end of 2007 and in the first quarter of 2008. Even so, analysts are predicting a major growth rate drop due largely to decreased investment in real estate and the adverse effects of high energy prices.

Economic growth in some developing countries such as China, India and Russia was strong in 2007 and in the first few months of 2008, making a major contribution to overall GDP growth. Growth in other regions such as Latin America and Africa has been boosted by the high prices of their exports and increased domestic demand, and has helped offset the dwindling growth rates of the advanced countries.

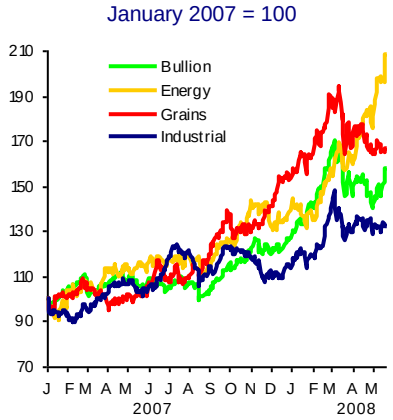
The price hikes in food and commodities, especially energy (Graph 1a), in 2007 added to the heightened inflationary pressure worldwide. Throughout 2007 and in the first five months of 2008, oil prices have risen sharply due to growing demand and supply restrictions. Demand for hydrocarbons has been boosted to a large degree by the continued growth of emerging economies.

Supply conditions have been affected by adverse geopolitical and weather-related circumstances, among other things. Crude oil price trends have also been affected by the depreciation of the dollar, lower interest rates and

increased inflationary pressure in the United States, and deteriorating credit conditions all over the world.

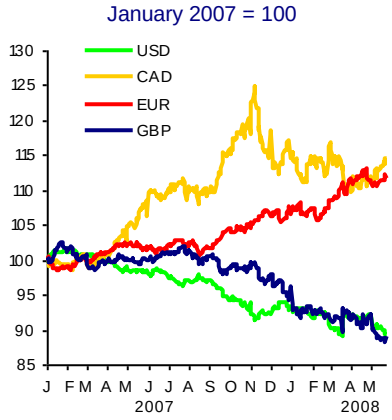
Graph 1
Raw Material Prices, Exchange Rates, and Stock Market Indices

a) Raw Material Price Indexes



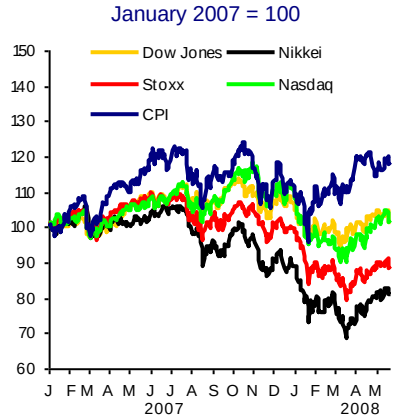
Figures as of May 2008.
Source: Bloomberg.

b) Real Effective Exchange Rate Index[1/]



Figures as of May 2008.
Source: Bloomberg.
1/ A drop (increase) in this index means depreciation (appreciation) of the currency in question.

c) Stock Market Indexes



Figures as of May 2008.
Source: Bloomberg.

General consumer inflation in the United States showed a marked upward trend in the second half of 2007. This was due mainly to upward pressure generated by energy and food prices, as well as the effect of the depreciated dollar on import prices. General consumer inflation therefore remained high in this country during the first four months of 2008. Inflation in the United States is expected to drop slightly over the coming months, however, due partly to the economic slowdown. But a substantial degree of uncertainty remains over what prices in this country will do in the future.

In the Euro Zone, general consumer inflation has increased since the second half of 2007, peaking at 3.6 percent in March 2008 - the highest level since 1993 - although by April it had dropped to 3.3 percent. General consumer inflation in Japan, which had been close to zero throughout 2007, rose in March to reach an annual rate of 1.2 percent.

In 2007 the US dollar was subject to repeated depreciation due to three factors: reduced economic growth in the US, the country's persistent high current account deficit and reduced interest rates. All of this meant that the real effective dollar exchange rates, both in general terms and for the main currencies, were close to historical lows as of May 2008 (Graph 1b).

Forecasts tend to agree that advanced economies will achieve lower growth rates in 2008 and 2009, as reflected in the world's main stock markets (Graph 1c). Growth in emerging economies in 2008 is also expected to slow down, albeit maintaining high levels. Inflation expectations for 2008 have been revised and now forecast higher levels than previously anticipated for both the advanced and emerging economies. In some cases, like Russia and China, the difference between initial and current expectations has been substantial.

The international financial crisis

As has already been mentioned in this report, as of June 2007, a large segment of the international financial market was hit by a severe crisis. The trigger was the increased rates of delinquency affecting lower quality mortgages known as subprime[1] (see Glossary in Box 1) in the United States.

The crisis led to a substantial increase in risk aversion by lenders and investors, especially in developed countries, and has had three detrimental effects: it has generated significant losses for different financial institutions, made credit more expensive and led to revised forecasts predicting lower economic growth rates for a large number of countries. These developments have, in turn, brought about substantial drops in the world's most important stock markets. This phenomenon is itself the result of the following factors:

i) A prolonged period of low real interest rates and abundant liquidity in world financial markets, which made lenders and investors more willing to take risks.

ii) Financial innovations that have led to the segmentation and distribution of financial risks.

iii) A sharp rise in credit, especially in the United States, through the securitization of assets using investment vehicles not subject to banking regulation and supervision.

iv) An unprecedented boom in the US housing sector, especially with resources from abroad.

v) Excessive fragmentation in the supervision of the country's financial agencies.

The overall effect of these factors, especially the securitization of credit portfolio, and the resulting ability of the loan originators to pass on their entire credit risk, led to the easing up of the standards used for granting credit. This was particularly the case for mortgages.[2] In other words, the problem was created by the approval of mortgages with lower down payments to borrowers who had to satisfy less stringent requirements. Furthermore, credit was also being granted at interest rates lower than market levels, but adjustable with time.[3] Expectations that house prices, and hence the value of loan guarantees, would carry on rising encouraged many borrowers to carry on honoring their obligations.

In brief, the securitization of credit portfolio and other assets led to a sharp rise in credit, especially for housing. The banks and other financial institutions, mainly in the United States, created special investment vehicles[4] to remove mortgage portfolio from their book balances, as was the case for a range

[1] These mortgages account for around 15 percent of total mortgages in the United States and 20 percent of the mortgage loans granted in 2006.

[2] Credit granting standards were eased up mainly in the US mortgage sector in the so-called *subprime* mortgages, but also in home and company loans.

[3] These interest rates are known as *teaser rates*. It is estimated that interest rates will be increased on more than 450 billion US dollars of mortgage loans in 2008.

[4] These vehicles include the *conduits*, SIV or SPV (see Box 1). In Mexico they are normally created through trusts.

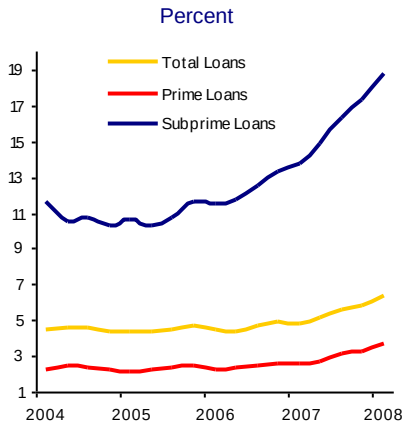
of other financial assets (Box 2). It was therefore estimated that, as of June 2007, the value of securitized assets through special investment vehicles in the United States stood at approximately 400 billion US dollars.[5]

These special vehicles were designed specifically with characteristics intended to improve the credit rating of the securities issued. Rating agencies and investors believed that these securities, especially the ones with higher ratings, would be suitably protected against moderate deterioration of the assets backing them, particularly if the assets in question consisted of portfolios with different risk profiles. Yet rating agencies and investors alike underestimated the degree of exposure of these financial structures to common risks, such as the general deterioration of housing portfolio or of households' ability to pay.

Unlike anything seen in recent times, financial innovation made it possible to segment and spread out risks through financial products. The development of credit derivatives also permitted enhanced leverage (Box 4) for financial entities, especially non-bank, by facilitating risk negotiation and hedge. Nonetheless, the widespread use of credit derivatives, investment vehicles and structured products has been partly responsible for blurring financial information and has led to risk concentrations that are difficult to identify and quantify. As a result, the delinquency rate in subprime mortgages in the United States, especially the ones based on adjustable interest rates, began to worsen in early 2005 (Graph 2a). Furthermore, the upward trend in the value of housing in the country reverted after reaching a historic peak in early 2006 (Graph 2b).[6]

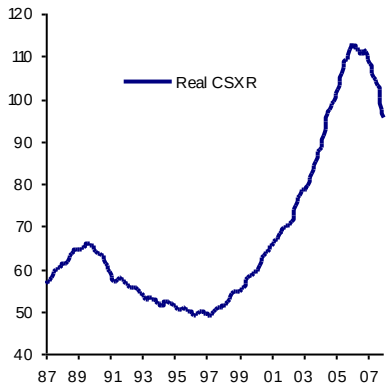
Graph 2
US Mortgage Crisis Indicators

a) US Mortgage Portfolio Delinquency Rate



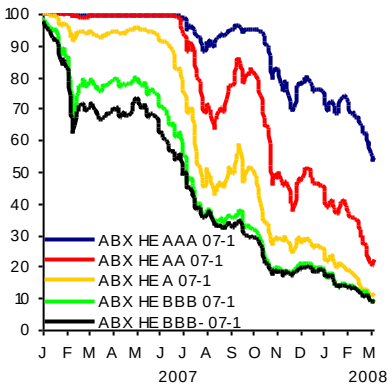
Figures as of March 2008.
Source: Bloomberg.

b) Case-Shiller US Home Price Index (CSXR)[1/]



Figures as of February 2008.
Source: Standard & Poors.
1/ CSXR compound index deflated by the consumer price index.

c) Price Indices of Mortgage-Backed Securities Obtained from Credit Default Derivative Indices (ABX)



Figures as of March 2008.
Source: Credit Suisse.

[5] International Monetary Fund (2007), "Global Financial Stability Report. Containing Systemic Risks and Restoring Financial Soundness".

[6] An 86 percent increase in real terms compared to 1998.

At the time, the financial markets were not paying much attention to these phenomena until some financial entities began disclosing their losses[7] and the rating agencies embarked upon a series of reviews that lowered the credit ratings of structured products with subprime mortgages. These developments led to major drops in the prices of mortgage-backed securities (Graph 2c) and of other securities deemed by the market to entail a similar degree of risk. This was indeed the case of asset-backed securities (see Box 1) and notes issued to finance acquisitions.

[7] The pressure that international financial markets were being subjected to became evident as from August 2007, when the one-day London Interbank Offered Rate (LIBOR) in the United Kingdom increased by more than 50 basis points on the previous day. This was apparently triggered by the announcement of a European bank that it would be closing three of its investment funds in view of its inability to value underlying assets. The one-day LIBOR rate is a reference for a very large volume of consumer and commercial credit. In addition, the six-month LIBOR rate is the reference rate for a large amount of subprime loans.

Table1

Glossary

ABCP *"Asset-Backed Commercial Paper".* Short term asset-backed debt securities, often subject to longer maturities. These securities are usually issued to cover short term financing needs.

ABS: *"Asset-Backed Securities".* These securities are usually backed by future flows derived from payments by credit cards and car loans, among other things.

ABX: *"Asset-Backed Securities Index".* This index comprises CDS's associated with twenty subprime -backed ABS's.

Alt-A: Mortgage loans granted to people whose characteristics would afford them a reasonable credit rating but who fail to produce all the necessary documents.

ARM: *"Adjustable-Rate Mortgage".* This is a type of mortgage for which the initial interest rate is fixed and very attractive for the lender, but after a time it is adjusted to become variable or floating.

ARS: *"Auction-Rate Security".* Debt instruments with long term maturity whose interest rate is determined through an auction. The term may also refer to preferred shares whose dividends are determined by the same process.

CBO: *"Collateralized Bond Obligation".* Bond-backed debt securities.

CDO: *"Collateralized Debt Obligation".* Debt securities backed by portfolios consisting of different assets such as bonds, loans, mortgage-backed securities, etc. CDO's are issued with different priority levels; e.g., preferred, subordinate, etc. A specific yield corresponds to each priority level, depending on the risk of default.

CDO *square:* Debt securities backed by a portfolio comprised by CDO's with different priority levels.

CDS: *"Credit Default Swap".* Financial agreement in which one of the parties (hedge buyer) undertakes to make periodic payments to the hedge seller as consideration for the payment of a sum or premium if a certain, previously-defined event were to take place affecting the credit rating of the underlying asset.

CLO: *"Collateralized Loan Obligation".* Corporate credit-backed debt securities.

CMBS: *"Commercial Mortgage-Backed Securities"* In financial practice, they are considered part of the MBS's.

***Conduits*:** Investment companies financed via the issuance of short term debt securities and may buy securitized assets. Most are sponsored by banks that issue credit lines guaranteeing 100 percent of the underlying asset.

CMO: *"Collateralized Mortgage Obligation".* Mortgage-backed debt securities with a similar structure to a CDO.

DJ CDX: *"Dow Jones Credit Derivative Index".* Index associated with the performance of a credit derivative portfolio of US and emerging country companies.

FICO: *"Fair Isaac Corporation Score".* Credit rating used to assess the solvency of parties in the US based on credit history information.

MBS: *"Mortgage-Backed Securities".* There are two types of MBS's: residential (RMBS) and commercial (CMBS).

Monoline: Financial insurer that sells guaranties on the payment of given bond segments, and which may guarantee a whole issue and transmit its credit rating to the security.

OIS: *"Overnight Index Swap".* This is an interest rate swap in which the one-day bank interest rate is exchanged for a fixed rate.

RMBS: *"Residential Mortgage-Backed Securities".* These securities are considered part of the MBS's.

SPV: *"Special Purpose Vehicle".* Also known as Special Investment Vehicle (SIV). The purpose of these vehicles is to acquire assets using funds from the issuance of debt securities. Unlike the Conduits, only the assets in the vehicle back the issue of securities, although they may have partial guaranties granted by the originator or a monoline.

***Subprime*:** Mortgage loans granted to people with low credit ratings.

SWF: "*Sovereign Wealth Fund*". Government investment funds intended to maintain long term investments in fixed assets. They usually obtain their funds through international reserves or from tax surpluses.

TOB: *"Tender Option Bond".* These grant the holder the right to request the repurchase of the bond from the security issuer, usually on a par level, in a given period prior to security maturity.

VIX: *"VIX - CBOE Volatility Index"* Measures the volatility of options traded on the Chicago Board Option Exchange. This index measures expected 30-day volatility in the stock market or implicit in options contracts on the S&P500 index.

Box 2

Asset Creation and Distribution through Investment Vehicles

Asset securitization is the sale or alienation of assets (real estate, collection rights, credit portfolios, etc.) to an investment vehicle[1] that, in turn, issues debt to finance the acquisition of said assets.

Securitization makes it possible to turn low liquidity assets into financial assets that can be traded on the stock markets. This procedure facilitates risk segmentation and distribution among investors with different appetites for risk.

The diagram below gives an explanatory outline on how asset creation and distribution through investment vehicles work. The financial institutions that originate credit (originators) -which, in the case of Mexico, include banks, Sofoles and Sofomes- pool and sell assets and credit portfolios to an investment vehicle (vehicle) in order to remove these assets from their balance sheet.

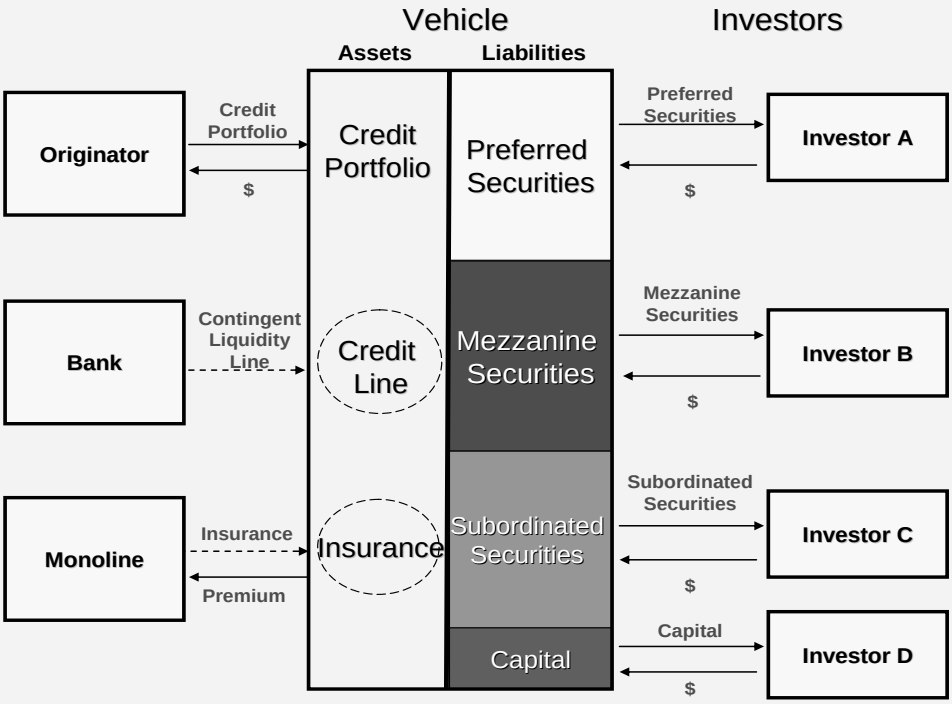
The purchase of assets is financed by vehicles through the issuance of securities with different priority levels. So, for instance, investors with greater aversion to risk (investor A) will only be willing to acquire debt with the highest priority (preferred commercial paper). Other investors will be willing to acquire debt with a lower priority level but which offers a higher yield (mezzanine commercial paper).

There are also investors who are willing to take on a higher credit risk in exchange for an even higher yield (investor C), who therefore acquire subordinated commercial paper.

In securitization, the value of assets is often higher than that of the paper issued. This difference is known as collateral security margin or equity. Holders of equity-backed securities will only collect when the rest of the obligations issued by the vehicle have been settled.

Vehicles often have liquidity lines for dealing with the maturity of their liabilities while new securities are issued. These lines are provided by the banks. Lastly, monoline insurers provide insurance covering the payment of credit in the event of borrower default. This insurance guarantees a proportion of any losses incurred by the vehicle assets.

The securities issued by the vehicles are assessed by credit rating agencies. Ratings are granted in accordance with the credit quality of the assets that are part of the vehicle's portfolio, as well as its equity.



1. Vehicles are special purpose entities. In Mexico this is usually a trust.

The drop in asset-backed securities prices, including those of securities with a high credit rating, prompted investors to question the efficiency of the rating agencies and the models they and financial entities had been using to value structured securities.[8] These doubts (Box 3) and the growing difficulties involved in obtaining market prices led to a substantial drop in the demand for asset-backed securities, in turn provoking bigger price adjustments. The US asset-backed commercial paper market was particularly affected (Graph 3a).

Impact on liquidity

As from August 2007, liquidity in the interbank markets decreased notably for the following reasons:

i) Lower demand for asset-backed securities has hampered the refinancing of short-term liabilities of investment vehicles. This forced banks to finance them or commit themselves to credit lines to provide greater liquidity.[9] The banking sector has reacted in a number of ways to overcome the difficulties faced by its vehicles. Some banks opted for the repurchase of previously securitized assets, while others decided to provide them with greater liquidity, and a few just left them to chance. The purchase of assets and the use of credit lines exerted pressure on liquidity.

ii) The collapse of the asset-backed security market (CDO and ABS) has highlighted the impossibility in practice of performing new securitizations, as well as the need of certain banks to acquire assets securitized beforehand. These measures led to a considerable increase in the size of international bank balances (Graph 3b) and, as a result, in the need to finance this growth.

iii) The need to obtain additional funds to deal with "margin calls"[10] (Box 4) derived from the falling value of collateral provided with asset-backed securities.[11]

iv) Heightened counterparty risk perception due to uncertainty regarding the losses that other financial entities may have incurred.

v) The precautionary accumulation of liquidity on the part of financial intermediaries.

[8] Structured securities do not always have a reference price derived from transactions performed in the secondary market, and their valuation therefore often depends on theoretical models. Theoretical models are very sensitive to suppositions made regarding the behavior of the underlying assets of the structured security to be valued (e.g. the expected credit default rate, the frequency and amount of prepayments, etc.).

[9] The banking sector underestimated the risks it faced on financing these vehicles (reputational risk) or granting credit lines (liquidity risk).

[10] "Margin calls" is the term used by financial markets for the requirements for providing additional collateral by the counterparty in a financial transaction.

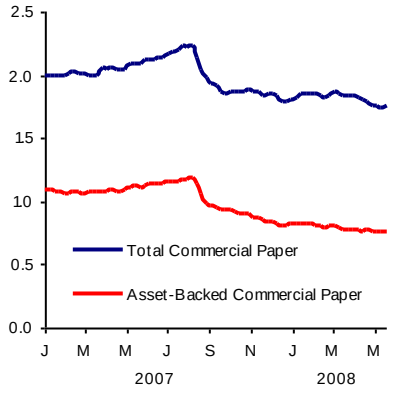
[11] "Margin calls" due to collateral value losses have become increasingly important, giving rise to fears of a similar situation to the one that arose during the crisis in the Long Term Capital Management (LTCM) investment fund, when the Federal Reserve coordinated a number of private banks to prevent the mass sell-off of assets by this fund because of the inability to meet the "margin calls".

These phenomena eventually led to a sharp drop in interbank market liquidity, as well as interruptions in the workings of many financial markets. As a result, spreads between interbank interest rates and government security rates, for one-day and other maturity period transactions, rose substantially in several countries (Graph 3c).

Graph 3
Commercial Paper and Liquidity Indicators

a) Amount of Commercial Paper Outstanding in the United States

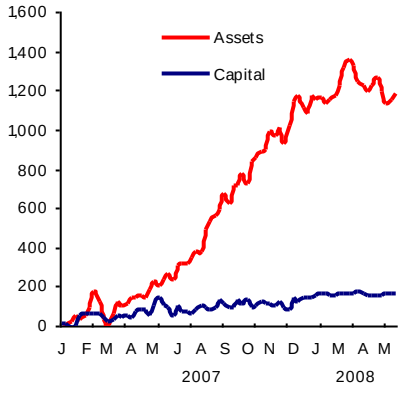
Trillion US dollars



Figures as of May 2008.
Source: Federal Reserve.

b) Change in the US Commercial Banking Asset and Capital Level

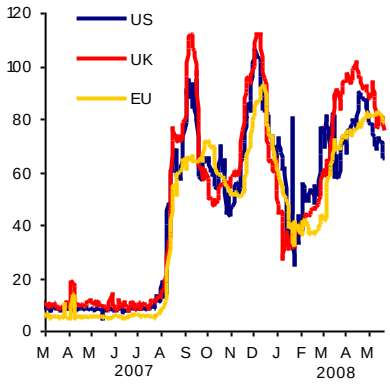
Billion US dollars



Figures as of January 2008.
Source: Federal Reserve.

c) Spread between Three-Month LIBOR and the Overnight Indexed Swap (OIS) Rate

Basis points



Figures as of May 2008.
Source: Bloomberg.

Uncertainty over the losses incurred by financial entities prompted many to stop providing their counterparties with liquidity. This situation led to a sharp rise in the cost of funds obtained from the interbank markets.

Some financial entities have encountered difficulties in dealing with “margin calls”, forcing their counterparties to sell off assets received as collateral. Such events have exerted further downward pressure on the value of financial assets, increasing their price volatility and triggering an upward spiral in “margin calls”.

Box 3

Rating Agencies

Rating agencies specialize in assessing the credit risk of securities issued by financial institutions, firms and governments. The credit rating process analyzes the financial capacity of issuers to comply with their obligations. The decision to invest in a given asset is taken bearing in mind the expected risk-adjusted yield. Rating agencies make an important contribution to the mitigation of costs faced by investors when they analyze credit risks inherent to each of their possible investments on their own account. There are around 130 rating agencies worldwide.[1] However, there are also many markets with a very small number of agencies. The income of these agencies comes from the fees they charge issuers for rating their securities (this accounts for around 75 per cent of their income).[2]

Rating scales vary for different types of financial instruments. The most frequently rated instruments in the market are bonds, but instruments like commercial paper, preferred shares, certificates of deposit, as well as others, also have their own rating scales. In some countries, agencies set national scales in addition to the global ones.

Long term bond ratings generally range from AAA (Standard & Poor's and Fitch) and Aaa (Moody's), to C (Moody´s) and D (Standard & Poor's and Fitch). AAA and Aaa ratings indicate a very solid payment capacity on the part of the issuer. C and D, on the other hand, denote a very high degree of risk in which the issue value is often no higher than the return value in the event of winding-up or suspension of payments.

Basle II and rating agencies

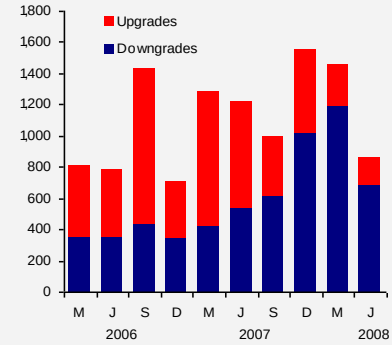
In January 2001, the Basle Committee on Banking Supervision issued a document called "The New Basle Agreement on Capital Adequacy", which highlighted the role of rating agencies in calculating regulatory capital and, hence, making it more risk-sensitive.[3] The document also noted that, according to the standardized method, bank risk exposure weightings must be based on the credit ratings of their counterparties.

The role of rating agencies in the financial crises

One of the main challenges facing rating agencies takes the form of late financial market deterioration predictions. There are cases all over the world in which agencies warned investors against risky positions. Examples of this include the 2001 crisis in Argentina, the increase in Japanese government debt and the drop in US telecom industry ratings. There have also been numerous other cases in which the actions of rating agencies have been controversial. One such case is the crisis in Asia in 1997 and, more recently, the US mortgage crisis.

During the recent mortgage crisis, in June 2007, the investment bank Bear Stearns announced losses in its two coverage funds. These funds had invested in mortgage-backed securities. Increasingly delinquency among housing loan borrowers led to a drop in the value of these securities, but it was not until mid-July that the rating agencies lowered the securities' ratings.

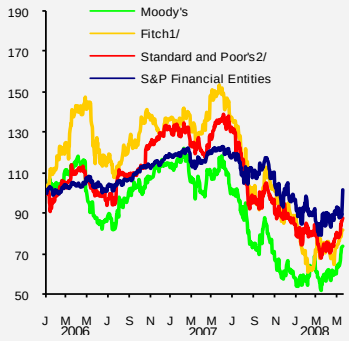
Securities Rating Changes in the United States[1/]
Number of changes



1/ Standard & Poor's, Moody's and Fitch are taken into account.
Source: Bloomberg.

Ratings were modified again after the suppositions applied to the securitized credit delinquency rates were revised. A large proportion of the loans had been granted to people without a solid credit history (*subprime*). But this was not taken into account by the rating agencies when they issued their ratings. The securities issued were backed by assets that varied widely in terms of quality. Yet the rating agencies considered that the suppositions applied to the delinquency rates allowed these securities to be rated AAA. A review of these suppositions, as a result of increasing mortgage loan delinquency, led to major ratings drops as of June 2007, which was after the onset of the housing loan crisis.

Shares by rating agency (January 2006=100)



1/ Shares by Fimalac in the French Stock Exchange.
2/ Shares by McGraw Hill, holding company of Standard & Poor's.
Source: Bloomberg.

Reliability of rating agencies

The controversial performance of rating agencies during the financial crises, especially the most recent one, has raised doubts on the reliability of their ratings. The main reasons include the following:

- Conflicts of interest: i) ratings are paid by the issuers of assets rather than the investors; ii) rating agencies perform a dual role, acting both as consultants and as providers of ratings.
- The sensitivity level of the models used to assess complex financial instruments. Recent estimates by the Bank of England reveal that a minor change in the assumptions of the model commonly used by banks to assess mortgage-backed debt can give rise to 35 per cent variations in the implicit price of a low risk-rated asset.
- The confusion generated by the scales used by rating agencies to assess structured products. While the methodology used to calculate the credit risk of structured products was very different from the one used for traditional bonds, the classification system and measurements used were the same.

  Furthermore, for each type of bond, the rating agencies used different scales with "idealized suspension of payments rates" for each rating. This means that, for a given rating, the idealized suspension of payments rate regarding a municipal bond is lower than the idealized rate for an ABS, which, in turn, is lower than the rate for a CDO. For example, Nomura Securities shows that if an AA+ rated ABS is pooled and then called CDO, its rating will then become AAA because the CDO has a higher idealized suspension of payments rate than the ABS.[4]
- Ratings refer to a single element: credit risk. While agencies consider themselves responsible exclusively for assessing credit risk, investors expect ratings to cover all risks. In Mexico, investment companies are required to have one rating for credit risk and another for liquidity risk.
- The lack of a market-based regulatory mechanism. Regulatory frameworks for institutions limit investments as they are based on investment criteria supported by the rating (e.g., Investment Companies Specializing in Retirement Funds in Mexico can only invest in non-government securities with a minimum rating of AA-).

  On the other hand, according to the regulatory structure of Basle II, risk-adjusted regulatory capital is based on ratings. This means that the regulations described create inelastic demand for the services of rating agencies. This inelastic demand, along with the existence in some markets of a limited number of rating agencies, has had a detrimental effect on the reputational costs that the market may define.[5]
- There is no accountability, as rating agencies are not legally liable for their errors.

Rating agencies in Mexico

In Mexico, the total value of issues assessed by rating agencies comes to 438 billion pesos. AAA rated issues account for a very large proportion of this total. For example, 92 per cent of securities placed by the public sector, 91 per cent of Borhis and 100 per cent of Cedevis have this rating.

In contrast to events in the United States, rating agencies in Mexico did not lower ratings for a large number of securities between June and December 2007. In fact, many of these ratings were actually increased.

Many of these increased ratings were provided to commercial banks and bonds issued by the public sector. Commercial bank ratings benefited from their satisfactory results and the low degree of exposure of this industry to US subprime-backed securities. The ratings of public sector bonds improved due, among other things, to tax reforms, the international reserve levels of Banco de México and low public sector debt levels.

The ratings of certain debt securities issued in Mexico have fallen. This is the case of debt securities issued by financial sector companies that grant housing and consumer loans. However, the lowering of these ratings was due to the reduction in the credit ratings of the organizations that own the issuing firms or in the monoline insurers, and not owing to a change in the solvency of the issuing companies themselves.

Mexican Security Rating Upgrades and Downgrades in 2007 and 2008[1/]

Sector	Upgrades	Downgrades
Financial Services	20	9
Industrial	15	10
Public Sector	15	1
Telecom	6	0
Real Estate	2	2
Other	8	3
Leisure	4	1

1/Figures as of May 2008
This includes the ratings of: Moody's, Standard and Poor's and Fitch.
Source: Bloomberg.

1. Basel Committee on Banking Supervision (2000), "Credit Ratings and Complimentary Sources of Credit Quality Information", *BIS*.
2. Sinclair, T. (2005), "The New Masters of Capital", *Cornell University Press*.
3. Minimum regulatory capital stands at 8 per cent of risk-weighted exposures. This means that a risk for an amount of 100 with a weighted risk of 100 per cent requires a minimum capital of 8, while the exposure of the same amount with a weighted risk of 150 per cent would require a minimum capital of 12 per cent (1.5 x 0.08).
4. Einhorn, D. (2007), 17th Annual Graham & Dodd Breakfast Speech.
5. The participation of certain rating agencies (Standard & Poor's, Moody's and Fitch) in Europe and the United States for the purposes of calculating regulatory capital requirements could pose a barrier against new companies entering the market. In September 2006, the US Congress approved the Credit Rating Agency Reform Law, which creates a more flexible procedure for the entry of new participants, introduces more formal monitoring of agencies and prohibits the US Securities and Exchange Commission from regulating the processes and methodologies used to determine ratings. The European Commission establishes scant measures for monitoring rating agencies, but recent instability has encouraged a more proactive approach. The European Commission has asked the Committee of European Securities Regulators to review the ratings processes used for structured products.

The lack of liquidity in interbank markets made a number of central banks react with large cash injections. Additionally, in order to make sure these funds reached the parties in need, they modified the mechanisms used for supplying them (Box 5). The main measures taken with this intention include the following:

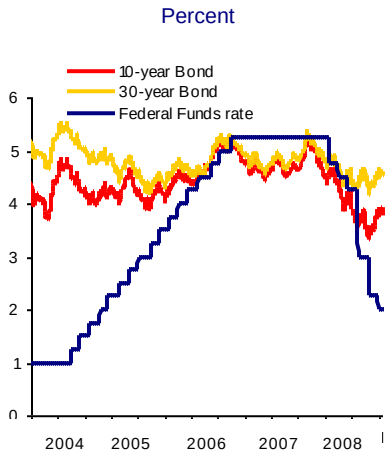
i) The extension of portfolio rediscounting maturities.

ii) An increase in the range of securities acceptable as collateral for such operations. In particular, the Federal Reserve has granted US Treasury securities loans, accepting mortgage-backed debt instruments, among other things, as collateral (Graph 4c).

iii) Making these credit facilities available to more financial institutions.

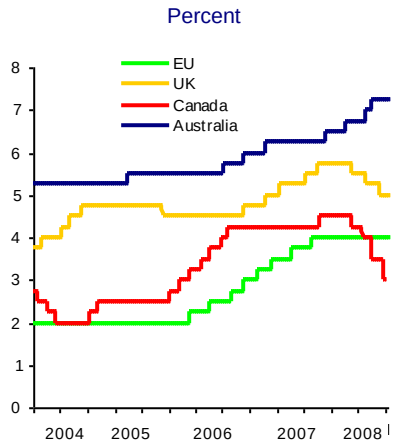
Graph 4
Effects on Financial Institutions and US Dollar Interest Rates

a) US Treasury Bond Yield and Federal Funds Rate



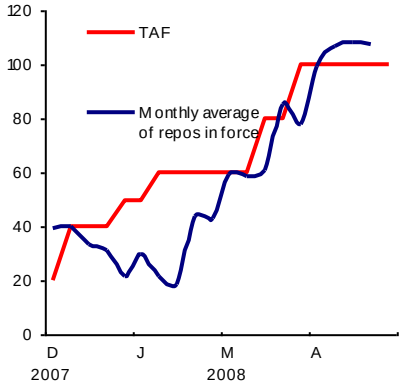
Figures as of May 2008.
Source: Federal Reserve.

b) Monetary Policy Reference Interest Rates



Figures as of May 2008.
Source: Bloomberg.

c) Federal Reserve's Liquidity Facilities: TAF[1/] and Repos



Figures as of April 2008.
Source: Federal Reserve.
1/ *Term Auction-Facilities* (TAF): refers to liquidity auctions by the US Federal Reserve.

In addition to the abovementioned steps taken by the central banks to deal with the liquidity crisis, some of these institutions implemented monetary policy measures to mitigate the impact of the financial crisis on the economy. The Federal Reserve and the central banks of the United Kingdom and Canada decided to reduce their reference rates at some point in the period (Graph 4a and b).

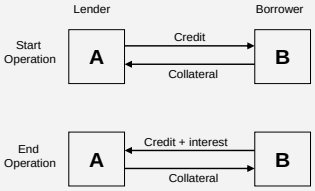
Box 4

Leverage and Margin Calls

Margin calls

In a number of financial operations, the lender must ensure payment of his obligations by providing collateral in favor of the borrower. The purpose of these securities is to reduce the lender's counterparty risk. The amount of collateral required for such operations tends to be greater than that of the operation itself (collateral security margin), depending on the quality of the security, and the volatility of variables affecting the price will give the amount of the collateral security margin. Examples of such operations include repos and futures contracts (Diagram A).

Diagram A
Guaranteed Operation

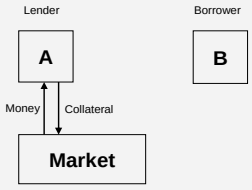


If the collateral value falls or the amount exposed to risk between the counterparties increases, the lender may ask the borrower to provide additional collaterals. This requirement is known as a margin call (Diagram B). Margin calls are basically a demand or request for a compensatory deposit in cash or collateral, whose purpose is to reestablish the initially agreed value of the collateral.

Diagram B
Margin Call

The longer the term of the financial operation or the higher the volatility of risk factors (interest rates, exchange rates, etc.), the greater the likelihood of changes in the value of a collateral. Margin calls may arise as a result of fluctuations in the value of the collateral or due to increased risk factor volatility. The holder of a collateral (the lender in the operation) is usually legally able to settle it if the counterparty fails to honor the margin call (Diagram C).

Diagram C
Default on a Margin Call

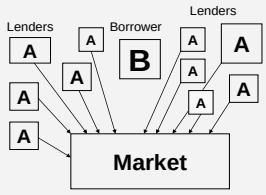


Leverage

Increasing financial intermediation through organizations subject to less stringent regulations than the banks and, hence, with greater leveraging capacity, has increased liquidity risks. These intermediaries, which include investment banks and hedge funds, finance their assets through repose and security-backed interbank loans. They also participate actively in the derivatives market.

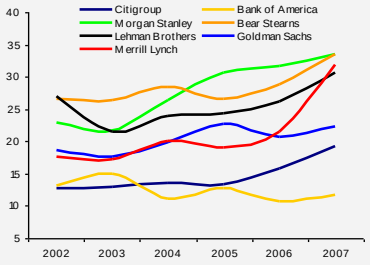
When sudden movements occur that significantly affect the collateral value or exposure to risk between the counterparties, certain institutions with a very high level of leverage and a large amount of collaterals may no longer be able to deal with their margin calls. Under such circumstances, lenders must settle these collaterals (Diagram D).

Diagram D



This inability to deal with margin calls for a highly leveraged institution under adverse market conditions is directly linked to its degree of indebtedness. This type of financing strategy is only sustainable over time if new funds can be found in the market as debt maturities occur. If the market fails to provide suitable conditions for this type of renewal, the institution will have to sell other positions and may not have sufficient funds to cover its future obligations. Under such circumstances, it is obvious that margin calls will not be honored.

Leverage Ratio
Assets to capital



Figures as of December 2007.
Source: Bloomberg.

Such was the case of the investment fund *Long-Term Capital Management*[1] (LTCM). The huge losses derived from the crisis in Russia and the use of a credit line to cover a margin call made its lenders question the fund's ability to honor subsequent "margin calls". The degree of leverage of the LTCM was such that a mass sale of its securities would have brought its market value down, forcing other investors that had used similar securities to deal with margin calls, thereby compounding the initial effect. The settling of the securities could have had systematic consequences.

In view of this threat, the New York Federal Reserve helped coordinate a number of private banks to solve the predicament faced by LTCM and avoid the chaotic settlement of its operations. The margin call that, in September 1998, triggered the fall of LTCM was made by Bear Stearns, which suffered the same fate in March 2008.

1. Jorion, P. (2000), "Risk Management Lessons from Long-Term Capital Management", *European Financial Management*.

Box 5

Modifications to Federal Reserve's Liquidity Facilities

In response to the growing deterioration in financial market conditions, the Federal Reserve has taken several steps to provide liquidity to financial markets, especially the interbank market.

The first set of measures focused on modifying the stance of monetary policy and improving the functioning of the discount window[1]. It also implemented three new facilities aimed to ease pressure on term money markets (see table):

1) Term Auction Facility (TAF);

2) Term Securities Lending Facility (TSLF)[2], and

3) Primary Dealer Credit Facility (PDCF)[3].

The lack of liquidity in the interbank dollar market affected the activities of foreign currency swaps, which, in turn, made it difficult for European financial institutions to obtain dollar-denominated credit lines. In December 2007, the Federal Reserve Bank established foreign currency swap agreements with the European Central Bank and the National Bank of Switzerland in order to allow the European banks to obtain liquidity in dollars.

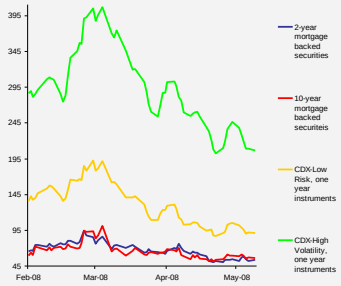
At the moment it is not possible to make a conclusive evaluation of the effectiveness of these measures, however, there are signs that show that they have helped improve conditions in the financial system:[4]

- There has been a notable decrease in the problem of stigmatization associated with the use of central bank liquidity, as the number of banks participating in the 11 TAF auctions has ranged between 25 and almost 90;
- Monetary policy implementation has been simplified, as the level of funds required by banks has become easier to predict, and
- Yield spreads between mortgage-backed securities issued by government agencies and treasury bonds have decreased. The same has happened with the yield spreads of corporate bonds.

However, there is still pressure on the short term fund market, and this is reflected in the spread between the LIBOR rate and rates in OIS (see graph 3c).

Yield Spread between Mortgage-Backed Securities issued by Government Agencies, the CDX Index[5] and Treasury Bonds.

Basis points



Source: Bloomberg

1. The discount window is one of the Federal Reserve's permanent liquidity facilities through which banks can obtain funds against a broader range of collateral than in open market operations. Since 2003, the two main discount window programs are primary credit and secondary credit. Between August 2007 and May 2008, the spread between the primary credit rate and federal funds dropped from 100 to 25 basis points, and the maturity of loans grew to 90 days. For a more detailed description of the mechanisms used by central banks to provide liquidity to the interbank market, see Table 30.

2. On April 21, 2007, the Bank of England announced the creation of a facility to enable banks to exchange high quality financial assets – mostly mortgage-backed and existing as of the end of 2007 – for UK Treasury bonds with the central bank. Assets may thus be exchanged for an initial period of one year, renewable for up to three. Institutions using the program will pay a fee referenced to the three-month LIBOR rate.

3. Primary dealers are credit institutions and broker dealers that trade government securities with the central bank.

4. Bernanke S., Ben, *Liquidity Provision by the Federal Reserve, Federal Reserve Bank of Atlanta Financial Markets Conference, Sea Island, Georgia*, May 13, 2008.

5. CDX indices are referred to a basket of credit default derivatives. A rise in the index reflects credit quality deterioration, while a drop indicates an improvement (Table 1).

	Open Market Operations	Discount window[1/]		TAF	TSLF	PDCF
		Primary	Secondary			
Elegible institutions	Market Makers	Banks	Banks	Banks	Market Makers	
Date of creation and maturity				December 12, 2007. Maturing no earlier than September 2008	March 11, 2008	March 17, 2008. Maturing no earlier than July 2008
Rate	Determined through multiple price auction	Federal Funds plus 25 basis points (May 21, 2008)	Primary Credit plus 50 basis points	Determined through multiple single auction	Determined through multiple single auction	Primary Credit[2/]
Term	One day	Up to 90 days	Short term, usually one day	28 days	28 days	One day
Collateral	Government securities	Domestic and foreign public and private securities. Securities issued by international agencies; asset-backed bonds; commercial, consumer and home loans. They may be in either Mexican pesos or foreign currency.		Same collateral as in discount window	Private and commercial MBS with AAA and Aaa rating, CMOs from agencies not subject to review for lowered rating and the ones accepted in open market operations	Corporate and municipal securities. Mortgage and asset backed securities, and securities accepted in open market operations
Access	Through Auctions	Automatic, at the discretion of the banks	Automatic, with the approval of the Federal Reserve Board	Through Auctions		Automatic, at the discretion of the banks
Amounts	Defined by central bank at each auction	In accordance with collateral		100 billion USD	200 billion USD	In accordance with collateral

1/ Well-capitalized institutions qualify for primary credit, while the ones that fail to satisfy minimum capital levels qualify for secondary credit.
2/ In addition to the rate, institutions that use the facility for over 30 days, will pay a cost for frequent use.

Repercussions on international banks

The heightened perception of counterparty risk increased liquidity risks for companies financing a large proportion of their assets in the money market. The most prominent case in Europe was the British bank Northern Rock, which was subject to a huge run by depositors following the announcement that it was receiving cash support from the Bank of England. The scale of the run forced the country's authorities to intervene and nationalize the bank (Box 6).

In the United States, the refusal of the investment bank Bear Stearns creditors to renew their financing left the Federal Reserve with no choice but to intervene to stop it from becoming insolvent (Box 7). The support provided by the Federal Reserve for an investment bank has brought a whole series of major consequences for financial stability, given that it:

i) Extended the field of operation of a central bank, in its standing as a lender of last resort to financial intermediaries other than commercial banks. This had not happened in the United States since the 1929 crisis.[12]

ii) Raised doubts on the convenience of only regulating financial institutions that obtain deposits from the public; and

iii) It highlighted, once again, the fact that it is very difficult in practice to distinguish between a lack of liquidity and insolvency.

Financial innovation has allowed investment banks and other financial entities to carry out a large number of activities that have traditionally been performed by the commercial banking sector. Investment banks, among others, have taken on an active role in credit markets. But, unlike commercial banks, these intermediaries finance their assets through repo operations or by issuing short term securities, which leaves them exposed to major liquidity risks. Furthermore, their ability to leverage their equity far outstrips that of the commercial banks (Box 4).[13]

[12] See Federal Reserve Board (1932), "Nineteenth Annual Report".

[13] Greenslaw, D. et al (2008), "Leveraged Losses: Lessons from the Mortgage Market Meltdown", US Monetary Policy Forum Conference.

Box 6

The Northern Rock Crisis and Proposed Changes to British Regulations

The Northern Rock crisis

In September 2007, the British bank Northern Rock was subject to mass deposit withdrawals from its branches, a situation that had not been seen in England since 1866. This run was triggered by the announcement that the British authorities were supporting Northern Rock with emergency central bank funds to enable it to overcome liquidity difficulties. The root of the problem was the business model of the intermediary, whose main funding sources were credit securitization and the issue of short term securities. Northern Rock initially obtained its funding through deposits, but since the second half of 1999 a more aggressive growth strategy was implemented in order to obtain more funds.

Liabilities of Northern Rock
(December 2006)
Million Pounds

Customer Accounts	26,867.6
Over the Counter Deposits	22,631.0
Other	4,236.6
Deposits by Banks	2,136.2
Securitized Debt Securities	40,225.7
Covered Bonds	6,201.8
Other Debt Securities	17,866.8
Medium -Term Bonds and Securities	9,228.4
Other	8,638.4
Other Liabilities	4,501.9
Total Liabilities	97,800.0

Northern Rock's share of the mortgage market tripled in just eight years, at the expense of a reduced net interest income (see Multiple Banks section) both in absolute terms and compared with its competitors. Rating agencies pointed out that one of the relative weaknesses of Northern Rock was its liquidity position. However it was in general considered solid, well capitalized bank with a good credit quality mortgage portfolio. It was also assumed that it was not exposed to low quality British debtors (subprime) and had relatively few unsecured loans in its portfolio. The shareholders of Northern Rock tried to sell the bank, in order that the new shareholders recapitalized the bank and paid back the emergency loan granted by the central bank, however these efforts failed. Therefore, and due to the increased use of public funds, on February 21 of that year, the British Parliament approved new legislation enabling the Treasury to issue a decree for the nationalization of Northern Rock and a mechanism to determine shareholder compensation. The decree contemplated hiring a third party to determine the share price on the assumption that all financial assistance provided by the authorities has been withdrawn and that no further assistance will be provided. However, a group of shareholders filed an application for a judicial review of the compensation terms.

Measures proposed by the British authorities

Due to these events, in early February 2008, HM Treasury, the Financial Services Authority and the Bank of England (HMT, FSA and BoE, respectively) drew up a series of proposals to strengthen the country's regulatory framework. The main ones were:

1. Measures to strengthen financial stability

Banks must improve risk management, emphasizing on liquidity management and stress tests. Steps should also be taken to boost the efficiency of the securitized asset markets.

Accordingly, account books of structured products, the role of rating agencies and the transparency of banks with regard to their exposure to off-balance assets must be assessed.

2. Measures to strengthen supervisory functions and role as last resort lenders.

First, an increase in the powers of the FSA to request immediate financial information from banks was proposed. Banks are currently only obliged to submit information to this authority quarterly. Second, modifications were proposed to the granting of emergency funds by the European Bank, so that neither the central banks nor the institution receiving support would be obliged to inform the public of the operation immediately.

3. Measures to mitigate the impact of a bank's bankruptcy

The authorities suggested implementing a "special resolution regime" (SRR) to provide greater powers for taking control of a troubled bank in a clear and efficient manner, even if the bank has positive capital and before any formal insolvency procedure takes place. The purpose of these measures is to: i) maintain essential bank functions and ii) pay depositors covered by deposit insurance as quickly as possible. Among the measures required are: the transfer of all or part of the assets and liabilities of the troubled bank to another institution, or to a "bridge" bank administered by the authorities; the appointment of a "bank administrator" to implement the resolution; and, as a last resort, to nationalize the bank. These measures involve major changes to Britain's laws concerning the regulation of private property, labor rights and private agreements. The British authorities have not still outlined the parameters according to which a bank should comply to a SRR, however it is clear that both quantitative (relating to solvency and liquidity) and qualitative criteria should be used. Lastly, it has been proposed that, whenever it is not possible or convenient to apply a SRR, insolvency procedures should be applied immediately, due to the fact that deposits covered by deposit insurance should be paid quickly. In order to start the procedure, authorities will file the request to the Court "without prior notice".

4. Measures for strengthening deposit insurance

The British authorities will conduct a public consultation on the convenience of modifying the limit on deposit insurance and propose the elimination of coinsurance.[1] It has also been proposed that, if deposits are not transferred to another financial institution or a bridge bank, the Financial Services Compensation Scheme (FSCS) must pay insured depositors within 7 business days. Therefore, it has been proposed that the FSCS may obtain funds from the Government or central bank. Furthermore, the convenience of the FSCS to charge premiums to banks in accordance with their risk level will be discussion.

5. Other measures

The British authorities also proposed amending the Bank of England Act to add a further mandate to make the central bank responsible for maintaining financial stability. Lastly, it has been suggested that additional work should be done, both on a national and international level, to improve the current coordination mechanisms between different authorities regarding financial stability. On a national level proposals have been made to modify the Memorandum of Understanding (MOU) between HM Treasury, the Financial Services Authority and the Bank of England to delineate the role of each one in the handling of financial crises.

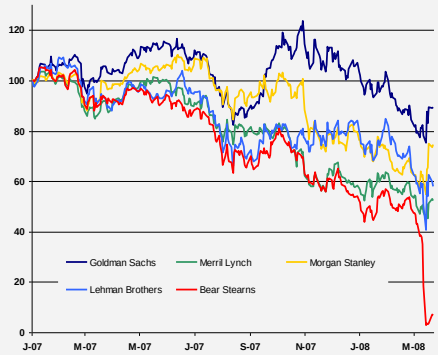
1. Deposit insurance in the United Kingdom insures 100 per cent of the first 2 thousand pounds and 90 per cent of the next 33 thousand pounds deposited. The proposal implies to cover 100 per cent of the 35 thousand pounds.

Box 7

The Bear Stearns Crisis and Proposed Changes to US Regulations

Following the collapse of two of its hedge funds, in July 2007 investment bank Bear Stearns faced increasing liquidity problems. As new losses were announced capital contributions were insufficient to persuade lenders to renew their loans. As a result, bank's liquid assets dropped from 18 billion to 2 billion dollars in just three days.[1] Bear Stearns assets to capital ratio was almost 30,[2] and it was the fifth largest investment bank in the United States, with more than 14,000 employees and assets worth 400 billion dollars. Furthermore, it was a major player in the derivatives, asset securitization and structured products markets, and was considered one of the investment banks with the highest degree of exposure to subprime loans.

Share Prices
Main Investment Banks
January 2007 = 100



Figures as of March 2008.
Source: Bloomberg.

Investment banks are more exposed to market-related risk than any other financial institutions. This is due to the difference in duration between its assets and liabilities. These entities obtain financing on a very short-term basis and rely on prevailing market interest rates. The so-called "margin calls" used to offset losses in the value of the collateral provided and the huge loss of funding sources turned Bear Stearns unviable.

On March 13, 2008, Bear Stearns notified the US authorities that, due to its worsening liquidity position, bankruptcy proceedings have been filed under chapter 11 of the Bankruptcy Code. The Federal Reserve considered that undoing the complex and intricate operations between Bear Stearns and its counterparties, at a time when the markets were especially vulnerable, would have had far more serious consequences that to simply acknowledge the bankruptcy of the investment bank.[3] For this reason, in the morning of Friday March 14, the Federal Reserve granted JP Morgan an overnight loan for 13 billion dollars through the discount window. JP Morgan should lend these funds to Bear Stearns to stop the bankruptcy and enable the authorities to implement a solution during the weekend.

Two days later, on March 16, the acquisition of Bear Stearns by JP Morgan at a price of two dollars per share was announced. The transaction was approved by the board of directors of each bank, and assisted by the Federal Reserve with the promise of a loan to JP Morgan. On March 24, an increase in the Bear Stearns share price was announced from two to ten dollars. The board of directors of Bear Stearns agreed to complete the transaction by issuing new shares to be sold to JP Morgan. These shares accounted for 39.5 per cent of the total of Bear Stearns' shares, which effectively handed control of the bank to the buyer.[4] The same day, the Federal Reserve formalized 29 billion dollars loan to JP Morgan, backed by the shares of Bear Stearns valued at 30 billion dollars as of March 2008.

Bear Stearns' assets have been deposited in a limited liability company in Delaware, and will be administered by BlackRock Financial Management Inc.

Diagram of Bear Stearns Operations
Billion dollars

Measures proposed by the US authorities[5]
The Department of the Treasury has proposed short and medium term measures, and changes to the current structure of regulation and supervision applicable to financial institutions. The main measures proposed include the following:

Short term recommendations
To include the presidents of the OCC,[6] FDIC[7] and OTS[8] in the board of the President's Working Group on Financial Markets. Additionally, the creation of a Mortgage Creation Agency and the introduction of a federal law in order to monitor the standards of mortgage loans.

Medium term recommendations
State banks are subject to supervision with state and federal jurisdiction. Centralizing all supervision in the Federal Reserve or the FDIC has been proposed. Another proposal has been to grant powers to the Federal Reserve to regulate and supervise payment systems and the merger between SEC[9] and the CFTC.[10] Regarding insurers, the proposal is to create a federal license. Insurers can decide whether they are subject to federal or state regulation. It is also under consideration the founding of the Office of National Insurance (ONI[11]) entitled to regulate all organizations that participate in the insurance business on a federal level.

Recommendations regarding the ideal financial regulation structure
A system based on complementary regulatory objectives (similar to the one used in Australia) has been proposed:

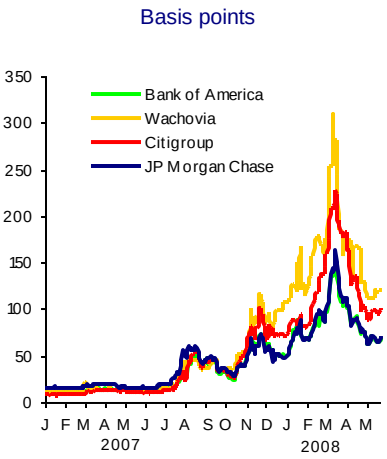
- Market stability: Federal Reserve.
- Prudential regulation: Prudential Financial Regulation Agency (PFRA).
- Consumer protection: Conduct of Business Regulatory Authority (CBRA).

1. http://www.sec.gov/news/press/2008/2008-48.htm
2. Fitch Ratings (2008), "Securities Firms: YE07 Peer Data", *Rating Outlook Remains Negative*.
3. Geithner, F. et al (2008), "Testimony before the US Senate Committee on Banking", *Housing and Urban Affaires.*
4. Later, on April 28, it was announced that a special meeting for the shareholders of Bear Stearns would be held on May 29, 2008, to discuss the approval and adoption of the agreement and plan for the merger between Bear Stearns and JP Morgan of March 16, 2008.
5. Department of the Treasury (2008), "Blueprint for a modernized financial regulatory structure".
6. OCC: *Office of the Comptroller of the Currency.*
7. FDIC: *Federal Deposit Insurance Corporation.*
8. OTS: *Office of Thrift Supervision.*
9. SEC: *Securities and Exchange Commission.*
10. CFTC: *Commodity Futures Trading Commission.*
11. ONI: *Office of National Insurers.*

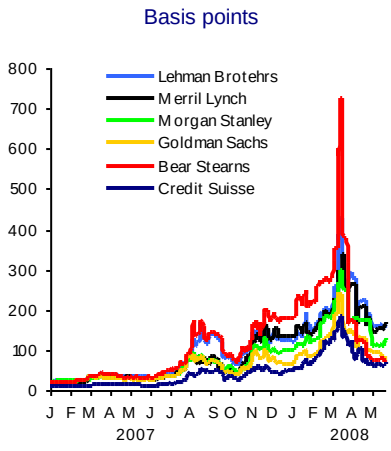
A number of factors have contributed to the deterioration of a large number of financial entities over the last few months (Box 8 and Graphs 5a and b): the increasing size of the balance sheets of many banks, the losses recorded in both mortgage portfolios and in asset-backed securities, and the increasing cost of funds. The size of these losses is still difficult to determine, as it is not always possible to price asset-backed securities market.

Graph 5
Effect on Financial Institutions and US Dollar Interest Rates

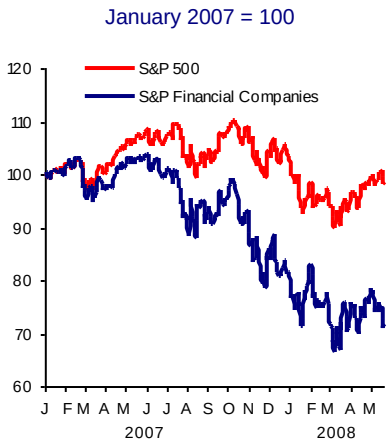
a) International Commercial Bank Credit Default Derivative Indexes



b) International Investment Bank Credit Default Derivative Indexes



c) Share Price Indexes as Quoted on the New York Stock Exchange



Figures as of May 2008.
Source: Bloomberg.

Many securities are not actively traded in the secondary markets, which is why they are often valued by observing prices in similar markets or estimated through internal models.[14] It is a well-known fact that the latter tend to be very sensitive to the assumptions used for these estimates.[15]

There has been a sharp fall in the operations of the secondary market for asset-backed securities, which is why relatively often banks rely on internal models[16] to evaluate their positions in mortgage-backed securities. An alternative use of these models involves making evaluations by extrapolating the prices obtained from credit default derivative indexes (Graph 2c).[17] Write-offs in financial institutions have increased as methodologies used to price securities in their portfolios estimate greater depreciations in the corresponding prices.

[14] International accounting standards establish three levels for classifying financial instruments. Level 1 is for instruments traded in active markets and whose prices are observed in the financial markets. Level 2 is for instruments that are not actively traded or do not have prices that can be observed easily, but consist of components on which information is available. Level 3 is for instruments with no observable prices and whose pricing is therefore based on estimations made by management. *Financial Accounting Standard Board* (FASB) 157. See for instance, UBS (2007), "Quarterly Financial Reports. Third Quarter".

[15] Bank of England (2007), "Financial Stability Report".

[16] Some of the methodologies used are explained in: UBS (2007), "Quarterly Financial Reports. Third Quarter"; Citigroup (2008), "Quarterly Earnings Releases and Supplements. Fourth Quarter"; and Credit Suisse (2007), "Financial Statements Third Quarter".

[17] These indices are used by some financial market participants both for speculative purposes and protection against the risk of an asset-backed security not being paid on time.

The losses caused by the problem in pricing securities have increased substantially since the fourth quarter of 2007, forcing a considerable number of banks to look for additional funds to comply with capital adequacy levels. One important source of funds for such purposes has been the so-called Sovereign Wealth Funds (SWF, Box 9).

The losses incurred by the banking sector and the lower amounts of asset-backed commercial paper outstanding have caused a sizeable reduction in the supply of credit and, hence, in worldwide economic growth expectations. This is reflects in drops in the world's main stock markets, especially after January 2008. Losses have been especially severe in the quoting of the shares of financial institutions and financial insurance companies. The effect on the shares of the rest of the corporate sector has been limited due to their sound financial condition prior to the onset of the crisis (Graph 5c).

Effect on credit derivatives and monolines

Increased losses incurred from credit portfolio-backed securities valuation forced investors and analysts to pay more attention to monolines. Credit-related risks can be hedged through insurance or derivatives. In both, the counterparty is often a monoline.[18] These are the largest sellers of protection for bonds and structured products.

The financial situation of these insurance firms has deteriorated substantially (Graph 6a) following the collapse of the credit quality of mortgage-backed securities, a large number of which have credit insurance. The significant losses reported by these companies have led to some of them having their credit ratings reviewed. It is likely that the financial situation of these monolines will continue to deteriorate further with the expected economic slowdown, which may in turn lead to increased delinquency rates in other sectors of the economy.

[18] In the credit derivatives market, banks are usually the main net buyers of protection, while insurance and reinsurance companies are the main sellers.

Box 8

Losses Associated with the Subprime Crisis

In April 2008, the International Monetary Fund (IMF) presented an estimate of the potential losses generated by the subprime crisis. Estimated losses on mortgage, commercial and consumer loans came to 225 billion dollars, while on asset-backed securities and debt, the figure was 720 billion dollars. This means that potential losses could well be close to the trillion-dollar mark. Greenlaw has estimated that mortgage-backed security losses alone stood at 400 billion dollars in February 2008.[1] With regard to the banks, the IMF calculated that losses came to around 590 billion dollars. These estimates contrast with the losses recognized by the banks (see the table on the right).

Estimated Potential Financial Sector Losses as of March 2008
Billion US dollars

	Total	Banks	Other Financial Institutions
Subprime	45	20-30	10-30
Alt-A	30	15-20	10-15
High Quality	40	15-20	20-25
Commercial Real Estate	30	15-20	5-20
Consumer Loans	20	10-15	5-10
Corporate Loans	50	25-30	20-25
Leveraged Loans	10	5-10	0-5
Total Loans	225	100-130	90-130

	Estimated Losses at Market Price of Related Securities		
	Total	Banks	Other Financial Institutions
ABS	210	85-100	95-160
ABS CDOs	240	145-160	65-150
High Quality MBS	0	-	-
CMBS	210	85-95	90-160
Consumer ABS	-	-	-
High Rated Corporate Debt	-	-	-
Low Yield Corporate Debt	30	10-15	10-25
CLOs	30	15-20	5-20
Total Securities	720	340-380	235-470
Total Loans and Securities	945	440-510	375-630

Source: IMF (2008), "Global Financial Stability Report".

The Bank of England[2] has questioned the loss estimates made by both the IMF and Greenlaw. It specifically questioned the use of market prices to value securities in periods in which these prices have fallen for reasons other than the expected credit-related losses (high aversion to risk and low liquidity and depth in the market). Another criticism by the Bank of England focuses on the fact that only the effects on financial institutions have been considered. The Bank of England believes that mortgage payment defaults by a homeowner and the consequent repossession of the property should not generate direct losses for the real economy, as this situation would merely entail the transfer of ownership of a home from the owner to the bank at a lower price. This means that the owner's available income could increase as a result of the cancellation of his or her mortgage repayments. The impact on the economy as a result of the losses absorbed by the banks could therefore be offset to a certain extent by the improved financial situation of consumers. There is, nonetheless, the risk that large-scale repossessions could bring about further deterioration in the housing market and, ultimately, in the economy. Repossessions increase the supply of used houses, which in turn means further price drops. Such drops would encourage a greater number of borrowers to default on their mortgage repayments, thereby causing an increase in the number of repossessions and exerting further downward pressure on house prices. The resulting high losses would most probably force the financial institution to restrict credit, generating negative effects for the economy. It therefore comes as no surprise that the US government has announced a series of measures to help mortgage borrowers honor their debts.

These processes show that house price levels can seriously affect loss levels. Different analysts and academics consider that the deteriorating US housing market has yet to hit rock bottom. It is estimated that prices could carry on falling until they reach a total of 30 per cent (so far they have dropped 12 per cent since the onset of the crisis), which means that losses could come to more than 1.7 billion dollars.[3] The losses recognized by a large number of banks have forced them to obtain funds in order to recapitalize. Sovereign wealth funds have been the main source of financing, as can be seen in the table below.

Losses and Recapitalization of the Main Banks as a result of the Subprime Crisis
Billion US dollars

Name	Losses	Investment in Capital	Investors
Citigroup	40.9	44.1	Abu Dhabi Investment Authority, Government of Singapore Investment, Alwaleed bin Talal
UBS	38.2	28.1	Government of Singapore Investment and other unknown Middle East investors
Merrill Lynch	31.7	17.9	Korea Investment Corp., Kuwait Investment Authority, Mizuho Financial Group and Temasek Holding
Royal Bank of Scotland	15.2	23.3	Public sector investors
Bank of America	14.8	17	Public sector investors
Morgan Stanley	12.6	5.6	China Investment Corp.
HSBC	18.3	2	Public sector investors
JP Morgan Chase	9.8	7.8	Public sector investors
Credit Suisse	9.5	1.5	Public sector investors
IKB Deutsche	8.9	13.1	German government and banking associations
Deutsche Bank	7.6	3.2	Public sector investors
Wachovia	7	10.5	US investors
Canadian Imperial (CIBC)	4.1	2.9	Li Ka-Shing, Manulife Financial and Caisse de Depot et Placement du Quebec, Omers and Public sector investors
Societe Generale	6.2	8.6	Public sector investors
E*Trade	3.4	1.8	BlackRock Inc, Citadel and others
Lehman Brothers	3.3	4	Public sector investors
Barclays	3.2	9.7	China Development Bank, Temasek Holding and Public sector investors
WestLB	3.2	7.7	State of North Rhine Westphalia, savings banks and regional governments
National City	3.1	8.9	Corsair Capital, public sector and institutional investors.
Gulf International	1	1	Governments of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates
HBOS PLC	5.9	7.8	Public sector investors
Sumitomo Mitsui	0.9	3.1	Public sector investors
Sovereign Bancorp	0.3	1.5	Banco Santander and Public sector investors
Washington Mutual	8.3	10	Public sector and institutional investors and IPG
Nomura Holdings	2.5	1.2	Public sector investors
Natixis	1.9	0.8	Public sector investors
Other North American banks	3.8	1.2	Public sector investors
Others without recapitalization measurements	69.4		
TOTAL	**335**	**244**	

Updated figures as of 2008.
Source: Bloomberg.

1. Greenlaw, D. et al. (2008), "Leveraged Losses: Lessons from the Mortgage Market Meltdown", US Monetary Policy Forum Report.
2. Bank of England (2008), "Financial Stability Report".
3. Roubini (2008), "Estimating the Losses from the Mortgage Meltdown", Global Econo Monitor.

Box 9

Sovereign Wealth Funds

Sovereign wealth funds have been created by governments in order to save public funds for long-term objectives.

Income for these funds usually comes from four sources: tax surpluses, extraordinary income (privatizations), central bank reserves and exports of oil and other raw materials.

Sovereign wealth funds may be classified as follows, in accordance with their main objectives:

- Stabilization Funds: created by countries with ample natural resources (energy). They are intended to lower government spending variations due to price volatility in the natural resources they export.
- Intergenerational Savings and Pension Funds: The purpose of these funds is to maintain intergenerational consumption levels. Most sovereign wealth fund resources come from non-renewable goods, such as oil, mined materials or gas. Long-term investments of such funds allow future generations to enjoy the benefits of these goods, promoting equality between generations. The resources are also used to cover contingent liabilities, such as pensions, so that future generations do not need to finance the current ones.
- Reserve Investment Funds. These are managed as part of the central bank's reserves, but have a higher risk-return profile than other funds. Their purpose is to reduce the costs the central bank could incur in order to maintain high levels of reserves (the cost of financing them).

Sovereign wealth funds during the subprime crisis

Sovereign wealth funds have become a very important source of funds for recapitalizing some of the banks that incurred major losses during the subprime crisis. These funds account for at least one-third of the 244 billion dollars invested with this aim.

Certain countries have been reluctant to make such investments.[1] Political figures from countries such as the United States, France and Germany have voiced doubts over the benefits of accepting funds from foreign governments to recapitalize their banks. In some cases, there have even been calls for a more protectionist approach to this type of foreign investment.

In order to allay concerns regarding these investments, the international community is looking to implement a number of initiatives. For example, the IMF, the Organization for Economic Cooperation and Development (OECD) and the European Commission have been promoting a voluntary code of conduct for sovereign wealth funds.[2]

Furthermore, the governments of the United States, Singapore and Abu Dhabi have reached an agreement to set forth principles of conduct for their sovereign wealth funds. The agreement specifies that funds will not pursue geopolitical objectives, only financial ones, and their purpose, objectives, investment, institutional structure, assets and historic rates of return must be disclosed.[3]

Sovereign Wealth Funds by Asset Levels

Country (by source of funds)	Assets: Billion US dollars
Oil	
UAE: Abu Dhabi Investment Authority	875
Norway: Government Pension Fund-Global	380
Saudi Arabia: Miscellaneous	300
Kuwait: Future Generation Fund	174
Russia: Stabilisation Fund	127
Qatar: Qatar Investment Authority	50
Libya: Oil Reserve Fund	50
Algeria: Fonds de Régulation des Recettes	43
Kuwait: General Reserve Fund	39
Brunei: Brunei Investment Authority	30
Kazakhstan: National Oil Fund	18
Venezuela: Fondo de Desarrollo Nacional	15
Iran: Oil Stabilisation Fund	12
Oman: State General Reserve Fund	5
Mexico: Fondo de Estabilización de Ingresos Petroleros	3
Azerbaijan: State Oil Fund	2
Venezuela: Fondo de Establilización Macroeconómica	1
Timor-Leste: Petroleum Fund	1
International Reserves	
Singapore: Government Investment Corporation	330
China: State Investment Corporation	200
Hong Kong SAR: Investment Portfolio (HKMA)	96
South Korea: Korea Investment Corporation	20
Other	
Singapore: Temasek Holdings	108
China: Central Huijin Investment Company	66
Malaysia: Khazanah Nasional BHD	18
Chile: Fondo de Establización Economica y Social	7
Botswana: Pula Fund	6
Trinidad and Tobago: Heritage and Stabilisation Fund	1
Kiribati: Revenue Equalisation Reserve Fund	1
Other	171
Approximate total	***3,149***

Figures as of May 15, 2008.
Source: Banco de México, BIS, IMF and Morgan Stanley.

1. Dresdner Kleinwort (2008), "Investing the Wealth of Nations-Sovereign Wealth Funds: A trillion here, a trillion there, and pretty soon we're talking real money!".
2. IMF (2008), "International Working Group of Sovereign Wealth Funds is Established to Facilitate Work on Voluntary Principles", press release 08/97.
3. US Department of the Treasury (2008), "Treasury Reaches Agreement on Principles for Sovereign Wealth Fund Investment with Singapore and Abu Dhabi", press release HP-881.

Box 10

Monoline Insurance Companies

Monoline insurance companies, guarantee the full or partial payment of the interest and principal of the bonds[1] they cover. This coverage allows insured issues to obtain higher credit ratings, which are vital for security issuers given the reduced cost of financing they can get. Credit ratings are also important for certain institutional investors, as there are limits to the credit risk they can take on.[2] Therefore, all the parties involved in the issuance of a bond will benefit: the issuer by reducing the cost of financing, the buyer by lowering exposure credit risk and the insurer by expanding its business. Financial insurance for bonds dates back to the 1970s in the United States, when municipal and government bond issuers confirmed the benefits of using mechanisms to improve the credit rating of issues. In exchange for a premium, which is usually quoted in basis points on the nominal value of the issue, monoline insurers provide a guaranty in the event of default by the issuer. This guaranty consists of the total or partial payment of interest and principal to the acquirers of the insured bond. The insured premium is settled by the issuer of the bond. This coverage lowers the security's credit risk and, if protection is total, the rating given to the bond will be that of the issuer.

Monoline Insurer's Exposure

Insurance Company	Equity (million US dollars)	Information on RMBSs exposure as maximum coverage (million US dollars)	
		Subprime	Total
Ambac	2,279.89	8,774.1	34,728.0
ACA	-883.29	-	8.5
Financial Security Assurances	2,312.46	4,774.2	18,635.8
MBIA	3,655.80	4,319.4	29,674.2
Radian	2,720.74	578.7	627.2

Figures on capital of Ambac, MBIA and Radian as of December 2007; FSA and ACA as of September 2007.
Source: S&P and insurer's balance sheets.
a/ RMBS are residential mortgage-backed securities.

The purchase of coverage for municipal bonds rose dramatically in 1983 as a result of the bankruptcy and subsequent defaulting on obligations by the Washington Public Power Supply System (WPPSS), as only the holders of insured bonds received payment in full and on time. Initially, the ratings of most of the insured bonds would have corresponded to the last uninsured investment level niche. What the insurance managed to do was to achieve a higher investment level rating. However, in the mid-nineties, some insurers started to guarantee riskier issues, increasing their earnings but also their capital requirements. Monolines eventually started to guarantee paper related to subprime mortgages. Despite the exposure of these bonds was relatively moderate (between one and four percent of the coverage sold), rating agencies were concerned by insurer capital reserve levels.

The downgrade of a monoline rating will also affect the insured party, as the rating of their bonds will be expected to drop. The effect of this downgrade may also extend to investors with positions in these shares by increasing the risk they are exposed to, which may in some cases mean that bonds are sold somewhat hastily. The high leverage levels of monoline insurers have been reflected by their exposure to RMBS[3]. In 2007, the nominal value in circulation of these securities covered the capital of the insurers an average of six times over. Eighty-five per cent of the global market is in the hands of eight insurers that have insured bonds for a total of almost 2.4 trillion dollars and assets with a nominal value of up to 3.3 trillion dollars, a figure inconsistent with the total amount of capital in the industry, which comes to between 20 and 25 billion dollars.

Insurer Ratings and Market Share

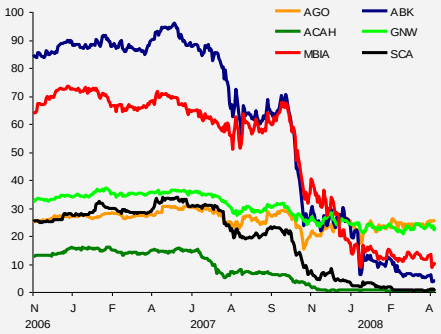
Insurance Company	Fitch	Moody's	S&P	Market Share (Percent)
Ambac Assurance Corp	AA (neg)1/	Aaa (neg)	AAA (neg)	23
ACA Financial Guaranty Corp	SC	SC	CCC	2
Assured Guaranty Corp (AGO)	AAA	Aaa	AAA	3
CIFG Assurance North America Inc	A- (neg)	Ba2	A+	3
Financial Guaranty Insurance Company (FGIC)	BBB	Baa3 (neg)	BB	3
Financial Security Assurances (FSA)	AAA	SC	AAA	17
Municipal Bond Insurance Association (MBIA)	SC	Aaa (neg)	AAA (neg)	25
Security Capital Assurance (SCA)	BB (neg)	A3 (neg)	A- (neg)	5

Figures as of May 2008; SC = No rated.
Source: Bloomberg.
1/ (neg) = ratings with negative outlook on information closing date.

Monoline credit ratings have recently been downgraded. In December 2007, S&P downgraded ACA Financial Guaranty, which belongs to Bear Stearns, and the Dutch insurance firm Aegon, to CCC. One month later, Fitch downgraded Ambac, the oldest and second largest insurance firm in the market, whose rating had never been lowered, from AAA to AA. The most decreased rating was that of CIFG by Moody's on May 20, which fell below the investment threshold from Aaa (neg) to Ba2.

The immediate impact of downgrades on a company's yield must be reflected in its share price, as this indicator is highly sensitive to changes of this type.

Insurer Share Prices
January 2007 = 100



Figures as of May 2008.
Source: Bloomberg.

In Mexico, a large proportion of Borhis[4] are insured. The Federal Mortgage Company (Sociedad Hipotecaria Federal, SHF) is the main insurer, but foreign companies are also present in the domestic market.

Guaranteed Amount of Insurers

Institution	Guaranteed Amount (million pesos)	Percentage of Total Guaranteed Amount	Percentage of Total Securitized Amount
SHF	13,690	53.6	33.3
MBIA	4,635	18.2	11.3
AMBAC	2,839	11.1	6.9
FGIC	1,568	6.1	3.8
Genworth	2,421	9.5	5.9
IFC	220	0.9	0.5
FMO	159	0.6	0.4
Total	25,532	100.0	62.1

Figures as of May 2008.
Source: BMV, placement prospects and SHF.

1. Bonds refer to financial debt instruments issued by companies or investment vehicles.
2. This risk is usually measured through the rating granted by a ratings agency.
3. Residential Mortgage-Backed Securities (RMBS).
4. Mortgage-backed bonds.

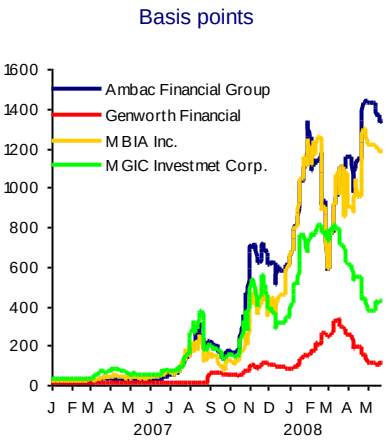
The lowering of monolines ratings has had a larger effect on the price and credit rating of the asset-backed securities for which protection was bought. It has also had a detrimental effect on investors with positions in this type of bonds. Securities affected include US municipal bonds, the issuance of which has dropped drastically.

Impact on emerging economies

The initial impact of the crisis was lower among emerging economies than on advanced economies. While moderation in risk appetite led to an increase in risk premiums on the sovereign debt of developing countries, the adjustment was not as big as the one caused on the debt of corporate issuers in the United States and the one reported in previous periods (Graph 6b).

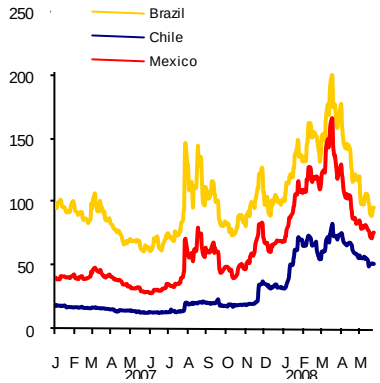
Graph 6
Credit Default Derivatives and Credit Restrictions

a) Monolines Credit Default Derivatives



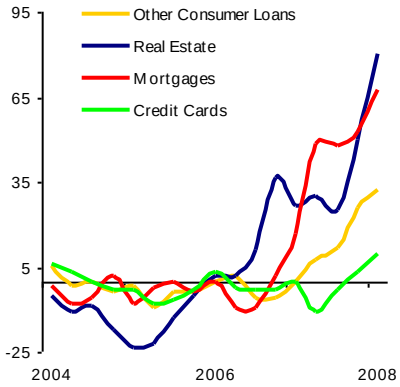
Figures as of May 2008.
Source: Bloomberg.

b) Credit Default Derivatives in Emerging Countries



Figures as of May 2008.
Source: Bloomberg.

c) Proportion of US Banks Claiming to have Restricted their Credit



Figures as of January 2008.
Source: Federal Reserve "Senior Loan Officer Opinion Survey on Bank Lending Practices".

The contagion effect on emerging economies follows two main paths: the real economy and the financial. Concerning the first one, a slowdown in the US economy could have a negative impact on growth in the rest of the world, especially among its main trading partners, which include Mexico.

The more vulnerable emerging countries will be the ones that rely on external sources to finance their current account deficit, or whose credit expansion was based on foreign banks. Some Eastern European countries are currently in such a situation.

As far as the financial path is concerned, the most direct way for the contagion effect to take place is through losses incurred by financial institutions on their investments in subprime mortgages. In this regard, the degree of banks' exposure to risks associated with the subprime market, in most emerging countries, including Mexico, are negligible. This is because, among other factors, the banking sector in emerging countries enjoys generous interest rate spreads in the traditional credit products it offers. This stands in sharp contrast with the

situation of certain banks in Europe and the United States, where interest rate spreads are lower, which prompted banks to invest in higher yield instruments. Furthermore, one common feature to a large number of emerging countries is the strong presence of banks controlled by international financial groups. These groups tend to concentrate the risks of a given country in their subsidiaries established there.

Another source of contagion is through the contraction of credit among banks subsidiaries of international banks that have incurred major losses. These are forcing many financial institutions to tighten their credit granting policies (Graph 6c) and reduce their high-risk exposures. It is also possible that they will sell less profitable subsidiaries and businesses, which could have a negative impact on the economies in which these are located. However, the high profitability enjoyed by the banking sector in Mexico and the relative importance, for certain global financial groups, of the profits generated by their Mexico-based subsidiaries suggest that no major changes will take place in the Mexican financial system.

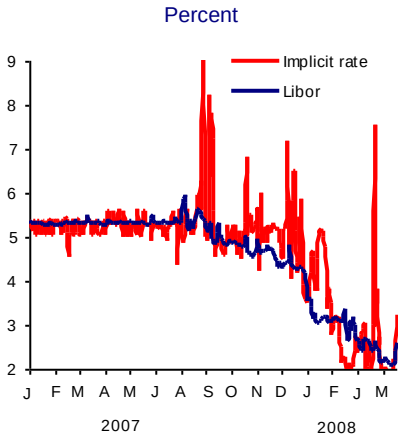
A different contagion effect is already taking place through the credit ratings given to some subsidiaries of US financial entities. Even though they are legally autonomous entities, lower ratings of parent companies are affecting their subsidiaries. The latter's cost of funds are linked to their credit rating, thus these reviews are making funds more expensive. Furthermore, credit rating reviews performed on US monolines have had a negative impact on demand for the securities they have insured, including the ones issued in emerging economies such as Mexico.

Financial markets could themselves be another source of contagion. There is clear evidence that some financial entities in developed countries have turned to more liquid emerging capital markets, such as Mexico, Brazil and Turkey for funds at better interest rates. The aim has been to address their liquidity needs. Foreign institutions funding in emerging economies could make local financing more expensive in these countries. Graph 7a shows how the implicit dollar rate in 24-hour peso-dollar swaps reflects turmoil in international markets. This interest rate acts like a proxy for the dollar cost of funds faced by the Mexican banking sector.

So far, financial contagion has been relatively moderate in Mexico and Latin America. But corporate bond spreads in Latin America have increased (Graph 7b), giving rise to a drop in debt issuance by companies in the region.

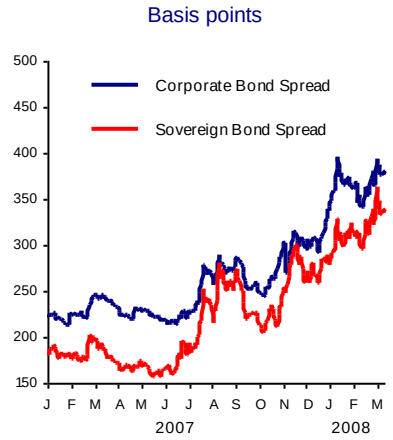
Graph 7
Cost of Funds in Dollars and 10-year Bond Volatility

a) Implicit Dollar Interest Rate in 24-Hour Peso/Dollar Swaps and one-day LIBOR rate



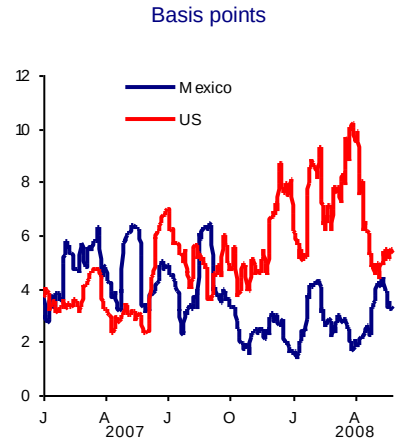
Figures as of May 2008.
Source: Banco de México with information from Bloomberg and Proveedor Integral de Precios.

b) Yield Spread Between Latin American Bonds and US Treasury Bonds



Figures as of March 2008.
Source: Bloomberg.

c) 10-year Bond Volatility: Mexico and the United States[1/]



Figures as of May 2008.
Source: Banco de México.

1/ Standard deviation of yield changes, 20-day moving window.

The combination of increased inflationary pressure and concerns regarding a major worldwide economic slowdown has created a particularly complex situation for implementing monetary policy in most of the world's economies, especially the emerging economies. The composition of the consumer baskets, the size of the current account deficit, and the raw material trade balance have meant that price shocks affect different economies in different ways. A large number of central banks have therefore chosen to increase their reference interest rates.

In Mexico, increased inflationary expectations have exerted upward pressure on long-term bonds (Graph 8a). Yet, fixed-term interest rate volatility in our country has turned out lower than in the United States (Graph 7c). At the same time, the stock market index has dropped, a notable example of this being the share price drop of the main home construction firms (Graph 8c).

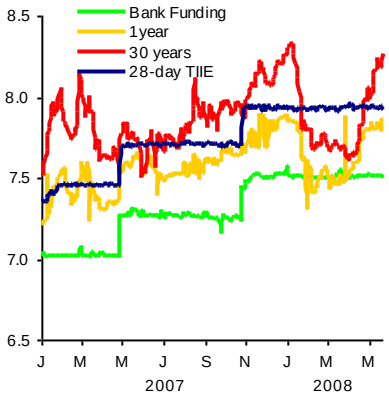
Prospects

In the United States, the Federal Open Market Committee (FOMC) left the federal fund rate and the risk balance unchanged until August 2007. However, since September that year, the US central bank has reduced the target level for the federal fund rate on several occasions (Graph 4a). At the same time, it also issued warnings of the major risks of economic slowdown due mainly to problems in the financial markets.

Graph 8
Crisis Indicators

a) Interest Rates in Mexico

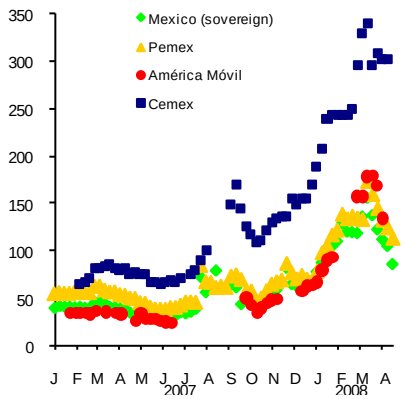
Percent



Figures as of May 2008.
Source: Banco de México.

b) Mexican Corporate and Sovereign Bond Credit Default Derivatives

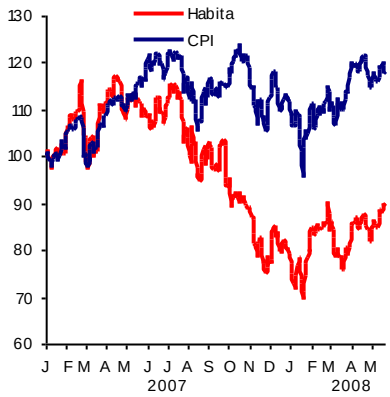
Basis points



Figures as of April 2008.
Source: Bloomberg.

c) Mexican Stock Market (BMV) Index and Habita Index[1/]

January 2007=100



Figures as of May 2008.
Source: BMV.
1/ The Habita Index measures daily capitalization value fluctuations among the six biggest residential building firms (Ara, Geo, Hogar, Homex, Sare and Urbi).

Given the extended period of financial volatility, the prospects for global growth are worsening. In April this year, the International Monetary Fund (IMF) forecast a worldwide economic growth rate of 3.7 percent for 2008. The Federal Reserve announced that it was reducing its US GDP growth prediction for 2008 to somewhere between 0.3 and 1.2 percent. To sum up, advanced and emerging economies alike are expected to lose buoyancy. But the inflationary pressure derived mainly from energy and fuel price behavior is expected to remain in 2008, in spite of the slowdown in worldwide economic growth.

Inflation risk has therefore remained with a high trend and has a larger impact on emerging countries, due to the greater weight of food in the price index. Even though the economic slowdown in the United States and the weak dollar have helped improve the US trade deficit, the imbalance is still very marked compared to its historic levels.

The intensity of economic slowdown will depend largely on how quickly banks manage to improve their financial situation and are once again in a position to grant credit. Estimates regarding the extent of losses caused by the subprime crisis vary. The risk of higher losses remains. Yet, to the extent the international financial institutions recognize their losses and recapitalize, recovery could be achieved more quickly. But if they fail to do so, recovery will take longer, as financial intermediaries will be unable to expand credit. More information on losses and exposures of banks will reduce uncertainty in the market and take timely steps to recapitalize, which would, in turn, avoid further deterioration of the credit channel and allow a stronger economic growth.

The Financial Stability Forum (FSF)[19] recently announced a series of measures intended to strengthen the financial system and recover confidence in the markets. These measures include:

i) Informing the public of the risk exposures, losses and estimates regarding the value of their investments in complex products, using the disclosure guidelines announced by the FSF.

ii) Improving the accounting and disclosure of exposures in off-balance investment vehicles.

iii) Improving risk management, especially stress scenarios, and recapitalizing the institutions if necessary.

At their spring meeting, the G-7 ministers of finance and central bank governors embraced these recommendations and set a timeframe of 100 days for their implementation.

2.2. Domestic Economic Environment

In 2007, the country's economy slowed down compared to the previous year. In that year GDP grew 3.2 percent, which falls short of the 4.9 percent growth rate of 2006. Declining economic growth in 2007 became more pronounced in the fourth quarter, considering seasonally adjusted GDP fluctuations (Graph 9a).

The slowdown included both GDP and the aggregate demand components, even though it was especially severe in exports of goods and services as it faced a lower foreign demand from the United States. The main issues that characterized the evolution of Mexico's economy in 2007 were:

i) GDP and both, domestic and foreign components of aggregate demand grew slower than in 2006.

ii) Concerning aggregate demand, while private consumer spending slowed down, it was still the largest contributor to real GDP growth. For the fourth year, investment grew faster than GDP with increasing public and private sector investment spending.

iii) Public sector spending in 2007, as in national accounts, was higher than the previous year, due largely to growth in its investment component. Investment growth was the result of greater income from the high prices of Mexican oil.

The goods and services export component underwent the largest slowdown in 2007. This was essentially because of a declining demand in the United States.

Economic slowdown in 2007 was made evident above all by the foreign component of aggregate demand, which confirms that the foreign environment

[19] The Financial Stability Forum is comprised by the financial authorities of industrialized countries. For further information on the objectives of the Forum and its recommendations, see www.fsforum.org.

faced by the Mexican economy and, in particular, the slowdown of the US economy had a particularly negative effect. The main factors that characterized the foreign sector throughout 2007 include the following:

i) Non-oil export growth was slower than in 2006. This is largely the result of weakening demand in the United States, as exports to other countries remained significantly high.

ii) The value of oil exports reached unprecedented levels as a result of high crude prices in international markets. Nonetheless, the growth rate of these exports was surpassed by the growth rate of oil product imports.

iii) Imports of goods grew substantially in 2007, albeit not as fast as in 2006. This development was the result of the slowdown of GDP growth and aggregate demand that year.

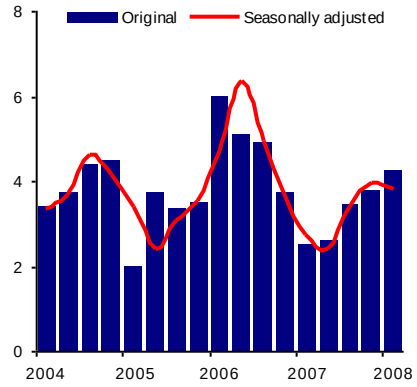
iv) Workers' remittances slowed down considerably (Graph 9c). This development is attributable to a number of factors, the main ones being: i) the decline of the construction industry in the United States, which is a crucial source of employment for a very large number of Mexican workers; ii) the increasingly serious problems faced by Mexican workers migrating to the United States; iii) the growing hardships faced by illegal immigrants in finding work as a result of more stringent official controls at workplaces; and, iv) the gradual disappearance from remittance statistics of the increase effect due to improved statistical coverage of such transactions.

As a result of factors affecting foreign accounts and, in particular, of the moderate growth of aggregate demand in 2007, the current account deficit of the balance of payments was low (Graph 9b). This deficit came to 5.5 billion US dollars, which amounts to 0.6 percent of GDP.

Graph 9
Economic Indicators in Mexico

a) Gross Domestic Product

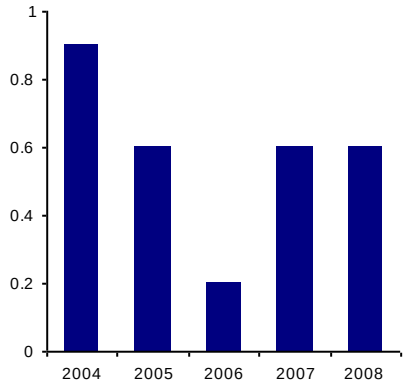
Annual percentage variation in constant pesos



Figures as of March 2008.
Source: INEGI.

b) Current Account Deficit

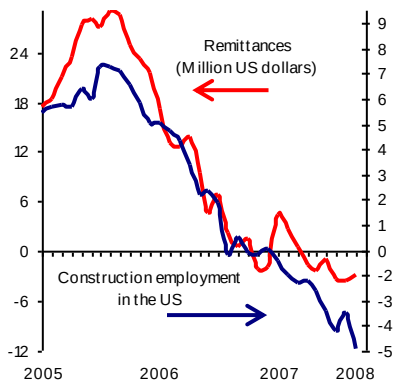
As percentage of GDP



Figures as of March 2008.
Source: INEGI.

c) Workers' Remittances in Mexico[1/] and Employment in the US Construction Industry

Annual percentage variations in seasonally adjusted data



Figures as of March 2008.
Source: US Bureau of Labor Statistics.
1/ Two-month moving average, except for 2007 and 2008.

Annual GDP growth achieved a moderate rate of 2.6 percent for the first quarter of the year. This figure was brought down by the Easter vacation period, so if this effect is deducted, the annual growth rate comes to 3.8 percent. The evolution of output was due to a number of positive factors that protected the economy from the effects of the economic slowdown recorded during that period in the United States. First quarter industrial sector growth surpassed growth rates of previous quarters. This result was reflected to a large extent in the expansion of manufacturing sector output, even though exports to the United States have grown more slowly.

As for the external sector, the first quarter of the current year witnessed a moderate current account deficit in the balance of payments of 1.5 billion US dollars, which when annualized amounts to 0.6 percent of GDP. First quarter exports of goods were up 16.4 percent on an annual basis, with 50.3 percent increases in oil exports and 10.7 percent in non-oil exports. The latter rate was higher than the one for the whole of 2007 (8.4 percent) and is due to increased exports to the US market during this period. It also reflects a recovery in automotive industry sales (12.8 percent), as well as continued growth in exports to countries other than the United States.

Finally, an 8.9 billion dollar surplus was recorded in the balance of payments capital account for the first quarter of that year. A substantial portion of capital account income was accounted for by foreign direct and portfolio investment, non-bank private sector foreign indebtedness, and foreign financing intended for Long Term Productive Infrastructure Projects (Pidiregas). The first quarter balance of payments recorded a deficit of 1.4 billion US dollars in the errors and omissions component, and a net increase in Banco de México international reserves of 6.1 billion US dollars.

3. Financial Position of Households, Firms, and the Public Sector

This section examines the balances of the private, public and external sectors and outlines their structure. It also analyzes in-depth the financial position of households, non-financial private firms and the public sector, describing recent trends in savings, indebtedness and debt service in these sectors, and the implications for financial stability.

3.1. Sources and uses of funds in the economy

3.1.1. Sectorial balances

The financial balances of the private, public and external sectors are useful to assess the risks associated with the flow of funds in an economy. These balances allow for identifying changes in the net creditor or debtor positions of each sector, as well as the origin and destination of financial resources.

In 2007, the net financial position of the private, public and external sectors underwent moderate changes, similar to those observed during the period 2004-2006 (Table 1). In general terms, the public sector recorded a deficit that was financed by creditor flows from private and external sector balances.

In 2007, the change in the public sector's financial position resulted in borrowing requirements equivalent to 0.9 percent of GDP, figure similar to that of 2006.[20] These financial requirements were financed by an increase of the creditor position of the non-bank private sector by 0.3 percent of GDP (0.6 percent of GDP in 2006) and through external savings (current account deficit) of 0.6 percent of GDP (0.2 percent of GDP in 2006).

As mentioned in the previous Report, fiscal discipline together with other policies aimed at ensuring macroeconomic stability have reduced the public deficit and decreased reliance on financial resources from abroad in the last few years. In this context, the financial balance flows of the different sectors in 2007 were not affected by any imbalances that could amount to a risk factor for the economy and the financial system.

[20] The financial position of the public sector corresponds to the measurement of Public Sector Borrowing Requirements (*Requerimientos Financieros del Sector Público*, RFSP) estimated by Banco de México using the financing source methodology (see section 3.5 of this chapter).

Table 1
Flow of Funds by Type of Sector [1/]
Flows as a percentage of GDP

	2004	2005	2006	2007
Private Sector's Balance [2/]	**-0.8**	**-0.9**	**-0.6**	**-0.3**
Domestic	-1.7	-2.2	-1.7	-1.6
Financial instruments	-3.5	-5.1	-6.4	-3.0
Financing	1.1	1.8	2.1	2.8
Other financial system items	0.6	1.2	2.6	-1.5
External	1.0	1.3	1.1	1.3
Foreign direct investment	3.0	2.5	2.0	2.4
Net foreign financing	-1.8	-0.9	-1.3	-0.9
Errors and omissions (Balance of Payments)	-0.2	-0.2	0.4	-0.2
Public Sector's Balance[3/]	**1.6**	**1.5**	**0.8**	**0.9**
Domestic	1.2	1.3	2.7	1.5
External	0.5	0.2	-1.8	-0.7
External Sector's Balance (Current Account) [4/]	**-0.9**	**-0.6**	**-0.2**	**-0.6**

Source: Banco de México.
1/ Given as a percentage of annual average GDP (base 2003). Does not include banking system balance operations. A positive sign denotes a deficit, while a negative sign means a surplus. The effect of Mexican peso's exchange rate fluctuations vis-à-vis other currencies is excluded. Preliminary figures. Figures may not add up due to rounding.
2/ The private sector includes firms, households, and non-bank financial intermediaries.
3/ The public sector is measured as Public Sector Borrowing Requirements (*Requerimientos Financieros del Sector Público*, RFSP) by Banco de México using the sources of financing methodology, including non-recurrent revenues.
4/ Drawn from the current account of the balance of payments. A negative figure means foreign financing for the domestic economy (external sector surplus), which equals Mexico's current account deficit.

3.2. The structure of sources and uses of funds

In 2007, the stock of financial resources, excluding foreign direct investment and the stock market, accounted for 66 percent of GDP (Table 2).[21] The sources of funds obtained through domestic financial instruments (M4) grew at a slower rate, from an average real annual rate of 11.1 percent in 2006 to 7.2 percent in 2007.[22] The monetary aggregate M4 accounted for 51 percent of GDP in 2007. The share of the monetary aggregate M4 to total financial resources continued to rise from 75.6 percent in 2006 to 77.3 percent in 2007. External sources of financing, on the other hand, continued to decrease. In 2007, they represented 15 percent of GDP, as compared to 16.1 percent of GDP in 2006.

[21] In national accounts methodology, total saving is considered as a flow equal to gross fixed capital formation in construction, machinery and equipment plus variations in inventories. The economy's financial savings refers to the stock of domestic financial assets. These resources are intermediated by the financial system and can be channeled to finance the private sector (consumption and investment expenditure), the public sector, and the external sector (current account surplus).

[22] The monetary aggregate M4, which includes all private sector financial savings, is defined as bills and coins held by the public, along with holdings of domestic financial assets and deposits in Mexican bank branches and agencies abroad by the resident and non-resident private sector.

Table 2
Sources and Uses of the Economy's Financial Funds
Stocks as a percentage of GDP

	2004	2005	2006	2007	Structure % 2007
Total sources	**66.2**	**66.9**	**66.1**	**66.0**	**100.0**
M4	45.6	49.1	50.0	51.0	77.3
Held by residents	44.4	47.4	48.2	48.5	73.4
Held by non-residents	1.2	1.7	1.8	2.6	3.9
External financing	20.7	17.9	16.1	15.0	22.7
Total uses	**66.2**	**66.9**	**66.1**	**66.0**	**100.0**
Public sector[1/]	36.8	35.3	32.5	31.5	47.7
States and municipalities	1.5	1.4	1.3	1.3	2.0
Private sector	24.8	25.2	27.0	28.7	43.5
Households	10.3	11.4	12.2	12.8	19.4
Consumer	2.5	3.5	4.1	4.7	7.1
Housing[2/]	7.8	7.9	8.1	8.1	12.3
Firms	14.5	13.9	14.8	15.9	24.0
Credit from financial intermediaries[3/]	6.2	5.9	6.4	7.6	11.5
Securities issued	1.9	1.8	1.7	1.7	2.5
External	6.4	6.2	6.7	6.6	10.0
International Reserves[4/]	8.0	7.9	7.1	7.6	11.5
Other items[5/]	-4.9	-2.9	-1.9	-3.1	-4.7

Source: Banco de México.
Figures may not add up due to rounding. Stocks as of December each year expressed as a percentage of GDP (base 2003) for the corresponding year.
1/ Refers to the Historical Stock of Public Sector Borrowing Requirements (PSBR) reported by the Ministry of Finance. In 2007, PSBR as a percentage of GDP for the last quarter of that year stood at 29.8 percent.
2/ Total portfolio of financial intermediaries and of the workers' housing fund (Infonavit), including restructuring programs.
3/ Total portfolio of financial intermediaries including restructuring programs.
4/ As defined by the law governing Banco de México.
5/ A positive (negative) stock in this item constitutes a net use (source) of financial resources. Therefore, a negative stock in this category means that the sources of funds not considered in M4 and foreign financing (including capital accounts, results and reserves, and other liabilities of the Banco de México, of commercial banks and development banks, of financial intermediaries and of Infonavit) more than offset the uses not considered in the financing of the public sector, financing of state and municipalities, financing of non-financial private companies, and financing for accumulating international reserves (including non-sectorized assets and other assets of Banco de México, commercial banks and developments banks, of financial intermediaries and Infonavit).

Residents' savings in domestic financial instruments are the main source of funds for financing (73.4 percent of the total). In 2007, the average real annual growth rate of this aggregate stood at 6.5 percent, figure below that of 10.6 percent of 2006. As of December 2007, its balance accounted for 48.5 percent of GDP. The strength of savings by non-residents in financial instruments in Mexico continued that same year, recording a real annual average variation of 25.9 percent, similar to the previous year figure (28 percent). As a result, in December 2007, holdings of domestic financial instruments by non-resident agents accounted for 2.6 percent of GDP (Table 2). As pointed out in the Report on the Financial System 2006, these savings were channeled mainly to investment in public debt instruments, especially long-term fixed rate securities.

As for monetary aggregate M4 components, in December 2007, deposits in banks residing in Mexico represented 17.3 percent of GDP and 33.9 percent of this aggregate. A greater participation of households and companies in the banking system was observed. In December 2007, a total of 44.4 million bank accounts in cash instruments was recorded, 6.2 percent more than the corresponding figure for the previous year (41.8 million), while the number of term deposit accounts remained practically unchanged during the year, at around 3.5 million accounts. In December 2007 the public and private security balance accounted for 24.4 percent of GDP and its share of the M4 monetary aggregate stood at 47.7 percent.

Regarding the use of funds of the Mexican economy, in 2007 the Historical Stock of Public Sector Borrowing Requirements (PSBR) maintained a downward trend as a percentage of GDP, reaching 31.5 percent (Table 2). The proportion of the economy's financial resources absorbed by the public sector has continued to decrease: in 2006 it accounted for 49.2 percent of total financial resources; however, in 2007 this figure dropped to 47.7 percent.

Private sector financing continued to increase in 2007, representing 28.7 percent of GDP (Table 2). Its share in the use of the economy's financial resources rose from 40.9 percent in 2006 to 43.5 percent in 2007. As for private sector financing, households' loans accounted for 12.8 percent of GDP, while financing for firms was 5.9 percent of GDP, a notable example of this being the credit granted by financial intermediaries, especially commercial banks.[23]

Finally, in 2007, international reserves stood at 7.6 percent of GDP, figure similar to that of previous years. In 2007, international reserves accounted for 11.5 percent of the economy's financial resources, as compared to 10.7 percent in 2006 (Table 2).

The above data indicates that the trend of recent years, namely one of a growing share of domestic sources in overall financing, which reduces the economy's vulnerability to external shocks, continued into 2007. At the same time, the gradual growth in indebtedness among both households and firms, while standing at moderate levels, has slowly raised private sector's exposure to risk.

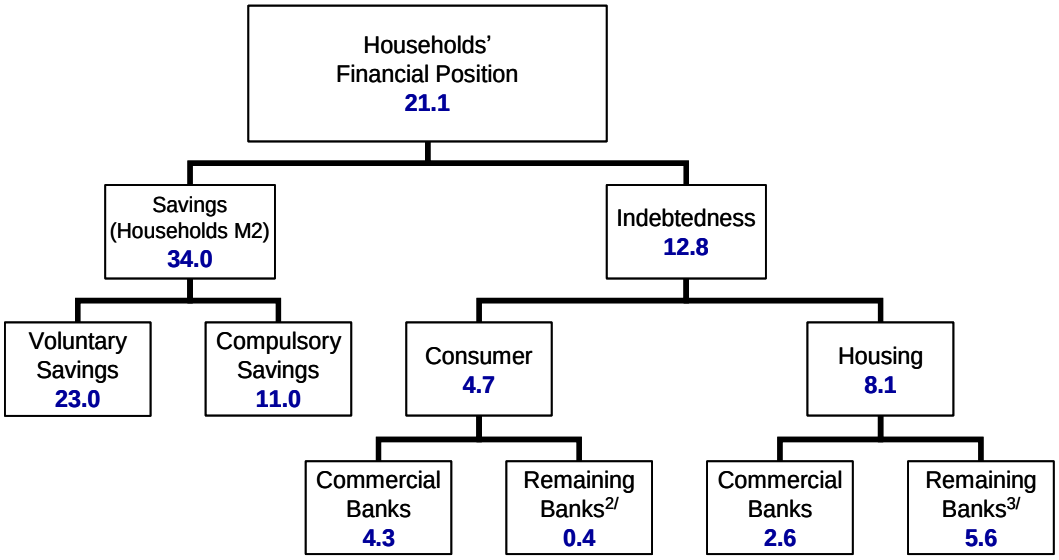
[23] Household financing rose from 12.2 percent of GDP in 2006 to 12.8 percent in 2007. During the same period, firm financing rose from 14.8 percent to 15.9 percent of GDP.These balances are affected by the provisions of the National Banking and Securities Commission (*Comisión Nacional Bancaria y de Valores*, CNBV) which, as of January 2007, reclassified bank credit and Sofoles statistics. In particular, bridge financing for housing construction were reclassified from mortgage (households) credit to credit to firms. In 2007, the funds earmarked for mortgage (housing) and firms disregarding this reclassification would have accounted for 13.3 and 15.4 percent of GDP, respectively.

3.3. Households

Households' financial savings

In 2007, financial savings of households accounted for 70.7 percent of total savings by residents in domestic financial instruments (M2) and 34 percent of GDP (Table 3 and Graph 10b).[24] These savings continued to be channeled largely to institutional investors (Investment Funds Specialized in Retirement Savings-Siefores, insurance companies, and mutual funds) which, altogether, received 35.8 percent of these savings (Graph 10c).

Table 3
Households' Financial Position: Stocks as of December 2007
Percent of GDP [1/]



Source: Banco de México.
1/ Figures may not add up due to rounding. Figures correspond to the balance as of December 2007 given as a percentage of annual average GDP (base 2003).
2/ Includes loans granted by development banks, non-bank banks known as Limited Purpose Financial Institutions (Sociedades *Financieras de Objeto Limitado*,Sofoles), Regulated Multiple Purpose Financial Institutions (*Sociedades Financieras de Objeto Múltiple E.R.*, Sofomes E.R.), and Savings and Loans Associations (*Sociedades de Ahorro y Préstamo*, SAPs).
3/ Includes loans granted by development banks, Sofoles, Sofomes E.R., and the Public Housing Fund (*Instituto del Fondo Nacional de la Vivienda para los Trabajadores*, Infonavit).

During the first quarter of 2008, household savings in domestic financial instruments (household M2) grew, on average, at a real annual rate of 4.8 percent, figure below the 8.8 percent recorded during the same period of 2007 (Graph 10a). The weaker results of this aggregate were produced by a reduced growth of voluntary savings. In the first quarter of this year, voluntary savings grew, on average, at a real annual rate of 3.6 percent (9.8 percent during the same period of 2007). [25] The slowdown in economic activity, among other factors, explains this result. Compulsory savings, on the other hand, grew at an average

[24] Household financial savings are defined as household ownership of domestic financial instruments considered in the M2 monetary aggregate.

[25] Voluntary savings is the difference between total financial savings and compulsory savings. Compulsory savings include resources from the Pension Savings System (*Sistema de Ahorro para el Retiro*, SAR), Infonavit and pension funds of the State Worker Social Security and Services Institute (*Instituto de Seguridad y Servicios Sociales para los Trabajadores del Estado*, ISSSTE).

real annual rate of 7.5 percent, slightly higher than that of the first quarter of 2007 (6.8 percent).

Graph 10
Household Savings in Domestic financial instruments

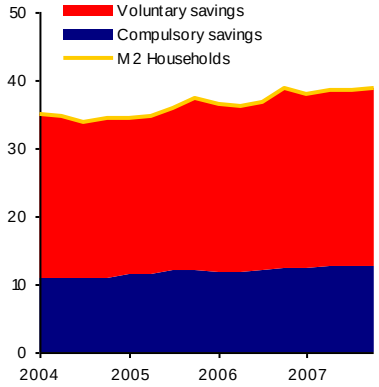
a) Total Financial Savings

Real annual percentage change

Figures as of March 2008.

b) Voluntary and Compulsory Financial Savings [1/]

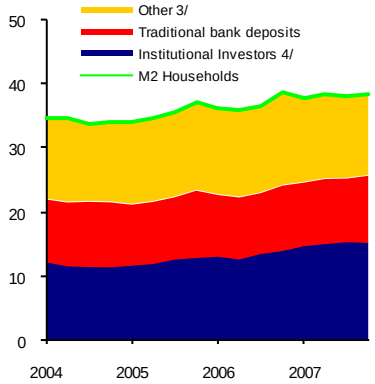
Percent of GDP [2/]



Figures as of December 2007.

c) Total Financial Savings by Intermediary

Percent of GDP [2/]



Figures as of December 2007.

Source: Banco de México.

1/ Voluntary savings is the difference between total financial savings and compulsory savings. Compulsory savings include funds from the Retirement Savings System (SAR), the Public Housing Fund (*Instituto del Fondo Nacional de la Vivienda para los Trabajadores*, Infonavit) and pension funds of the Government Employees' Social Security Institute (*Instituto de Seguridad y Servicios Sociales para los Trabajadores del Estado*, ISSSTE).

2/ Refers to average GDP (base 2003) over the last four quarters.

3/ Includes bills and coins held by the public, investment in securities on their own account, housing funds (Infonavit, and ISSSTE housing fund), the central account of Banco de México, and ISSSTE pension funds.

4/ Includes holding of securities of Investment Funds Specialized in Retirement Savings (*Sociedades de Inversión Especializadas en Fondos para el Retiro*, Siefores), insurance companies, and mutual funds.

Household indebtedness

During 2007, the trend of greater access to credit for households observed over the last few years continued, both for consumer credit and mortgage credit. However, that same year both types of credit grew at a slower rate. During the second half of 2007, the cost of credit through credit cards increased. These trends towards a gradual slowing down of household credit growth rates and an increase in the cost of consumer credit continued into the first quarter of 2008.

One indicator of the greater access enjoyed by households to the credit market during 2007 is the number of files of individuals registered in the Credit Bureau as having some type of loan. The figure jumped from 27.6 million in December 2006 to 32.5 million in December 2007 (Graph 11a).[26]

As for household indebtedness, total household credit in 2007 recorded an average real annual change of 10.3 percent, accounting for 12.8 percent of GDP at year end (Table 3). Total consumer credit increased at an average real annual rate of 21.9 percent, as compared to 38 percent during the previous

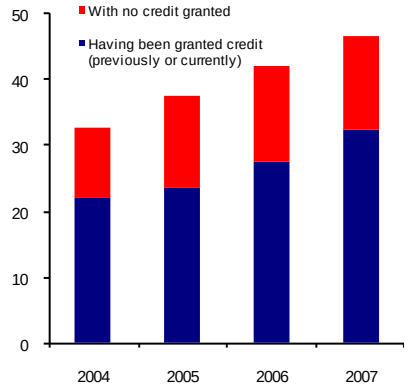
[26] The total number of credit bureau files as of December 2007 stood at 46.7 million, although not all the files refer to credit. If a person has no credit bureau file, a query with the bureau will generate one, regardless of whether or not credit has been granted. Bearing this in mind, in December 2007 the bureau had 14.2 million files with no associated credit.

year.[27] By the end of 2007 consumer credit accounted for 4.7 percent of GDP (Table 3). The growth in consumer credit indicates both a higher indebtedness among households that already had access to credit and access by new participants in this market. This has allowed consumer credit to continue growing in GDP percentage terms (Graph 11b). However, as households increase their indebtedness to its desired level and options to extend bank services to new sectors run out, the growth rate of this type of credit is expected to drop.

Graph 11
Consumer Credit

a) Number of Individuals Filed in the Credit Bureau

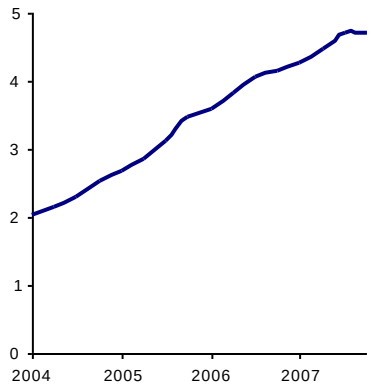
Millions



Figures as of December 2007.
Source: Credit Bureau.

b) Consumer Credit [1/]

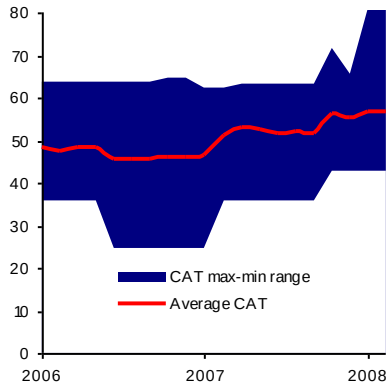
Percent of GDP[2/]



Figures as of December 2007.
Source: Banco de México.

c) Total Annual Cost (CAT) of Credit Cards[3/]

Annual percentage



Figures as of April 2008.
Source: Prepared using Condusef data.

1/ Includes total credit portfolio and portfolio associated with bank restructuring programs and total credit of non-bank financial intermediaries.
2/ Refers to average GDP (base 2003) over the last four quarters.
3/ Information on the Annual Percentage Rate of Charge (*Costo Anual Total*, CAT) of credit cards used to calculate the simple average and min-max range of CAT corresponds to the cost of sets of credit cards known as "classic" and is provided by the National Commission for the Protection and Defense of Users of Financial Service Users (*Comisión Nacional para la Protección y Defensa de los Usuarios de Servicios Financieros*, Condusef). The range of dispersion is defined using, at each point, the maximum and minimum CAT levels reported for this set of credit cards. See also Box 34 of this Report.

Commercial banks are the main financial intermediaries that grant consumer credit. In December 2007, their total consumer credit portfolio accounted for 91.8 percent of this market. In the first quarter of 2008, direct performing loans from commercial banks grew at an average real annual rate of 11.1 percent, as compared to 32.7 percent during the same period of 2007.[28]

As for the cost of commercial banks' consumer credit, Graph 11c shows the dispersion range of the Annual Percentage Rate of Charge (CAT) of credit cards defined on the basis of the maximum and minimum CAT of a set of credit cards.[29] Over the last few months, this range has shifted upwards. Similarly, the

[27] Includes total consumer credit portfolio of the banking sector (which itself includes direct credit and portfolio associated with restructuring programs) and total consumer credit of non-bank financial intermediaries.

[28] Data on commercial banks' consumer credit is, as of March 2008, affected by the transfer of credit portfolio via credit cards from Banco Nacional de México S.A. to Sofom Tarjetas Banamex. The average growth rate during the first quarter, disregarding the effect of this transfer, is 18 percent.

[29] Information on the CAT of credit cards corresponds to the cost of a set of credit cards known as "classic" and is provided by the National Commission for the Protection of Users of Financial Institutions (Condusef). The dispersion range is defined using, at each point, the maximum and minimum CAT levels reported for this set of credit cards.

simple average of these indicators rose from 46.4 percent in June 2007 to 56.9 in April 2008.[30]

In 2007, total mortgage credit grew at an average real annual rate of 4.7 percent, which meant that as of December that year it accounted for 8.1 percent of GDP (Table 3 and Graph 12b). The credit portfolio of Infonavit, which is the main housing credit intermediary (58.7 percent of the total), grew, on average, at an annual rate of 7 percent in real terms, as compared to the growth rate of 5.8 percent during the previous year. Total commercial banks' mortgage credit in December 2007 accounted for 31.4 percent of the total.[31] During the first quarter of 2008, commercial banks' direct performing mortgage credit grew at an average real annual rate of 24.6 percent, 8 percent less than during the same quarter of last year.[32]

According to the National Housing Commission (*Comisión Nacional de Vivienda*), in 2007 a total of 718,300 mortgage loans were granted, as compared to 733,200 during the previous year (Graph 12a). Infonavit, for its part, granted a total of 458,700 loans, 36,300 more than the previous year (421,000 loans). This development is due mainly to the increase in the number of loans granted to low-income workers (earning up to 1.9 times the minimum salary), which rose from 52,000 in 2006 to 82,800 in 2007.

As for commercial banks' mortgage rates, during the second half of 2007 and the first quarter of 2008, the range of dispersion of the CAT for mortgage loans from commercial banks has not changed significantly (Graph 12c).[33] Similarly, the simple average of this indicator has been stable since late 2006.[34]

[30] It should be noted that the simple average of the CAT of credit cards is not necessarily an indicator that generally reflects financing cost conditions through credit cards. In the case of credit cards, this is evident, as not all products account for the same proportion of the total credit granted by commercial banks through this instrument. As a result, a better indicator for such purposes would be an average of the respective CAT weighted by the balance of credit associated with each product. The disaggregation available related to the information on the credit granted by commercial banks through credit cards does not allow for estimating this type of indicator.

[31] Includes total mortgage loans from commercial banks (which include direct credit and portfolio associated with restructuring programs).

[32] Commercial banks' mortgage credit figures include the purchase of credit portfolio from Sofoles by commercial banks. Also, according to the provisions of the National Banking and Securities Commission (*Comisión Nacional Bancaria y de Valores*, CNBV), they include portfolio reclassifications from the construction category to the firm category as of January 2007. By excluding the effects of reclassifying bridge loans for construction from mortgage credit to credit to firms, the average real annual growth rate of commercial banks' direct performing mortgage credit dropped from 47.1 percent in the first quarter of 2007 to 26.1 percent during the same period of this year.

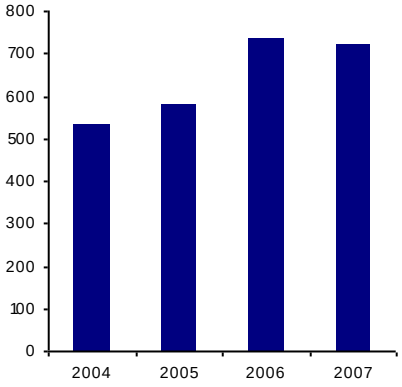
[33] The range of dispersion of the mortgage credit CAT is defined using the maximum and minimum indicators reported by the commercial banks for a standard mortgage product in the month in question.

[34] In this case, the simple average CAT of mortgage credit is presented, not the data corresponding to the weighted average of said CAT, due to the lack of information on the credit balance for each mortgage credit product considered to generate this indicator.

Graph 12
Mortgage Credit

a) Mortgage Credit

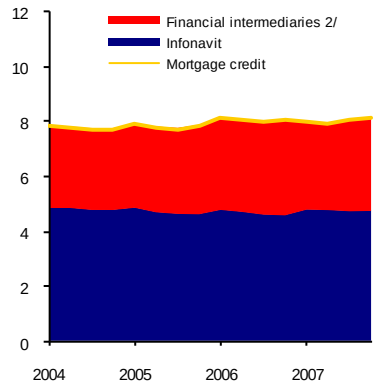
Thousands



Figures as of December 2007.
Source: National Housing Commission.

b) Mortgage Credit

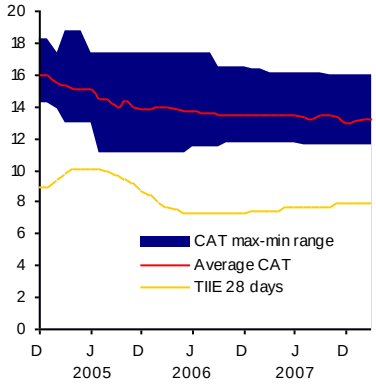
Percent of GDP[1/]



Figures as of December 2007.
Source: Banco de México.

c) Commercial Banks' Mortgage Rate[3/]

Annual percentage



Figures as of March 2008.
Source: Banco de México.

1/ Refers to average GDP (base 2003) over the last four quarters.
2/ Includes total credit portfolio and portfolio associated with banking restructuring programs and total credit of non-bank financial intermediaries. Does not include non-bank intermediaries that became Sofomes as of September 2006.
3/ Simple average of the indicator describing the total annual percentage rate of charge (CAT) of credit for a standard mortgage product. The dispersion range of the mortgage credit CAT is defined using the maximum and minimum indicators reported by commercial banks for a standard mortgage product CAT for a particular month. Information on the CAT can be obtained from Banco de México's Mortgage Credit Search Simulator.

Households' debt service

In 2007, households' debt service (capital amortization and payment of interest) grew substantially, especially debt service related to consumer credit, and continued to grow at a faster rate than disposable income.[35, 36]

On analyzing household debt service, it is important to bear in mind the differences between consumer financing and housing financing. Credit provided through credit cards is a highly revolving short-term financing, which means debt service with regard to the balance is high during the calendar year. Housing credit, on the other hand, is long term and, hence, in the course of a calendar year debt service with regard to the balance in question is low. Debt service through credit cards is the biggest household debt burden. In the last quarter of 2007, credit card debt service amounted to 2.9 percent of disposable household income, while the service of other types of consumer credit accounted for 1.6 percent (Graph 13a). Household mortgage debt service, for its part, accounted for 2.6 percent of disposable income (Graph 13b). Households' debt service accounted for 7.0 percent of disposable income (5.2 percent in the last quarter of 2006) (Graph 13c).[37]

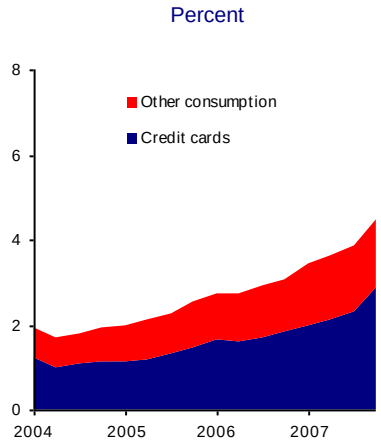
[35] There are a number of indicators regarding households' debt service burden. One of the most commonly used consists of relating the amount disbursed as a result of debt service with some measurement of the payment capacity of borrowers, i.e., a variable linked to household income.

[36] In countries like the United States, Spain, Chile, and the United Kingdom, as well as others, debt service calculations usually include the payment of interest and capital amortization. For the central banks of Australia and New Zealand, these statistics only consider household debt interest payments.

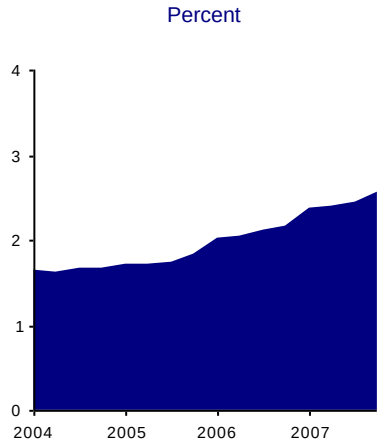
[37] This type of indicator is usually revised to the extent that new information allows for fine-tuning the estimation methodology.

Graph 13
Households' Debt Service

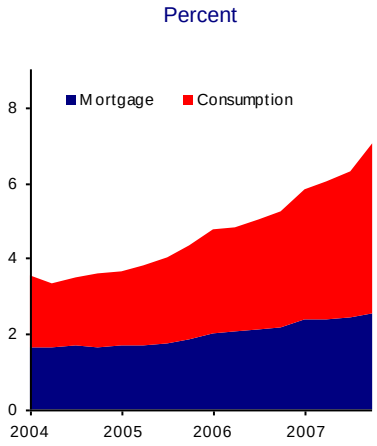
a) Consumer Credit Debt Service as a Proportion of Disposable Household Income [1/2/]



b) Mortgage Debt Service as a Proportion of Disposable Household Income [1/3/]



c) Total Debt Service as a Proportion of Disposable Household Income [1/]



Figures as of December 2007.
Source: Banco de México.
1/ Disposable household income estimates are formulated using information from the National Accounts System, the wage bill of the National Employment Survey, and the Mexican Social Security Institute (*Instituto Mexicano del Seguro Social*, IMSS), workers' remittances, and collection of taxes from individuals.
2/ Bank credit card debt service is estimated on the basis of credit portfolio balance information, the minimum monthly percentage charge and commissions for credit card usage. Debt service for other types of bank consumer credit considers loans for acquiring durable consumer goods and personal loans. These are calculated using data on credit portfolio and car loan maturities and personal loans.
3/ Mortgage debt service calculations consider mortgages granted by commercial banks, Sofoles, and Infonavit. For the first two, information on credit portfolio, average mortgage interest rate, and average mortgage term was used. In the case of Infonavit, debt service was calculated on the basis of the institute's credit amortization rules.

Although households' debt service in Mexico has grown over the last few years, it remains at low levels.[38] In the United States, the ratio of disposable income to household debt service in 2007 was 14.3 percent.[39] In Spain, households' debt service as a percentage of disposable household income in 2006 was 14.8 percent, while in Chile, in the third quarter of 2007, households' debt service accounted for 20.4 percent of disposable household income. In the United Kingdom, households' debt service as a percentage of disposable household income stood at 11.8 percent in 2006.[40]

[38] Household debt service figures cannot be compared among different countries due to differences in the estimation methodologies used in each country, as a result mainly of the availability of information on debts, costs, and terms. The ideal set of information for calculating households' debt service consists of interest payments and amortizations carried out by each household. However, this information is usually not available, which means that households' debt service is often estimated on the basis of data on household credit balances (consumption and housing), average maturities, estimated payments, and indicators of the average cost of each type of credit.

[39] In the United States, the ratio of household financial obligations to disposable income, which, in addition to debt service, includes household payments for the rental of housing and automobiles, among others, stood at 19.3 percent in 2007.

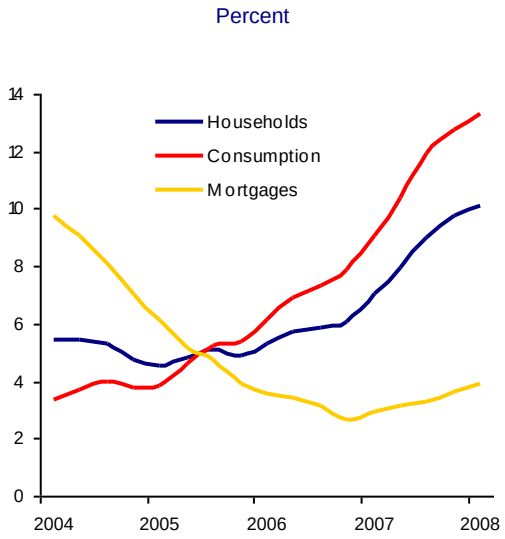
[40] Source: US Federal Reserve, Financial Stability Reports issued by the central banks of Spain, Chile, and the United Kingdom.

Households' non-performing loans

During 2007 and the first quarter of 2008, the adjusted delinquency rate[41] for commercial banks' credit to households rose from 6.1 percent in December 2006, to 10.1 percent in March 2008. As far as household credit components are concerned, the adjusted delinquency rate for commercial banks consumer credit rose from 7.9 percent to 13.3 percent between December 2006 and March 2008. In the same period, the adjusted delinquency rate for commercial bank housing loans went up from 1.3 percent to 3.9 percent (Graph 14a). As already said, the increase in consumer credit delinquency is attributable, among other things, to the strategy pursued by some banks to service sectors of the population regarded as riskier and for which there was no prior credit information in some cases.

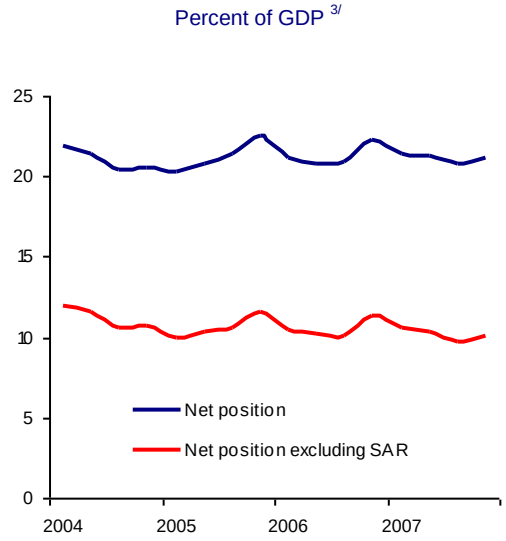
Graph 14
Adjusted Delinquency Rate and Net Financial Position of Households

a) Adjusted Delinquency Rate[1/] on Household Loans



Figures as of March 2008.

b) Net Financial Position of Households [2/]



Figures as of December 2007.

Source: Banco de México.
1/ The adjusted delinquency rate is defined as the sum of direct non-performing loans plus any write-offs or losses recognized by banks during the twelve previous months divided by total direct loan portfolio plus the abovementioned write-offs or losses.
2/ Assets minus financial liabilities not including share holdings.
3/ Refers to average nominal GDP (base 2003) over the last four quarters.

[41] The delinquency rate defined as non-performing loans as a proportion of the total loan portfolio is an indicator which is affected by borrower default in addition to, among others, the decisions taken by banks concerning their non-performing loans. Non-performing loan write-offs and sales make it possible to reduce delinquency rate levels without any changes on the part of borrowers (see Box 21). For this reason, this section reports a delinquency rate that has been adjusted for credit granted by commercial banks to households and non-financial private companies. This rate is defined as the total of direct non-performing loans plus any write-offs or losses recognized by banks during the twelve previous months between total direct credit portfolio plus the abovementioned write-offs or losses. For this reason, this rate provides a more accurate indication of compliance level deterioration with regard to the obligations of the respective sector. The credit statistics considered for this rate are obtained from the bank balances published by Banco de México, in which a different private sector (households and companies) credit portfolio sectorization from the sectorization used by the National Banking and Securities Commission is applied. For example, mortgage credit includes credit granted by banks to their own employees.

Households' financial position

As of 2007 year end, the financial position of households recorded a surplus equivalent to 21.1 percent of GDP (Table 3), compared to 22.2 percent at the end of 2006. Excluding compulsory savings linked to pension funds and housing, which is not a freely available asset for the sector, the financial position of households accounted for 10.1 percent of GDP, figure below that of 11.3 percent of GDP recorded in 2006 (Graph 14b).[42]

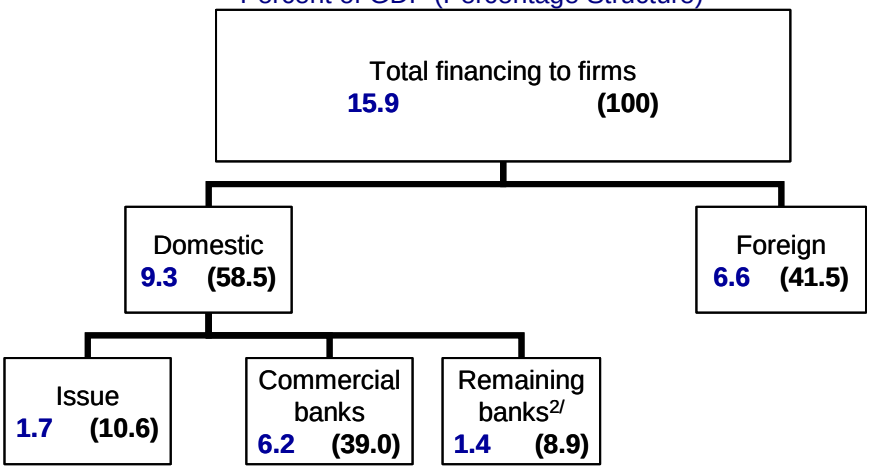
3.4. Non-financial private companies

The structure of financial liabilities of non-financial private companies

In 2007, total financing of firms grew at an average real annual rate of 16.4 percent and represented 15.9 percent of GDP, one percent above the previous year figure (Table 4 and Graph 15a).

Domestic financing to firms in 2007 grew at a faster rate than in previous years, with an average real annual growth rate of 20.4 percent (6.3 percent in 2006). By the end of that year, this aggregate accounted for 9.3 percent of GDP, while in 2006 it accounted for 8.1 percent of GDP. External financing to firms, as a percentage of GDP, stood at 6.6 percent during 2007, similar to 2006 figures (Table 4).

Table 4
Total Financing to Private Firms: Balances as of December 2007
Percent of GDP (Percentage Structure) 1/



Figures as of December 2007.
Source: Banco de México.
1/ Figures may not add up due to rounding. Numbers in blue are the total as of December 2007 expressed as a percentage of average annual GDP (base 2003). Numbers in brackets and in black correspond to each category's proportion, as a percentage, of total financing to private firms in December 2007.
2/ Includes credit granted by development banks, leasing companies, factoring companies, credit unions, SAPs, Sofoles, and Sofomes E.R.

[42] This measurement includes financial household assets only, and excludes holding of shares accounting for just a portion of total wealth.

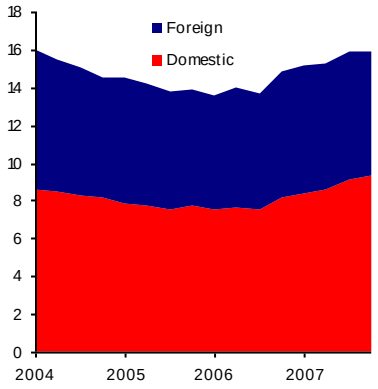
The growth in domestic financing was driven mainly by commercial bank credit. In 2007, commercial bank credit to firms accounted for 66.7 percent of domestic financing, as compared to 60.6 percent during the previous year (Graph 15b).[43] Also, in the first quarter of 2008, direct commercial bank performing loans to firms grew, on average, 30.9 percent in real annual terms, 7.6 percent above the average growth rate for the same period of 2007. Domestic financing received by firms via the issuance of bonds in 2007 grew, on average, 1.6 percent of GDP, similar to its 2006 figure.

In 2007, as in recent years, the number of firms that had access to financing, especially bank credit, rose.[44] The number of files on companies with some kind of loan in the credit bureau database rose from 834,700 in December 2006 to 915,800 at the end of 2007 (Graph 15c).[45,46]

Graph 15
Financing to Private Firms

a) Total Financing to Firms

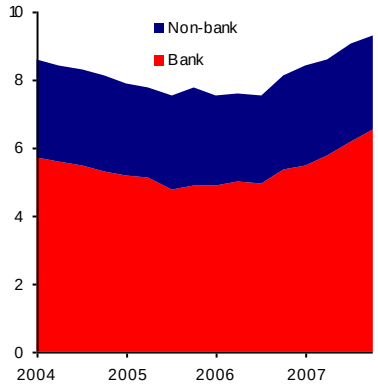
Percent of GDP[1/]



Source: Banco de México.

b) Domestic Financing to Firms by Type of Intermediary[2/]

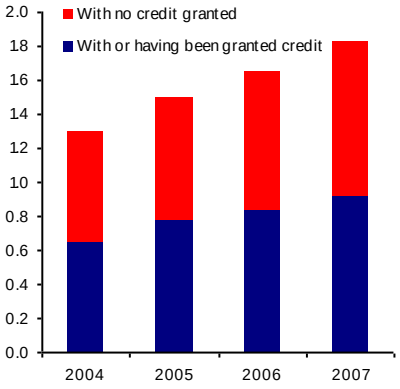
Percent of GDP[1/]



Source: Banco de México.

c) Number of Firms in the Credit Bureau

Millions



Source: Credit Bureau.

Figures as of December 2007.
1/ Refers to average GDP (base 2003) over the last four quarters.
2/ Non-bank financing includes total credit of non-bank financial intermediaries, debt instrument issuance, and external financing. Bank financing includes total credit portfolio and portfolio associated with restructuring programs.

Private firms' domestic debt market

Non-financial private firms' domestic debt market was more dynamic in 2007 than in the previous year. Medium and long-term corporate debt issuance totaled 55.9 thousand million pesos (real annual growth of 38.9 percent) (Graph

[43] Includes total credit portfolio and portfolio associated with restructuring programs.

[44] In 2007, Regulatory Report R04c figures indicate that commercial banks granted 288,900 loans, around 76,000 more than in 2006.

[45] Not all files contain loans. If a company has no credit bureau files, a query with the bureau generates a file, regardless of whether or not credit has been received. Furthermore, this indicator does not include individuals with business activities.

[46] The 2004 Economic Census recorded a total of three million industrial and service sector establishments, but excluded primary sector activities (with the exception of fishing and aquaculture). The credit bureau, for its part, reports information on companies from all the different economic sectors.

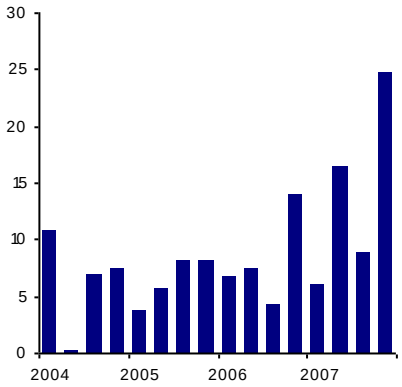
16a). Similarly, in 2007, firms' debt balance stood at 1.7 percent of GDP, same figure as in the previous year (Graph 16b).

The maturity of corporate debt in the domestic market increased in 2007. Between December 2006 and December 2007, the average maturity of corporate debt rose from 1,827 days to 2,469 days (Graph 16c).

Graph 16
Non-Financial Firm's Debt

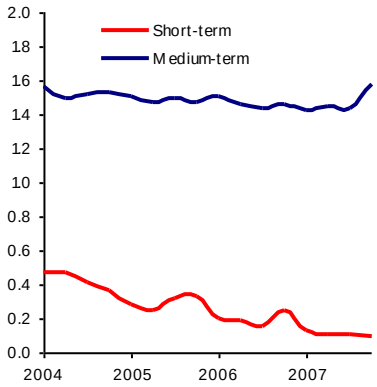
a) Medium-term Debt Issued

Billion pesos



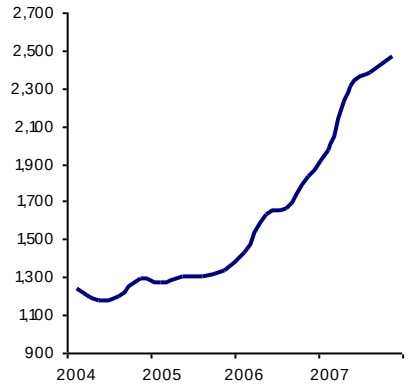
b) Short- and Medium-Term Debt [1/]

Percent of GDP [2/]



c) Residual Maturity of Medium-Term Debt

Days
(weighted average)



Figures as of December 2007.
Source: Banco de México.
1/ Corporate debt placed at less-than-one year terms is classified as short term, while that placed at terms of one year or more is regarded as medium term.
2/ Refers to average GDP (base 2003) over the last four quarters.

Bank credit to private firms

All sectors of the economy had an increasing availability of commercial bank credit. At the end of 2007, total commercial bank credit to firms amounted to 6.2 percent of GDP, as compared to 4.9 percent during the previous year (Table 4).

During the first quarter of 2008, total commercial bank performing loans granted to firms followed a positive trend. Credit annual growth in the manufacturing industry stood at 23.2 percent on average in real terms (11.4 percent during the first quarter of 2007), while credit granted to the service sector grew, on average, at a real annual rate of 23.4 percent (19.5 percent during the same period of 2007). In the construction industry, it grew, on average, 81 percent in real annual terms (84.6 percent during the first quarter of 2007) (Graph 17a). [47]

During 2007, bank credit to small and medium firms continued growing. Credit granted to these firms grew, on average, at a real annual rate of 31.9 percent during the year (29 percent in 2006). Credit to large firms, on the other

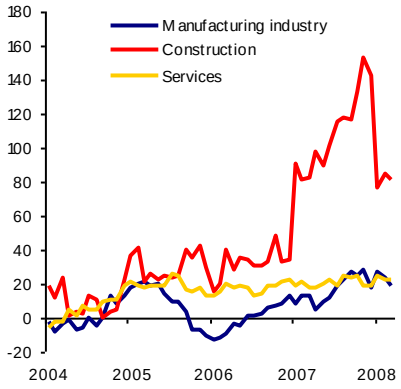
[47] Direct credit portfolio and portfolio associated with programs to restructure debt of firms and individuals with business activities is considered.

hand, grew, on average, 22.6 percent in real annual terms, as compared to 5 percent during 2006 (Graph 17b).[48]

Graph 17
Commercial Bank Credit to Private Firms

a) Performing Loans by Economic Activity [1/]

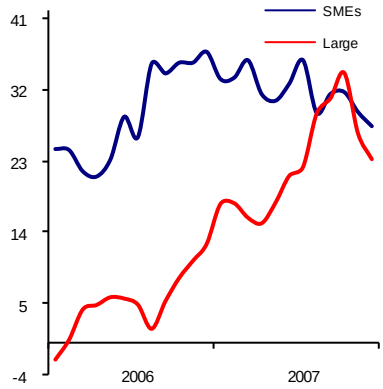
Real annual percentage change



Figures as of March 2008.
Source: Banco de México.

b) Bank Credit to Firms by Size of Firm [1/]

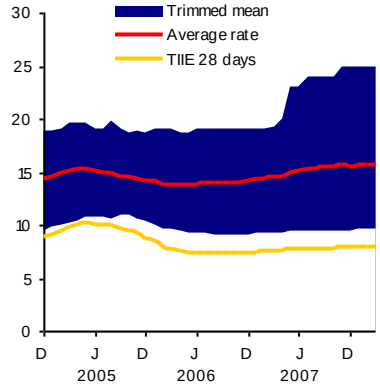
Real annual percentage change



Figures as of December 2007.
Source: Prepared using information reported by commercial banks to the National Banking and Securities Commission (CNBV).

c) Average Lending Interest Rates [2/]

Annual percentage



Figures as of March 2008.
Source: Banco de México.

1/ Direct credit portfolio and portfolio associated with programs to restructure debt of firms and individuals with business activities is considered.
2/ Simple average nominal interest rate of credit granted by commercial banks to firms in pesos. Information obtained from the National Banking and Securities Commission. The trimmed interval (10 percent) of interest rates on credit to firms is defined on the basis of the trimmed distribution of interest rates associated with each credit. The interval is defined without including 10 percent of the observations in each upper or lower limit of the distribution. Interest rates at the upper and lower limits of the distribution are therefore excluded.

Graph 17c shows that the interval of interest rates associated with commercial bank credit to firms has been growing since mid-2007, due mainly to an increase at the upper end of this interval.[49] These developments have been the result of the growth in credit to smaller business segments, which involves a higher degree of credit risk. The higher interest rates on credit to firms at the upper end of the interval are the result, above all, of increased interest rates on a small number of credits. The simple average of these interest rates stood at 15.7 percent in March 2008, as compared to 15.1 percent in June 2007 (Graph 17c).[50]

[48] According to the National Banking and Securities Commission's classification, a firm is regarded as small and medium-sized (Pyme) if it has less than 100 employees and belongs to the retail or service sector, or less than 500 employees if it belongs to the industrial sector.

[49] The dispersion interval for interest rates on credit to firms is based on the trimmed distribution of interest rates associated with each credit. In this regard, the interval is defined without including 10 percent of the observations at the upper and lower limits of the distribution. Interest rates at the upper and lower limits of the distribution are therefore excluded.

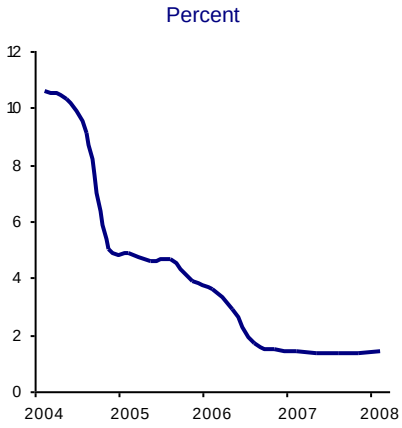
[50] The simple average of interest rates on credit to firms is calculated considering only the figures located in the interval referred to above (80 percent of the distribution center). As has already been pointed out, a simple average does not necessarily reflect bank financing cost conditions. Work is currently being performed to devise an indicator of interest rates on credit to firms where the latter are weighted in terms of the balance of credit associated with each one.

Private firms' non-performing loan portfolio

The adjusted delinquency rate[51] for commercial bank credit granted to firms remained relatively stable. In March 2008, this rate stood at 1.39 percent, as compared to 1.43 percent during the same month of the previous year (Graph 18a).

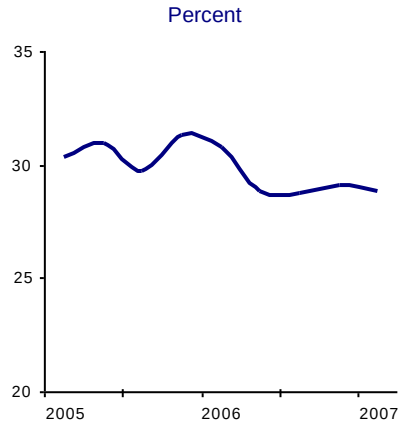
Graph 18
Private Firms' Adjusted Delinquency Rate and Debt Service

a) Adjusted Delinquency Rate of Credit to Firms 1/



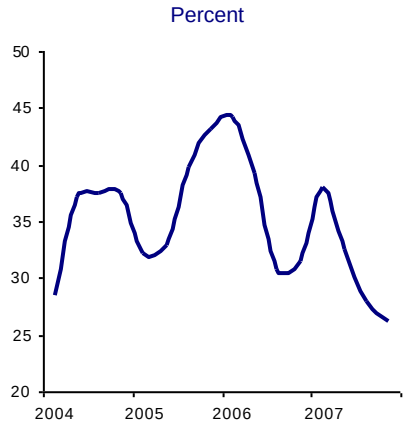
Figures as of March 2008.

b) Firms' Domestic Debt Service as a Proportion of Total Debt 2/



Figures as of December 2007.

c) Firms' Service of Securities Debt as a Proportion of Total Debt 3/



Figures as of December 2007.

Source: Banco de México.

1/ The adjusted delinquency rate is defined as total direct non-performing loans plus any write-offs or losses recognized by banks in the twelve previous months divided by total credit portfolio plus any of the abovementioned write-offs or losses.

2/ Bank debt service of non-financial private companies corresponds to estimated amortizations and payment of quarterly interest of domestic debt with the banking sector (commercial and development banks). Credit amortizations with commercial banks were calculated using commercial credit with a term to maturity or residual maturity of up to three months. Interest payments correspond to financial income accrued by commercial credit.

3/ In the case of debt service of securities issued domestically by non-financial private companies, amortization corresponds to maturities accumulated throughout the quarter, while interest payments are calculated on the basis of the amount of securities outstanding and interest rates weighted per instrument.

[51] The adjusted delinquency rate of multiple bank credit granted to non-financial private companies is the total of direct non-performing loans plus any write-offs or losses recognized by banks in the twelve previous months divided by total credit portfolio plus any of the abovementioned write-offs or losses (see footnote on page 41). Credit portfolio used for this rate is obtained from the bank balances published by Banco de México, which provide a portfolio sectorization of the credit granted to non-financial private companies resident in the country different from the sectorization used by the National Banking and Securities Commission.

Private firms' debt service

Macroeconomic stability during 2007 allowed non-financial private companies to continue improving their liability profiles. This was evidenced by a drop in the service of domestic debts (capital amortization and payment of interest) measured as a proportion of the total of such liabilities. In 2007 this indicator stood, on average, at 29.6 percent, figure lower than that of 32.6 percent for 2006. Firms' service of bank debts, as a proportion of their total debt to banks, was 28.9 percent on average in 2007, as compared to 30.7 percent during 2006 (Graph 18b). Debt service contracted through domestic securities issuance, given as a proportion of the total of these securities, dropped from 36.4 percent in 2006 to 31.2 percent on average in 2007 (Graph 18c).

3.5. The public sector

Public sector borrowing requirements

In 2007, Public Sector Borrowing Requirements (PSBR) represented 0.86 percent of GDP, figure similar to that observed during the previous year (0.85 percent of GDP).[52] However, the traditional public balance recorded equilibrium (Graph 20a).[53] This difference between PSBRs and the traditional balance stemmed from the net financing needs of additional liabilities guaranteed by the public sector and financial intermediation of development banks and trust funds. Financing to Pidiregas absorbed 0.9 percent of GDP, while the rest of the additional liabilities and financial intermediation altogether resulted in a reduction of debt equal to 0.04 percent of GDP.

In 2007, the public sector disposed of more funds than in previous fiscal years, which came mainly from increased public revenue and a reduction of public debt's financial cost (Graph 20b and c). Public finance results in 2007 can be analyzed by comparing them with the average results for the period 2003-2006 using the framework of source and use of funds resources.[54] Based upon this scheme, sources are the additional funds available to the public sector, due to higher revenue or lesser spending, as compared to the period 2003-2006. Uses, on the other hand, indicate the allocation of these additional funds. As a result, in 2007, additional funds available to the public sector amounted to 1.38 percent of

[52] Public Sector Borrowing Requirements (PSBR) data were obtained from Banco de México measurements using the source of financing methodology (accrued deficit) and differ from the calculation made by the Ministry of Finance using the public sector revenue and expenditure methodology (cash deficit). Other differences between the two methodologies include: a) asset valuation (market value versus investment value); and, b) IPAB's (Bank Deposit Insurance Institute) borrowing requirement measurements. The central bank's methodology is based on changes in IPAB's net financial position, published in the Quarterly Reports on the Economic Situation, Public Finances and Public Debt, while the methodology of the Ministry of Finance measures IPAB's borrowing requirements through debt flows in accrued terms.

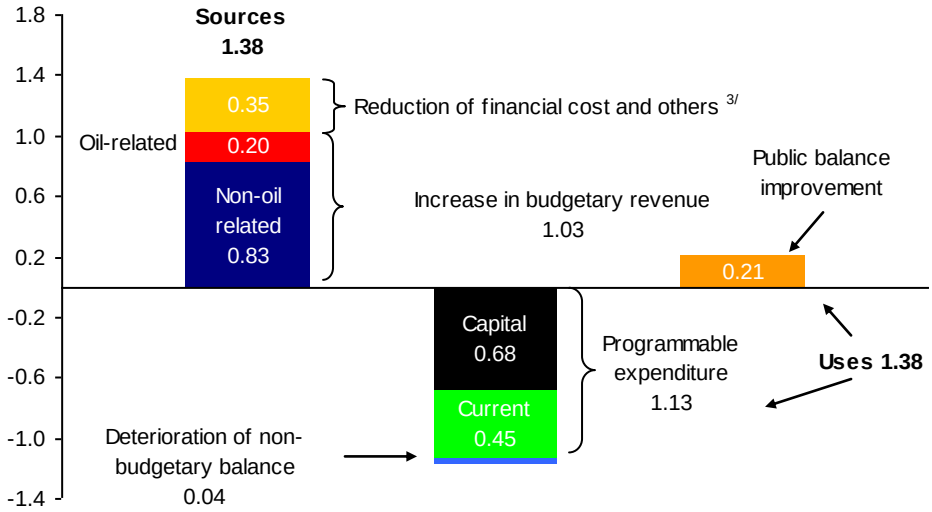
[53] The traditional public balance or economic balance measures the operating results (revenues minus expenses) of the non-financial federal public sector over a given period. This sector comprises the Federal Government and non-financial agencies/entities and enterprises under direct and indirect budgetary control. The broad definition of the public balance, the Public Sector Borrowing Requirements (PSBR), includes the traditional economic balance, financial intermediation of the development banking sector, official development funds and trusts, and financing flows to cover federal government additional liabilities: Budget Public Investment Projects Guaranteed by the Government (*Proyectos de Infraestructura Productiva de Largo Plazo*, Pidiregas), Trusteeship to Support Toll Road Concessions (*Fideicomiso de Apoyo para el Rescate de Autopistas Concesionadas,* FARAC), Bank Deposit Insurance Institute (*Instituto de Protección al Ahorro Bancario*, IPAB), and the Debtor Support Program.

[54] The 2003-2006 period was chosen for comparison because the new base of GDP is only available as of 2003.

GDP. This situation is attributable to three main factors: i) increased oil revenue equaling 0.20 percent of GDP; ii) increased non-oil revenue accounting for 0.83 percent of GDP; and, iii) a reduction in financial costs and other outlays representing 0.35 percent of GDP (Graph 19).

Graph 19
Public Revenue, Expenditure, and Balance [1/]
Difference between the 2007 value and the annual average for the 2003-2006 period

Percent of GDP [2/]



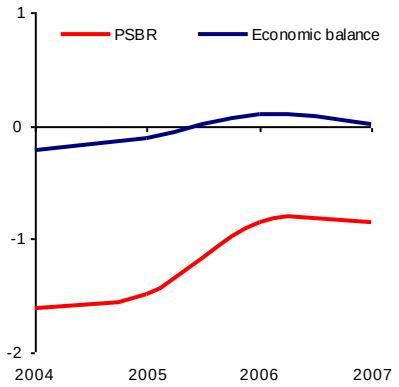
Figures as of December 2007.
Source: Ministry of Finance (SHCP).
1/ Figures may not add up due to rounding.
2/ Refers to average GDP (base 2003) for each year.
3/ Includes a reduction of 0.27 percent in financial costs, 0.06 percent in debts from previous years (Adefas), and 0.02 percent in federal revenue sharing.

The higher availability of funds in 2007 as compared to the average during the period 2003-2006 enabled the public sector to both increase programmable expenditures by 1.13 percentage points of GDP and to cover a deterioration of the non-budgetary balance equivalent to 0.04 percentage points of GDP as well as to improve the traditional public balance by 0.21 percentage points of GDP. Most of the increased portion of programmable expenditures was allocated to capital spending (0.68 percent of GDP). This reorientation of spending was based on the rules for distributing excess revenues (over budgetary revenue), set forth by the Federal Budget and Financial Responsibility Law (*Ley Federal de Presupuesto y Responsabilidad Hacendaria*) which came into force in 2007 to promote both physical and financial investment.

Graph 20
Fiscal Indicators

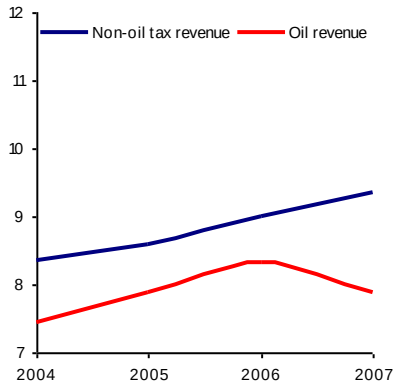
a) Economic Balance and Public Sector Borrowing Requirements (PSBR) [1/]

Percent of GDP[2/]



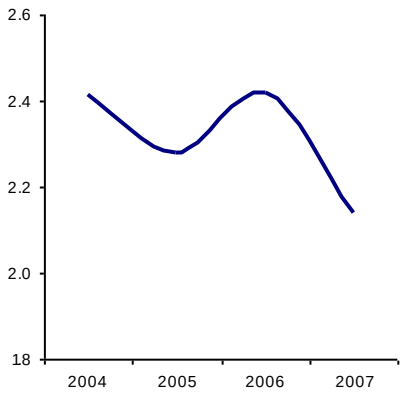
b) Oil Revenue and Non-oil Tax Revenue

Percent of GDP[2/]



c) Financial Cost of Public Budgetary Debt [3/]

Percent of GDP[2/]



Figures as of December 2007.
Source: Ministry of Finance (SHCP) and Banco de México.
1/ Banco de México's methodology.
2/ Refers to average GDP (base 2003) for the year.
3/ The total financial cost of the public budgetary debt (federal government, and entities end enterprises) comprises interest, commissions and public debt expenses, as well as hedging expenses. Debt amortizations are not included in this item.

Public debt structure

In 2007, efforts continued to improve the public debt risk profile (in terms of amount and composition) as well as to improve its payment conditions. At the end of 2007, the net broad economic debt stood at 15.1 percent of GDP, 1.3 percent lower than the previous year.[55] Adding additional liabilities (Pidiregas, FARAC, IPAB, and debtor support programs) to this definition of debt, it arrived at 29.0 percent of GDP, 1.5 percentage points of GDP lower than the figure observed in 2006 (Graph 21a).[56] In both cases (that is, including and excluding additional items), public debt reached its lowest level in recent years.

The strategy to replace foreign debt with domestic debt continued in 2007. At the end of 2007, domestic liabilities accounted for 77.6 percent of the net broad economic debt (69.0 percent in 2006) (Graph 21a). As of the third quarter of 2005, the public sector debt consolidated with Banco de México has maintained a net external creditor position (Graph 21b).[57]

Graph 21
Public Debt

a) Net Broad Economic Debt [1/]

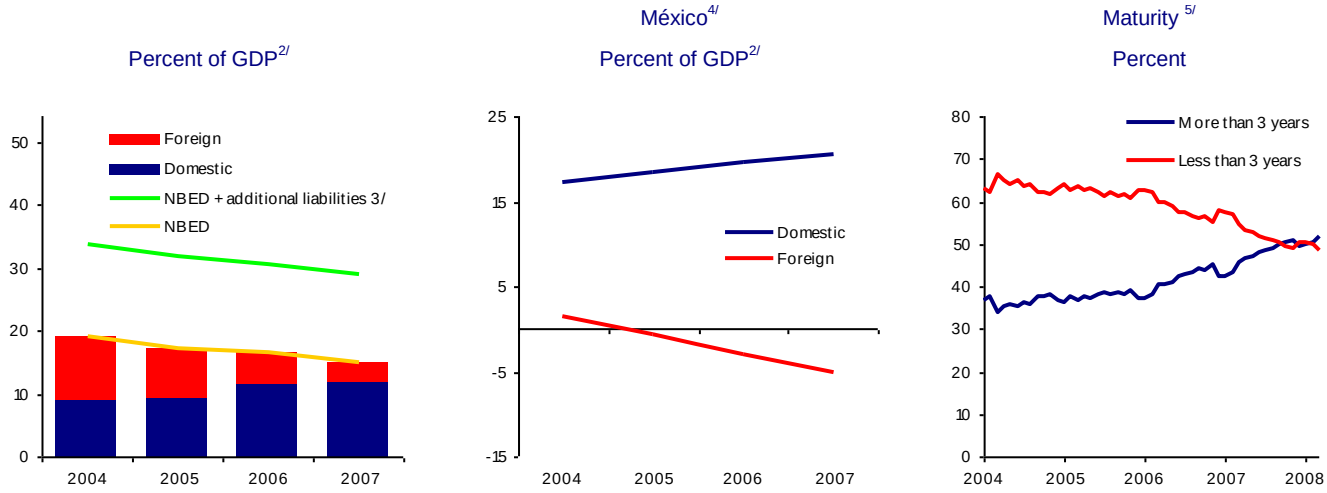
b) Public Net Debt Consolidated with Banco de

c) Federal Government Securities by

[55] The net broad economic debt includes net liabilities of the federal government, the state sector, development banks, and of development trusts.

[56] Additional liabilities include: a) the financing of Pidiregas; b) net availability obligations guaranteed by the FARAC (toll roads rescue program); c) the net liabilities of IPAB; and, d) banking debtor support programs.

[57] The public sector debt consolidated with Banco de México includes the assets and liabilities of the central bank with the private sector, commercial banks and the external sector, but excludes debt from Pidiregas, FARAC, IPAB, and the Debtor Support Program.



Figures as of December 2007.
Source: Banco de México.

Figures as of March 2008.

1/ The net broad economic debt includes net liabilities of the federal government, the state sector, and official financial intermediaries (development banks and development trust funds).
2/ Refers to average GDP (base 2003) for each year.
3/ Additional liabilities correspond to Pidiregas, FARAC, IPAB, and the Debtor Support Program.
4/ Public sector net debt consolidated with Banco de México includes assets and liabilities of the central bank with the private sector, and the commercial bank sector and the external sector. This concept does not include additional items.
5/ Residual maturity or term to maturity.

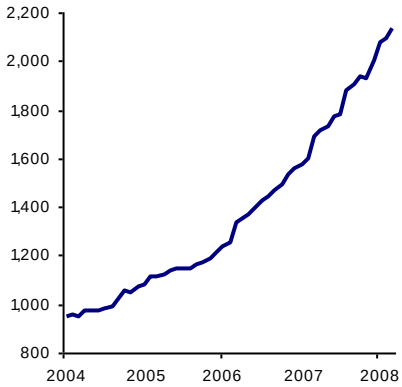
In 2007, federal government's domestic debt management continued to involve the issuance of both fixed-rate long term securities and inflation-indexed long term bonds (Udibonos), which made it possible to reduce liquidity and interest rate risks (Graph 21c). As a result, the average maturity of securities increased from 1,559 days in December 2006 to 2,133 days by March 2008 (Graph 22a). By extending this average maturity period, it was also possible to reduce the frequency with which these securities must be refinanced (Graph 22b).

In addition to the abovementioned, the federal government's domestic debt management aimed at achieving three further goals in 2007: i) to improve fixed rate bond yield curve benchmark, especially in the long tranche of the curve; and, ii) to develop the real interest rate curve by issuing more Udibonos. As far as the first goal is concerned, the issuance of 3, 5 and 30 year bonds was resumed in 2007; new 10 and 20 year bonds were issued; and, no more 7-year bonds were issued. As for the second objective, a new 3-year Udibono was issued; the placement dates of these instruments was modified so that each week one of the four different Udibonos (3, 10, 20, and 30 years) could be placed; a greater number of 20 and 30-year Udibonos were placed; conversely, the number of 10-year Udibonos was reduced.

Graph 22
Public Debt Service

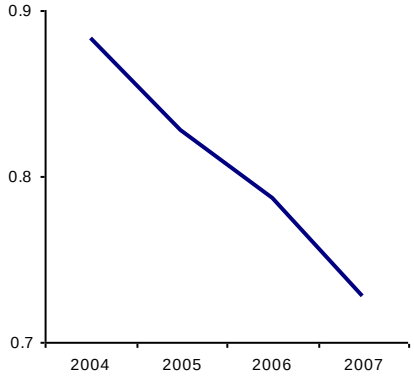
a) Weighted Average Maturity

Number of days



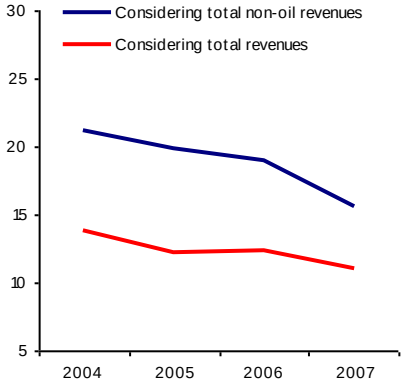
b) Domestic Government Securities Borrowing Requirements

Number of times



c) Federal Government Debt Interest Payments as a Proportion of its Revenues

Percent



Figures as of March 2008.
Source: Banco de México.

Figures as of December 2007.

Financial cost of federal government debt

Falling domestic interest rates over the last few years and the improved federal government debt profile brought about a drop in the total financial cost of federal government debt in 2007. As a proportion of GDP, the total financial cost of federal government debt decreased from 1.9 percentage points in 2006 to 1.7 percentage points in 2007, and in terms of federal government revenue, the financial cost ratio fell from 12.3 percent in 2006 to 11.0 percent in 2007 (Graph 22c).

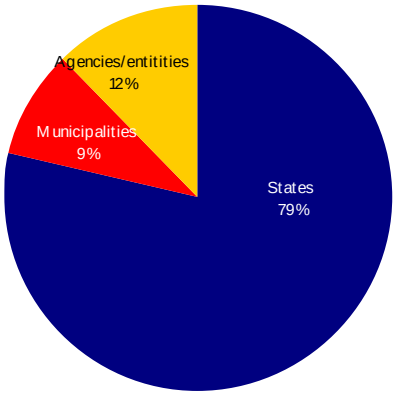
State and municipality debt

In 2007, the stock of debt of states and municipalities (including their respective entities) grew 12.3 percent in real terms to the equivalent of 1.7 percent of GDP as of the fourth quarter of 2007, 0.2 percent of GDP higher than the figure recorded in 2006. Debt of states accounted for 78.7 percent of total debt of states and municipalities (Graph 23a). The ten states with the biggest amount of debt accounted for 76 percent of total obligations for state and municipal authorities, figure below that observed at the end of 2006 (82.7 percent).

As of December 2007, the debt of states and municipalities accounted for 56.1 percent of revenues obtained through federal revenue sharing in the previous 12 months, which represents an increase compared to the 48.7 percent recorded at the end of 2006 (Graph 23b). This increase was due to higher indebtedness and a 2.9 percent reduction in real terms in the federal revenue sharing of 2007.[58] The ten states with the largest debt ratio to federal sharing revenues averaged 73.5 percent (67.8 percent in 2006). One significant development in 2007 was the extension of the average term to maturity for state debt from 11.4 years in 2006 to 16.7 years in December 2007 (Graph 23c). This change was due mainly to debt restructuring in a number of states.

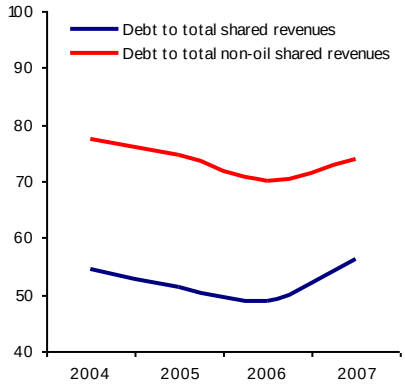
Graph 23
Debt of States and Municipalities

a) Structure of State and Municipality Debt [1/]



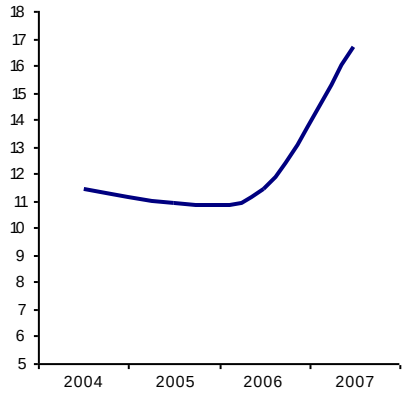
b) State Debt as a Proportion of Revenue Sharing

Percent



c) Weighted Average Maturity of State Debt in Securities

Years



Figures as of December 2007.
Source: Ministry of Finance (SHCP).
1/ Corresponds to state and municipality entities.

[58] The drop in federal revenue sharing in 2007 was due to two factors: first, the third quarterly adjustment of shared revenues corresponding to 2006 (and carried out in 2007) was negative; and, second, the oil component of federal tax sharing also recorded negative growth of 22.3 percent in real terms.

4. Financial Markets

This section examines the recent development of Mexico's main financial markets. In the case of the debt market, it also includes a glance of activities of the most outstanding issuers and investors, as well as the volume trade in the secondary market. In the foreign exchange market, trade behavior is described, and an outline of derivatives market activities is provided. Finally, the main issues of securitization of financial assets in the country are analyzed.

4.1. Debt market

Main issuers

Federal Government

During 2007 and the first quarter of 2008, the bulk of the Federal Government's financing continued to come from peso-denominated debt instead of foreign debt. As a result, the amount of peso-denominated liabilities outstanding rose by 276 billion pesos to reach 1.9 trillion pesos (16.5 percent of GDP) as of March 2008. At the same time, authorities stuck to their policy of replacing external liabilities with domestic liabilities through the sale of warrants. This strategy made it possible to swap 1.4 billion US dollars in foreign currency-denominated bonds for peso-denominated bonds maturing in 2014 and 2024.

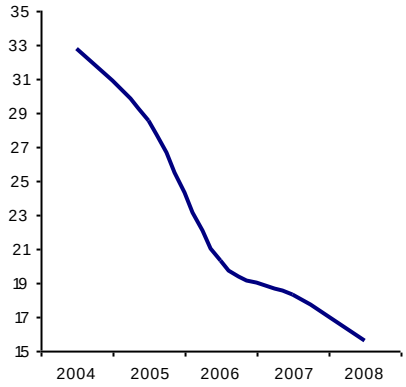
During this period, the Federal Government also managed to improve its debt profile by opting for more long term indebtedness, consequently, the average maturity of its peso-denominated liabilities rose from 12 months to 3.6 years (Graph 24c). Lesser rolling over was achieved through the placement of fixed-rate and real rate long term bonds (Bonos M and Udibonos) in 2007 and the first quarter of 2008, which came to a net total of 358 billion pesos. The same strategy also enabled the Government to reduce the risk of its liabilities to interest rate fluctuations. As a result, the short term rate-referenced debt (Bondes and Treasury Certificates (Cetes)) dropped by 82.2 billion pesos during this period (Graph 24b).

Authorities also took steps to reduce debt maturity concentration and increase the liquidity of certain long term reference issues. The Government performed swaps for a total of 31.9 billion pesos by replacing short term maturity bonds with long term ones with the aim of improving its overall maturity profile. It also suspended the placement of seven-year bonds to switch funds over to three, five and ten-year issues. Finally, three-year Udibono auctions were resumed in order to complete the real interest rate reference curve (Graph 25).

Graph 24
Federal Government Debt

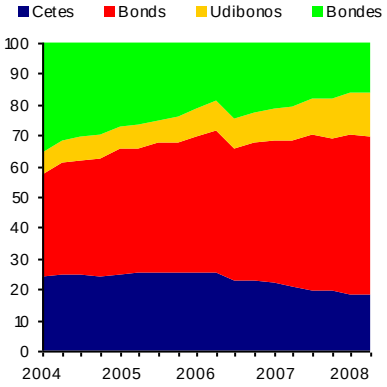
a) Securities Issued Abroad as a Proportion of Total Debt in Securities

Percent



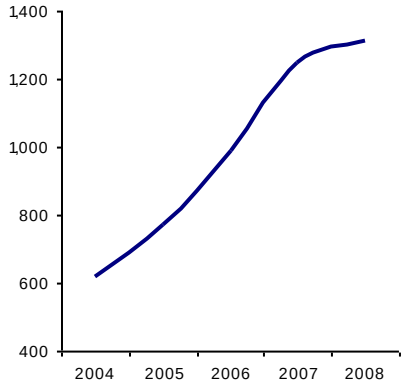
b) Domestic Debt by Type of Security

Percent of the total



c) Adjusted Duration [1/]

Days

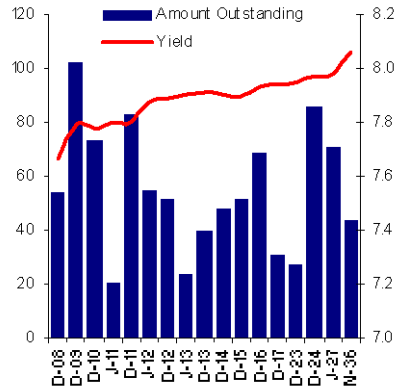


Figures as of March 2008.
Source: Ministry of Finance (SHCP) and Banco de México.
1/ The adjusted duration is the duration divided by one plus the yield rate. It measures the percentage change in the value of the debt market as a result of yield rate variations.

Graph 25
Federal Government Debt

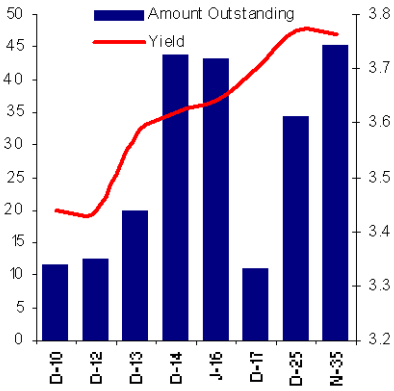
a) Amount outstanding of Bonos M and Yield Curve [1/]

Billion pesos (left-hand axis)
Percent (right-hand axis)



b) Amount outstanding of Udibonos and Yield Curve [1/]

Billion pesos (left-hand axis)
Percent (right-hand axis)



c) Federal Government Swaps

Swap Date	21-Feb-08	06-Apr-08
Issues Withdrawn	Bond Dec-15 Bond Dec-16	Bond Dec-15 Bond Dic-16
Issues Delivered	Bond Dec-17	Bono Dec-17
Amount Delivered (mp)	1,931	7,402

Figures as of March 2008.
Source: Banco de México.
1/ The blue columns represent on the run issues currently placed on the primary market.

Bank Deposits Insurance Institute (Instituto de Protección al Ahorro Bancario, IPAB)

In 2007 and the first quarter of 2008, IPAB still focused on replacing direct credits with indebtedness in the securities market. The results of this strategy are given in Table 5. By the end of that year, IPAB's debt consisted almost entirely of floating rate bonds. This strategy has allowed IPAB to reduce funding costs to the extent its sources of financing have grown and the amount of total indebtedness has dropped (Graph 26a).

Table 5
Structure of IPAB Liabilities[1/]
Million pesos

	2004	2006	2007	2008
Tradeable securities	382,500	593,500	689,800	702,900
Bpas	198,100	195,100	194,100	195,300
Bpat	174,000	328,000	378,500	376,200
Bpa182	10,400	70,400	117,200	131,500
Non-tradeable securities	406,100	146,400	53,300	42,600
New Program[2/]	168,300	0	0	0
IPAB Promissory Note	104,500	25,900	0	0
IPAB Credit	133,300	120,500	53,300	42,600
Total	788,600	739,900	743,100	745,500
Percent of GDP	8.72	6.92	6.29	6.47

Source: IPAB.
1/ December figures for each year.
2/ The New Program consisted of replacing the Purchase Program and Portfolio Capitalization (PCCC Promissory Note) of the Fobaproa (former deposits insurance scheme).

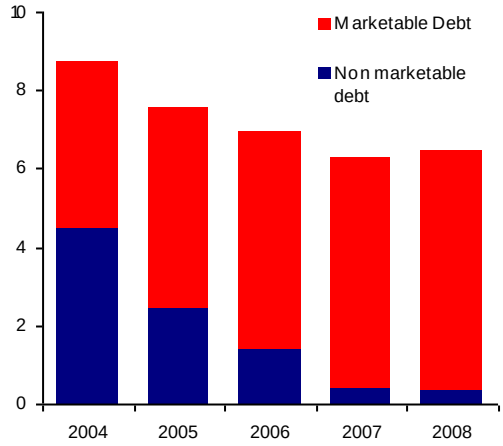
Banco de México

The restructuring of Banco de México's assets and liabilities derived from the large sale of dollars to the Federal Government in 2006, the slowdown in international reserve accumulation and the increased peso-denominated funds held by the Federal Treasury in the Bank, meant a reduction in the Central Bank's financing needs. This made possible to repurchase Monetary Regulation Bonds (Brems) worth a total of 57.6 billion pesos which, in turn, reduced the volume of Brems outstanding to 8 billion pesos by the end of March. Banco de México continued using floating rate bonds issued by the Federal Government (Bondes D) for its liquidity regulation operations. Considering Brems and Bondes D, the marketable liabilities of Banco de México accounted for 1.6 percent of GDP as of March 2008 (Graph 26b).

Graph 26
IPAB's Debt and Banco de México's Debt

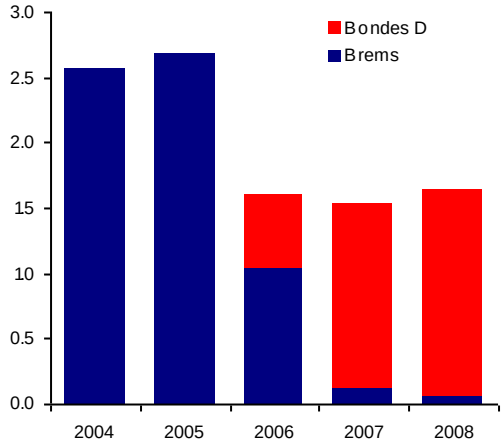
a) IPAB's Debt

Percent of GDP



b) Banco de México Marketable Debt

Percent of GDP



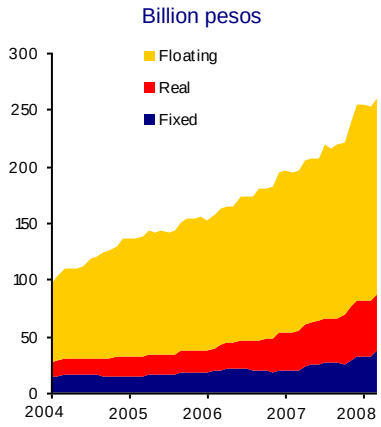
Figures as of March 2008.
Source: Banco de México.

Other issuers

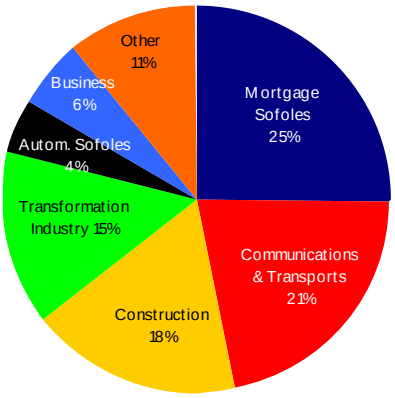
Corporations and public agencies obtaining finance from the debt market opted mainly for the placement of floating-rate medium and long-term securities. Placements with such maturity terms lower the issuer's risk of refinancing, although floating rates entail some degree of exposure to subsequent interest rate increases. These floating-rate debt placements are a result of the low liquidity affecting most fixed-rate placements. The lack of liquidity is due, as has been seen, to consistently low demand for these instruments among institutional investors. There are some indications, however, that a large proportion of rate-related risk is being mitigated by issuers through derivatives operations (Box 11 and Graph 27).

Graph 27
Stock Marketable Debt of Corporations

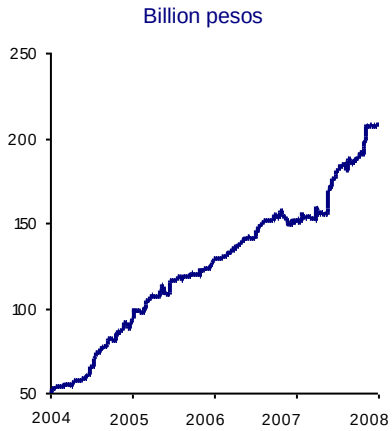
a) Corporations



b) By Type of Issuer



c) Corporate Activity in Interest Rate Derivatives [1/]



Figures as of March 2008.
Source: Banco de México.
1/ Current amount.

Box 11
Hedging Using Interest Rate Derivatives

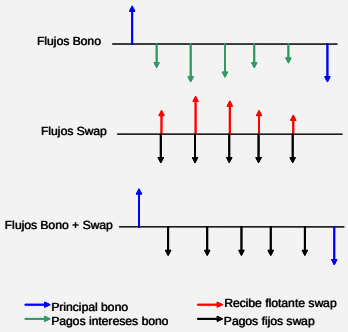
Debt securities described as "floaters" are instruments for which periodic interest payment is referenced to an interest rate with a term shorter than the instrument's maturity. For example, in Mexico the monthly coupons of many medium and long term corporate bonds are referenced to the value of the Interbank Equilibrium Interest Rate (IEIR).

Debt instruments with this characteristic are attractive for investors with low tolerance to interest rate fluctuations.

For the issuer, on the other hand, placing debt with a floating rate exposes it to a rate increase that could eventually give rise to higher debt service costs.

But there is a way to cover this risk: by agreeing to perform an interest rate swap with a counterparty (usually a bank) in which the issuer undertakes to make payments at a fixed interest rate in exchange for receiving payments referenced to a floating rate covering the debt coupon.

Flows from an investor issuing a floating rate bond and agreeing a swap to receive floating payments and make fixed payments

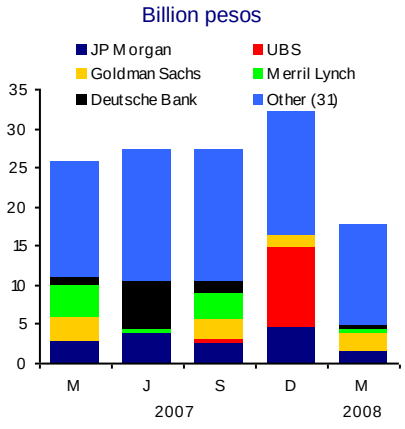


Europesos

Since 2005, the issuance of peso-denominated debt abroad has grown considerably. Indebtedness in Europesos, as they are called (Box 12), began with the aim of exploiting arbitrations in the cost of funding for the issuers. Issuers are also currently looking to diversify their investor base by attracting Mexican and foreign participants willing to invest in pesos. Regardless of the reason, during the recent periods of volatility in world credit markets some issuers obtained funds through Europeso-based debt on more favorable terms than issuing debt in their own currency.

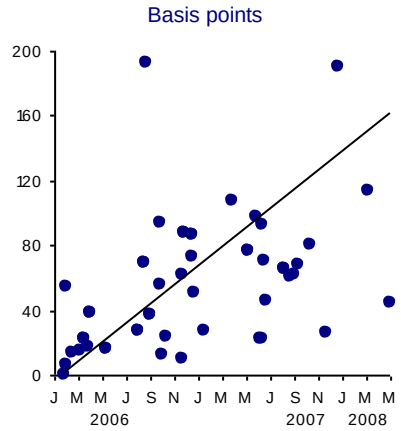
Graph 28
Debt Spread Adjustments

a) Amount of Quarterly Placements of Europesos



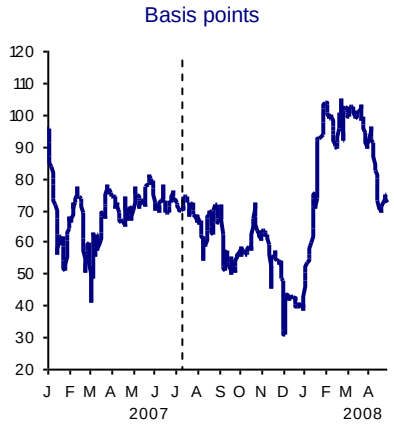
Figures as of March 2008.
Source: Banco de México.

b) Spread between Europeso and Government Bond Yields



Figures as of May 2008.
Source: Banco de México and Valmer.

c) Spread between Corporate Bond and Government Bond Yields



Figures as of April 2008.
Source: Banco de México and Valmer.

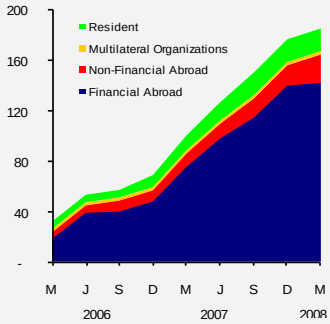
The impact of the crisis in the US credit markets was reflected in Mexican markets as a result of increased volatility and risk aversion that emerged globally. Conversely, the low exposure of intermediaries and investors to mortgage assets and structured securities with US markets underlying assets cushioned portfolios in Mexico from the affectations that hit the developed countries. However, the adjustment would appear to be relatively narrow for some peso-denominated securities whose risk characteristics are comparable to those of certain international assets that were affected. For example, the adjustment of certain Europeso placements has been very limited compared to the credit risk deterioration of their issuers in world markets. It also stresses the low sensitivity to the deterioration of underlying assets, as in the case of some mortgage-backed securities (Graph 28).

Box 12
Europesos

Europesos are bonds issued in domestic currency and placed in international markets. They are not issued in Mexico, which means these instruments are subject to foreign regulations.

The Europesos market began with the Inter-American Development Bank (IADB) issue of three billion pesos in April 2004, and was inactive until the third quarter of 2005. The stock in circulation as of March 2008 was 210 billion pesos, with an annual growth rate of 137 per cent during 2007, of which foreign financial institutions accounted for 85 per cent.

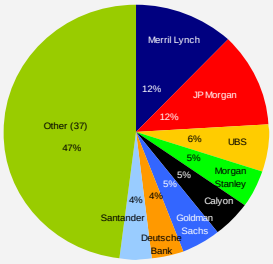
Europeso Outstanding Balance by Type of Issuer
Billion pesos



Figures as of March 2008.
Source: Banco de México.

In February 2008 the list of issuers included 24 US and European banks, along with four multilateral agencies, also issuing institutional funds, international sovereign funds, automotive firms, and four Mexican companies.

Outstanding Balance by Issuer, 2008
Percent



Figures as of March 2008.
Source: Federal Reserve Bank.

A number of factors have contributed to the growth of the Europesos market. One is the ability of foreign issuers to handle Mexican peso exposure through foreign exchange and derivatives markets. This could generate opportunities for arbitration that would provide lower funding costs compared with the cost of issuing in their own country.

Another factor has been the extension of the peso-denominated government yield curve up to 30 years. This has enabled market participants to place bonds with an average maturity of 8 years for foreign parties and up to 21 years for Mexican issuers.

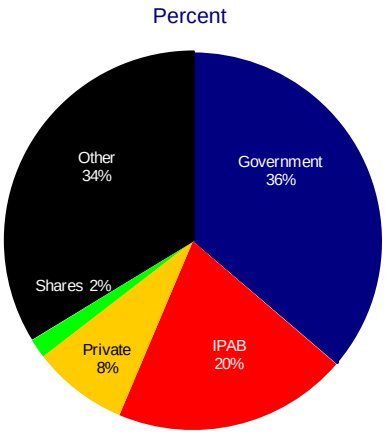
Lastly, the strong demand for highly rated debt among institutional investors allows the latter to keep investments in pesos and, at the same time, diversify credit risk beyond traditional local issuers. In 2007 the Europeso holdings of investment companies and Siefores rose 97 per cent, and accounted for 6.3 and 4.4 per cent of their respective assets.

Main investors

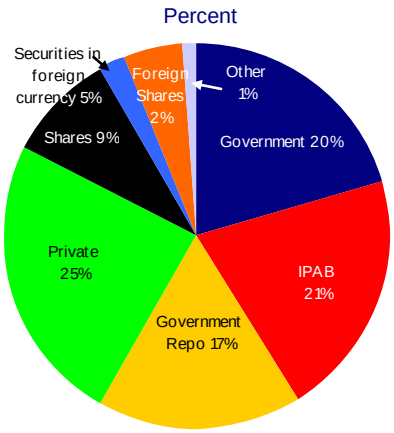
The main investors continued to include public sector securities in their portfolios. Banks and brokerage firms stand out have 56 percent of their negotiable assets in government and IPAB debt. Figures for insurance companies and mutual funds are 56 and 46 percent, respectively, with the former focusing on real rate long-term government securities while the latter opted for short-term securities (Graph 29).

Graph 29
Portfolios of the Main Investors [1/]

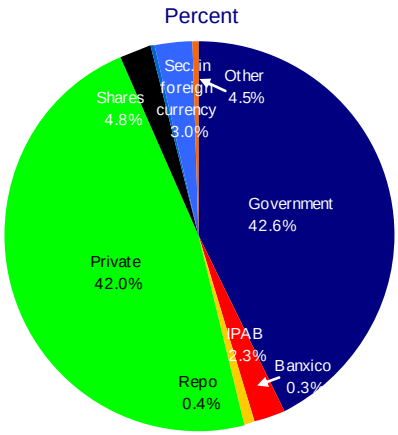
a) Bank Securities and Equity Portfolio [2/]



b) Mutual Fund Securities and Equity Portfolio [3/]



c) Insurance Company Securities and Equity Portfolio [4/]



Figures as of March 2008.
Source: Banco de México and Ministry of Finance and Public Credit (SHCP).
1/ The proportion referred to as Government includes: Cetes, Bondes, Bonds, Udibonos, UMS and Farac.
2/ Bank Portfolio: 2.3 trillion pesos.
3/ Mutual Fund Portfolio: 855 billion pesos.
4/ Insurance Company Portfolio: 324 billion pesos.

Investment Funds Specialized in Retirement Savings (Siefores)[59]

In the first half of 2007, Siefores continued channeling their marginal investments into corporate securities and equity. The aim was to benefit from the adjustment made to their investment scheme involving higher exposure to risk. Investment in equity rose from 7 to 8 percent of total assets, and their exposure in other currencies (securities, equity and future contracts in currencies other than the peso) stayed put at 9 percent. Similarly, Siefores continued to increase the maturity of their portfolios so that, at the close of the first quarter of 2008, they became the main holders of Bonos M and Udibonos with a maturity greater than or equal to ten years (Graph 30a).

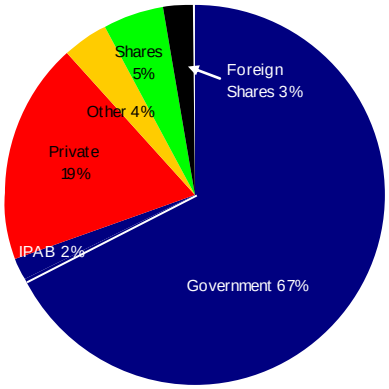
The maturity extension of debt securities and the increased exposure to equity led to an increase in the Value at Risk (VaR) of Siefores portfolios. According to the National Retirement Savings System Commission (Comisión Nacional de Ahorro para el Retiro, Consar) publications, the restructuring towards riskier assets and the heightened volatility of the financial markets in the second half of 2007 brought some Siefores close to their one percent VaR limit (Graph 30b). These developments in world markets led to the depreciation in some assets and, for most Siefores, lower yields than in previous periods. It should be noted, however, that their long term yields continue to reflect the benefits afforded by greater diversification (Graph 30c).

[59] The investment regime defined by the Consar considers the increased number of Siefores as of March 2008 (see section on Retirement Fund Administrators).

Graph 30
Siefores Portfolio

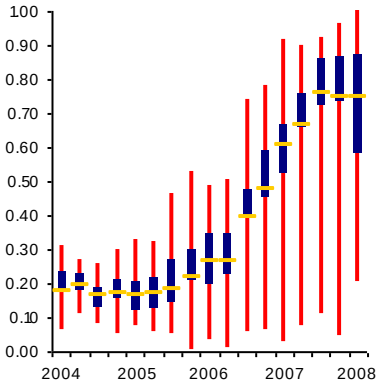
a) Siefores' Securities and Equity Portfolio

Percent



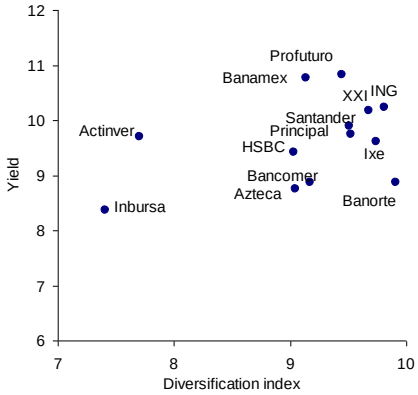
b) Value at Risk (VaR)[1/] of Siefores Market.

Percent



c) Diversification of Siefores Portfolio

Yield in percentage terms (vertical axis)[2/]
Diversification index [3/] (horizontal axis)

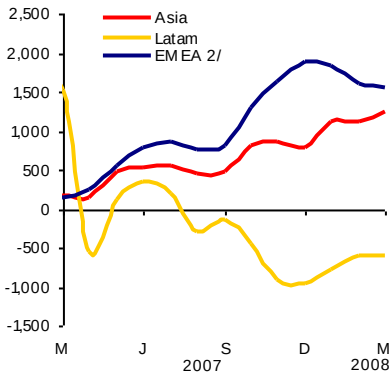


Figures as of March 2008.
Source: Consar.
1/ Historic VaR with a 95 percent reliability level. Each red bar portrays minimum and maximum VaR. The blue boxes represent Siefores with a VaR of between 25 and 75 percent. The yellow horizontal bar represents system VaR.
2/ This refers to average yield between 2005 and 2007.
3/ The diversification index ranges from 0 to 10. Zero means no diversification and 10 means maximum diversification.

Graph 31
Foreign Investors Holdings of Government Securities

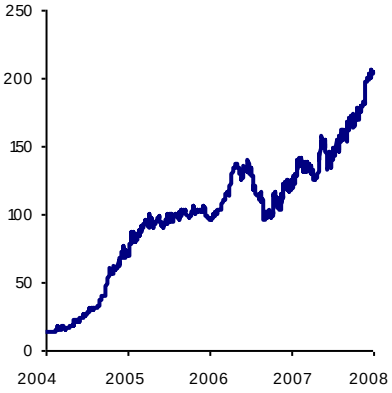
a) Global Investment in Emerging Markets [1/]

Billion US dollars



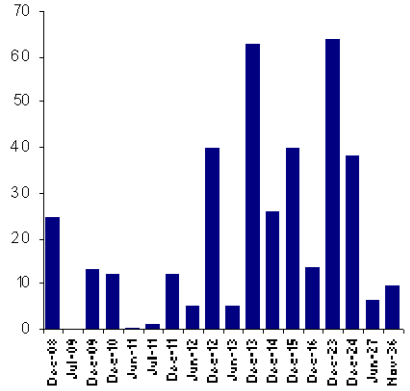
b) Amount of Peso-Denominated Fixed Rate Bonds Outstanding

Billion pesos



c) Bonos M Maturity Dates

Percent of total amount outstanding



Figures as of March 2008.
Source: Emerging Portfolio Fund Research.
1/ This includes private and public sector bonds.
2/ Europe, Middle East and Africa.
3/ The horizontal axis represents bond maturity dates.

Source: Banco de México.

Source: Banco de México.

Foreign Investors

Holding of peso-denominated government securities by foreign investors remained stable during the first six months of 2007. However, the widening of interest rate spreads between Mexico and the United States during the second half of the year and stability in long-term inflation expectations prompted a substantial increase in these positions. Increased holding was encouraged by exchange rate stability and the low likelihood of significant peso depreciation against the dollar (Graph 31).

Secondary market

The development of long term government securities liquidity was favorable throughout 2007. In the last few months of that year, trading volumes dropped due to heightened risk aversion in global markets and, as noted above, the closeness of Siefores to their risk limits. The latter factor means that the adjustment does not amount to a trend change.

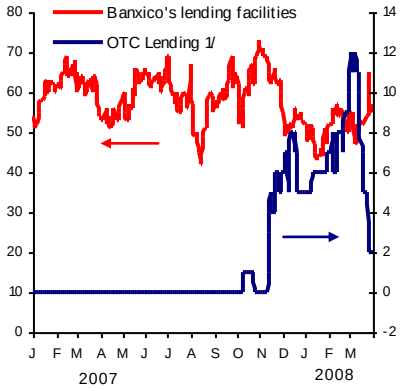
Interest rate swaps (IRS swaps) operations also continued to evolve positively. This was partly due to the corporate sector's wish to cover the risks of floating-rate debt issues although the main factor was the desire of domestic and foreign investors to establish positions in this market. The flexibility afforded by this instrument gave rise to strategies more suited to the needs of each investor.

The importance of securities lending in the debt market grew as of the last quarter of last year. Two factors prompted this facility, the insurance companies' regulation reforms that allowed these firms to participate in this market and the greater flexibility enjoyed by the banking sector and brokerage houses in their operations with foreign investors. A further contributing factor was the modification of the rules for market makers implemented by the Ministry of Finance (SHCP) involving increased fees paid by them in order to have exclusive access to the Banco de México's securities lending facility (Box 13 and Graph 32).

Graph 32
Secondary Market

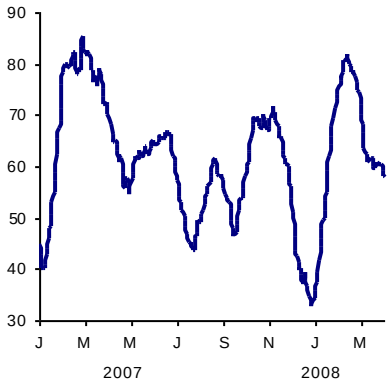
a) Securities Lending in the Market against Banco de México's Securities Lending Facility

Billion pesos



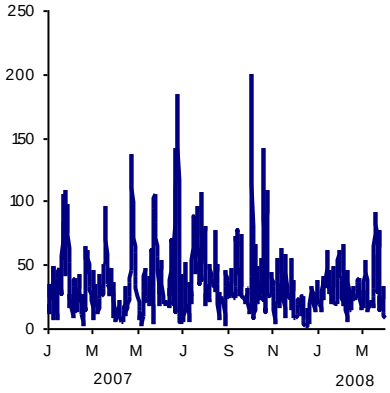
b) Daily Volume of Operations in Government Bonds in the Secondary Market

Billion pesos



c) Volume of Operations in OTC Interest Rate Swaps [1/]

Million pesos



Figures as of March 2008.
Source: Banco de México.
1/ Over The Counter market

Box 13
Securities Lending Operations

Securities loans offer major benefits for issuers, investors and intermediaries alike, such as improved liquidity for instruments and reduced purchase-sale differentials. Security loan operations are regulated by Banco de México's Memo 1/2004.

These operations allow the holder of shares or securities (instruments), known as the lender, to transmit ownership of shares or securities to the borrower, who in turn undertakes to return to the former the loan instruments upon expiry of the established term, along with the payment of a premium.

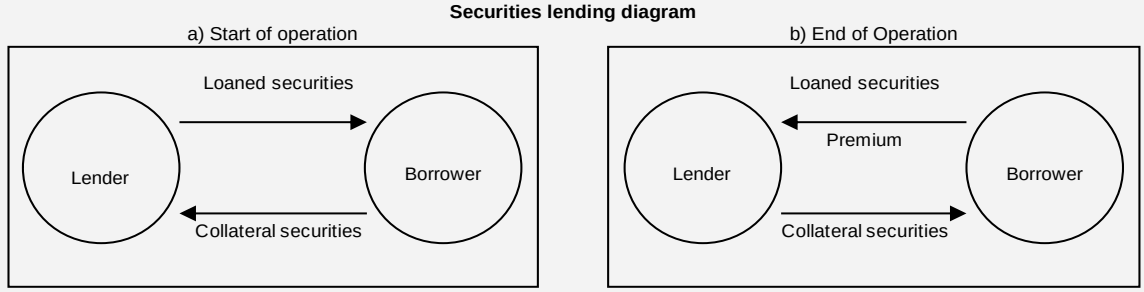
In exchange for the transfer of share or securities ownership, the borrower usually submits other instruments with the same or greater value than the loaned instruments in order to guarantee the obligations and thereby reduce the risk of default. In the case of collateral, this may be provided with or without instrument ownership transfer.

The transferal of ownership of the assets involved in the securities lending operation means that any interest or patrimonial rights accrued by the instruments shall be paid to the persons registered as their owners at the time of payment.

However, during the effective term of the operation, the borrower is obliged to refund to the lender the proceeds of any patrimonial rights on the shares and interest of the securities involved in the transaction.

In Mexico, securities lending operations must be conducted pursuant to the master agreement approved by the Mexican financial associations. This master agreement must contain the guidelines set forth in the international markets and, above all, include the borrower's obligation to guarantee securities lending operations and follow the applicable procedure if the trading of the instruments granted as a loan or under guaranty is suspended.

Securities lending diagram

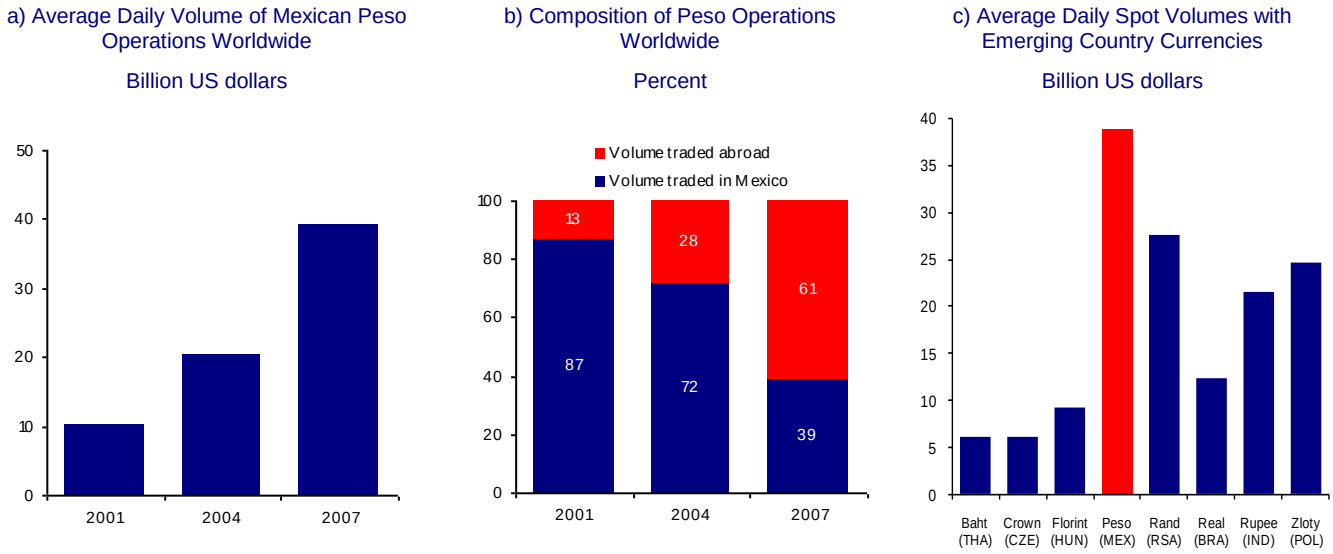


4.2. Foreign exchange market

The volume traded in the Mexican peso and other currencies market continued to grow in 2007. According to the Three-Year Survey conducted among central banks on foreign exchange and derivative market activity in 2007 by the Bank for International Settlements (BIS), the peso was the most traded currency in the group of emerging countries (Graph 33c). This sample reported average worldwide daily operations worth nearly 40 billion US dollars (Graph 33a),[60] which amounts to a growth of almost 100 percent compared to the figure given in the 2004 survey and almost 400 percent since 2001. As is the case of other emerging economy currencies, the growth of the peso is due mainly to increased operations by intermediaries outside Mexico (Graph 33b).

In 2007, 58 percent of all domestic foreign exchange operations were conducted between banks, compared to 78 percent in 2004. These figures highlight the dominant role of banks in peso operations, albeit to a lesser degree due to the increasing activity of other market participants such as institutional investors (both domestic and foreign), hedge funds and technical accounts.

Graph 33
Foreign Exchange Market



Figures as of December 2007.
Source: BIS.

The reasons behind the diversification in the peso market include the use of electronic platforms. Interbank electronic platforms, like conversational and brokerage systems, have customarily accounted for the bulk of peso operations. The importance of electronic platforms oriented towards the institutional clients of banks has grown in recent years,[61] making it easier for non-bank participants to enter the peso market (Graph 34a). Central brokerage, by which non-bank clients are granted credit lines to operate in the interbank market using the name of the sponsor bank, has also started to gain momentum. It should be noted that while

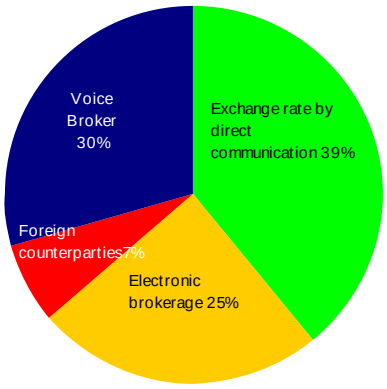
[60] Every three years, the BIS conducts a survey with the help of the central banks on foreign exchange, foreign exchange derivative and interest rate market operation volumes, in order to obtain extensive and internationally comparable information on the structure and volumes of spot and derivative over the counter market operations.

[61] FX All, FX Connect, Currenex, Hot Spot FX, etc.

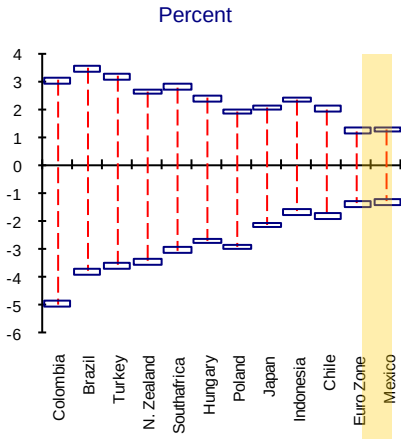
these mechanisms lower the transactional costs of participants in this market, they must be implemented hand in hand with suitable risk controls, including the processing and settlement of operations and the evaluation of standards used for granting such credit lines.

Graph 34
Foreign Exchange Market

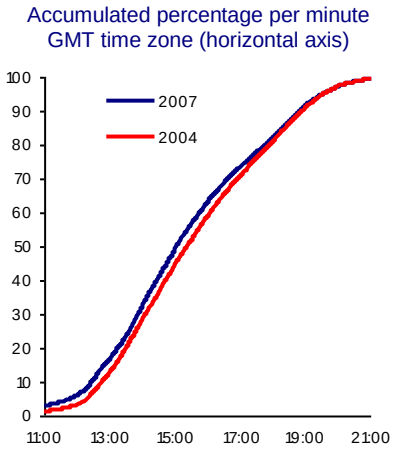
a) Peso Operation Composition by Execution Method



b) Maximum Daily Appreciations and Depreciations During the Period



c) Accumulated Distribution Function of Peso-Dollar Operations



Figures as of March 2008.
Source: Banco de México.

The low volatility of the peso in the last few years (Graph 34b) and the low correlation between its fluctuations and those of other currencies make it an asset with high diversification value. The incorporation of the peso in the portfolio of investors worldwide has led, in turn, to an extension of operating hours (Graph 34c). Therefore, in order to eliminate the time-related liquidity risk that arises when currencies are operated with different settlement times, peso market participants can, as of May 2008, use the international currency payment system known as the Continuous Linked Settlement Bank (CLS, Box 32).[62]

[62] The CLS was created in New York on September 2002 and its main stockholders are 71 financial organizations from all over the world.

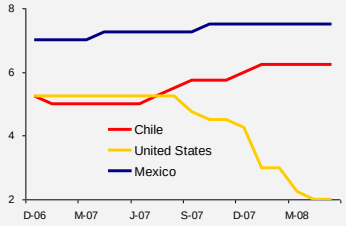
Box 14

Arbitrage of Interest Rates of Different Currencies (Carry Trade)

A common practice in the international financial markets is to take advantage of the interest rate spreads that arise between different currencies in order to obtain higher returns. Arbitrage consists of the purchase of the currency (long position) with a higher return and the sale of the currency (short position) with a lower return. This strategy is known as "*carry trade*" and has become widespread. The investors receive an overcompensation due to the several risks they take, the most important is the overvaluation risk of the currency, which is highly compensated by the return they receive (long position).

The solid performance of emerging economy currencies, in particular those of the so-called BRIC (Brazil, Russia, India and China), as well as Mexico and Chile, has reflected the structural changes that have taken place in these economies and has helped arouse interest among investors in currencies offering higher returns. The economic growth of some of these markets, which has affected raw material prices and inflationary dynamics worldwide, has made it possible to disassociate the world economic cycle from that of the United States. This, in turn, has led to the separation of the monetary cycles of certain central banks. The graph below illustrates the case of the Mexican and Chilean economies compared with the cycle of the US Federal Reserve.

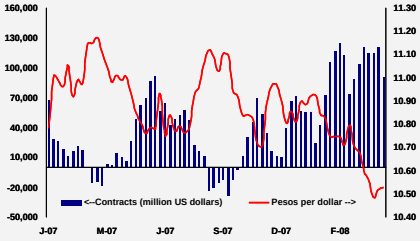
Reference Rates of Mexico and Chile vs. US
Percent



Figures as of April 2008.
Source: Reuters and Banco de México.

The interest rate spread between Banco de México and the Federal Reserve increased as from April 2007, when the former restricted monetary conditions to 25 basis points. In addition, in September the Federal Reserve reduced the target interest rate in view of the increased likelihood of recession, which has aroused interest in the peso, even though the last quarter of 2007 witnessed heightened aversion to risk. Both the long speculative peso positions in the International Monetary Market (IMM), published weekly in the Chicago Stock Exchange, and the sustained appreciation of the peso during the first months of 2008 underline investors interest in using the carry trade strategy.

Speculative Peso Position in the IMM
Billion pesos (left axis)
Pesos per US dollar (right axis)

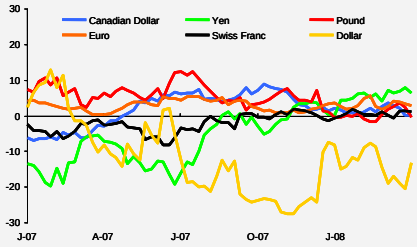


Figures as of April 2008.
Source: Banco de México.

In Chile, during the last few months of 2007 and early 2008, the terms of trade improved considerably at the same time that US economic slowdown was becoming more evident. These developments separated the monetary cycles of Chile and the US and aroused the interest of investors, as demonstrated by the recent appreciation of Chilean peso.

The fact that Japan has the lowest interest rates among the G7 countries has made carry trade especially attractive in yens (as the financing currency). The yen has therefore become one of the main indicators of risk. The main supply of yens currently comes from Japanese investors (both institutional and "retail investors") who have converted their yen assets into foreign currency-denominated assets offering a higher return.

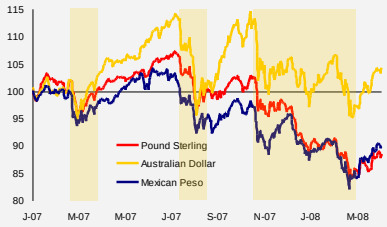
Speculative Currency Positions during 2007
Billion dollars



Figures as of April 2008.
Source: Bloomberg.

The evolution of the short speculative yen position (negative sign) up to mid-2007 revealed the appetite for risk that prevailed during the first part of the year and whose trend was reversed considerably following the worsening and subsequent contagion effect of the subprime mortgage market crisis. The periods in which aversion to risk has increased (shaded areas in the graph below) have been linked to the appreciation of the yen against currencies offering higher returns.

Behavior of some Currencies against the Yen
January 2007=100



Figures as of April 2008.
Source: Bloomberg.

Risks and implications of financial stability.

The main risk from this type of strategy is its sudden reversion due to a sustained increase in aversion to risk and the effect of this adjustment on the value of the currencies involved. In the case of Mexico, the continuous increase in long speculative yen positions may be reversed if the interest rate spread between pesos and dollars were to decrease.

This institution was set up specifically to make currency transaction payments using a payment versus payment mechanism that virtually eliminates the risk of default by the counterparty. CLS currently operates with 17 currencies: the dollar from Australia, Canada, New Zealand, US, Singapore and Hong Kong; the yen; the euro; the Swiss franc; the Danish, Norwegian and Swedish crone; the pound sterling; the South African rand; the Korean won; the Israeli shekel and the Mexican peso.

4.3. Derivatives market

Over the Counter Market (OTC)

OTC derivatives operations offer investors great flexibility for taking on and covering risks on different underlying assets. In the foreign exchange market, most OTC derivatives on the peso-dollar exchange rate are accounted for by swaps. These comprise two transactions in which one currency is purchased for another at different maturities. By fixing the exchange rates for both transactions, a swap eliminates exchange rate risks and turns the operation into a form of financing. Operations involving the use of options to take on or cover exchange rate risks, on the other hand, are performed mainly outside Mexico.

There is also the OTC derivatives market for interest rates. This market's traded volumes underline the importance of these instruments as a vehicle for changing the payment profile of an asset or liability. According to BIS data, the daily world market volume of interest rate swaps in pesos jumped from an average of 500 million dollars in 2004 to 2,400 million dollars in April 2007. The volume of interest rate swaps in Mexico came to 891 billion by April 2008 (Graph 35b).

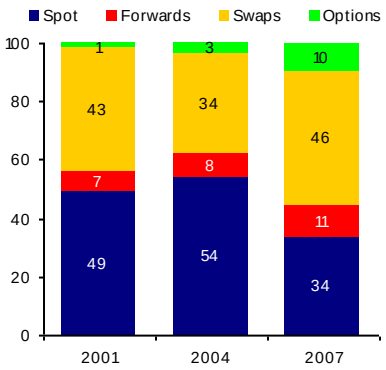
Exchange-Traded Derivatives Markets

The main exchange-traded derivatives markets used in Mexico are the Chicago Mercantile Exchange and the Mexican Derivatives Market (MexDer). The former operates peso futures, while the latter focuses mainly on interest and exchange rate futures. In September 2007, the MexDer launched futures underlain by 2, 5 and 10 year TIIE swaps to complement its interest rate products. This type of contracts differs from the so-called "stapled" also traded on the MexDer because they allow swaps to be made through a single contract instead of having to execute all the different contracts in the stapled (Graph 36).

Graph 35
Foreign Exchange Market

a) Composition of Peso Operations by Instrument

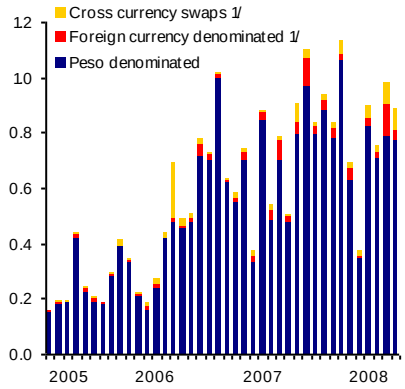
Percent



Figures as of March 2008.
Source: Banco de México.
1/ This includes operations in yens, dollars and euros.

b) Volume of Interest Rate Swap Operations

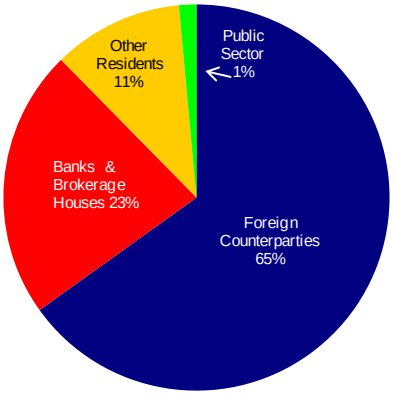
Trillion pesos



Figures as of April 2008.

c) Banks' Main Counterparties in Interest Rate Swaps

Percent

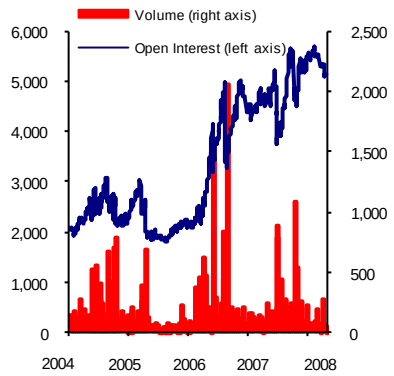


Figures as of April 2008.

Graph 36
MexDer Operations

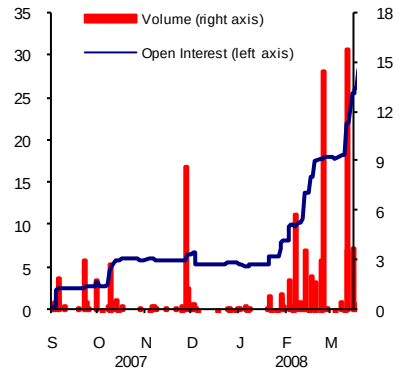
a) 28-day TIIE Futures

Billion pesos



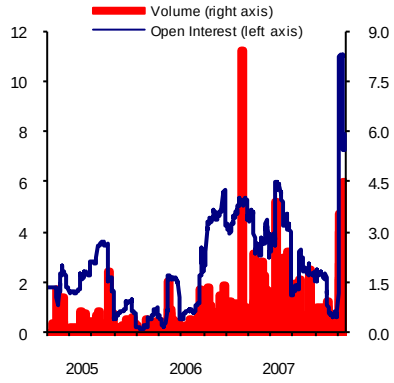
b) 28-day TIIE Swap Futures

Billion pesos



c) 10-year Bonos M Futures

Billion pesos



Figures as of April 2008.
Source: MexDer and Asigna.

Box 15

Credit Derivatives

Credit derivatives are financial instruments used to transfer, totally or partially, credit risk associated to an underlying asset or pool of assets, without transferring ownership. Credit derivative contracts are bilateral agreements in which the part that buys protection maintains the ownership of the underlying asset and pays the protection seller a premium until the maturity of the contract. In exchange for the latter, there is an agreement to make a contingent payment in case the "credit event", specified beforehand in the contract, takes place. The "credit event" is defined and negotiated in the contract between the buyer and the seller, in order to identified the risks associated with the hedged assets. There are different types of credit events, the most common being bankruptcy, payment failure and restructuring.

Credit Events

Credit Event	Description
Bankruptcy	The dissolution or insolvency of a reference entity, the inability to pay debts, or the shift of control to a secured party, custodian, or receiver.
Failure to pay	The failure of the reference entity to make payments due on any obligation before expiration of any applicable grace period.
Restructuring	The reference entity or governmental authority changes an obligation by reducing interest rate or the principal amount, postponing the payment of interest or principal, lowering the payment priority of the obligation, or changing the currency to one that is not permitted.
Obligation acceleration	An obligation of the reference entity becomes due and payable before it would otherwise have been due and payable as a result of a default or other similar condition or event other than a failures to pay.
Obligation default	An obligation of the reference entity becomes capable of being declared due and payable before it would otherwise have been due and payable as a result of a default or other similar condition or event other than a failures to pay.
Repudiation/ moratorium	The validity of an obligation is rejected either by the reference entity or a governmental authority. This event is mostly applicable to sovereign credits.

Source: Fabozzi, Frank (2005), *The Handbook of Fixed Income Securities.*

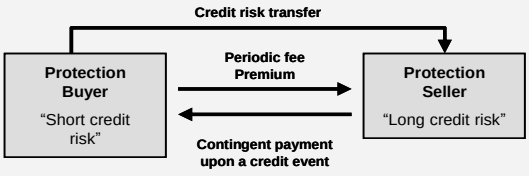
There are many types of credit derivatives. In Mexico, there are three basic instruments: total rate of return swap, credit linked-note and credit default swaps.

The total rate of return swaps are contracts in which the buyer of protection agrees to pay flows from a risk asset, as well as any increases in the value of this asset. The protection seller agrees to pay to his counterparty a rate of interest plus any drops in the value of the risk asset, and it may be agreed that, if the agreed credit event occurs, the former will deliver the risk asset and the latter the agreed amount.

The credit linked-notes are instruments that pay a yield whose value is conditioned to the performance of a risk asset, and if the credit event were to occur, the issuer of the security will deliver to the protection seller, who in this case is the investor, the risk asset or a payment, depending on the agreement.

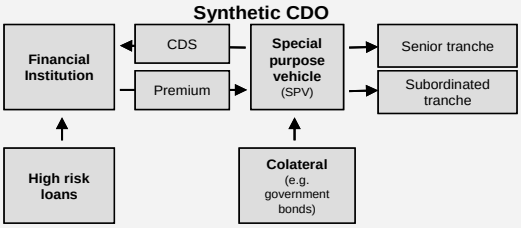
Credit default swaps (CDS) are operations in which, in exchange for a premium, the protection seller delivers the agreed consideration to the buyer if the foreseen credit event takes place. This consideration may be defined in terms of a compensatory payment in cash or as a compensatory payment in kind, which is the underlying asset.[1]

CDS structure



CDS prices are determined in accordance with the credit risk. This price may change to the extent that investors (protection sellers) revalue or reassess the likelihood of the occurrence of a credit event set forth in the contract. Hence, credit default swaps offer benefits for protection sellers, insofar as they make it possible to formulate an opinion on the entity, even if it does not have many issues outstanding. Another benefit for protection sellers is that credit default swaps mitigate the risk of financing as they do not contemplate an initial investment or interest rate. The very nature of these instruments essentially generates a credit risk position only. The main characteristic of synthetic securities is that their structure includes a credit derivative. A good example of this mechanism is the synthetic collateralized debt obligations (synthetic CDO), which includes a CDS.

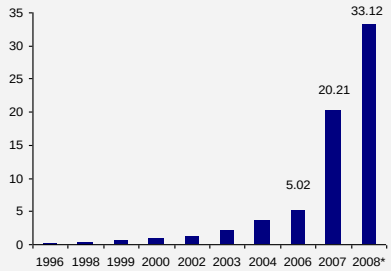
Synthetic CDO



Source: UBS.

CDS have become the most common credit derivatives. According to a report issued in September 2007 by the British Bankers' Association (BBA), towards the end of 2006, the world credit derivatives market stood at 20 trillion US dollars and is expected to reach the 33 trillion-dollar mark by the end of 2008. According to this document, in 2006, 33 per cent of the market volume was accounted for by CDS, while synthetic collateralized debt obligations accounted for 16 per cent, with expectations that their respective shares by the end of 2008 would be 29 and 16 percent.

Amount traded in world derivatives markets
Trillion dollars



*/ Estimated figures.
Source: BBA.

In Mexico, credit derivatives are regulated on the basis of Banco de México Circular 4/2006, which took effect on January 15, 2007. According to this Circular, commercial banks can perform these operations with other banks, with foreign financial institutions and with other financial intermediaries that are authorized to do so. The latter is the case of the Sofoles, which are only authorized to act as protection buyers.

1. Some countries have banned underlying asset transfers.

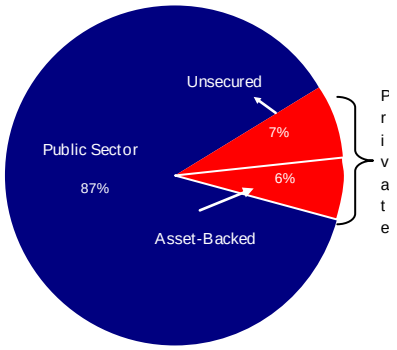
4.4. Financial asset securitization[63]

In Mexico, securitized assets represent 6 percent of total securities outstanding (including Federal Government debt and corporate bonds) (Graph 37a). However, the amount of securitizations issued over the last two years outstrips that of the unsecured debt (Graph 37b). The most common securitized assets are mortgage loans. In April 2008, mortgage-backed securities accounted for almost a third of all securitized assets (Graph 37c).[64]

Graph 37
Securities Market

a) Securities Outstanding by Issuer 1/

Percent

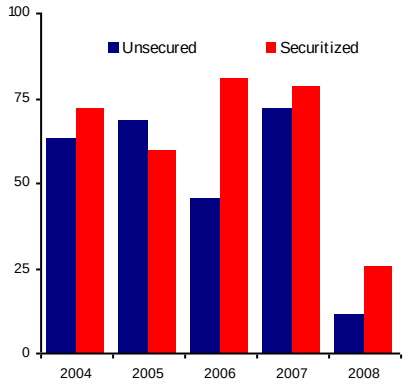


Figures as of April 2008.
Source: Banco de México and Ixe Casa de Bolsa.

1/ Private securities include stock certificates issued by private firms and state agencies. Bank instruments are not included.

b) Asset-backed Securities and Unsecured Securities

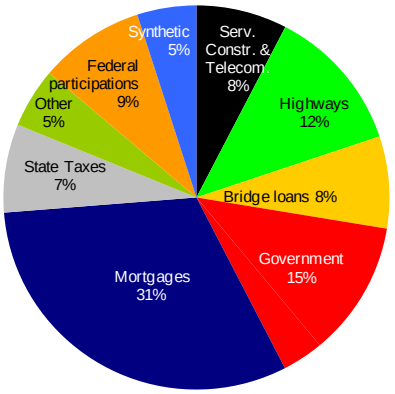
Billion pesos



Source: Banco de México and Ixe Casa de Bolsa.

c) Asset-backed Securities Outstanding by Underlying Instrument

Percent



Source: Banco de México with data from Fitch, Moody's and Standard & Poor's.

[63] Securitization is a process by which a set of financial assets is fully or partially transferred from the original owner to a vehicle (special purpose vehicle SPV). The SPV, in turn, issues securities backed by the yields generated by the transferred assets (Box 2 and 16). Therefore, securitization transforms assets with low liquidity into financial instruments that can be traded on the stock market.

[64] Securitized assets in Mexico include credit cards receivables, bridge loans, loans to firms, receivables, future flows from tolls, hospitals, wastewater treatment plants, schools, universities, waste processing plants, sports facilities and taxes.

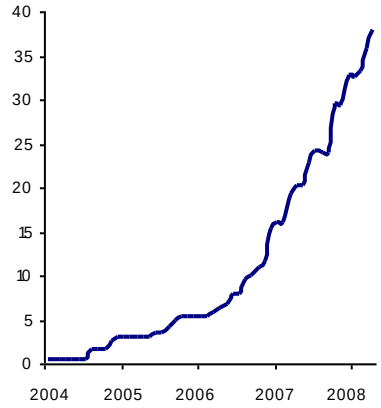
Mortgage-Backed Securities (Borhis)

Mortgage-Backed Securities (Borhis)[65] are based on mortgages originated by Sofoles[66] and banks, with the certification of the Federal Mortgage Company (Sociedad Hipotecaria Federal, SHF)[67]. Borhis outstanding amount has increased substantially over the last two years (Graph 38a). The main Borhis originators are Sofoles. However, the commercial banks have also significantly increased the issuance of securities backed by its own credit portfolio (Graph 38b). Siefores are the main investors in Borhis. In April 2008, their holdings represent more than one-third of the total oustanding portfolio (Graph 38c).

Graph 38
Mortgage-Backed Securities (Borhis)

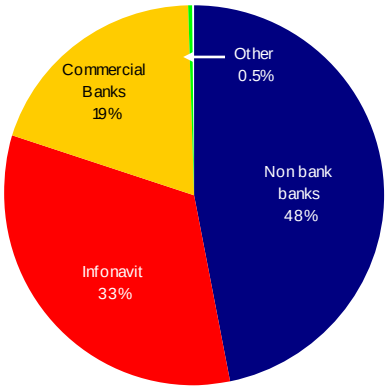
a) Borhis outstanding

2002 Billion pesos



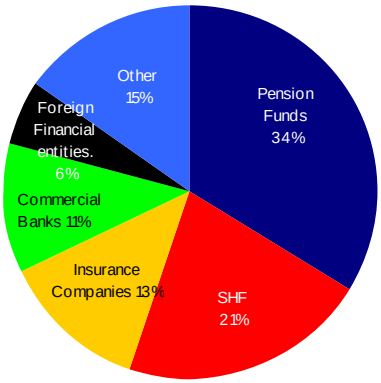
b) Mortgage-Backed Securities' Originators

Percent



c) Borhis Holders

Percent



Figures as of April 2008.
Source: Banco de México.

During 2007, 14 different Borhis issues were placed with an overall value of 22 billion pesos. In the first four months of 2008, 5 issues with a value of 7.3 billion pesos were placed. From the Borhis oustanding 38.4 percent had credit insurance (Table 6). The SHF is the biggest insurer of credit in Mexico, covering 28.2 percent of all insured Borhis.[68]

[65] Most of the Borhis issued are Udi-denominated with an average maturity of 26 years; coupons are paid periodically along with principal amortizations. Any prepayments included in the mortgages are included in bond amortizations.

[66] Borhis are an important funding instrument for Sofoles. In December 2007, these securities accounted for 24 percent of their mortgage loan portfolio.

[67] Over the last two years, commercial banks have also securitized mortgage loans. A total of 3 banks and 7 Sofoles have issued Borhis. Originators select, from their mortgage portfolio, loans that satisfy the eligibility requirements for securitization. These requirements include maturity, monthly amortization amount and loan to value ratio of the property.

[68] The SHF offers two types of guaranty. The first is called Default Guaranty (Garantía por Incumplimiento, GPI) and covers financial intermediaries for a proportion of mortgage portfolio defaults. The second is known as Timely Payment Guaranty (Garantía de Pago Oportuno, GPO) and guarantees payment of the principal and interest to holders of securities under the conditions set forth by the SHF.

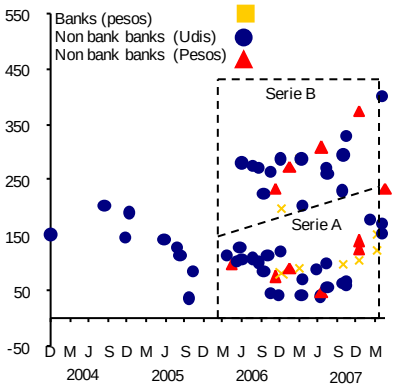
Table 6
Borhis with Credit Insurance

Monoline	Amount Insured (Million pesos)[1/]	Total Amount Insured (Percent)	Proportion of Total Amount of Outstanding Borhis Protected with Credit Insurance
SHF	5,243	28.22	10.80
MBIA	4,635	24.94	9.60
AMBAC	2,839	15.28	5.90
FGIC	1,568	8.44	3.20
Genworth	3,737	20.11	7.70
IFC	220	1.19	0.50
AIG	180	0.97	0.40
FMO	159	0.86	0.30
Total	18,581	100.00	38.40

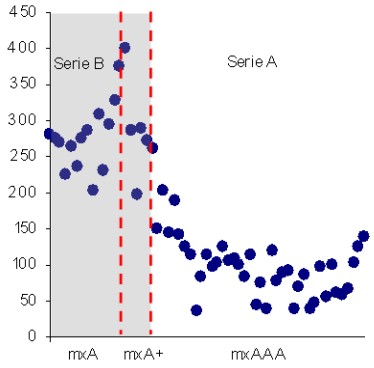
Figures as of April 2008.
Source: SHF.
1/ Including GPO and GPI.

Graph 39
Spreads between Borhis and Government Bond Yields

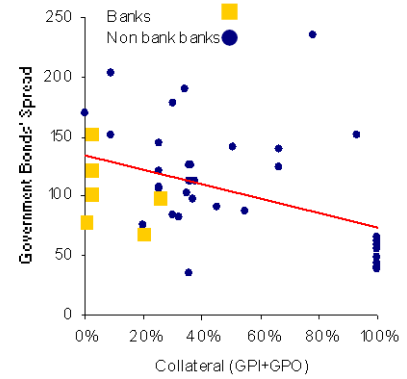
a) Spread between Borhis and Government Bond Yields



b) Spread between Borhis and Government Bond Yields [1/]



c) Spread between Borhis and Government Bond Yields



Figures as of April 2008.
Source: SHF and Banco de México.
1/ The horizontal axis gives spreads in chronological order, from the oldest to the most recent.
2/ Default Guaranties (GPI) are a form of insurance that covers the originator of the credit from possible default by the borrower, Timely Payment Guaranties (GPO) insure payment to the holder of the securitized asset in the event of default by the borrower. Both guaranties are offered by the SHF.

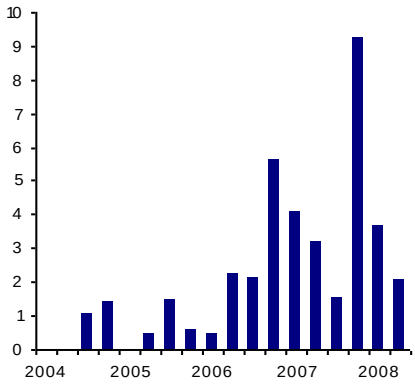
Graph 39a gives the spread between Borhis and government bond yields for different issues and payment preferences.[69] Monolines' downgrades in the United States may have a negative impact on foreign demand for Borhis guaranteed by these institutions.

[69] "Series A" or "senior" bonds have preference over the so-called "series B" or "mezzanine" bonds. The primary issue of Borhis is based on parity (the price of the bond is equal to its nominal value) through interest rate auctions. The coupon for each issue is therefore defined after the primary auction has been held.

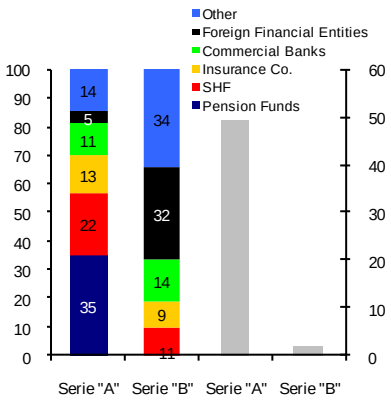
Graph 40a shows quarterly Borhis issues, while Graph 40b shows the relative importance of different investors in and the size of series A and series B. Mortgage-backed securities are especially attractive for institutional investors with long-term investment horizons, such as insurance companies and Siefores. Lastly, Graph 40c shows Borhis holding by the SHF and indicates that the SHF[70] has increased its Borhis acquisitions over the last few months.

Graph 40
Borhis Issuance and Main Investors

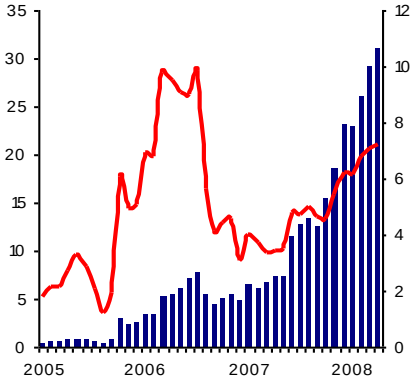
a) Quarterly Borhis Issues



b) Borhis Holding and Amount outstanding



c) Borhis Holdings by the SHF



Figures as of April 2008.
Source: SHF and Banco de México.

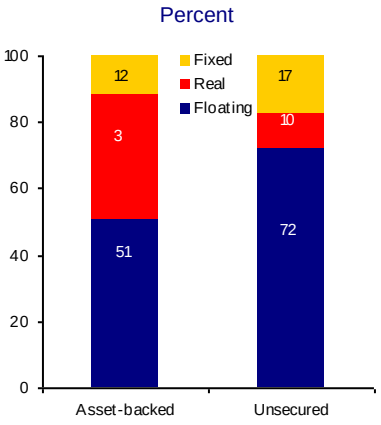
Graph 41 compares the relative importance of the different interest rates, maturities and ratings between asset-backed securities and other unsecured debt securities.

Long-term institutional investors are more likely to keep long-term securities in their balance sheets until they mature, thereby reducing liquidity in the secondary market of this type of securities. As a result, there is a greater volatility in the price of asset-backed securities in comparison with other instruments (Graph 42a). The variability of government bonds is significantly lower, even though it has grown recently (Graph 42b). Graph 42c shows the spreads between maturity yields of different private securities and government debt securities.

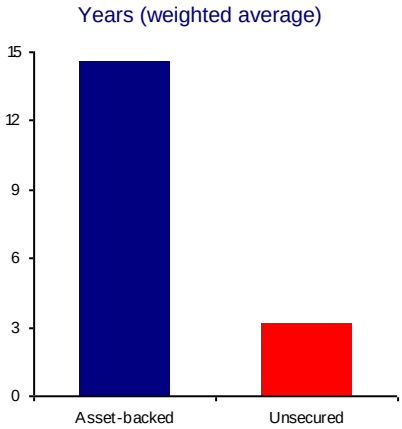
[70] The SHF acts like a market maker for securities of this type. It therefore undertakes to purchase at least 20 percent of primary issues, as well as to present secondary market purchase and sale intentions.

Graph 41
Characteristics of Private Debt Securities and Asset-Backed Securities

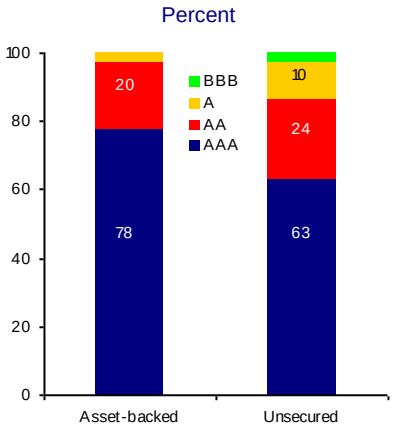
a) Private Securities Interest Rate



b) Asset-Backed Securities and Unsecured Securities Issue Maturities



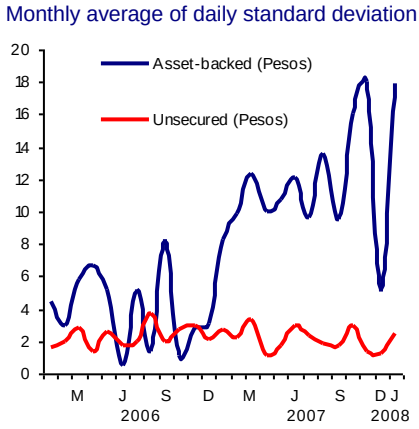
c) Asset-Backed Securities and Unsecured Securities Ratings



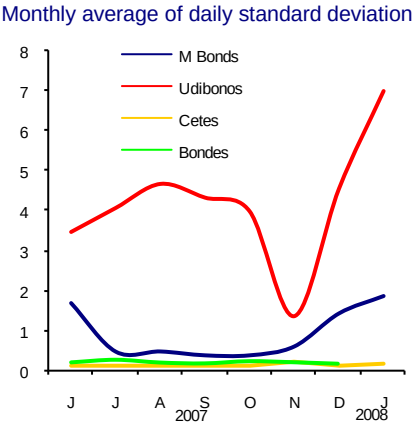
Figures as of December 2007.
Source: Ixe and Banco de México.

Graph 42
Volatility

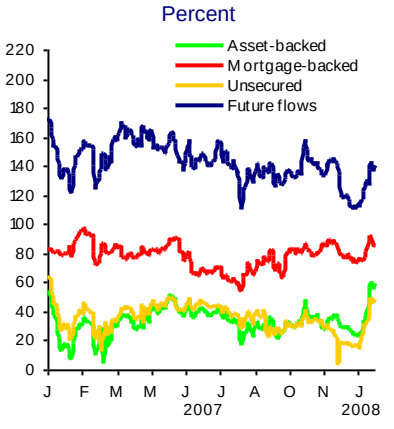
a) Price Volatility in Low Duration Private Secuirities rated as AAA



b) Price Volatility in Government Securities



c) Private Securities and Government Debt Yield Spread



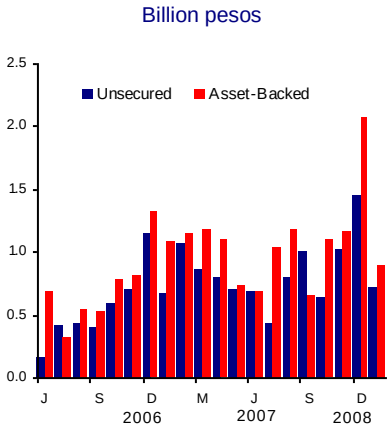
Figures as of January 2008.
Source: Banco de México.

Asset-backed securities and unsecured securities operations increased in 2007 compared to the previous year in spite of having a seasonal pattern (Graph 43a). The average daily amount of operations with Borhis and mortgage-backed securities issued by Infonavit (Certificación de Vivienda, Cedevis) was substantially higher in 2007 than in 2006 (Graph 43b). In some cases, the average operating level of government securities was 10 times higher than private securities. This is a consequence of a greater availability of these securities in the market (Graph 43c).

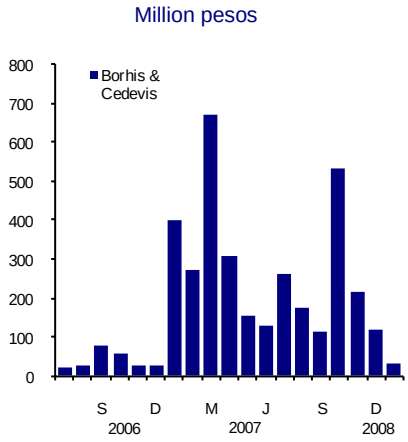
Graph 44a shows that private securities turnover[71] for these two types of securities was lower than in 2006. It may be explained by the increase in average private debt maturities. The behavior of Borhis and Cedevis was the same (Graph 44b). If we include Cetes and Bonos M, government securities turnover is almost 10 times higher than that of private debt (Graph 44c).

Graph 43
Operated Volume

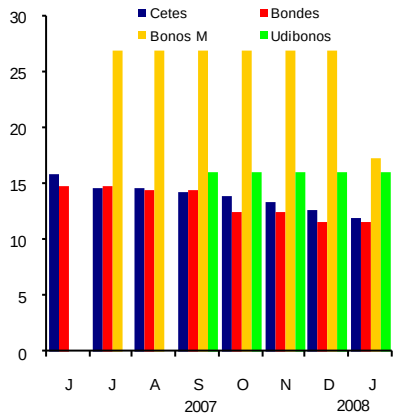
a) Average Monthly Operation Volume of Private Securities



b) Average Monthly Operation Volume of Borhis and Cedevis



c) Average Monthly Operation Volume of Government Securities



Figures as of January 2008.
Source: Banco de México.

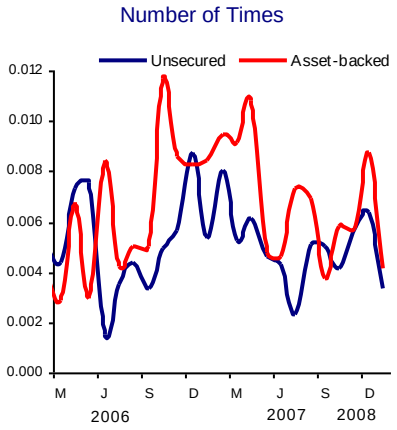
The growth of institutional investor assets has made the issue of securitized assets more attractive for this market (Graph 45). In the case of Siefores, there has been an increase in the relative importance of investments in private securities. In 2007, the importance of investment funds increased among institutional investors. As a result, recently securitized assets were issued with a variable coupon interest rate payment and shorter maturities intended to make them more attractive.[72]

[71] Average daily turnover measures the number of times the operated volume covers securities outstanding.

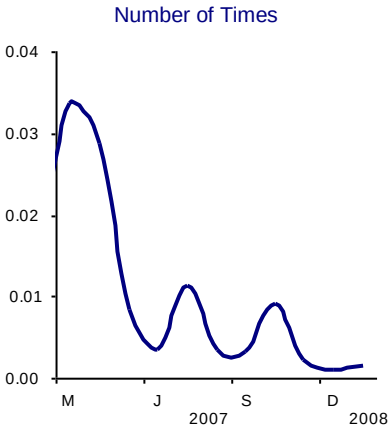
[72] In 2007 the first securitized asset with different maturity series was issued. This is in addition to the eight currently existing issues of unsecured securities with different maturities.

Graph 44
Turnover

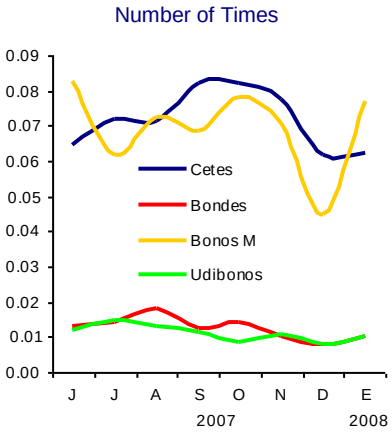
a) Monthly Average of Daily Private Securities Turnover



b) Monthly Average of Daily Borhis and Cedevis Turnover



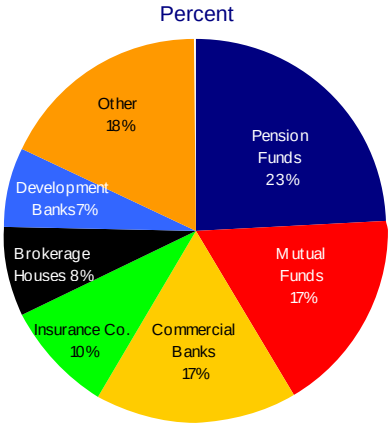
c) Monthly Average of Daily Government Securities Turnover



Figures as of January 2008.
Source: Banco de México.

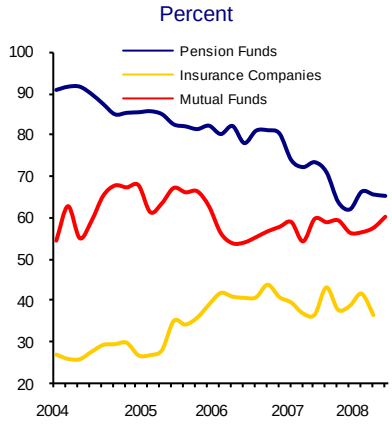
Graph 45
Structural Factors

a) Exposure in Asset-Backed Securities by Investor



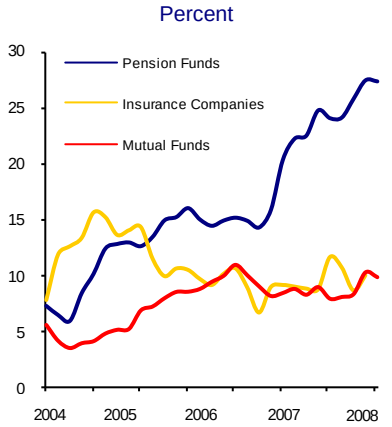
Figures as of April 2008.
Source: Banco de México.

b) Holdings of in Government Debt as a Percentage of Total Assets



Figures as of March 2008.
Source: Ixe and Banco de México.

c) Holdings of in Private Debt Securities as a Percentage of Total Assets



Figures as of March 2008.
Source: Ixe and Banco de México.

Box 16

Securitization Pools in Mexico

In Mexico, a securitization pool may be a trust fund, institution or other organization whose activities are limited to the following:

a. Holding of transferred financial assets.
b. Issuing securities with rights over these financial assets.
c. Receiving flows of funds from assets that have been transferred or reinvested in securities and rendering other services associated with the assets.
d. Distributing the benefits to the holders of the securities issued beforehand.

In order to finance the purchase of the assets to be securitized and cover any costs that may be incurred, the pool may obtain financing in different ways:

1. Debt contracting, through a loan from one or several lenders.
2. Issuance of instruments substituting the credit as commercial paper, floating rate notes[1] and Eurobonds.
3. Issuance of asset-backed securities.

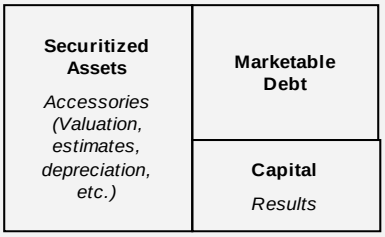
Trust Fund

In Mexico securizations are often conducted by transferring ownership through a trust fund that issues bonds backed by said assets, which may have different payment priority levels and, hence, a different associated risk. The trust is a legal entity created by the holder of the assets to perform a temporary or permanent transfer of different property or rights to the trust administrator for the benefit of third parties[2]. The parties comprising the trust fund are:

i. **Property in trust:** the property subject to the trust, which is the securitized assets.
ii. **Trustor:** person who grants the property to be administered by the trust and on which they will be derived. In some cases the trustor is also the originator.
iii. **Fiduciary:** trust administrator.
iv. **Trustee:** beneficiary (or beneficiaries) of the trust.
v. **Common representative** of the trustees, if there are many of them, such as the investors, for instance.

The trustor may also act as the fiduciary. Furthermore, the trustor may be the trustee. However, the fiduciary may never be the trustee. The Securities Market Law permits almost any financial institution to act as the fiduciary. But if a trust carries out an issue, as is the case of securitization, only commercial banks and brokerage houses will be authorized to operate. The Trust's balance sheet assets will consist of the assigned property, its valuation[3] and estimates based on uncollectibility or depreciations on said assets. Liabilities are comprised by the securities issued (marketable debt) or, if applicable, the debt contracted. Lastly, the initial capital will be the difference between the assets and the liabilities of the trust. The capital will be modified in accordance with the profits or losses made during the effective term of the trust.

Structure of the Trust



Source: FSI and CNBV.

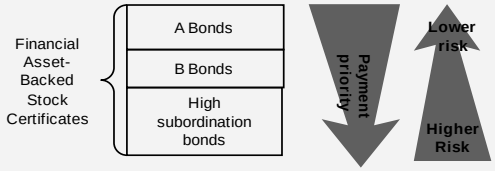
One important step is the reception by the trust of all the financial assets from the trustor. As from this moment, the fiduciary will be in control of the property[4] and periodically charge a fee for administering it. Funds for the payment of the transferred financial assets are obtained by the originator of the issue of the securities[5] backed by them, whose total value is usually lower than that of the assets[6].

There are several mechanisms for improving the credit quality of bonds backed by the assets subject to the trust. Securitization pools often use them to improve the rating of their issues. The most common one consists of the segmentation of bonds issued in accordance with the degree of risk and, hence, at the interest rate offered. The number of segments will vary depending on the structure of the trust, but three main ones can be identified:

- **"Bond A"** or **"Senior bond"** is the bond with the lowest risk, as it is the last one that absorbs losses and the first in terms of payment priority levels, which means it offers a lower rate.
- **"Bond B"** or **"mezzanine bond"** is the second in terms of payment priority levels and the second to absorb losses. The rate it pays is much higher that that of the bond with the greatest subordination. Its rating is generally stable.
- **"Junior bond"** or **"Bond with the highest subordination level"** rises from the difference between securitized assets and total issue. They are usually kept by the originator and act as a reserve to cover the credit risk. This bond is the first to absorb losses and does not usually have a rating.

The bond with the highest subordination level usually accounts for around 3 percent of total assets, a figure that may increase throughout the duration of the trust. This phenomenon is known as reserve increase and arises from the spread between securitized asset yields and the yields of asset-backed securities issued by the trust. Other mechanisms for mitigating the credit risk of securitized assets include insurance offered by certain financial institutions in order to improve bond ratings or even substitute securitized assets, if they are found to be deteriorating.

Structure of Trust Marketable Debt



Source: FSI.

1. Securitizations are normally performed through these securities in foreign countries.
2. Article 381 of the General Credit Security and Operations Law.
3. Financial securities are usually valued at reasonable levels, but this may not always be the case depending on the type of property being securitized.
4. In the case of securitization with transfer of property, the trust will retain control over the assets, while for the securitization of financing, this will be temporary or with certain restrictions set by the trustor.
5. Securitization may be performed through the issuance of asset backed securities or Certificates of Participation.
6. This method is known as *over-securitization.*

5. Commercial Banks

The first part of this section briefly presents the structure of commercial banks, while the second shows profitability indicators and analizes income from net interest income, trading, and fees and commissions. The third part examines bank solvency indicators, and the fourth outlines the characteristics of the capitalization rules introduced in January 2008 that include the guidelines of Basel II. The fifth part analyzes credit, market, liquidity, contagion and legal risks. Lastly, the sixth section explores some of measures introduced recently to promote transparency and increase access to financial services.

Four groups of banks have been defined for the purposes of this analysis: large banks, small and medium banks, banks associated with commercial chains (BACCs) and small subsidiaries of foreign banks (SSFB).[73]

5.1. Structure

In March 2008, a total of 42 commercial banks managed 54 percent of the financial sector assets (Graph 46a). The six largest banks[74] accounted for 82.6 percent of total bank assets,[75] 78 percent of branches and more than 90 percent of ATM and point of sales terminals (PST).

The 17 medium and small banks[76] handled 10.5 percent of the banking sector assets. This group includes banks with a relatively smaller infrastructure, as well as niche and regional banks.

Five banks, whose main shareholders are groups that own commercial chains, control 1.6 percent of total banking sector assets.[77] Lastly, in March 2008 the SSFB managed 5.3 percent of the sector's assets.[78] Their share of the credit market is relatively small, with the exception of two of these subsidiaries whose main activity is granting consumer credit. Last year, medium and small banks recorded the highest growth rate in the sector, followed by BACCs.

In the six largest banks 19.5 percent of total assets are assigned to finance households and 18.6 percent to finance firms. Medium and small banks focused on commercial credit, while SSFB concentrated on securities and derivatives, and BACCs on household loans, mainly for acquiring durable

[73] This section does not include information on bank groups whose participation in this sector is insignificant or in case the information presented is not public and could lead to identify the development of a particular bank.

[74] The six largest banks are BBVA Bancomer, Banco Mercantil del Norte, Banco Nacional de México, Banco Santander, HSBC and Scotiabank Inverlat. BBVA Bancomer figures include BBVA Servicios.

[75] The assets considered include securities financed through repurchase agreement operations.

[76] The medium and small banks are Banca Afirme, Banca Mifel, Banco del Bajío, Banco Inbursa, Banco Interacciones, Banco Invex, Banco Regional de Monterrey, Banco Ve por Más, Bansi, Ixe Banco, Banco Compartamos, Banco Monex, Banco Autofin, Banco Amigo, Banco Regional, Banco Multiva and Consultoría Internacional Banco.

[77] The banks associated with commercial chains are Banco Azteca, Banco del Ahorro Famsa, Banco Fácil, Bancoppel and Banco Wal-Mart Adelante.

[78] The affiliates of foreign banks are ABN AMRO Bank, American Express Bank, Banco Credit Suisse, Banco J.P. Morgan, Bank of America, Bank of Tokyo-Mitsubishi, Deutsche Bank, GE Money Bank, ING Bank, Barclays Bank, Prudential Bank, UBS Bank and Volkswagen Bank.

consumer goods (Graph 47a). As far as the liability structure is concerned, BACCs had the largest proportion of low cost funding (70.3 percent), while small subsidiaries had the smallest (Graph 47b). Box 17 outlines certain issues of the banking sector's evolution over the last few years, along with its corporate and shareholding structure.

The Credit Institutions Law was amended in February 2008 among other issues, to promote the entrance of new participants in the banking sector. One of the purposes of this reform was to reduce the minimum capital required to establish a bank and allow this capital to be associated to the operations mentioned in corporate bylaws and to the markets in which the bank seeks to participate.[79] Also, in 2008 changes were made to the methodology used to recognize the effects of inflation on financial statements.[80]

Banks associated with commercial chains

Over the last six years, financial authorities have authorized the operation of five banks associated with commercial chains (BACCs). The first authorization was granted in 2002 and the others in 2006. Authorities considered that commercial firms in the banking sector would bring benefits to consumers and would help providing access to financial services to the large segments of the population with no access to the financial system.

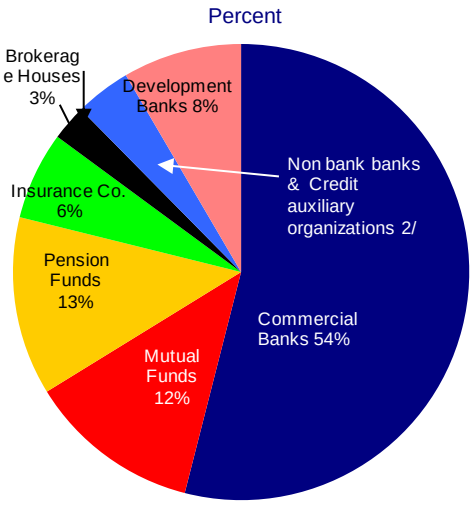
In order to compete in some business lines, it is necessary to have a large infrastructure and a stable client portfolio, conditions that commercial firms already have. These new banks can obtain economies of scale and scope using the infrastructure of the retail business organizations they belong to in order to distribute bank products and perform some of the operations corresponding to their field of specialization.

[79] Prior to this reform, the corporate bylaws of a bank were required to contain all banking activities. The changes made (Article 19) will enable each bank to choose the activities (from Article 46) it will perform and, according to this selection, the minimum capital will be determined. This capital may be equivalent to 40 percent of the 90 million Udis required when a bank performs all the activities in the catalog. The National Banking and Securities Commission will establish the minimum capital in accordance to the operations to be performed.

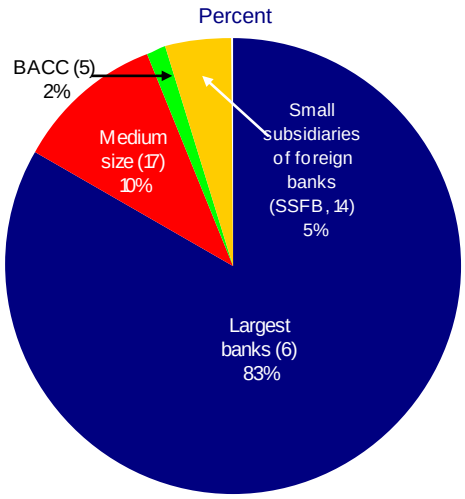
[80] The new financial information rules set forth two settings in which a company might operate at a given moment: i) Inflationary, if accrued inflation from three previous fiscal years is equal to or greater than 26 percent, the effects of inflation must be recognized in the financial information. ii) Non-inflationary, if accrued inflation is less than 26 percent, then the effects of inflation in the period should not be recognized.

Graph 46
Structure of the Financial System

a) Financial System Assets[1/]



b) Commercial Banks Assets[1/]



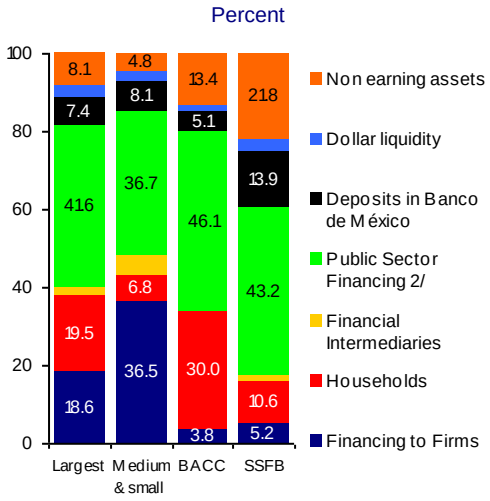
Figures as of December 2007.
Source: National Banking and Securities Commission (CNBV) and Banco de México.

Figures as of March 2008.

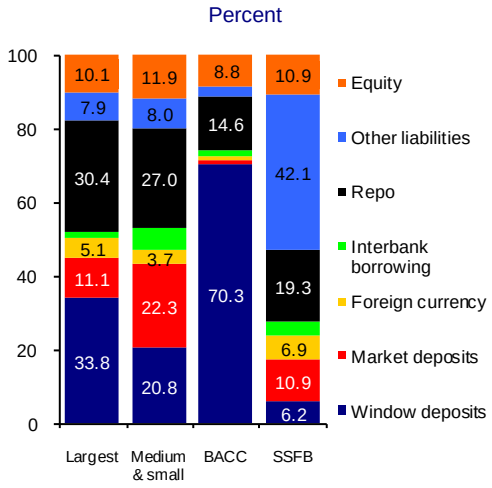
1/ The assets considered include net positions on securities financed through repos. They do not include public trust funds.
2/ OACs: (Organizaciones Auxiliares de Crédito) Auxiliary Credit Organizations.

Graph 47
Structure of Commercial Bank Assets, Liabilities and Capital

a) Structure of Assets[1/]



b) Structure of Liabilities and Capital[3/]



Figures as of December 2007.
Source: CNBV and Banco de México.
1/ Assets include net positions on securities financed through repos.
2/ This includes direct credit and direct securities holding, as well as holding financed through repos.
3/ Liabilities include net obligations derived from the purchase of securities through repos.

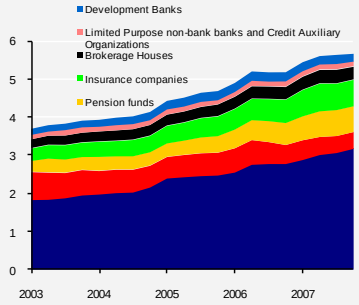
Box 17

Evolution and Structure of the Mexican Financial System

Evolution of the Financial System

The financial system has grown over the last four years at a real average annual rate of 10 percent. This growth has been driven mainly by commercial banks, pension fund managers (Afores) and mutual funds. Following the crisis of 1995, commercial banks' share of the financial system's total assets decreased to levels under 50 percent, mainly due to a reduction of financing to the private sector. Since 2001, credit to the private sector has recovered thus commercial banks' asset share increased to 54 per cent as of December 2007. Over the last four years, Afores and mutual funds have grown at real average annual rates of 18 and 19 percent respectively.

Financial System Assets
Trillion 2002 pesos



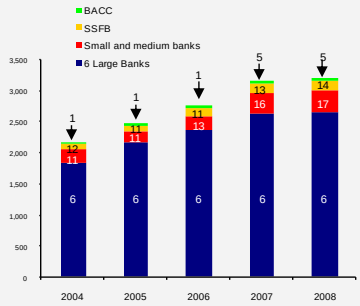
Figures as of December 2007. Source: CNBV, CNSF and Consar.
The assets considered include securities financed through repos.

Sofoles and regulated Sofomes under regulation are major participants in credit granted to the private sector, especially mortgage and car loans (see the Sofoles section in the Financial System Report 2006).

In March 2008, as part of corporate decisions, one of the six largest banks separated its credit card portfolio to a regulated Sofome, which is a subsidiary of the same bank (this bank accounted for 27.3 percent of credit cards). This corporate operation will be reflected in the credit aggregates of the banking sector and the Sofoles and Sofomes sector.

In the last three years, 15 new banks entered the market. Seven of them are small or medium, 4 are associated with commercial chains (BACC), and 4 are small subsidiaries of foreign banks. These banks seek to cover specific business or regional niches and, in the case of BACC's, bankarize segments of the population without access to banking services.

Banking System Assets
Billion 2002 pesos



Figures as of March 2008.

Total commercial banks' assets have grown at a real average annual rate of 12 percent over the last four years. The share of 6 largest commercial banks' in the banking system's total assets dropped from 87 percent as of December 2003 to 83.5 percent as of December 2007.

Corporate Structures

Eighty-five percent of financial system assets are held by intermediaries that are part of financial groups, and 15 percent by financial intermediaries that do not belong to groups[1]. Most banks, brokerage houses, mutual funds and Afores belong to a financial group, which is not the case for insurance companies, bond companies, Sofoles, regulated Sofomes under regulation and Credit Auxiliary Organizations.

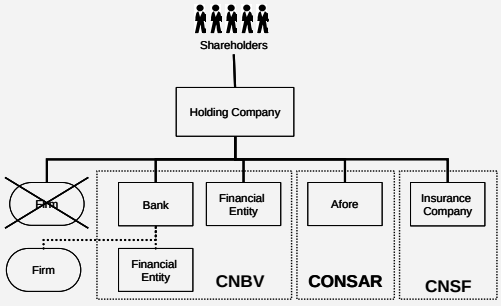
Financial groups must comprise a holding company and at least two of the following financial organizations: banks, pension fund managers, mutual funds, insurance companies, multi-purpose non-bank banks (Sofomes), brokerage houses, bond companies, deposit warehouses and exchange houses. These institutions may be of the same type, but a financial group may not, be created with just two Sofomes. Furthermore, according to the law a holding company must not own directly shares of a commercial or industrial firm.

Holding companies must own at least 51 percent of each member of the financial group. They cannot take liabilities, unless they are authorized to do so by Banco de México, and their sole purpose is to hold shares. The financial holding company is supervised by the Commission that regulates the group's main financial entity. However, there is no consolidated supervision of financial groups as an economic unit.

The complex nature of financial group structures, the growth of bank and non-bank financial intermediaries, whether or not they belong to financial groups, as well as corporate operations within these groups, which are often carried out for tax or regulatory purposes, highlight the convenience of moving towards consolidated prudential regulation for financial groups.

The purpose of consolidated regulation is to consider a financial group as a single economic unit, which means it is necessary to measure the exposure of all the intermediaries that are part of the same financial group to a common risk, as well as for intermediaries on an individual basis. Furthermore, regulation should exist for similar operations, regardless of the financial intermediary under which these operations are registered. Also, operations performed among financial intermediaries belonging to the same financial group should be regulated.

Financial Group Structure



CNBV: National Banking and Securities Commission.
CONSAR: National Commission for the Retirement Savings System.
CNSF: National Commission for Insurance and Bail Companies.

Shareholding structure

The Financial Groups Law sets forth that any individual or company can control a holding company, with the authorization of the Ministry of Finance and Public Credit, after hearing the opinion of the Commission that supervises the holding company[2]. Furthermore, the Credit Institutions Law states that any individual or company may acquire shares in the capital stock of a commercial bank.

In order to acquire, directly or indirectly, 5 percent or more of the shares in a bank's capital stock, it is necessary to obtain the authorization of the CNBV, who will first consult Banco de México.

If a person or group of persons, whether or not they are shareholders, wishes to acquire twenty percent or more of the shares or gain control of the institution, they must obtain the authorization of the CNBV, who will first consult Banco de México.[3]

Of the 42 commercial banks authorized as of May 2008, 26 belong to financial groups and 16 are not members of a group.

Financial groups with a commercial bank are most commonly controlled by a single shareholder[4] and most banks not belonging to a group have a relatively disperse shareholder base.

Financial groups and banks not belonging to a financial group are classified into four schemes depending on their share holding structure, as shown below:

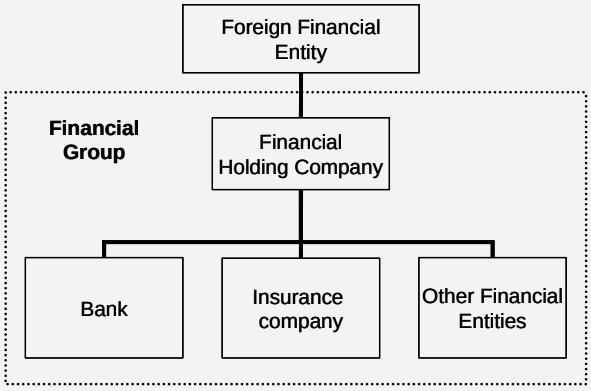
Scheme 1: Includes financial groups and banks incorporated as subsidiaries of foreign financial entities.

Scheme 2: This scheme includes financial groups and banks not incorporated to a financial group and with relatively dispersed shareholder base. Four of the financial groups are listed in the Mexican Stock Exchange, along with a bank not incorporated to a financial group.

Scheme 3: Includes financial groups whose main shareholder is a non-financial holding company that is not regulated by financial authorities (sociedad anónima bursátil, S.A.B. – stock market firm).[5]

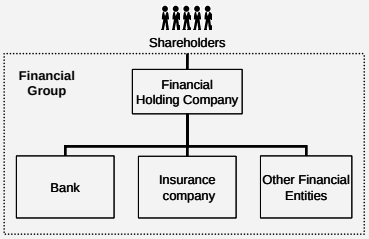
Scheme 4: Includes financial groups and banks not incorporated to a financial group whose principal shareholder is a firm.

Scheme 1
Subsidiary of a foreign financial entity



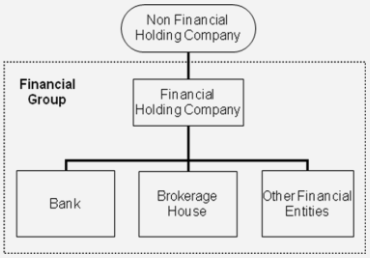
This scheme includes 5 of the 6 main financial groups: BBVA Bancomer, Banamex, Santander, HSBC and Scotiabank, which together account for 72.3 percent of the banking system's total assets. There are also 8 financial groups with small subsidiaries, as well as 5 subsidiary banks that are not incorporated to a financial group.

Scheme 2
Dispersed shareholding structure



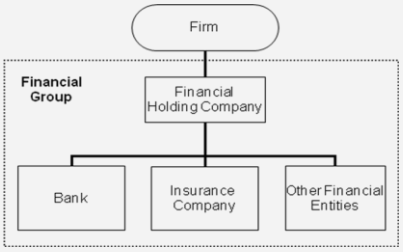
This scheme includes Banorte and 7 financial groups comprising medium and small sized banks and 6 banks not incorporated to a financial group. Together they account for 21 percent of total banking system assets as of December 2007.

Scheme 3
Shareholder: non-financial holding company



Scheme 3 includes the financial groups Invex and Monex.

Scheme 4
Shareholder: commercial firm or group



Scheme 4 includes most of the banks associated with commercial chains, the majority of which are either subsidiaries of these companies or belong to their business group, as is the case of Banco Azteca, Banco Wal-Mart Adelante, Banco del Ahorro Famsa and Banco Coppel. This scheme also includes Banco Autofin and Grupo Financiero Multivalores.

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1. Development bank assets are not considered.
2. Article 20 of the Financial Group Law. Also Article 18 of this law sets forth that foreign companies exercising functions of authority and domestic financial entities may not participate in the capital stock of the holding company, except if they act as institutional investors.
3. Article 17 of the Credit Institutions Law. Article 13 of this law sets forth that foreign companies exercising functions of authority may not participate in the capital of commercial banks.
4. The General Business Corporation Law establishes that at least two partners are required in order to organize a corporation. Therefore, financial groups must have at least two shareholders, although it is common for one of them to hold 99.9 percent of the shares.
5. Corporations whose shares are registered in the National Securities Register (Registro Nacional de Valores).

The entrance of BACCs in the banking sector has some advantages. However, the trend among large corporations is to operate different businesses without paying much attention to the corporate frontiers customarily drawn by supervisory jurisdiction. There is extensive literature on conflicts of interest and transfer of risks that could emerge when there are patrimonial or business links between banks and commercial firms. These issues are difficult to avoid just through regulation and supervision.[81]

Consequently, concerning entities belonging to the same economic group, authorities have promoted independence between the bank managers and the ones in charge of the administration of the commercial firm. This independence could be encouraged by, among other things, ensuring that important functions are performed by different teams. It is important that any event concerning the commercial firms shall not have an effect on the banking business. Furthermore, there should also be transparency for the public to avoid confusion over the entity of the group that is responsible of any transaction.

Regulation must also establish that transactions between banks and commercial firms should be marked to market to avoid the transfer of funds from the bank to the firm. Also, tied-up sales must be forbidden, so no commercial firm could force any supplier to open an account with the bank belonging to the same economic group.

One issue that emerged with the entrance of BACCs is the way some transactions would be performed through the infrastructure of commercial firms. As a result, the Credit Institutions Law was amended to allow banks to do outsourcing, so any bank could receive deposits outside bank branches. Under the legal figure, banks are responsible for the transaction from the moment the service provider receives the funds.

The entrance of BACCs has already affected the organization and structure of the financial system. The main effects are the following:

i) A sharp rise in the number of bank accounts, branches and modules for attending bank clients.

ii) The transformation of existing financial groups into non-financial conglomerates. The controlling shareholders of some financial groups have decided to control the group through a non-financial conglomerate. This change aims to diversify sources of income and risk for the group. Thus, through an investment in a non-financial company,[82] the competition with an economic group that owns a BACC would be performed on equal conditions.

iii) A large number of banks have become partners with commercial chains.

[81] Krainer, J. (2000), "The Separation of Banking and Commerce", FRBSF Economic Review.

[82] The Financial Groups Law (Ley para Regular las Agrupaciones Financieras) prohibits investment by financial groups in non-financial firms. The Credit Institutions Law (Ley de Instituciones de Crédito), for its part, puts strict limitations on banks' investment in companies of this type.

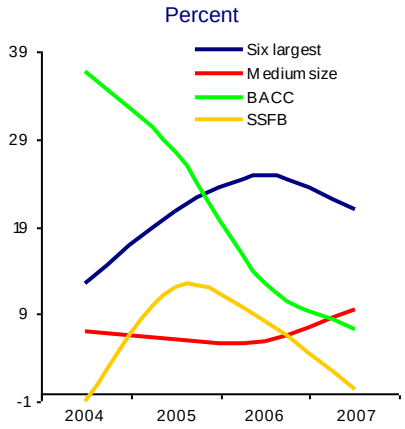
5.2. Profitability

In December 2007, commercial banks' profits before taxes[83] were 90.5 billion pesos, 12.6 percent below in real terms if compared to the previous year. Net profits rose by 69.7 billion pesos, increasing 0.7 percent in real terms. Worthy of note are the declining profits of the six largest banks, due to the drop of income from trading[84] and higher expenses on credit reserves.

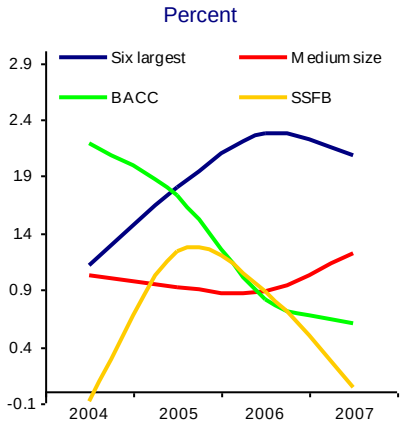
The creation of credit reserves also increased among other banks (Graph 48c). But the medium and small sized banks were able to offset these expenses by increasing net interest income and fees and commissions. Due to the reduction of bank profits in 2007, ROE and ROA decline for almost every group of banks (Graph 48a and b).

Graph 48
Commercial Banks' Profitability Indicators

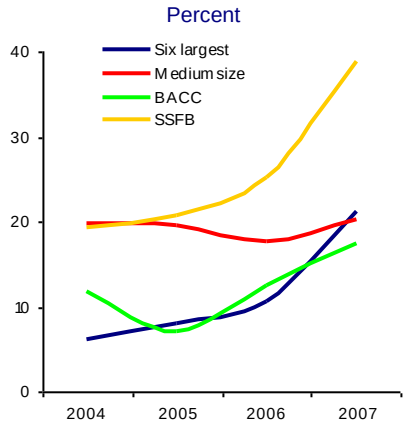
a) Return on Average Equity (ROE)



b) Return on Average Assets (ROA)[1/]



c) Creation of Reserves as a Proportion of Income



Figures as of December 2007.
Source: CNBV.
1/ The assets considered include securities financed through repos.

In spite of falling profits, banks' profitability remained high in 2007 due to the growth and changes in the structure of household and business credit, and an increased use of bank services by the public (Table 7, columns D and F).

The structure of banks' income and expenses varies considerably depending on which type of business banks conduct and which sectors of the population they attend. The spread between the asset and liability interest rates of BACCs is therefore greater than for the rest of the banking sector, which means higher income levels for every peso in assets (Table 7, column B and Graph 49b). But BACCs must cover higher operating costs than those of other banks, in view of the large number of small-amount operations they carry out. As a result, for every peso received by the BACCs in income, a mere 4.6 cents are accounted for operating profits. In contrast, for the six largest banks, profits stood at 35.8 cents for each peso in income (Table 7, column A and Graph 49a).

[83] Operating profit is obtained before considering taxes, results of subsidiaries and inflationary (Repomo).

[84] Trading results come from profits and losses from the acquisition and sale of securities, currencies, metals and derivative instruments, as well as the revaluación of these positions.

Table 7
Commercial Banks' Profitability Structure[1/]

	Profits before taxes / Total income (A) Percentage	x	Total Income / Risk weighted assets (RWA) (B) Percentage	x	RWA / Total Assets (C) Percentage	=	Profits before taxes / Total assets (D) Percentage	x	Total Assets / Equity (E) Times	=	Profits before taxes / Equity (F) Percentage
Six largest	35.8		11.1		66.3		2.6		10.0		26.5
Medium size	30.6		9.6		58.3		1.7		7.7		13.3
BACC	4.6		46.4		53.0		1.1		11.9		13.4
SSFB	13.2		10.5		46.2		0.6		11.2		7.2

Figures as of December 2007.
Source: Banco de México and National Banking and Securities Commission (CNBV).
1/ Profits before taxes were used instead of net profits to exclude extraordinary profits, Repomo and taxes, among other things. Therefore, these figures are not the same as the ones shown in Graph 48a and b, which shows net profit as a proportion of Equity and Total Assets.
Assets include securities financed through net repos.
Total income = Net interest income + Net fees and commission + Trading.
Risk-weighted assets (Activos ponderados por riesgo, APR) are assets whose value changes when there are fluctuations in interest rates, the exchange rate or the credit rating of borrowers. They are known by this name because, pursuant to the Capital Adequacy Regulation, they must be multiplied by a risk weight or capital adequacy ratio in order to estimate the bank's capital adequacy ratio.
The methodology used may be consulted on: Bank of England (2003), "*Financial Stability Review*".

Increased income in 2007, together with moderate growth on administrative costs, led to an increase in the efficiency index,[85] both for large banks and for BACCs (Graph 49c). The expansion strategies pursued by medium banks increased the number of branches,[86] point of sales terminals (PST)[87] and automatic teller machines (ATMs), which brought down the efficiency index between 2004 and 2006, although it did improve in 2007.[88] This policy will eventually increase deposits, the volume of operations and, as a result, income.

[85] The efficiency index is defined in terms of administrative costs as a proportion of total income.

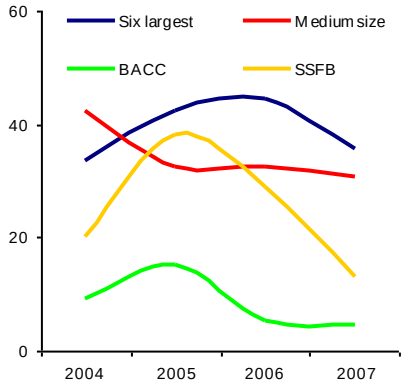
[86] Medium banks account for 5.4 percent of total banking system branches as of December 2007, as opposed to 3 percent in 2004.

[87] The market share of the point of sale terminals of medium-sized banks rose from 0.6 percent in 2004 to 3.9 percent in December 2007. Over the last three years, point of sale terminals have grown at an average rate of 55 percent, while the average growth rate of ATMs over the same period stood at 19.4 percent.

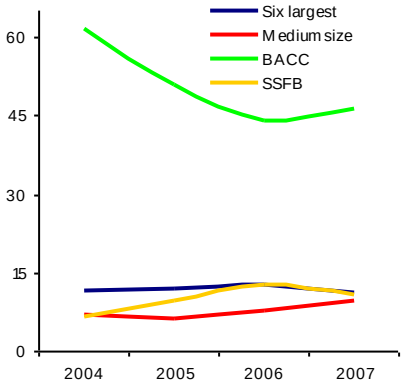
[88] ATMs of medium-sized banks accounted for 6.5 percent of all ATMs in 2004. By the end of 2007, this figure had risen to 10.3 percent.

Graph 49
Profitability Structure and Efficiency Index

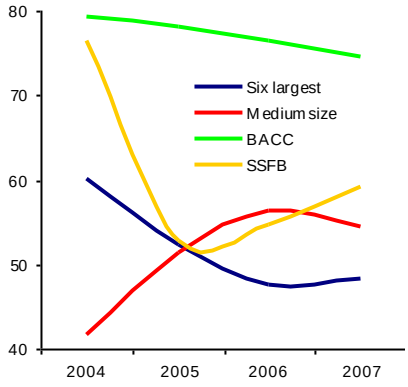
a) Profit before Taxes [1/] as a Proportion of Income



b) Total Income as a Proportion of Risk-Weighted Assets



c) Efficiency Index[2/]



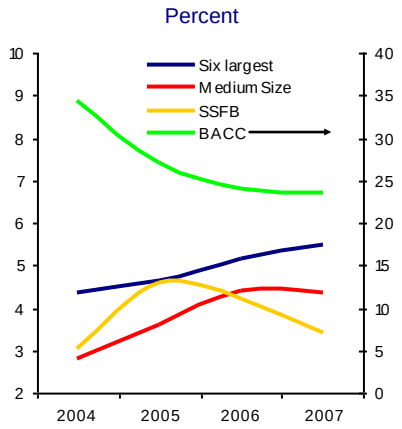
Figures as of December 2007.
Source: Banco de México and National Banking and Securities Commission (CNBV).
1/ Operating profit is profit before considering taxes, the results of subsidiaries and monetary net results (Repomo). The assets considered include securities financed through repos.
2/ The efficiency index is defined in terms of administrative costs as a proportion of total income.

The income structure of the largest six banks and the SSFB is more diversified than that of the medium-sized banks and BACCs, whose profits rely primarily on net interest income (Graph 50).

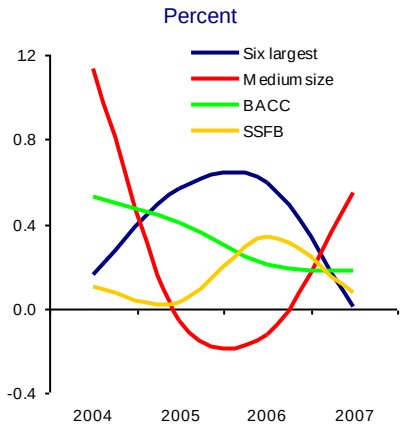
Profits of the six largest banks, measured as a proportion of their assets, increased between 2004 and 2006. This was due to a rise in net interest income and, albeit to a lesser extent, reduced administrative costs. However, the ratio of profits to assets (Graph 48b) dropped in 2007, as a result of reduced income from trading and increased reserve creation (Graph 50b and c).

Graph 50
Total Commercial Banks Income

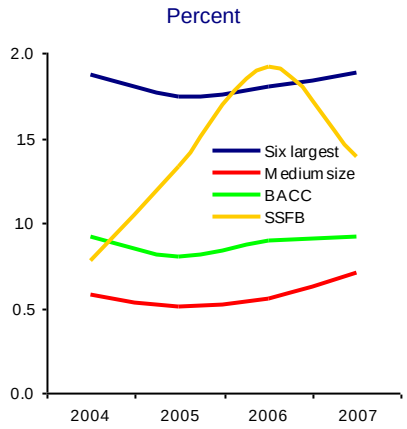
a) Net Interest income as a Proportion of Total Assets



b) Income from Trading[1/] as a Proportion of Total Assets



c) Income from Fees and Commissions[2/] as a Proportion of Total Assets



Figures as of December 2007.
Source: CNBV.
1/ Income from trading comprises the profits and losses generated from the purchase and sale of securities, currencies, metals and derived instruments, as well as from the revaluing of these positions.
2/ Income from fees and commissions corresponds to the difference between fees and commissions charged and fees and commissions paid.

Results as of first quarter of 2008

In the first quarter of 2008, net commercial banks profits grew 54 percent in real terms compared to the same period of the previous year. Both the increase in income from trading (470 percent in real terms) and, to a lesser degree, from net interest (12 percent annual increase in real terms) offset the increase in reserves to cover credit portfolio deterioration.

Income from fees and commissions[89] was up 1.2 percent in the first quarter of 2008 on the same period of the previous year. Income from fees and commissions among the big banks dropped slightly (0.8 percent in real terms) compared to the first quarter of 2007.

These results enabled the commercial banks to increase their profitability indicators. As of March 2008, ROA stood at 2.2 percent (1.6 percent as of March 2007), while ROE came to 20.9 percent (15.3 percent as of March 2007).

[89] This refers to net fees and commissions.

Table 8
Income Statement
Billion pesos

			December 2007					2008
			Six largest	Medium size	BACC	SSFB	Total	1st Quarter
	Net interest income	1/	171.6	15.0	13.4	7.2	207.2	54.9
(+)	Net fees	2/	59.0	2.4	0.5	2.9	64.9	15.4
(+)	Trading	3/	0.2	1.9	0.1	0.1	2.3	9.2
(=)	**Total income**		**230.9**	**19.2**	**14.0**	**10.2**	**274.4**	**79.5**
(-)	Administrative expenses	4/	111.6	10.5	10.5	6.1	138.6	35.9
(-)	Credit Provisions	5/	49.1	3.9	2.5	4.0	59.4	18.3
(+)	Other net income	6/	12.4	1.0	-0.5	1.1	14.1	3.5
(=)	**Operating profit**		**82.6**	**5.9**	**0.6**	**1.4**	**90.5**	**28.8**
(-)	Income taxes & Other	7/	17.5	1.7	0.3	1.3	20.8	6.7
(=)	**Net Profit**		**65.1**	**4.2**	**0.3**	**0.1**	**69.7**	**22.2**

Source: CNBV.

1/ Difference between financial revenues and costs. Financial revenues consist mainly of interest and yields from loans and securities and the premium obtained from repos and securities lending. It also includes commissions originated in the moment the credit is granted. Financial costs include mainly interest paid on deposits (sight deposits, time deposits, bank bonds, interbank loans and subordinated debt) and premiums paid for repos and securities lending. It does not include monetary net results (Repomo).

2/ Difference between commissions charged and commissions paid.

3/ Income from trading consists of the profits and losses generated from the purchase and sale of securities, currencies, bullion and derived instruments, as well as due to the revaluation of these positions.

4/ The main items considered in this category are the compensations and benefits paid to members of staff, rents, promotion and advertising expenses, depreciations and amortizations and IPAB quotas.

5/ Reserves to cover credit portfolio deterioration.

6/ This is the difference between other revenues and other costs. Revenues include income from the sale of real estate, furniture and equipment and awarded property and non-credit portfolio recovery. Costs include costs generated by fraud, amounts missing at branches and losses from the sale of real estate, furniture and equipment and awarded property. But the main amounts of both revenues and costs cannot be clearly identified and are grouped under the heading of "others".

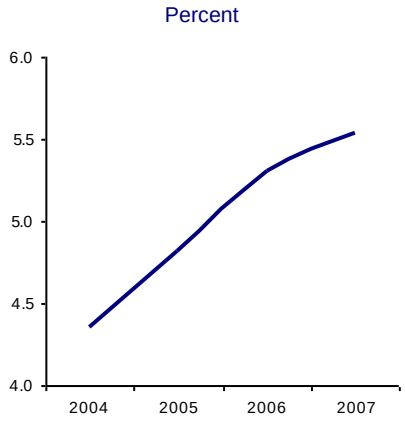
7/ This item includes Repomo, share of profit obtained by subsidiary companies and companies associated with the bank and results from non-recurrent operations.

Net interest income

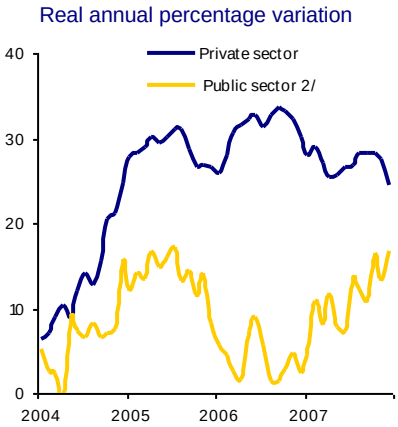
In 2007, net interest income was up 17.3 percent in real terms on the figure for the previous year. As of the end of that year income from net interest accounted for 5.5 percent of assets (5.4 percent as of March 2008) (Graph 51a).[90]

Graph 51
Net interest Income and Commercial Bank Loans to the Public and Private Sectors

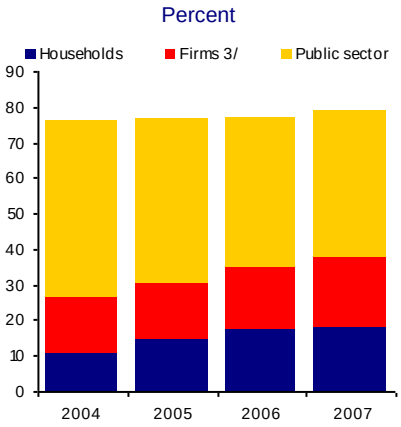
a) Net Interest Income as a Proportion of Total Assets[1/]



b) Loans to the Private Sector and Financing to the Public Sector



c) Financing to the Public and Private Sectors[3/] as a Proportion of Total Assets[1/]



Figures as of March 2008.
Source: CNBV and Banco de México.
1/ The assets considered include securities financed via repos.
2/ This includes the net position of the commercial banks in government securities financed through repos.
3/ Firm financing includes direct loans to firms and holding of private securities by the banking sector.

The net interest income increase that has taken place over the last few years can be attributed mainly to the following: i) growth of credit to the private sector (Graph 51b), especially credit intended for more profitable activities such as the consumer sector and small businesses; ii) increasing relative importance of the private sector's portfolio for bank assets (Graph 51c); and iii) access to financial services for high risk segments of the population.

One of the main determining factors of net interest income is the spread between lending and deposits interest rates. This spread may be broken down, for the purposes of analysis, into deposit and credit margins (Box 18).

[90] Assets include net positions in securities financed via repos.

Box 18

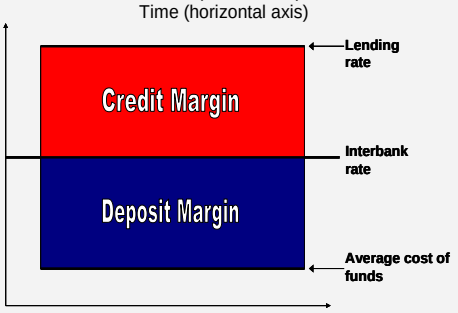
Deposit and Credit Margins of Commercial Banks

Deposit margin is the difference between the interest rate at which a bank could place its funds on the interbank market (TIIE) and the average cost of deposits. Credit margin is the spread between the average lending rate charged by the bank to borrowers and the interest rate in the interbank market.[1]

The TIIE is used as the representative interest rate for the interbank market. The borrowing rate is similar to the Average Total Cost (ATC), which includes the costs of bank sight and savings deposits, promissory notes with yields payable upon maturity, bank acceptances, bank-backed commercial paper and other time deposits. It does not include costs generated by tax collections, interbank financing and auctions of Banco de México. The lending rate is obtained by calculating the implicit interest rate in the bank's earning assets yield. This yield can be obtained in several ways, as shown in the table.

Graphic Example of Net Interest Income

Rates (vertical axis)
Time (horizontal axis)



Implicit interest rate calculation methodologies

Methodology	Lending Rate
A1	Interest income from performing loans accrued during the period / Average performing loans during the period
A2	Interest income from total loans accrued during the period / Average total loans during the period
A3	Interest income from total loan accrued during the period / Average total loans and written-off loans during the period
A4[1/]	Interest income from earning assets accrued during the period / Average earning assets during the period

1/ This rate considers the return of assets invested in fixed yield instruments, which in the case of Mexico account for a large proportion of their assets.

1. The interbank market interest rate is used as a reference for calculating the two margins based on the model of Ho, T. and Saunders, A. (1981), "The Determinants of Bank Interest Margins: Theory and Empirical Evidence", *The Journal of Financial and Quantitative Analysis*. This model assumes that the marginal income of an increase in deposits is comprised by what the bank would obtain from placing its resources on the interbank market. Similarly, the marginal cost of financing a credit increase is comprised by what the bank would have to pay to obtain additional funds on the interbank market.

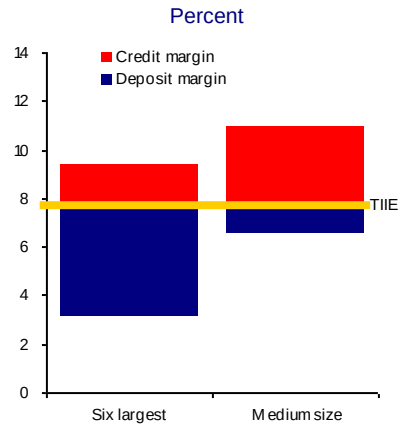
The credit margin of the six big banks in their housing, business and consumer portfolios is smaller than for the rest of the banks (Graph 52). This is because most medium-sized banks have increased the proportion of credit they provide for sectors regarded as high risk, such as small and medium sized firms (SMEs)[91] and welfare housing projects (Graph 53a and b). With regard to the deposit margin, the six large banks and the BACCs enjoy a larger margin from over the counter deposits.[92]

[91] In seven medium-sized banks, the proportion of credit granted to small and medium sized firms (SMEs) in 2007 accounted for more than 50 percent of the total credit portfolio to private firms.

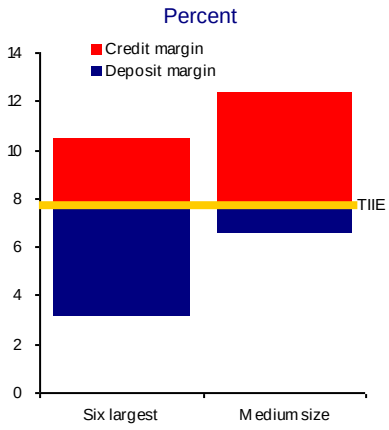
[92] Over the counter deposits include promissory notes with yields payable upon maturity, certificates of deposit, deposits withdrawable on preestablished days, current account deposits, time deposits, savings accounts and checking accounts with and without interest. The yield paid is set by the bank and is not subject to negotiation with the saver.

Graph 52
Commercial Banks' Credit and Deposit Margins [1/]

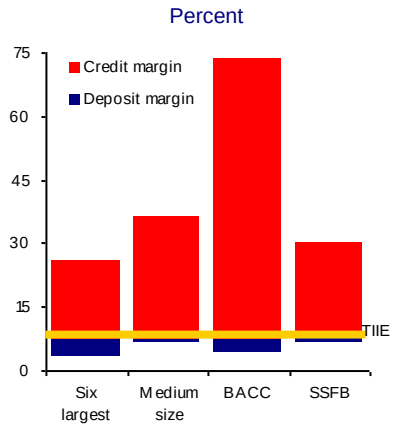
a) Interest Rate Spread in Credit to Firms



b) Interest Rate Spread in Mortgages



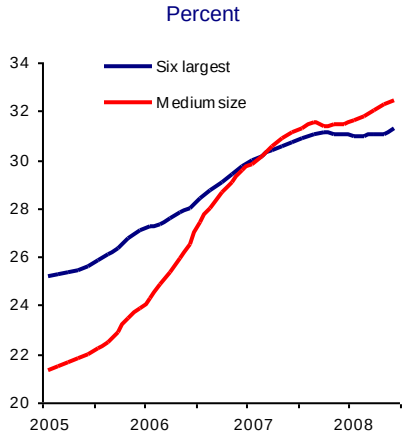
c) Interest Rate Spread in Consumer Credit



Figures as of December 2007.
Source: Banco de México and CNBV.
1/ The credit margin is the difference between the implicit lending interest rate and the TIIE. The deposit margin is the difference between the TIIE and the average cost of funds. The lending interest rate is the rate obtained by dividing income from credit in 2007 by the average credit balance for the same year (methodology A1 in Box 18). The six biggest banks and the medium and small ones accounted for 98.5 percent of bank credit granted to firms and 99.8 percent of bank mortgage credit. This is why no information on small affiliates and BACCs was included in these categories.

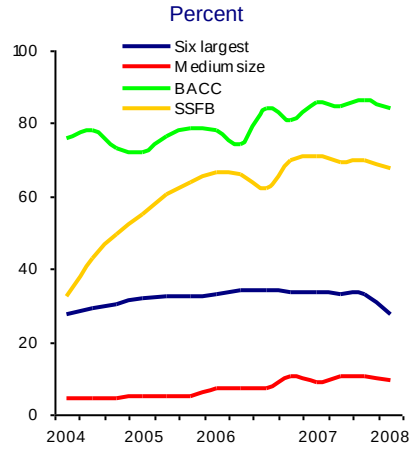
Graph 53
Commercial Bank Credit to the Private Sector by Type of Bank

a) Loans to SMEs as a Proportion of Loans to Firms[1/]



b) Credit for Welfare Housing Projects as a Proportion of Mortgages[2/, 3/]

c) Consumer Credit as a Proportion of Loans to the Private Sector



Figures as of March 2008.
Source: Banco de México and CNBV.
1/ The six largest banks, together with the medium and small banks granted 98.5 percent of total bank loans to firms.
2/ This does not include credit restructured in Udis. The increase in low-cost housing loans is due to mortgage acquisitions by the banking sector from Sofoles.
3/ The six largest banks and the medium-sized banks granted 99.8 percent of total bank mortgage credit.

Box 19

Profitability of Commercial Banks: An International Comparison[1]

In Mexico the profitability of the banking sector is higher than in developed countries. However the profitability of banks in certain Latin American countries, such as Brazil, Peru and Colombia, is higher than in Mexico (see columns D and F of the table).

Components of Bank Profitability[1/]
International Comparison

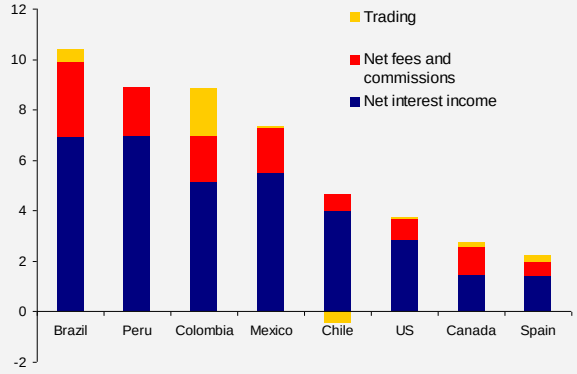
	Operating Profit / Total Income (A) Percent	×	Total Income / RWA (B) Percent	×	RWA[2/] / Total Assets (C) Percent	=	Operating Profit / Total Assets (D) Percent	×	Total Assets / Equity (E) Times	=	Operating Profit / Equity (F) Percent	Efficiency Index[3/] (G) Percent	Loan-loss reserves / Total Income (H) Percent
Peru	38.2		13.1		68.2		3.4		11.2		38.3	49.7	11.3
Brazil	27.4		15.3		68.1		2.9		10.4		29.7	50.2	16.4
Colombia	32.5		10.9		81.0		2.9		9.2		26.4	56.0	34.4
Mexico	33.0		11.4		64.2		2.4		9.8		23.8	50.5	21.6
Canada	38.9		6.2		43.9		1.1		22.0		23.3	73.9	5.4
Chile	31.5		5.7		76.7		1.4		14.1		19.2	49.8	22.9
United States	36.5		4.8		78.6		1.4		9.7		13.4	45.1	14.3

Figures as of December 2007.
1/ See Table 8 of this Report.
2/ Risk-Weighted Assets (RWA): these are assets whose value changes with fluctuations in interest rates, exchange rates or in the credit quality of loans' portfolio.
3/ This is defined as the administrative expenses as a proportion of total income.
Source: Brazil, data of the Central Bank of Brazil; Canada, data of the Office of the Superintendent of Financial Institutions (OSFI); Chile, data of the Superintendent of Banks and Financial Institutions (SBIF); Colombia, data of the Financial Superintendent of Colombia; United States, data of the Federal Deposit Insurance Corporation (FDIC); Mexico, data of the National Banking and Securities Commission (CNBV) and Peru, data of the Superintendent of Banking and Insurance (SBS).

The table compares certain Mexican banking sector indicators with those of other countries, pursuant to the methodology of Table 7. It can be seen that one of the characteristics of Mexico's banking system is its low risk profile compared to the banking sectors of other countries (column C). Nonetheless, banks in Mexico still have high levels of income, compared with the risk they take (column B).

Mexican banks' net interest income and fees, as a proportion of total assets, are relatively high when compared with the United States, Canada, Spain and Chile, but lower than Brazil and Peru (see graph below). This may reflect a lower degree of competition and the bankarization of segments of the population regarded as high risk.

Main Banks' Income
International Comparison
Percent of Total Assets



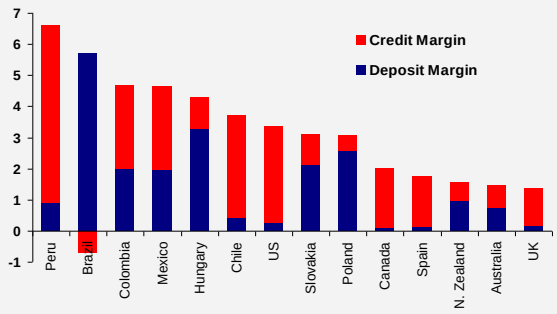
Figures as of December 2007.
Source: Brazil, data of the Central Bank of Brazil; Canada, data of the Office of the Superintendent of Financial Institutions (OSFI); Chile, data of the Superintendent of Banks and Financial Institutions (SBIF); Colombia, data of the Financial Superintendent of Colombia; United States, data of the Federal Deposit Insurance Corporation (FDIC); Mexico, data of the National Banking and Securities Commission (CNBV) and Peru, data of the Superintendent of Banking and Insurance and AFP (SBS).

Total Income obtained by banks in Mexico is not converted into profit in the same proportion as in other countries (column A), as administrative expenses (as a proportion of income) are higher than in certain developed and Latin American economies (column G).[2] Furthermore, expenses originated by the constitution of loan-loans reserves tend to be higher in Mexico than in the developed countries (column H).

Low leverage levels in the Mexican banking sector (column E), along with low risk profiles and high profitability levels, strengthen its ability to cope with unexpected events, which is important in times of economic uncertainty, such as the one currently taking place.

In order to analyze net interest income in greater depth, their deposit and credit components may be separated (see Table 19). Banks in developing countries tend to have higher deposit margins than those of developed nations, because savers have fewer investment options (see graph below). The credit margin depends on the relative importance of household loans, which is more profitable than corporate loans. This margin is also affected by credit risk, the protection of borrowers' rights, regulatory costs, the degree of competition and the macroeconomic conditions of each country.

Deposit and Credit Margins[1/]
International Comparison
Percent



Figures belong to the average from 2003 through 2005.
1/ The financial statements of the main banks of each country were used in accordance with their assets. Brazil's biggest banks include certain state-owned banks, and their lending rates are lower than the interbank rate, which is why that country has a negative placement margin.
The credit margin was analyzed in accordance with the methodology A4 in Table 18.
Source: Bankscope, Banco de México, Central Bank of Brazil, Banco de España, Banco Central de Chile, Bank of England and the International Monetary Fund.

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1. Figures in this table were constructed in order to make them equivalent despite the different accounting systems established in each country. However, there still might be some differences.
2. Some authors have questioned the validity of the efficiency index, given that this ratio may vary due to changes in total income that are not necessarily related to the efficiency levels of banks (for instance, net interest income may vary as a result of changes in the bank's risk profile). Also, a switch in the banks' business activities towards non-traditional activities may give rise to changes in the income and expense structure of the bank in question. For a more in-depth examination of this topic, consult Allen, J. and Engert, W. (2007), "Efficiency and Competition in Canadian Banking", *Bank of Canada Review*.

Income from trading[93]

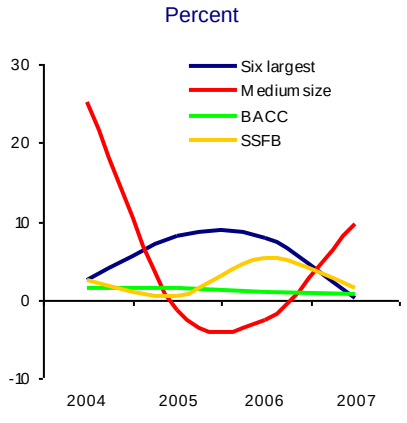
In 2007, income from trading came to 2.3 billion pesos, 86.5 percent down in real terms on the figure obtained at the end of 2006. In the total income structure, income from trading by the commercial banks were down from 3.7 percent in December 2006 to 0.9 percent at the end of 2007 (Graph 54a).

Income from fees and commissions

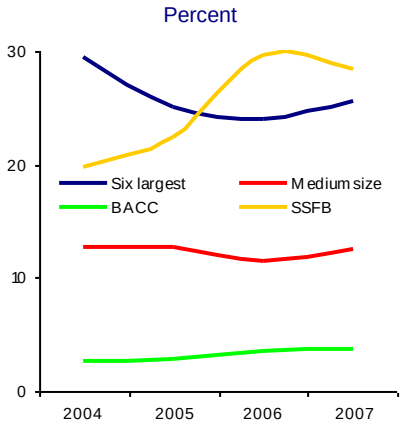
In 2007 the fees and commissions charged by the commercial banks rose 12.2 percent in real terms compared to the previous year, as a result mainly of the increased number of operations. Net commissions as a proportion of total assets (Graph 54b and c) have remained stable over the last few years, apart from SSFB, which recorded major increases in income from fees and commissions, especially from credit cards. For BACCs and medium-sized banks, on the other hand, fees and commissions are not such an important source of income (Graph 54a and b).

Graph 54
Income from Trading, Fees and Commissions

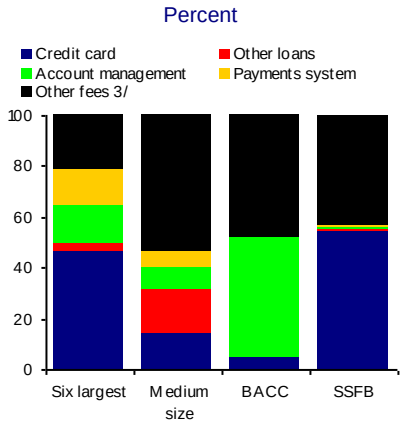
a) Income from Trading as a Proportion of Total Income



b) Income from Net Fees and Commissions[1/] as a Proportion of Total Income



c) Composition of Income from Commissions[2/]



Figures as of December 2007.
Source: Banco de México and CNBV.
1/ Net fees and commissions refer to the difference between fees and commissions charged and fees and commissions paid. The assets considered include securities financed via repos.
2/ Income from payment system fees and commissions includes fees and commissions from cash checks, certified checks, travelers' checks, remittances en route, fund transfers and electronic banking. Income from credit card commissions comes from annual fees paid by cardholders, as well as the discount rate paid by businesses when they use cards. Income from fees and commissions grouped into "other loans" are fees and commissions charged recurrently for credit management.
3/ Other fees and commissions include fees and commissions for services (management and custody of goods, safety boxes, letters of credit, as well as others), fees and commissions from trust activities and other non-identifiable fees and commissions.

The structure of fees and commissions varies depending on the different types of banks. For the six largest banks, 46 percent of fee and commission-based income is generated by credit cards, while for BACCs 47 percent comes from the opening and running of accounts. In the last case, it should be noted that most BACCs have just started operations, so it is natural that their fee and

[93] Income from trading consist of profits and losses generated from the purchase and sale of securities, currencies, metals and derived instruments, as well as the revaluing of these positions.

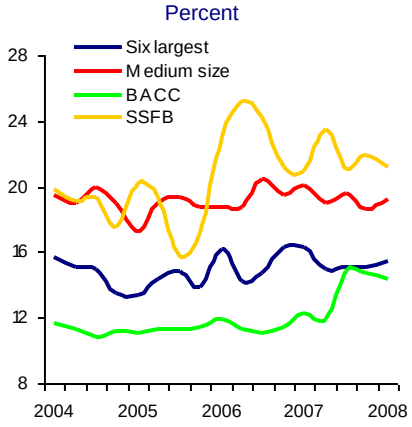
commission-based income should be generated by the opening of accounts (Graph 54c).

5.3. Solvency

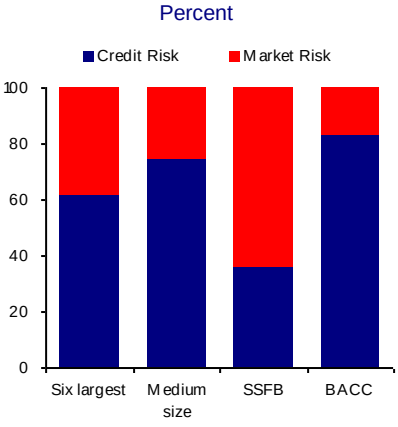
As of March 2008, the capital adequacy ratio[94] (Índice de capitalización, ICAP) of the commercial banks stood at 15.9 percent.[95] SSFB and medium-sized banks boasted the highest average ICAP (Graph 55a).[96] Graph 55b shows the relative importance of assets subject to credit risk and market risk by type of bank. Lastly, tier 1 capital accounted for more than 90 percent of net capital (Graph 55c).

Graph 55
Solvency

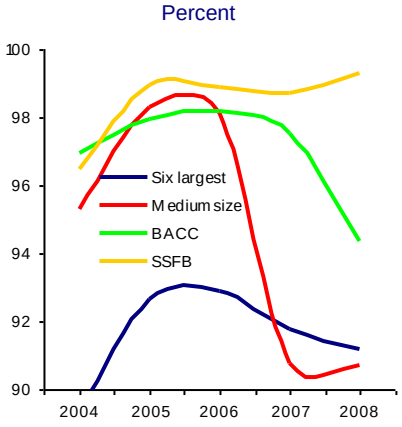
a) Capital Adequacy Ratio



b) Structure of Risk Weighted Assets by Bank Group



c) Tier 1 Capital as a Proportion of Regulatory Capital



Figures as of March 2008.
Source: CNBV.

In 2007, a large number of banks issued subordinated debt.[97] These notes are eligible both for 1 and tier 2 of regulatory capital. Table 9 sums up the main characteristics of the subordinated debt outstanding.

[94] The capitalization index is calculated by dividing regulatory capital by the assets of the banks subject to risk. According to the rules of capitalization issued by the National Banking and Securities Commission, the quotient of this division must be at least 8 percent. For further information see Box 9 of the Financial System Report 2006.

[95] Regulatory capital includes tier 1 and tier 2 capital.

[96] Average ICAP per bank group is weighted by the value of each bank's assets.

[97] Subordinated debt are securities that can be part of tier 1 and tier 2 capital, depending on their characteristics. They may be convertible into shares; defer payment of the principal; defer or suspend payment of interest and, depending on their level of subordination, they may or may not be preferential.

Table 9
Subordinated Debt Outstanding as of March 2008

	Amount	Maturity	Characteristics	Redemption Advance	Interest Rate	Ratings
BANAMEX, S.A. November 1988	167.6 million dollars	20 years	Non preferred, non-convertible debentures	No	Annual rate LIBOR + 2%. semi-anually payments.	N.D.
ING BANK (MEXICO), S.A. (INGBANK 02U) December 2002 Mexico City Public Offering	125.2 million Udis	10 years	Non preferred, non-convertible debentures, cancellation of interest	No	Annual rate 9.00%. One payment at due date.	mxAA+
HSBC (Mexico), S.A. (INTENAL 03) November 2003 Mexico City Private Placement	2,200 million pesos	10 years	Non preferred, non-convertible debentures, deferral of interest	5th year	Annual rate TIIE 28; substitute rate CETES 28 + 50 bp. Payment every 28 days.	N.A.
BANCO MERCANTIL DEL NORTE, S.A. February 2004 Grand Cayman Rule 144A, Regulation S EUA	300 million dollars	10 years	Non preferred, non-convertible debentures, deferral of interest	5th year	Annual rate 5.875% years 1-5. Years 6-10 U.S. Treasury Rate + 431.25 pb. semi-anually payments.	Baa2
BANCA SERFÍN, S.A. (BSERFIN-04) November 2004 Nassau Bahamas Private Placement	150 million dollars	10 years	Preferred, optional convertible, deferral of interest	No	Annual rate LIBOR + 110 bp years 1-5. Years 6-10 LIBOR + 220 bp. semi-anually payments.	N.A.
BANCO SANTANDER SERFÍN, S.A. March 2005 George Town Private Placement	150 million dollars	10 years	Preferred, optional convertible, deferral of interest	No	Annual rate LIBOR + 120 bp years 1-5. Years 6-10 LIBOR + 240 bp. semi-anually payments.	N.A.
BBVA BANCOMER, S.A. July 2005 Grand Cayman Rule 144A, Regulation S EUA	500 million dollars	10 years	Non preferred, non-convertible debentures, cancellation of interest	5th year	Annual rate 5.3795%, semi-anually payments years 1-5. Years 6-10 LIBOR + 195 bp, quarterly payments.	A3 y BBB-
BBVA BANCOMER, S.A. September 2006 Mexico City Public Offering	2,500 million pesos	8 years	Non preferred, non-convertible debentures, deferral of interest	No	Annual rate TIIE 28 + 30 bp; substitute rate CETES 28 + 50 bp. First period rate 7.62%. Payments every 28 days.	Aaa.mx y AAA(mex)
BANCO MERCANTIL DEL NORTE, S.A. October 2006 Grand Cayman Rule 144A, Regulation S EUA	200 million dollars	15 years	Non preferred, non-convertible debentures, cancellation of interest	10th year	Annual rate 6.862% years 1-10, semi-anually payments. Years 11-15 LIBOR + 2.7125%, quarterly payments.	Baa2
BANCO MERCANTIL DEL NORTE, S.A. October 2006 Grand Cayman Rule 144A, Regulation S EUA	400 million dollars	10 years	Preferred, non-convertible debentures, deferral of interest	5th year	Annual rate 6.135% years 1-5 semi-anually payments. Years 6-10 LIBOR + 2.1075%, quarterly payments.	Baa1
IXE BANCO, S.A. February 2007 Rule 144A, Regulation S EUA	120 million dollars	Perpetual	Non preferred, non-convertible debentures, cancellation of interest	5th year	Annual rate 9.75%. Quarterly payments.	B+
BANCO REGIONAL DE MONTERREY, S.A. March 2007 Mexico City Public Offering	750 million pesos	8 years	Non preferred, non-convertible debentures, deferral of interest	4th year	Annual rate TIIE 28 +130 bp; substitute rate CETES 28 + 180 bp. First period rate 8.7650%. Payments every 28 days.	mxA- y A
BBVA BANCOMER, S.A. May 2007 Suc.Gran Caimán Rule 144A, Regulation S EUA	500 million dollars	15 years	Non preferred, non-convertible debentures, cancellation of interest	10th year	Annual rate 6.008% years 1-10, semi-anually payments. Years 11-15 LIBOR + 1.81%, quarterly payments.	A1 y BBB+
BBVA BANCOMER, S.A. May 2007 Gran Cayman Rule 144A, Regulation S EUA	600 millones de euros	10 years	Preferred, non-convertible debentures, deferral of interest	5th year	Annual rate 4.799% years 1-10, annual payments. Years 11-15 EURIBOR + 1.45%, quarterly payments.	A1 y BBB+
BANCA MIFEL, S.A. July 2007 Rule 144A, Regulation S EUA	100 million dollars	Perpetual	Non preferred, non-convertible debentures, cancellation of interest	5th year	Annual rate 11.00%. Quarterly payments.	B- y B+
BANCO INTERACCIONES, S.A. November 2007 Mexico City Public Offering	700 million pesos	10 years	Non preferred, non-convertible debentures, deferral of interest	5th year	Annual rate TIIE 28 + 175 bp; substitute rate CETES 28 + 225 bp. First period rate 9.69%. Payments every 28 days.	A2.mx y A-(mex)
BANCO AZTECA, S.A. (BAZTECA 08) January 2008 Mexico City Public Offering	1,000 million pesos	10 years	Non preferred, non-convertible debentures, cancellation of interest	5th year	Annual rate TIIE 28 + 150 bp; substitute rate CETES 28 + 150 bp. Payments every 28 days. First period rate 9.42%	A- (mex)
BANCO MERCANTIL DEL NORTE, S.A. (Banorte 08) March 2008 Mexico City Public Offering	3,000 million pesos	10 years	Non preferred, non-convertible debentures, cancellation of interest	5th year	Annual rate TIIE 28 +60 bp; substitute rate CETES 28+105 bp. First period rate 8.53%	Aaa.mx
BANCO MERCANTIL DEL NORTE, S.A. (Banorte 08U) March 2008 Mexico City Public Offering	494.5 million Udis	20 years	Preferred, non-convertible debentures, cancellation of interest	15th year	Fixed annual rate 4.95%. semi-anually payments	Aaa.mx

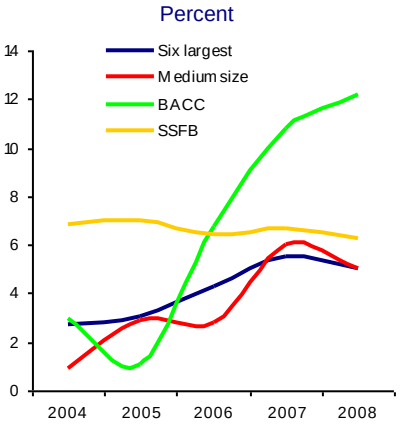
Source: Placement prospects and official information from bank websites.

Reserves

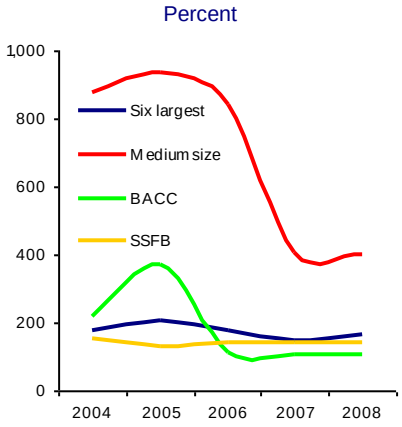
The ratio of reserves to non-performing loan portfolio has dropped in the last few years (Graph 56b) due to consumer portfolio deterioration (Graph 56a), especially credit cards. Nonetheless, as of March 2008 commercial banks reported reserves equivalent to 184 percent of their non-performing loan portfolio. For the six largest banks, the volume of reserves[98] has more than tripled in the last three years, from 6.2 percent in 2004 to 22.5 percent in March 2008. Among BACCs, this indicator more than doubled in two years from 7.2 percent in 2005 to 18 percent as of the first quarter of 2008. For medium-sized banks and SSFB, this proportion stood at almost 30 percent as of March 2008 (Graph 56c).

Graph 56
Delinquency Rate and Volume of Reserves

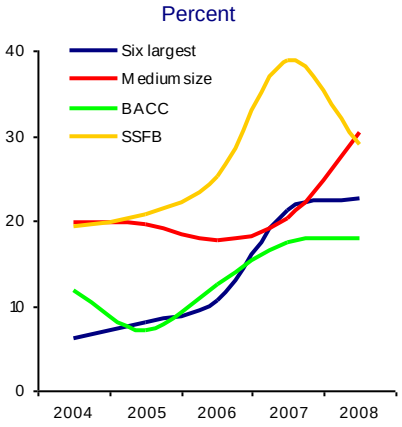
a) Consumer Credit Delinquency Rate



b) Reserves as a Proportion of Non-Performing Loan Portfolio



c) Reserves Created Annually as a Proportion of Total Income[1/]



Figures as of March 2008.
Source: Banco de México and CNBV.
1/ Total income = Net interest income + Net fees and commissions + Income from trading.

Basel II

As a result of the New Capital Accord (Basel II) executed by the Basel Committee, the new Regulations for Commercial and Development Bank Capitalization Requirements issued by the Ministry of Finance (SHCP) came into force in Mexico in January 2008. These regulations set forth that all banks must use the so-called Standard Method (Box 20) to calculate credit risk requirements, regardless of whether or not they also use internal ratings-based methods. They also include an operating risk requirement. Market risk capital requirement calculations were not changed.

[98] The volume of reserves is the ratio of reserves set forth in a given period and total income (from net interest margins, net commissions and trading) for that period. This proportion makes it possible to gauge the importance of credit portfolio deterioration in generated income.

Box 20

Basel's New Capital Accord

In June 2004, the Basel Committee on Banking Supervision issued the final Accord for gradual implementation. The new accord, known as Basle II, is based on three pillars: Pillar 1. Capital requirements, Pillar 2. Supervision process and Pillar 3. Market discipline. The purpose of this reform is that capital requirements reflect institutions' exposure to risk more accurately, as well as to make each institution responsible for risk management and control.

The new accord maintained the minimum net capital on risk-weighted asset index of 8 percent.

Pillar 1. Capital requirements
A number of different approaches have been introduced to measure credit risk, such as the Standard Method and the Internal Ratings Based (IRB) approach, both Basic and Advanced, and also the notion of operational risk has been incorporated.

Credit risk
The Standard Method for measuring credit risk, based on the current methodology, calculates exposure to risk, depending on the counterparty or issuer, on the basis of weightings set by external rating agencies, and increases the number of categories available for loan classification purposes. Also, preferential treatment on credit risk weightings has been eliminated for OECD nations.

Under the IRB approach, banks determine the exposure to risk of each borrower, subject to the bank complying with certain requirements and depending on the supervisors' authorization. Under the Basic IRB, banks will estimate the likelihood of default by the borrower and the supervisors will provide the other important variables,[1] while the Advanced approach allows the institution to estimate all variables. In order to measure the capital requirement under the IRB approach, a formula is provided based on a model with a single risk factor.[2] The new accord has introduced methods for reducing credit risk through securities, credit derivatives and operation netting.

Operational risk
The operational risk is defined as the risk of assuming losses due to failures in processes and controls, legal aspects and systems, incomplete documentation, etc.

The methodology recommend three different approaches for measurement purposes:[3] the basic method, which uses a single indicator for all the bank's activities; the standard method which specifies indicators in accordance with the line of business; and the advanced measurement method, which requires a historical database for estimating capital requirements.

Pillar 2. Supervision process
The new accord encourages more open communication between banks and supervisors. It is based on four principles, the first of which is intended for the banks and the other three for the supervisor:

1. Develop Internal mechanisms for setting capitalization targets in accordance with risk exposure levels.
2. Develop an efficient supervision process of the bank's internal controls and strategies with clear rules that facilitate the supervisor's intervention if bank internal controls are considered not satisfactory.
3. The authority to demand that any institution raise its capitalization level above the regulatory minimum.
4. Authority to intervene in a prompt manner to demand the immediate adoption of corrective measures, if the capital drops below the required minimum levels.

Pillar 3. Market discipline
This pillar comprises recommendations and informational requirements that allow market participants to assess risk, the sufficiency of capital and management procedures in credit institutions.

_____

1. Four variables: Probability of Default (PD); Loss Given Default (LGD); Maturity (M); Exposure At Default (EAD).
2. Basel Committee on Banking Supervision (2001), "IRB Consultative Paper", BIS.
3. Three approaches: 1. Basic Method. Average over last three years of income before taxes by a fixed weighter (15 per cent); 2. Standard Method. Average over last three years of income before taxes for each line of business by a fixed weighter (varies for each line of business between 12, 15 and 18 per cent); and 3. Advanced Measurement Method. Bank's internal measurement system.

In order to calculate credit risk requirements, banks may use the Basic or Advanced Internal Ratings-Based Method, provided they have the approval of the National Banking and Securities Commission (CNBV) to determine preventive reserves for credit risks using internal models. If certain banks decide to use the Internal Ratings-Based Method they must calculate, in parallel and for a given period of time, their credit risk capital requirement using the Standard Method. As far as the operating risk capital requirement is concerned, all banks must use the Basic Indicator Method. This procedure considers that the requirement must be equivalent to 15 percent of the average, over the last three years, of the banks' net annual operating income. The operating risk capital requirement is subject to a 5 percent floor and a 15 percent ceiling of the credit and market risk capital requirement. This requirement must also be generated in full within a timeframe of three years as of the coming into effect of the abovementioned rules.

5.4. Risks

This section examines the credit, market, liquidity, contagion and legal risks faced by commercial banks. It also provides a model for adding credit and market risks, along with stress tests for credit risks.

Credit Risk

Credit risk refers to the potential loss that a bank could incur due to payment default by its borrowers. A number of methods need to be used in order to quantify it. For the purposes of this report, the VaR has been used, following the Capitalization and Credit Risk (Capitalización y Riesgo de Crédito, CyRCE)[99] model.

Value at Risk of credit portfolio

In December 2007 credit VaR[100] was up 54 percent compared to the same period of the previous year. This increase was caused mainly by a growth in the amount of credit, an increase in the probability of default[101] in the consumer portfolio and a higher concentration in the commercial portfolio. During the first quarter of 2008, VaR rose 9 percent in comparison with the end of 2007, and the most notable increase took place among medium-sized banks.[102]

Graph 57a gives VaR levels in billion pesos for different types of banks.[103] Large banks made the largest contribution to system risk in 2007 (68 percent), but their contribution to risk was less than proportional to the size of their portfolio (83 percent). Medium-sized banks, in contrast, accounted for 26 percent of system risk in 2007 on average, even though the proportion of their portfolio was lower (12 percent). VaR increase in absolute terms among the six large banks was offset by net capital increases, and the quotient has therefore been practically constant (Graph 57b).

In the first quarter of 2008, the VaR of medium-sized banks increased due to the higher concentration of their commercial portfolio. This increase in concentration can be observed in Graph 57c, which gives the portfolio concentration using the Herfindahl and Hirschman Index (HHI).[104]

[99] An explanation of the CyRCE model can be found in: Banco de México (2007), "Reporte sobre el Sistema Financiero 2006 (Financial System Report 2006)" and in Márquez Diez-Canedo, J. (2006), Una Nueva Visión del Riesgo de Crédito (A New View of Credit Risk), Limusa.

[100] VaR at 97.5 percent confidence level.

[101] The probability of default is the probability of a borrower failing to comply with his contractual obligations in a given period of time. Box 10 of the Financial System Report 2006 gives more information on this matter along with an estimation method.

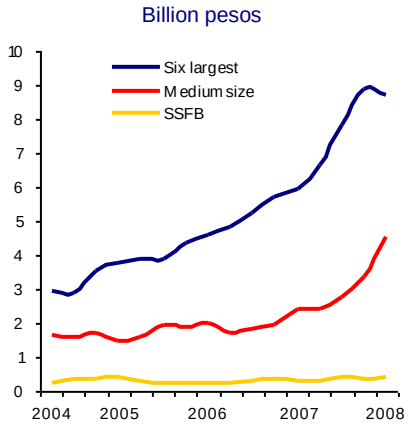
[102] Graphs 57a and b indicate a substantial drop in the VaR of the six biggest banks as a result of the switch to a Sofom from the credit card portfolio by one of the biggest banks.

[103] VaR at 97.5 percent confidence with a one-year timeframe will stand at approximately 77 billion pesos.

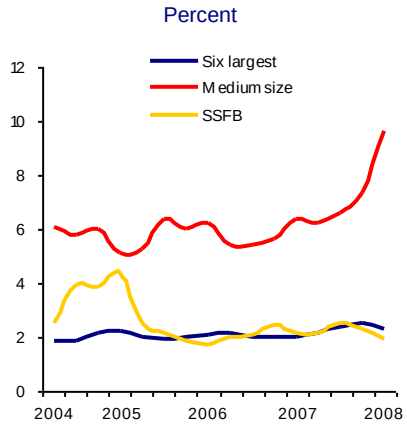
[104] See Table 4 of the Financial System Report 2006.

Graph 57
Credit Risk and Concentration Measurements

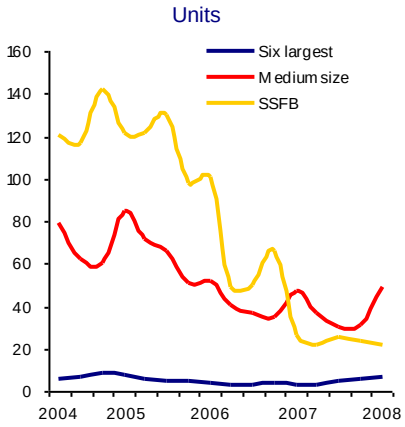
a) Banking System Value at Risk (VaR) with 97.5% Confidence



b) Value at Risk (VaR) as a Proportion of Net Capital



c) Credit Portfolio Concentration (IHH)



Figures as of March 2008.
Source: Banco de México.

Consumer portfolio

Credit granted through cards accounted for 63 percent of the increase in consumer credit during 2007. The six largest banks remained the main providers of card-based credit, but their relative importance dropped in comparison with the rest of the banking sector. As of the close of 2007, the share of the medium and small banks in the card-based consumer credit market came to 2.4 percent, which is higher than the 0.9 percent recorded in 2006.

The year 2007 witnessed a continued rise in consumer credit delinquency indexes. As of December 2007, the consumer credit delinquency rate of the commercial banks stood at 5.8 percent, as opposed to 4.4 percent for the same month of the previous year. As of March 2008, this index was down to 5.4 percent due to the write-offs imposed by the banking sector. Graph 58a shows consumer credit delinquency indices for different bank groups.

The delinquency rate (Índice de morosidad, IMOR)[105] reflects borrower non-payment but also depends on the write-offs and portfolio sales of the banks (Box 21). In order to get a clearer idea of portfolio deterioration, Graph 58b gives the adjusted delinquency rate (IMORA).[106] Finally, Graph 58c shows the probability of default [107] by bank groups.

Credit cards accounted for 77 percent of the increase in non-performing consumer loan portfolio in 2007. The worsening card-based credit portfolio situation is attributable, among other things, to the granting of credit lines to

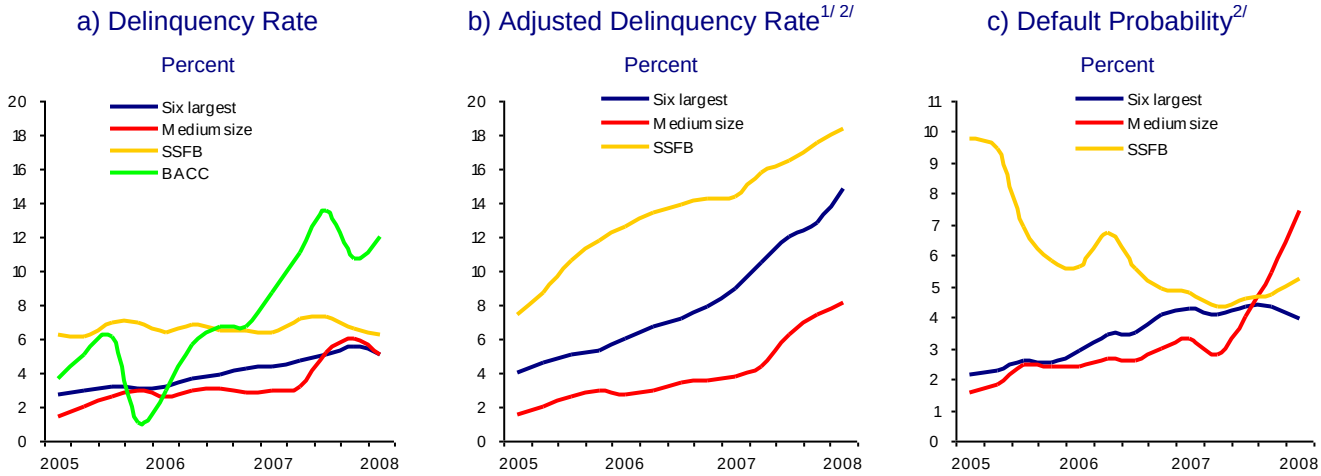
[105] The delinquency rate is the ratio of non-performing loan portfolio to total portfolio.

[106] In order to calculate IMORA, the write-offs applied in the twelve months prior to the date of calculation are added to non-performing loan portfolio and this total is divided by total non-performing portfolio plus write-offs.

[107] The probability of default is estimated using the number of defaults and the number of loans. For further information, see Box 10 of the Financial System Report 2006.

people with no credit history.[108] This, in turn, is the result of the banking sector's continued efforts to provide bank services to different segments of the population.

Graph 58
Consumer Portfolio Risk Indicators



Figures as of March 2008.
Source: Banco de México.
1/ The adjusted delinquency rate is non-performing loan portfolio plus written-off portfolio in the twelve immediately preceding months divided by total portfolio plus the written-off portfolio over the twelve previous months. There is no public information available on BACCs.
2/ There is no public information available on BACCs.

Box 22 gives the results of a mature credit portfolio information sample analysis.[109] The sample reveals an increase in the proportion of cards with payment defaults, a situation that may have resulted from higher indebtedness levels among clients, which is in turn partly due to the competition strategies pursued by some banks. These strategies include the granting of credit cards to consumers who already have cards, credit line increases and reductions in minimum monthly payments.

[108] Estimating expected losses from borrowers with no credit history is not an easy task. The only way to obtain this kind of information is through the behavioral trends of these portfolios over time. The expected losses in these portfolios tend to be higher than in mature portfolios, as, for the latter, the banks have managed to eliminate defaulters.

[109] A portfolio is deemed mature after a certain period in which the banks were able to eliminate the worse risks elapsed. The time that must pass for a portfolio to be deemed mature depends on the type of credit. For credit cards a period of 18 months is usually considered.

Box 21

Delinquency Rate and Problems of Interpretation

The Delinquency Rate (DR) is defines as non-performing loans over total loans held in the credit portfolio. It is one of the most widely used ratios to measure credit portfolio risk.

$$DR = \frac{\text{Non-performing loans}}{\text{Total loans held in the portfolio}}$$

However, this indicator can also lead to incorrect interpretations of the borrower's payment default if other factors are not taken into account.

A loan is considered as non-performing when borrowers are declared bankrupt or when the principal, interest or both have not been paid in accordance with the originally agreed terms, considering the deadlines and conditions set forth in the regulation.[1] In the case of loans involving a one-time payment of principal, a maturity period of 30 days or more is required, revolving credit 60 days, and mortgage loans 90 days.

The table below shows the different factors that have an impact in the balance of non-performing loans. For example, non-performing loans for the second quarter of 2007 stood at 33,215 billion pesos. This figure is obtained by adding, o the balance of non-performing loans for the first quarter, the transfers between non-performing and performing loans, credit recoveries, write-offs and additional adjustments.

According to the applicable regulations, non-performing loans that fully settle the balances pending payment or that, as a consequence of being restructured or renewed, have fully complied with the sustained payment, will be considered again as performing (line 3 of the table below).

Given that this item is an outflow of non-performing loans, it is recorded with a minus sign. Net transfers (line 4 of the table) are the difference between transfers to non-performing loans and transfers to performing loans.

Some non-performing loans may be recovered by executing collateral (collection in cash or in kind), restructuring credit or settling non-performing loans. The amount recovered is subtracted from the initial balance of non-performing loans (line 5 of the table).

Write-offs, are defined as the cancellation of credit when there is sufficient evidence that the loan will not be recovered. This is registered in the financial statements by using the previously constituted loan-loss reserves. As it represents an outflow of non-performing loans, it is subtracted from the initial balance as shown in line 6.

Bank write-offs do not follow a specific criterion. Regulation allow banks to decide whether the non-performing loans should remain in the financial statements or be written-off and, hence, it varies depending on the policies set by each institution.

Other operations, such as purchases and sales of non-performing loans and foreign exchange adjustments for credit denominated in other currencies, are grouped together in the seventh line of the table, additional adjustments.

The final balance of non-performing loans is therefore calculated as the initial balance (1) plus net transfers (4), minus recovered amounts (5), minus allocations (6), plus additional adjustments (7).

All these changes in non-performing loans mean that the DR is difficult to interpret. On a certain level, DR may overestimate credit risk, by including old non-performing loans that will be written-off. A contraction in DR does not necessarily mean a reduced credit risk, as it may be a consequence of an increase in write-offs and not due to less transfers. Similarly, an increased DR may underestimate credit risk, as it do no clearly reflect transfers from performing loans to non-performing loans.

Changes in Non-Performing Loans
Million pesos

		2007-I	2007-II	2007-III	2007-IV
1)	**Initial balance**	**25,422**	**28,810**	**33,215**	**38,078**
2)	Transfers to Non-Performing loans (+)	27,758	32,794	37,323	27,081
3)	Transfers to Performing Portfolio (-)	4,920	6,107	8,088	6,759
4)	Net Transfers (+)	22,838	26,687	29,235	20,321
5)	Recoveries (-)	21,340	31,422	25,680	17,759
6)	Write-offs (-)	8,284	11,115	12,285	7,899
7)	Additional Adjustments (+)	10,173	20,255	13,593	7,947
8)	**Final balance**	**28,810**	**33,215**	**38,078**	**40,689**

1. CNBV, Criterion B-6 Single Bank Memo.

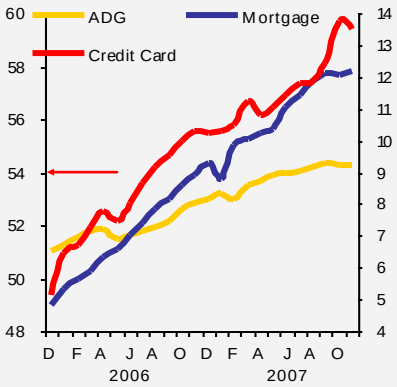
Box 22

Mature Card Holders Sample

In order to analyze consumer portfolio credit expansion and deterioration processes in greater detail, a random sample of 15,000 mature borrowers from the Credit Bureau files was monitored during a 24-month period[1.2].

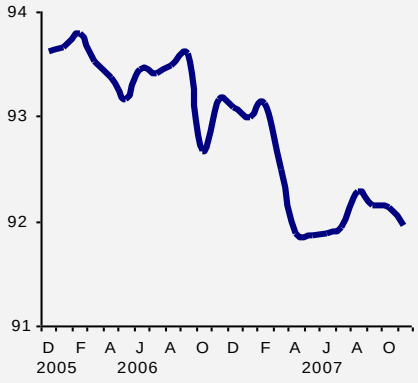
The conclusion of this analysis is that credit expansion occurred in every consumer credit category, in terms of both number and stock (Graph A). There is also a worsening situation regarding punctuality of payment (Graph B), as well as increased use of credit lines (Graph D).

Graph A
Number of Credits in the Sample by Credit Type[1/]
Thousand credits



Figures as of November 2007.
Source: Credit Bureau.
1/ ABCD means Acquisition of Durable Consumer Goods.

Graph B
Proportion of Files up to date on their Payments
Percent

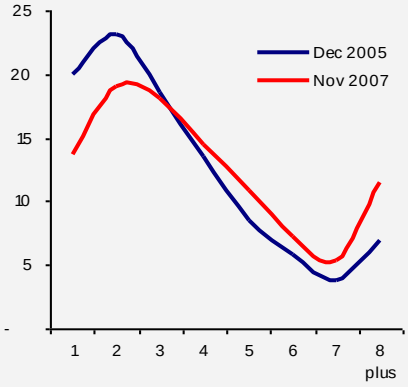


Figures as of November 2007.
Source: Credit Bureau.

The file sample also reveals that the proportion of files with four or more credit cards has increased. The proportion of files with more than eight cards was more than ten percent (Graph C).

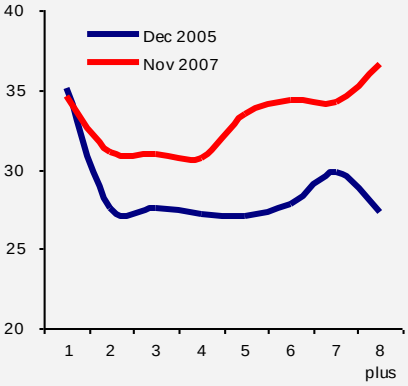
These results suggest that banks are competing by granting a greater number of cards to clients that already have this instrument, as well as extending credit lines.

Graph C
Percentage Distribution of Files in accordance to the Number of Cards per File
Percent of total files (vertical axis)
Number of cards per file (horizontal axis)



Figures as of November 2007.
Source: Credit Bureau

Graph D
Proportion of Credit Line Use in accordance to the Number of Cards per File
Percent of line use (vertical axis)
Number of cards per file (horizontal axis)



Figures as of November 2007.
Source: Credit Bureau.

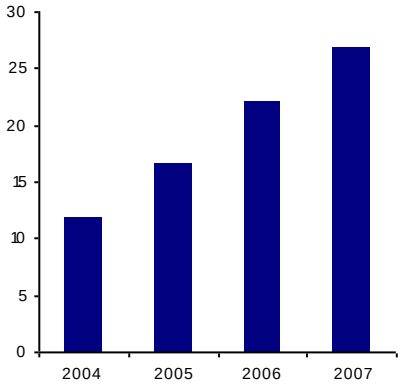
1. The sample is useful only for obtaining a statistical approximation of mature card holders, which means that the indicators derived from it cannot be applied to the rest of the cardholding population.
2. They are considered mature individuals because they have been recorded in Credit Bureau files for a long time. The sample covers a 24-month period (December 2005 through November 2007) and is representative for mature individuals, but does not include new banking clients.

The number of active credit cards[110] continued to grow in 2007 (Graph 59a), as did the proportion of cards with payments past due (Graph 59b). However, both the average amount of past due credit and the average credit line per card have tended to drop, in spite of the increase in the average amount of the credit lines granted (Graph 59c). This may be attributable mainly, to the fact that the non-performing loan portfolios correspond to new borrowers with smaller credit lines. As can be seen in Graph 60a, a large proportion of credit cards are still being granted to people with no credit history.

Graph 59
Evolution of Credit through Bank Cards

a) Active Credit Cards

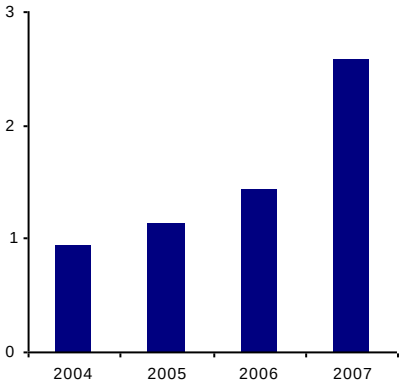
Million cards



Figures as of December 2007.
Source: Banco de México.

b) Proportion of Credit Cards with Payment Default of over 90 Days

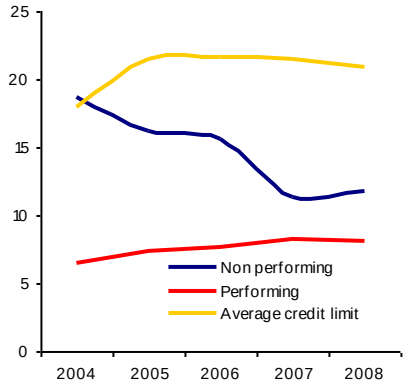
Percent



Figures as of December 2007.
Source: Banco de México.

c) Average Balance per Credit Card

Thousand 2002 pesos



Figures as of March 2008 for the credit limit and as of February 2008 for performing and non-performing loan portfolio.
Source: Credit Bureau.

Credit Bureau information reveals an increase in the amount of credit lines in 2006 and 2007, as well as in their use ratio (Graph 60b).[111] However, in March 2008 a slight drop in the amount of these lines was noted. The increase in the number of credit lines and in their uses is reflected by an increase in card payments as a proportion of cardholder income in 2006 (Graph 60c).

In spite of the worsening consumer portfolio situation, the net interest income allowed the banks to absorb the losses. Experiences in other countries indicate that higher costs are generated due to delinquency when banking services are hastily extended to new sectors of the population.

Yet the growth in indebtedness levels has led to a substantial rise in the number of people with negative credit ratings, according to the credit rating agencies.[112]

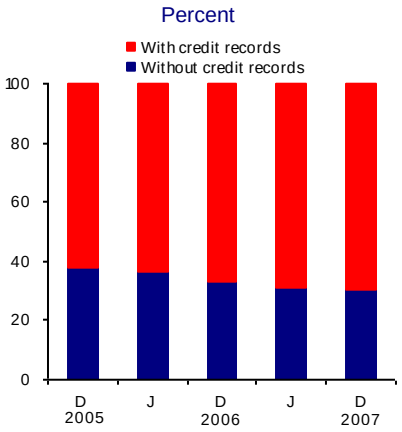
[110] The "activated credit cards" figure reported by Credit Bureau refers to the number of credit cards that can be used by their owners at any moment. This is similar to the "credit cards issued" data published by Banco de México. The number of "credit cards used" must be lower than the "activated" number and the "issued" number.

[111] The use ratio refers to the credit balance used by the borrower as a proportion of his or her credit line.

[112] There are two credit information entities in Mexico: Buró de Crédito (Credit Bureau) and Círculo de Crédito (Credit Circle). The latter had 9.44 million files as of the end of 2007. In spite of its smaller size, the number of files in Círculo de Crédito with some form of bank credit has grown at an increasing pace

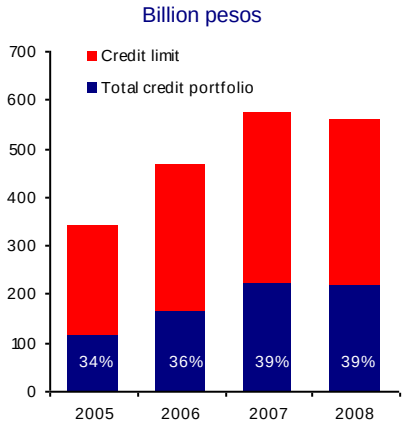
Graph 60
Evolution of Bank Credit Cards

a) Proportion of Bank Credit Cards Granted to People with no Credit History



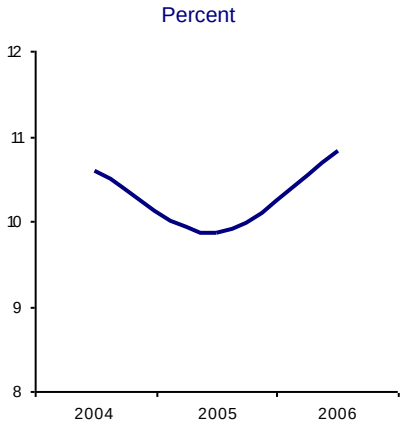
Figures as of December 2007.
Source: Credit Bureau.

b) Credit Limit and Total Balances in Credit Cards



Figures as of March 2008.
Source: Credit Bureau.

c) Payments to Credit Cards as a Proportion of Current Income[1/]



Figures as of December 2006.
Source: National Household Income and Spending Survey (Encuesta Nacional de Ingreso Gasto de los Hogares, ENIGH).

1/ The proportion corresponds to the amount that households reported spending to pay off credit cards. The figure includes payments by people who settle the full balance of their cards at the end of the month, partial payments by people who use the credit and annuity payments.

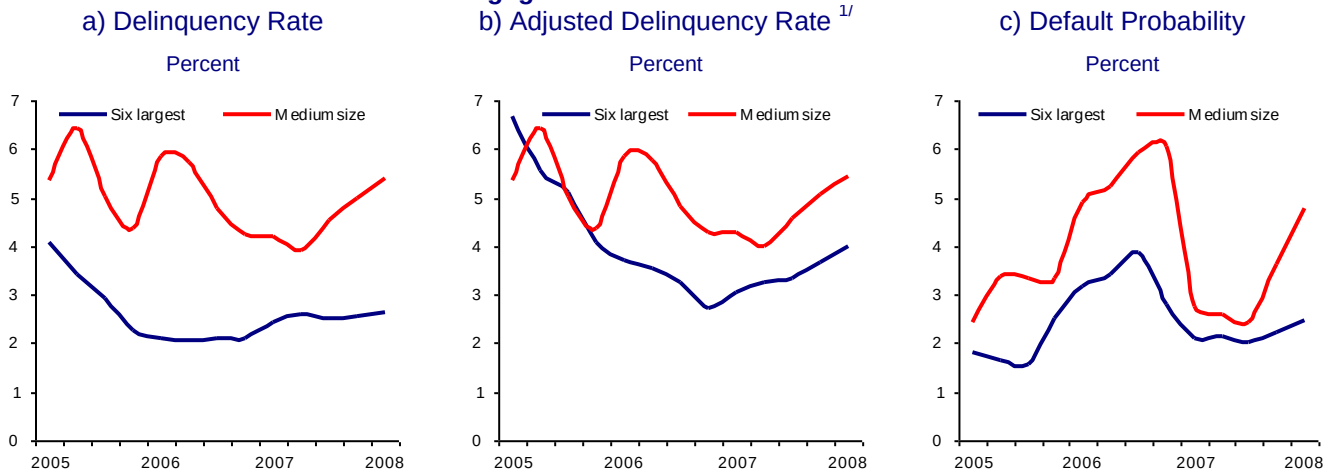
Mortgage portfolio

The banking sector's mortgage portfolio is concentrated in the six largest banks (95 percent). However, the share of medium-sized banks rose from 3.2 percent in 2006 to 4.5 percent as of March 2008. In 2007, the BACCs began granting mortgages. Mortgage risk indicators have stayed low and, as of March 2008, the delinquency rate for the largest banks stood at 2.6 percent, while for the medium and small sized banks was 5.4 percent (Graph 61a). Write-offs in this category remained stable, as can be appreciated by comparing the delinquency rate with the adjusted delinquency rate (Graph 61a and b). In spite of the substantial increase in the probability of default in medium-sized banks, their share of the mortgage market is small.[113]

over the last year. As of the end of 2007, the number of bank credit cards included in the Credit Circle database came to 175,000, whose use ratio is comparable to the ratio reported by the Credit Bureau.

[113] Even though the likelihood of default in this group stands at close to 5 percent, the probability level of the system remains at 2.3 percent. Furthermore, this probability is very sensitive to variations in a small number of banks in the same group.

Graph 61
Mortgage Portfolio Risk Indicators



Figures as of March 2008.
Source: Banco de México.
1/ The adjusted delinquency rate is the ratio of non-performing loan portfolio plus written-down portfolio over the twelve immediately preceding months divided by total portfolio plus written-down portfolio.

One possible explanation for the rise in mortgage delinquency rates among medium-sized banks is the increasing importance of low-income housing loans derived from the purchase of mortgage portfolio originated by a mortgage Sofol. In 2006, the low-income housing financing deteriorated slightly, albeit more than credit to medium and residential housing (Graph 63). This situation most affected medium-sized banks and non-bank intermediaries that have not increased their share in this market.[114]

Graph 62a shows how the default rates of mortgage loans granted by commercial banks in different years tend to behave in a similar way. The evolution of mortgage "vintages"[115] (Box 23) is consistent with the creation of loans criteria applied by banks. Graphs 62b and c show that, in effect, there has been no significant or generalized relaxation in the criteria for granting bank mortgages.

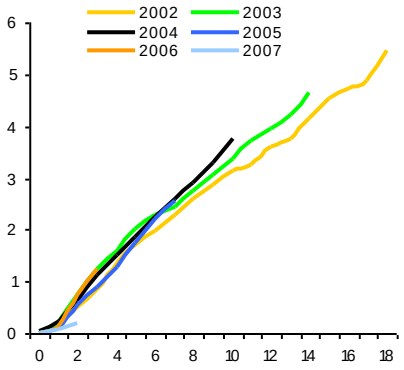
[114] As of the end of 2007, a mere 16.4 percent of the amount of mortgage loans granted by the banks corresponded to low-cost housing.

[115] A mortgage vintage is defined as the set of loans granted during the same period. The recent experiences of the US mortgage market highlight the need to analyze the behavior of mortgage vintages.

Graph 62
Mortgage Portfolio Indicators

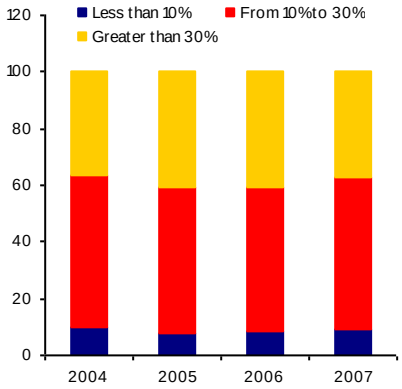
a) Default Rates of Mortgage Loans by Vintage[1/]

Percent (vertical axis)
Quarters elapsed (horizontal axis)



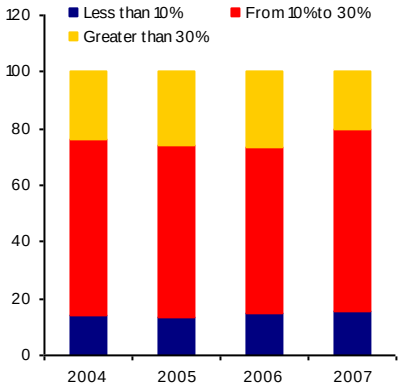
b) Loan-to-Value

Percent of loans



c) Payment to Income Ratio

Percent of loans

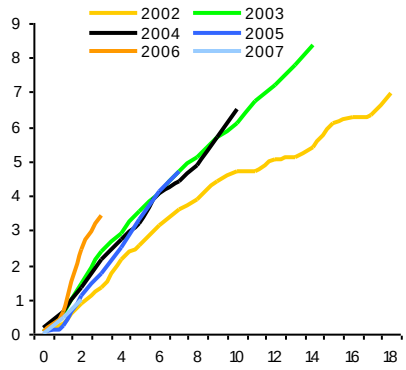


Figures as of December 2007.
Source: Banco de México.
1/ The default rate corresponds to the number of loans that are not refunded in a given quarter divided by the original number of performing loans.

Graph 63
Mortgage Portfolio Indicators

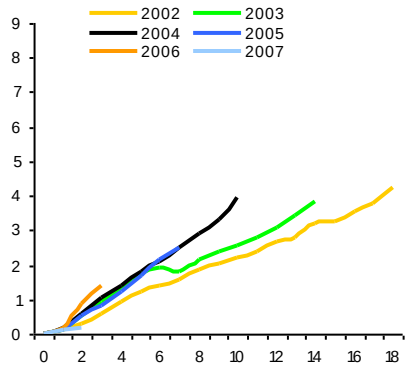
a) Welfare Housing Project Portfolio Default Rate by Vintage

Percent (vertical axis)
Months elapsed (horizontal axis)



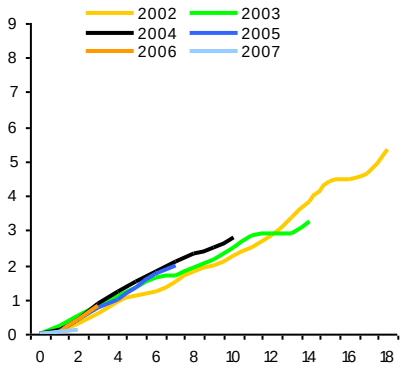
b) Average Housing Portfolio Default Rate by Vintage

Percent (vertical axis)
Months elapsed (horizontal axis)



c) Residential Housing Portfolio Default Rate by Vintage

Percent (vertical axis)
Months elapsed (horizontal axis)



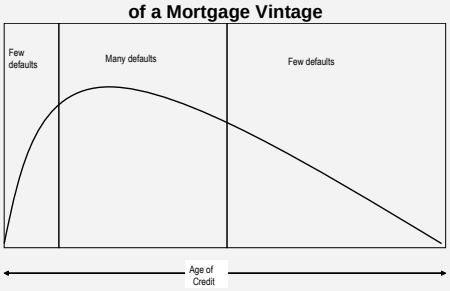
Figures as of December 2007.
Source: Banco de México.

Box 23

Mortgage "Vintages"

One of the most commonly used methods for analyzing the mortgage market consists of monitoring mortgage "vintage". A mortgage "vintage" is a set of loans granted during a given period, which is usually a year. The popularity of this type of analysis lies in the fact that, in theory, the life cycle of a mortgage vintage is well established: in the first few months default levels are low, but then they peak before dropping again. This changing behavior among vintages means it is possible to infer major changes, such as in creation criteria.

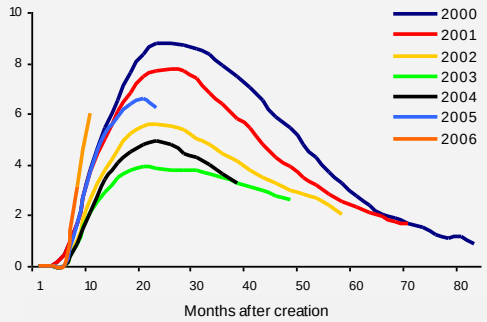
Behavior over Time of a Mortgage Vintage



The behavior of vintages over time is in keeping with how incentives for paying mortgage loans are put forward. In the initial phase, the likelihood of major changes in the borrower's ability to pay is low. Later on, however (the estimated timeframe in the US is two years), the intermediate phase begins, which is when borrowers' ability to pay is more likely to change and, at the same time, the proportion of payments of principal is low. This means that the cost of default is not very high for borrowers. It is in this phase that the majority of defaults take place. Finally, after the intermediate phase, which usually lasts 3 years in the US, the cost of default faced by borrowers is higher, as the amount of debt in relation with the value of the real estate has dropped. The incidence of defaults drops in this phase until the end of the credit's life cycle.

This vintage-based analysis makes it possible to compare the behavior of loans granted in different years. This analysis may be performed by creating a number of indicators[1] for observing vintage behavior.

Graph A
Subprime Mortgage Vintage Delinquency Rate in the United States
Percent

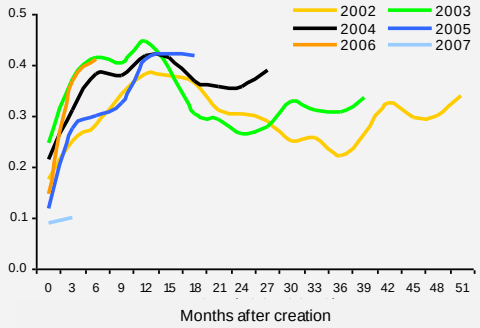


Source: IMF with data from Merryll Lynch and Intex.

Graph A gives the delinquency rate of subprime mortgage vintages in the United States, which takes into account write-offs and recoveries.

If no information is available on the write-offs and recoveries of a vintage, but there is information on defaults per period, an indicator may be created like the one in Graph B for mortgage vintages of the six main banks in Mexico. This indicator is generated by dividing the defaulted loans during each period, without bearing in mind previous periods, by the performing loans from the previous period. The behavior of the indicators in Graphs A and B should be similar over time.

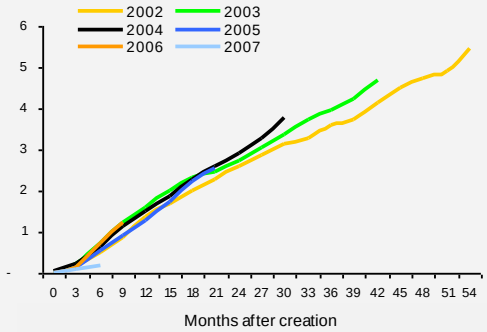
Graph B
Quarterly Mortgage Vintage Default Rate in Mexico (Six largest banks)[1/]
Per cent



1/ The default rate is the number of non-performing loans divided by the total number of loans.
Source: Banco de México.

Graph C gives an indicator with the accumulated default rate (number of non-performing loans as a proportion of the total number of loans). The behavior of this indicator will always be one of growth.

Graph C
Accumulated Mortgage Vintage Default Rate in Mexico (Six largest banks)
Percent



Source: Banco de México.

1. These indicators may be produced using either amounts or the number of loans.

The general outlook for bank credit granted to the housing sector is not one of concern. The behavior of the corresponding portfolio stayed within the expected parameters bearing in mind the moment of its life cycle.[116] The banking sector is in fact specializing in serving a lower-risk segment and has kept its origination criteria more or less constant. This means that no increase is expected in the risk derived from vintages originated over the last few years.

Commercial credit portfolio

In 2007, bank loans to firms grew at higher rates than consumer and mortgage credit. The majority of financing granted to firms came from the six largest banks, although medium-sized banks accounted for around 20 percent of the increase recorded that year.

Risks incurred by banks in connection with commercial credit are closely linked to the size of debtor firms. An analysis of the delinquency rates involving commercial credit granted by banks reveals these rates were higher among micro and small firms than among larger firms (Graph 64a).[117] The same pattern was noted regarding the probability of default in relation to company size, which, once again, was higher among micro and small firms (Graph 64b). This analysis indicates that, in terms of delinquency and the probability of default, the behavior of medium-sized firms is more similar to that of large firms than small ones. However, the interest rates on loans they receive are not similar to rates charged to larger firms, as can be seen in Graph 64c. This suggests that the lack of financing alternatives for medium-sized firms allows banks to charge relatively high interest rates for the level of risk associated with these companies.

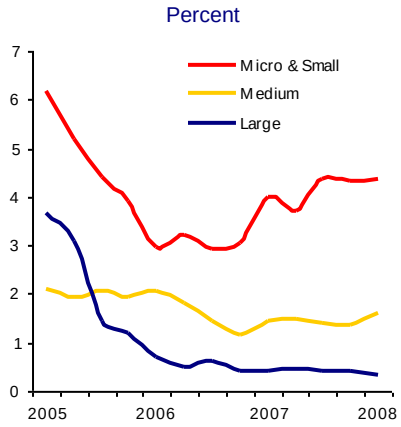
Medium-sized banks channel a larger proportion of their commercial credit to micro and small firms compared to the largest banks and SSFB. This higher concentration among medium-sized banks in financing of smaller firms with a greater degree of risk is the reason for the higher delinquency indices and probability of default in their commercial portfolio (Graph 65).

[116] Mortgage loans have a well-defined life cycle: default tends to be infrequent in the initial and final years and greater during the intermediate years.

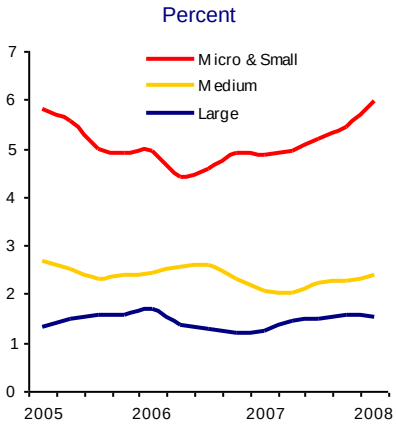
[117] The classification of commercial bank credit to non-financial private companies by size of firm is based on information provided by credit institutions to the National Banking and Securities Commission (CNBV) on a regular basis. This classification is established by the CNBV itself on the basis of the number of employees in borrowing companies.

Graph 64
Commercial Bank Credit to Private Firms

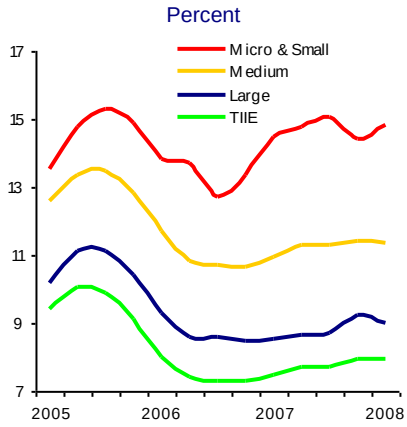
a) Delinquency Rate by Size of Firm



b) Probability of Default



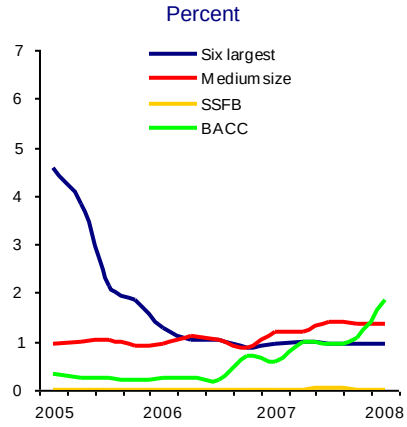
c) Average Quarterly Interest Rates[1/]



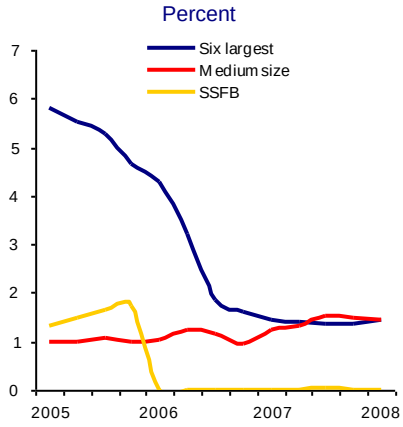
Figures as of March 2008.
Source: Banco de México.
1/ Interest rates weighted by amount of credit.

Graph 65
Commercial Portfolio Risk Indicators

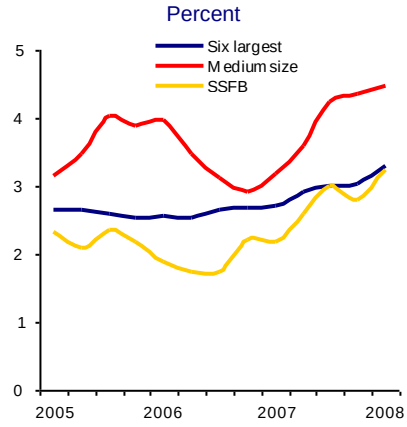
a) Delinquency rate



b) Adjusted Delinquency rate[1/,2/]



c) Probability of Default [2/]



Figures as of March 2008.
Source: CNBV. Source: Banco de México and CNBV. Source: Banco de México.
1/ The adjusted delinquency rate is the ratio of non-performing loan portfolio plus written-down portfolio over the twelve immediately preceding months divided by total portfolio plus written-down portfolio.
2/ There is no public information available on the BACCs.

In order to measure risk, in addition to the probability of default, it is important to consider the severity of the loss, in other words the amount the banks would lose in the event of default. In the case of the credit portfolio granted to large companies, while default is less likely, the consequences would be more serious were it to happen. Severity is particularly important for small subsidiaries, because, even though this group is subject to a relatively lower degree of exposure with small and micro firms, and hence a lower probability of default, its higher exposure to large companies means greater risks.

Operations with related parties and with parties representing a common risk

Mexican regulation establishes a number of precautionary measures to limit bank risk exposure. The limits on operations with related parties (Box 24) and with parties representing a common risk (Box 25) [118] are especially important in this regard.

Regulation of operations with related parties are intended to prevent abuse and limit the bank's exposure to risk in operations that could pose a conflict of interest. The limit on related operations was reduced from 75 to 50 percent of tier 1 capital of banks in amendments made to legislation in February 2008, which specified banking operations that could be considered as related.

Financial regulation frequently set forth this kind of prudential limit. In some countries, operations carried out by a bank with its bank subsidiaries and bank holding company are usually exempt from the limits of related operations. However, in these cases, the holding company and its bank subsidiaries must consolidate financial statements and comply with prudent aggregate limits.

In Mexico, this limit on related operations does not extend to operations between banks or among financial entities that are part of the same financial group as the bank in June 2006. However, operations between Mexican banks and their foreign parent company are not exempt from the limits on related operations set forth by the Credit Institutions Law, because the foreign parent company is not part of the financial group established in Mexico under Mexican law. Moreover, the foreign parent company is not subject to any prudential limit set forth by Mexican regulations.

Regulations in Mexico also establish prudent risk concentration limits for banks with individuals and companies that represent a common risk. Common risk refers to the set of operations and investments performed by the bank with debtors controlled by the same shareholders or which are financially interdependent, in such a way that the financial wellbeing of one of the debtors could impact the financial wellbeing of the other. However, these regulations do not include limits on operations between the different entities of a financial group (intra-group operations), nor do they represent any guidelines regarding the terms and conditions for carrying out such operations.

[118] In other countries, such as the United States, Australia and European Union countries, limits on banking operations are also established, especially for financial entities belonging to their financial groups.

Box 24

Operations with Related Parties[1]

Limiting a bank's exposure in operations that may bring about conflict of interest is the main purpose of regulating operations carried out by banks with related parties.

Bank operations with related parties include: deposits, loans, credit or discount operations - whether revocable or not - backed by credit instruments, or agreements, restructuring, renewal or modification, including net exposures on derivative operations and investments in securities.

Related parties are:

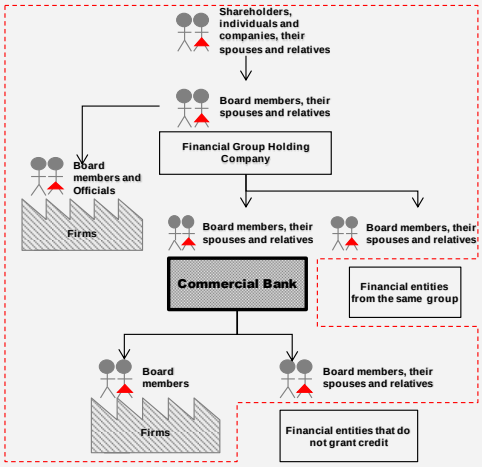
- Individuals or companies that directly or indirectly control 2 percent or more of the institution's capital, its holding company or financial entities and firms belonging to the same financial group as the bank.
- Members of the board of directors of the institution, the holding company or the financial entities incorporated in the financial group to which the institution belongs to.
- Spouses and relatives[2] of the above persons.
- Persons other than officials or employees who can sign on behalf of the institution.
- Companies, as well as board members and officials[3] thereof, which directly or indirectly control ten percent of the institution's capital or holding company of the financial group which the institution belongs to.
- Companies in which institution's officials are board members or managers or occupy any of the top three hierarchical levels.
- Companies in which any of the above have direct or indirect control of 10 percent or more of the capital.

Operations entered into with the following parties shall not be considered as related parties:

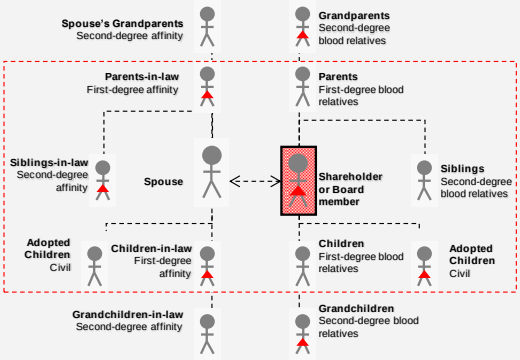
- The Federal Government and the Bank Deposit Insurance Institute (Instituto para la Protección al Ahorro Bancario, IPAB).
- Complementary or auxiliary bank service companies
- Financial entities of the bank's financial group, or those that the bank holds a stock interest in, which do not extend financing to related parties.
- When the amount of the operation does not exceed 400 thousand US dollars.
- Unrelated parties who provide credit rights or securities as collateral, whose obligor is a related party until the collateral is enforced, provided they have a primary source of payment that is independent of the collateral.
- Companies when banks and holding companies participate in its capital stock as institutional investors.

Other regulations establish: operations with related parties must be submitted to the approval of the board of directors, including board members who are independent from the bank and from the holding company of the financial group which the bank may belong to; the amount of loans and irrevocable credit lines extended to related parties may not exceed 50 percent of the bank's tier 1 capital; and the terms and conditions of operations with related parties must not be more favorable than those of similar operations carried out with the public.

Related Parties



Relatives



1. Provided for in the Credit Institutions Law (Articles 73, 73Bis and 73Bis 1).
2. Relatives are blood-related and related by first-degree affinity and second-degree or civil affinity.
3. Official refers to the CEO or a similar position and the staff who occupies posts immediately below in the hierarchy.

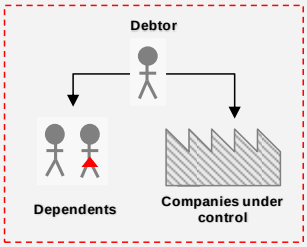
Box 25
Common Risk

With the purpose of avoiding risk concentration, the CNBV's regulation ("Circular Unica de Bancos") defines common risk as the risk posed by bank borrowers and the following parties:

a) If the borrower is an individual:

1. Economically dependent.

2. Companies controlled directly or indirectly by the borrower, regardless of whether these belong to the same Business Group[1] or Consortium[2]



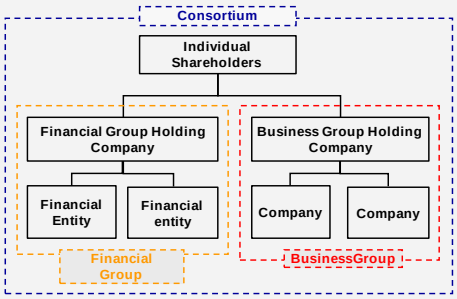
b) If the borrower is a company:

1. The person or group of individuals or companies who act jointly and directly or indirectly manage it on behalf of the owner, or control the borrowing company.

2. Companies controlled directly or indirectly by the borrower, regardless of whether or not they belong to the same Business Group or Consortium.

3. Companies that belong to the same Business Group or Consortium.

Common Risk Groups



There are some exclusions from the common risk category:

I. Individuals satisfying the following requirements.

a) Having a primary source of payment independent of the person, Business Group or Consortium, and

b) Credit payments do not depend on the financial situation of the company, Business Group or Consortium which they control.

II. Business Groups satisfying the following requirements when part of a Consortium:

a) There are no obligations from debts or collateral for which the borrowing Business Group is responsible that benefit the other groups making up the Consortium.

b) The holding company of the borrowing Business Group lists its shares on a recognized stock exchange.

c) The source of payment for the financing granted to the Business Group does not depend on its financial situation or any other event related to the other persons, entities or groups making up the Consortium other than such borrowing Business Group.

Maximum Financing Limit

The maximum financing limits which banks may grant to one person or a common risk group are determined in accordance with their capital adequacy index, as follows:

Capital Adequacy Index	Limit on the Institution's Tier 1 Capital
More than 8 percent and up to 9 percent	12 percent
More than 9 percent and up to 10 percent	15 percent
More than 10 percent and up to 12 percent	25 percent
More than 12 percent and up to 15 percent	30 percent
More than 15 percent	40 percent

Additionally, banks shall comply with the following limits:

Heading	Limit on the Institution's Tier 1 Capital
Financing granted to the three largest debtors	100 percent
Financing to a Commercial Bank	100 percent
Financing to Federal Public Administration entities	100 percent

Limits shall not apply in the case of transactions with the Federal Government, the Federal District Government, federal states and municipalities, Banco de México, IPAB and development banks.

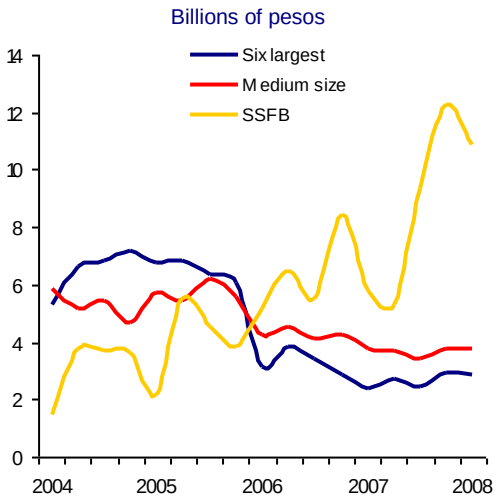
1. Business Groups mean the group of companies controlled by the same company, including the latter.
2. Consortium is the set of Business Groups linked by one or more individuals or companies holding control of or an interest in such groups.

Market risk

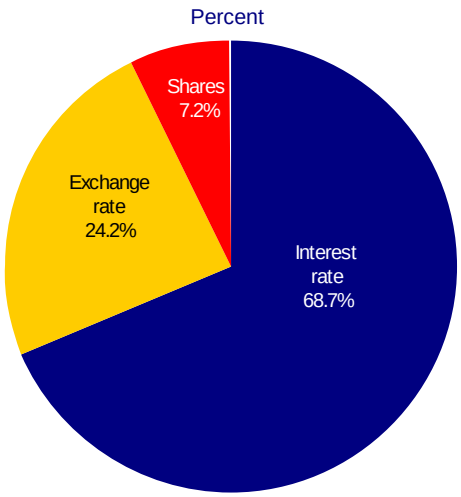
Market risk is the potential loss in the value of financial assets that could take place as a result of unfavorable changes in risk factors or financial variables which determine their price.[119] Graph 66a gives a market VaR from the trading book[120] as a proportion of net capital. Historic scenarios were used as a basis for estimating the data for this indicator.[121]

Graph 66
Trading Book's Market Risk

a) VaR at 97.5% Confidence Level as a Proportion of Net Capital



b) Market VaR Composition



Figures as of March 2008.
Source: Banco de México.

Risk levels for the six largest banks were fairly stable during the course of 2007. These levels may be considered low for all these groups since similar VaR losses at a 97.5 percent confidence level would not cause the capital adequacy index (Índice de Capitalización, ICAP) of any bank to fall below 8 percent. Portfolios which are sensitive to variations in interest rates[122] account for the largest share of total market risk (Graph 66b). The bulk of risk corresponds to the debt instrument position.

[119] The most significant risk factors are the fluctuations in interest rates, the Mexican Stock Exchange Index (IPC) and the exchange rate of the Mexican peso against the US dollar.

[120] The trading book includes positions intended to hedge against banking book's risks. Therefore, the trading book is over- sensitive to sudden risk factor movements.

[121] The method involves assessing asset and liability portfolio subject to market risk in a set of historical scenarios defined by the daily risk factor fluctuations, namely the market variables that determine their price. The probability distribution of losses and earnings over a 28-day period is obtained from the value of the portfolio in each historical scenario. The VaR is the percentile of the chosen confidence level at 97.5 percent, on the side of the losses from the distribution. Daily information on risk factor behavior between January 2001 and December 2007 was used to generate the historical scenarios.

[122] The rate portfolio comprises domestic currency instruments whose main risk factor consists of one or several domestic interest rates. The exchange rate portfolio comprises US dollar instruments, excluding shares, and may also include a foreign interest rate as an additional risk factor. The share portfolio consists mainly of shares, share indices or instruments derived from the same, regardless of the currency they are listed in.

The extended period of low volatility prior to the recent crisis in international financial markets has given rise to reduced losses for many financial institutions according to VaR measurements. The VaR models used were unable to forecast what was going to happen, leaving the financial institutions unprepared for unexpected events with potentially catastrophic results. The value of the parameters used for simulations in their models did not indicate that the likelihood of a "Black Swan" scenario taking place was high (Box 26).

The problem was partly due to the fact that VaR, as a measurement of risk, has limitations that tend to be aggravated during events with extreme values, such as the so-called "Black Swans". For instance, the likelihood of a sharp rise in risk factor volatility following an extended low volatility period, as was the case in the second half of 2007, was virtually zero, which meant it could be foreseen.

The consequences of low volatility were the following:

i) It caused the VaR to underestimate the level of risk.

ii) It encouraged greater risk-taking.

iii) When the effects of the crisis became apparent, they became greater than expected.

This problem was further complicated by the fact that all market participants used similar models based on the same parameters.

Box 26

Black Swans[1]

A "Black Swan" is a highly unlikely event with three main features:

i) It is unpredictable and therefore unexpected.

ii) It has a substantial impact.

iii) In hindsight, it tends to be explained by means of "logical reasoning", so it seems obvious that the event had to happen.

The following are some examples of "Black Swans" in history: world wars, earthquakes, the stock market crash of 1987, penicillin, cell phones, and the Internet.

Unpredictable Events

There are two reasons why "Black Swans" are unpredictable: due to the way agents identify and process information and owing to their inability to predict the future. Economic agents tend to make mistakes when receiving information and processing it. These mistakes include categorization (reduction and classification) and preconceived notion (formed opinion) which cause incomplete or incorrect conclusions or theories.

Once these theories have been formulated, further information is sought to corroborate them without looking for arguments that would refute or discard them. This problem is defined as "confirmation bias". Errors of judgment also arise in the absence of relevant information, and in real life, agents seem to concentrate on known information.

The existence of black swans is a good example of this type of phenomenon. Before Australia was discovered, people in Europe were convinced that all swans were white, based on the empirical evidence known at that time. The discovery of Australia proved that black swans also exist.

The type of variable to forecast is also relevant:

i) "Mean" variables, whose volatility and scale are limited, and therefore their contribution to the average is marginal.

ii) "Extreme" variables, whose volatility and scale are not limited, thus their relative importance explains or influences other variables or events significantly.

It is harder to predict variables of this second type. They are more prone to producing "Black Swans" due to the size of their fluctuations. Many economic, social and environmental variables can produce extreme results.

High impact

The occurrence "Black Swans" may determine the success or failure of individuals and companies, and may even affect the course of history. An example of the impact of "Black Swans" are the terrorist attacks on the United States on September 11, 2001. Nobody foresaw or expected those events, and they changed the way terrorism was understood in the United States.

Tendency to explain "Black Swans"

The search for explanations for "Black Swans" after the fact is known as "narrative fallacy". It is impossible to know exactly which events lead to a "Black Swan", precisely because they were not known beforehand.

The importance of a "Black Swan" does not lie in the circumstances that gave rise to it, but rather in its consequences. Explanations about an event may be plausible but not necessarily correct.

Regardless of which factors explain a "Black Swan", the fact that this event happened makes it more likely that a similar event will take place, perhaps due to totally different circumstances from the ones that produced the previous event.[2]

The occurrence of a "Black Swan" under any circumstance, should eliminate the surprise of a new "Black Swan" in a similar context. There is no way of knowing when these events will happen or of being sure that they will indeed take place, but it should not come as a surprise if they occur.

Repetition of "Black Swans"

It is impossible to predict what the next "Black Swans" will be, where they will happen or how severe their impact will be. Some models can predict what will happen with "mean" variables to a certain accuracy, but none can predict "extreme" variables.

Despite the impossibility of predicting extreme events, suppositions can be made about variables that are the most likely to produce "Black Swans"[3] and act accordingly. The asymmetries of certain events must be understood, as a "Black Swan" may produce more positive than negative consequences, or vice versa.

"Black Swans" occur more often than expected, and the occurrence of a "Black Swan" increases the likelihood of another similar event taking place. In 1987, the Mexican Stock Exchange had the biggest crash in its history, which was completely unexpected. It should therefore come as no surprise that a similar or bigger crash will occur in the future. Even if it is now considered that the causes of the crash have been discovered and the "lesson learned", a new crash could be due to totally different factors that are impossible to foresee, such as the subprime crisis.

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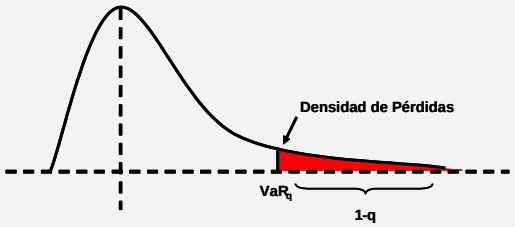
1. Taleb, N.N. (2007), The Black Swan, the Impact of the Highly Improbable, Random House.
2. Hypothesis based on the principles of fractal geometry.
3. Even in the event of abrupt movements in "mean" variables, these rarely produce severe impacts.

Box 27

Problems Related to Value at Risk

Several characteristics have made Value at Risk (VaR) become the prevailing risk management measuring paradigm. It is an easy-to-understand means of measuring risk and its popularity has brought about a number of applications and methodologies that make calculating it a routine matter.

Sample Graph of Value at Risk



However, VaR may have serious setbacks, depending on the assumptions made for its calculation. Such setbacks include the following:

1. Normality is sometimes assumed for loss distribution, as there is a closed formula:

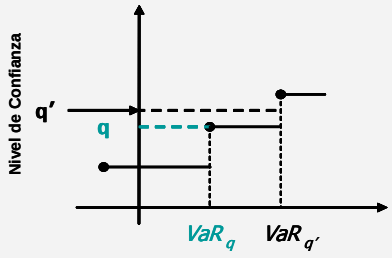
$$VaR_q = \mu + Z_q \sigma \qquad (1)$$

Where
μ.: is the mean
σ: is the standard deviation
Z_q the level of confidence required

But this hypothesis usually underestimates VaR. The "heavier" the tails in the loss distribution, the greater the VaR estimation error.

2. If the loss distribution is not exactly growing, VaR may show discontinuity to the level of confidence.

Stepped VaR Distribution



3. VaR is not a measure of risk for extreme conditions. There is a great deal of uncertainty over which loss to expect above the level of confidence, which, in practice, means that if the observed loss is greater than VaR, it exceeds it by a large amount, but it is difficult to know by how much.

4. VaR is not a subadditive measure of risk for any loss distribution. This means that if we have two "A" and "B" portfolios, the following relation will not be fulfilled:

$$VaR_q(A+B) \leq VaR_q(A) + VaR_q(B)$$

It does not therefore capture the diversification effect correctly.

5. The crisis that was recently triggered by subprime credits highlighted two additional weaknesses in this measure.[1]

   a. The first one is that, after long periods of stability, the low risk factor volatility meant that the true degree of portfolio exposure to risk was underestimated.

   b. The second, paradoxically, has to do with its popularity, and the number of organizations using VaR to make decisions. If many institutions use the same measure of risk, which may not necessarily be VaR, there is a potential risk of feedback into risk factors. Increased volatility and correlations could increase the VaR of all organizations and prompt them into reacting simultaneously and in a similar manner. For instance: breaking off positions, thus contributing to a further increase in market volatility, and potentially worsening its consequences.[2]

One of two strategies has commonly been chosen to avoid these disadvantages: seeking other measures that rectify some of these deficiencies[3] or using stress tests.

Stress tests are a good complement to VaR, as the underestimate for heavy tails is attenuated when considering extreme conditions. Therefore, more volatile conditions can be considered in periods of stability and we can ascertain responses which take specific characteristics into account for each institution and each portfolio.

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1. Some of these points are listed in IMF (2007), "Global Financial Stability Report: Market Developments and Issues".
2. The previous reference (IMF, 2007) shows a simulation exercise illustrating this point.
3. For example, we want the measurement to be monotonous, subadditive, proportional, etcetera. In Venegas Martínez, F. (2005), "Administración Coherente de Riesgos con Futuros del MexDer", *Premio Nacional de Derivados* award by MexDer-Asigna, we find a good description of desirable properties.

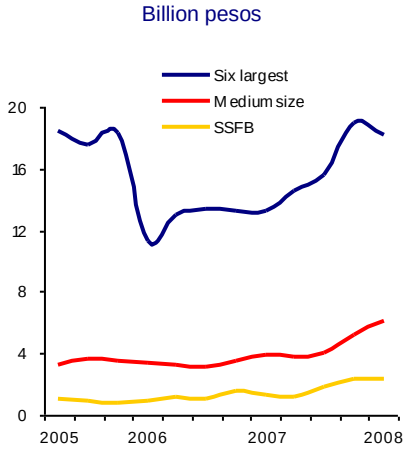
Market and credit risk

The total value at risk of the system[123], considering potential losses arising both from market risk and credit risk, increased by 39 percent in real terms between December 2006 and December 2007 (Graph 67a). Similar increases were reported by all bank groups (38 percent for large banks, 46 for medium-sized banks and 49 for small subsidiaries) and this was due mainly to credit portfolio expansion. At the same time, VaR, as a proportion of net capital, was up 18 percent.

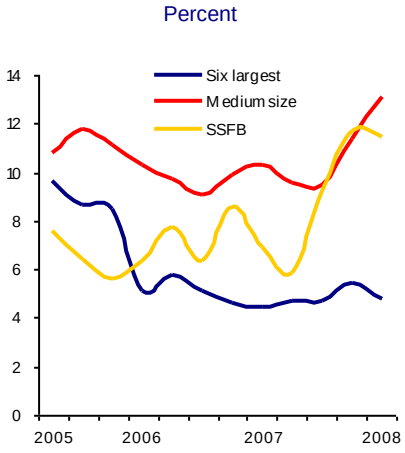
However, continued expansion of credit meant that VaR increased significantly in larger banks (Graph 67a) and as a proportion of capital in medium-sized banks (Graph 67b) during the first quarter of 2008.

Graph 67
Total Value at Risk

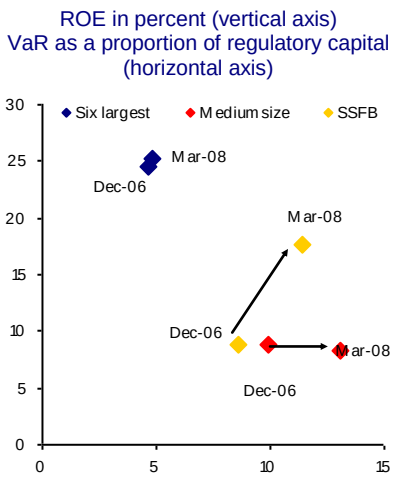
a) Total Value at Risk



b) Total Value at Risk as a Proportion of Regulatory Capital



c) Return on Equity (ROE) and Value at Risk as a Proportion of Regulatory Capital



Figures as of March 2008.
Source Banco de México.

Graph 67c shows the risk-return ratio and reveals that the profitability and risk levels of large banks were virtually unchanged. This group remains the most profitable and least risky in the system. The situation of medium-sized banks changed when they became more profitable and more risky, while for small subsidiaries it simply worsened, as a result of the increased risk they faced without improving profitability.

[123] Box 28 outlines the procedure for aggregating market and credit risks.

Box 28

Method to Aggregate Market and Credit Risks

It is common to find that when aggregating different types of risk (which means measuring the "total risk" of a portfolio), indicators for each type of risk are added together without taking the ratio that exists between them into account. This happens particularly when risk is measured in terms of VaR. This method of estimating total portfolio risk implicitly works on the assumption that different risks are completely dependent on one another (a correlation equal to 1), which does not allow for portfolio risk diversification.

Two different approaches are used for aggregating the different types of risk of a portfolio[1]. The first, known as "bottom up", relates the risk factors (probabilities of defaulting, interest rates, etc.) with the economic environment to estimate the total portfolio loss. The second approach, known as "top down", models each type of risk separately, without regard to the relations that could exist between them, and later connects them by estimating a relation and using a statistical method (see figure).

An algorithm based on the top-down approach is presented below for aggregating market and credit risks, based on the copula concept and loss distributions for each type of risk.

Copulas

Copulas are continuous functions used for characterizing the dependency structure between random variables, relating the joint distribution with marginal distributions. Formally[2], if $\{X_k\}$ is a group of n random variables with F_k respective marginal distribution functions, and F is its joint distribution, then the copula is a continuous function $C:[0,1]^n \to [0,1]$ so that:

$$F(x_1,...,x_n) = C(F_1(x_1),...,F_n(x_n))$$

The copula is a theoretical tool used for characterizing the dependency between random variables. However, the composition of marginal distributions with the copula occasionally leads to closed analytical expressions, and therefore simulation methods have to be used to approximate the joint distribution.

Algorithm

The method shown is based on market and credit loss joint distribution estimates using marginal loss distributions (the original ones) and using a Student t copula[3]. This copula is the one that best adjust joint market and credit losses and provides good tail adjustment. It therefore makes it possible to model extreme events better than other copulas.

The Student t copula requires two parameters; namely, the degrees of freedom, ν and the Spearman correlation matrix, Σ. Suppose that the distribution for market loss is F_M and that for credit is F_C.

The following is the algorithm for estimating joint loss distribution:

1. Two normal standard variables x_1 and x_2 are simulated with the correlation matrix Σ, and a random chi-squared variable, χ^2, with ν degrees of freedom.
2. Variables x_1 and x_2 are divided by the root of variable $\chi 2$ divided by the degrees of freedom to simulate 2 random Student t variables.

$$t_k = \frac{x_k}{\sqrt{\chi^2/\nu}}$$

3. The Student t distribution function is applied to t variables to obtain uniform random variables [0,1].

$$u_k = t(t_k)$$

4. A market loss simulation, L_M, is obtained from u_1 and the inverse market loss distribution:

$$L_M = F_M^{-1}(u_1)$$

A credit loss simulation, L_C,is obtained in the same way:

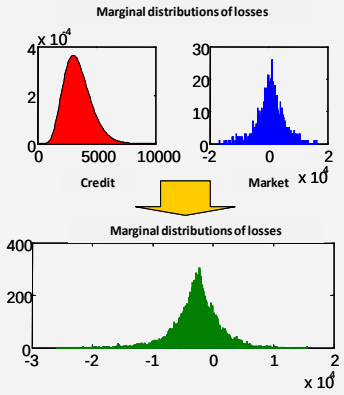
$$L_C = F_C^{-1}(u_2)$$

5. The simulated losses are added together to obtain a total portfolio loss, L:

$$L = L_M + L_C$$

6. This process is performed a sufficiently large number of times to guarantee convergence of the joint distribution.

Graphical Representation of the Approach for Aggregating Different Risks



1. Cech, C. (2006), "Copula-Based Top-Down Approaches in Financial Risk Aggregation".
2. Roger Nelson (1998), "An Introduction to Copulas".
3. Other known copulas which have been proposed are the Gaussian, Gumbel and Clayton copulas, the most popular being Student t copula.
4. Cech, C. (2006) and Rosenberg, J. and Schuermann, T. (2004), "A General Approach to Integrated Risk Management with Skewed, Fat-Tailed Risks", FRBNY.

Market Stress Test

The results shown below are from an exercise that comes under the category of extreme historic scenarios. It consisted of assessing losses in market positions if a percentage change similar to the one that took place at the height of the crisis that began in December 1994 were to be repeated in the relevant financial variables[124]. Graph 68a shows the results of market stress tests.

The test found that institutions whose ICAP was most affected had long positions in instruments sensitive to interest rate increases and short positions in dollars. Although most intermediaries hold this type of position, not all of them are as vulnerable to interest rate increases and exchange rate drops. It can therefore be concluded that if a similar scenario to the 1994 crisis had occurred in 2007 with regard to interest rate, exchange rate and stock market index behavior, no bank group would have had an ICAP lower than 8 percent on average for 2007.

Credit Stress Tests

Credit crises take place when adverse conditions and their consequences arise and last a long time.[125] A number of assumptions were put forward to specify scenarios for emulating the credit risk events of that critical period, and two tests were performed.

i) The first one involved increasing probability levels linearly from 2007, the last period observed, until they tripled in size towards the middle of the stress period (June 2009), and then reducing them to their original level at the end of the simulation period, which was December 2010 (Graph 68b).[126]

ii) The second one consisted of reproducing the probability of default to which the banks were exposed during the period between January 1995 and December 1998 (Graph 68c). [127]

The effect of the losses, which would increase the probability of default, is reflected in the capital adequacy index throughout the entire stress period.

The findings of this test indicate that the effects on system capital requirements would not be as marked as in previous crises. The results are less dramatic even in the exercise reproducing the 1995 crisis due to the different portfolio composition, which gives rise to identical risk factors affecting banks in a different manner.

[124] The relative interest rate, exchange rate and stock market share index changes observed in December 1994 were reproduced.

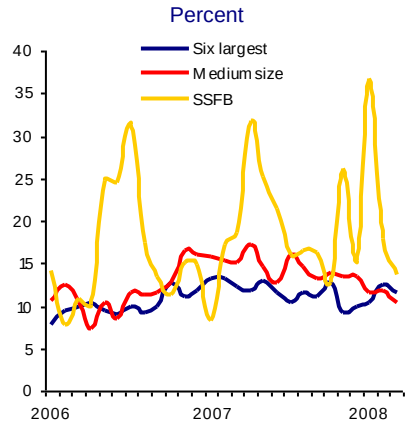
[125] The crisis triggered in December 1994 lasted approximately 18 months.

[126] It was decided that the probability of defaulting should be tripled because at this point significant effects on the capital adequacy index can be noted. Moreover, it is a stylized representation of defaulting behavior after the 2001 Korean crisis.

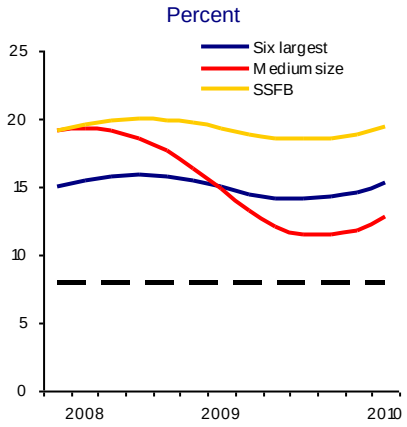
[127] This exercise takes into account any performing loan portfolio interest and recoveries, which are supposedly reinvested in credit portfolios. The interest rate and the recovery rate are supposedly constant throughout the stress period.

Graph 68
Stress Tests

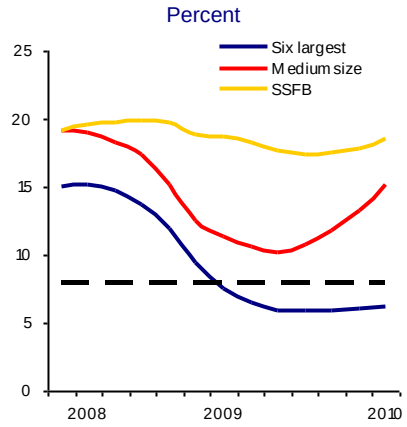
a) ICAP After Applying Estimated Market Losses to the Probability Scenario of the 1995 Mexican Crisis



b) ICAP After Applying Estimated Credit Losses to the Triple Probability Scenario



c) ICAP After Applying Estimated Credit Losses to the Probability Scenario of the 1995 Mexican Crisis



Figures as of March 2008.
Source: Banco de México.

An analysis of each group individually reveals that it is large banks that would be most affected by a crisis similar to that of 1995. Under such circumstances their average ICAP would fall below 8 percent. This vulnerability on the part of the largest banks is due their substantial share of consumer loans and mortgages, in which default is more likely than in commercial loans.

Medium-sized banks, on the other hand, would be affected more by such a situation than by the 1995 crisis. A tripling of the likelihood of risk means the capitalization level of this bank group would reach 9.3 percent 30 months into the stress period. One development of note is the increase in ICAP for these banks at the end of the stress period. This is due to the interest charged by these banks in the consumer portfolio.

As for foreign subsidiaries, neither of the two stress scenarios led to ICAP levels of below 8 percent. This is due to a number of factors, such as the low probability of default taking into account the amount of interest they charge. Even in the 1995 crisis, when this probability was high, the portfolio and interest composition offset the effect of any increased probability of default.

Box 29

Credit Stress Tests

Extreme or stress events appear in different ways in market and credit portfolios. In the case of market portfolios, any change in risk factors (interest rates, exchange rates or stock market price index) even in the short term, could affect portfolio value significantly, as this is valued based on the performance of these factors.

As for credit portfolios, defaulting is not very sensitive to short-term risk factor fluctuations; a credit crisis can only be triggered by persistent negative developments. When this happens, the effects of the crisis will last several years.

These credit crisis characteristics allow banks to take various steps to limit the impact of crises. Each bank may also react differently under adverse circumstances, which makes it difficult to gauge the impact of the crisis on the banks. However, if certain hypotheses are made about the likelihood of defaulting in portfolio and the dynamics of equity, then the impact of the crisis can be estimated and useful conclusions obtained.

Assumptions for the Credit Stress Test

The ICAP, defined as Capital Relating to Assets Subject to Risk, can be affected by various factors, such as risky or risk-free assets or capital injections. It can also be affected by movements in the credit portfolio: new credits extended, accrued interest, paid interest, unpaid credit (defaults), portfolio allocations, redemptions, etc.

In order to model ICAP development during the stress period, it is assumed that capital transactions are due to credit portfolio only, which changes according to the following assumptions:

- Principal is not redeemed over the period of study. Dividends are also not paid, which means that the amount of the credit portfolio is only affected by defaults, recoveries and interest.
- Expected losses reduce the credit portfolio. Expected loss is calculated as the probability of default for the period by the performing loan portfolio.
- Interest generated by credit is entirely redeemed and reinvested in the credit portfolio, thereby increasing capital and portfolio[1]. This hypothesis is tantamount to saying that the money obtained in interest is granted for new credit that is identical to the rest of the portfolio.
- Similarly, recoveries are calculated in terms of expected loss, and reinvested in credit portfolios and capital.

Dynamic of Capital and Portfolio

These hypotheses mean that the performing loan credit portfolio is updated for each period in accordance with the following relation:

$$C_t = (1 + r_{t-1})(1 - p_{t-1})C_{t-1} + \gamma p_{t-1} C_{t-1}$$

Where:

r_t is the interest rate at time t,

p_t is the probability of default,

γ is the recovery rate[2] and

C_t is the performing portfolio.

This means that interest generated is added to the portfolio in the previous period, and expected net recovery losses are subtracted from it ($p_{t-1} - \gamma$).

Capital (K) and assets subject to risk (ASR) are affected by expected losses, recoveries and interest in the same way as the portfolio.

$$K_t = K_{t-1} - (1 - \gamma) p_{t-1} C_{t-1} + r_{t-1}(1 - p_{t-1})C_{t-1}$$

$$ASR_t = ASR_{t-1} - (1 - \gamma) p_{t-1} C_{t-1} + r_{t-1}(1 - p_{t-1})C_{t-1}$$

The capital adequacy index at time t is defined as:

$$ICAP_t = \frac{K_t}{ASR_t}$$

In spite of their limitations, these hypotheses allow us to model capital sufficiency to a credit crisis.

---

1. The analysis used the average monthly interest rate for 2007, minus TIIE. TIIE was subtracted to account for bank funding costs.

2. The recovery rates used for the analysis were provided by the Bank Deposit Insurance Institute (Instituto para la Protección del Ahorro Bancario, IPAB) based on this institute's experience.

Liquidity Risk

Liquidity risk refers to the possibility of financial institutions lacking sufficient liquid assets to settle their obligations upon maturity. When such a situation occurs, institutions would have to sell their least liquid assets at penalized prices or face high costs to cover their obligations. High liquidity risks may therefore mean very high costs for banks and thus jeopardize their solvency. The growing importance of liquidity risks and the close relationship between liquidity and solvency were recently highlighted in the cases of the English bank Northern Rock (Box 6) and the US investment bank Bear Stearns (Box 7).

Banks and financial authorities often use the asset to liability (A/L)[128] ratio to gauge liquidity risks at different maturities, such as 30 days. According to this indicator, the liquidity situation of the six largest banks did not change substantially over 2007, and was above one hundred percent on average (Graph 69a). This suggests that the main banks had sufficient liquid assets last year to settle their short-term obligations under normal conditions. Moreover, the information available indicates that they have not undergone any major changes regarding the management of liquidity in their balances.

This indicator also shows that medium-sized banks did not have such a comfortable liquidity position in 2007 as the large banks, as the A/L indicator for the last two years has been below one hundred percent on average for banks in this group (Graph 69b). This is due to a lesser availability of liquid assets compared to larger banks and an increased presence of market or interbank funding in their balance sheet, which tends to be less stable than retail deposits even under normal circumstances.

The assets to liabilities ratio among small subsidiaries was on average over one hundred percent, however the volatility of this ratio was subject to higher monthly fluctuations compared to large and medium-sized banks (Graph 69c). Lastly, BACC liquidity was high in 2002, given that their funding is integrated in a large proportion by retail deposits, thereby providing a high degree of stability.

[128] As explained in the 2006 Financial System Report, the asset to liability (AL) ratio with maturities lower than 30 days was calculated by classifying assets and liabilities based on their maturity. Assets include items which despite their long-term maturities are still highly liquid and can be negotiated easily in the secondary market with no significant price changes, such as the holding of government securities. All the liabilities were classified according to their maturity, excluding deposits, which were classified based on a statistical analysis of their stability or permanence, according to banks' historical data. (See Box 13 of the 2006 Financial Report System).

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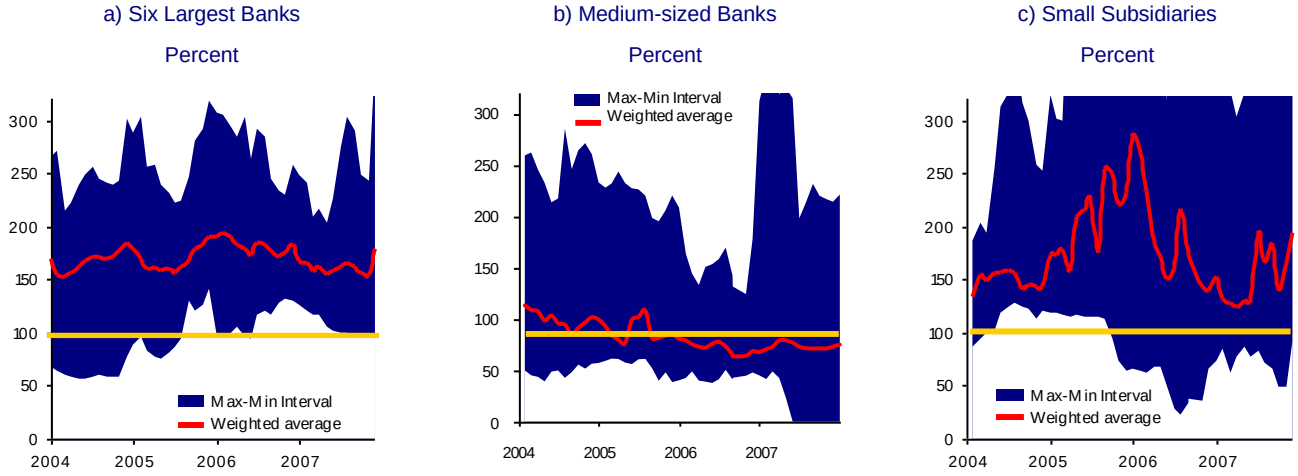
Graph 69
Liquidity Indicators: Assets as a Proportion of Liabilities Maturing in the Next 30 Days in a Normal Scenario (Quarterly Moving Averages)



Figures as of December 2007.
Source: Banco de México.

Recent events in the North American and European markets forced many banks and other financial institutions to review the parameters and assumptions on which their liquidity models are based. Assets traditionally regarded as liquid can quickly cease to be so.

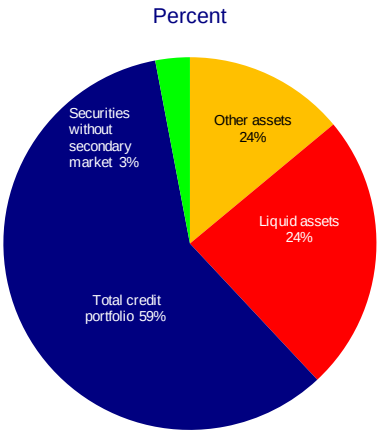
The crisis also highlighted the need to design stress tests to assess interactions between the decrease in liquidity of the main financial markets and banking balance liquidity. The interaction between these factors is especially important for institutions whose cash management models rely largely on the workings of the financial markets. This is the case, for instance, for Sofoles (limited-purpose non-bank banks) and Sofomes (multiple-purpose non-bank banks), whose liquidity greatly depends upon continuous debt security issues (Box 31)[129].

Graphs 70 and 71 show the structure of the assets and liabilities of the six largest banks, medium-sized banks and smaller subsidiaries. Box 30 briefly outlines the different procedures and facilities used by different central banks and Banco de México to provide liquidity to the interbank market.

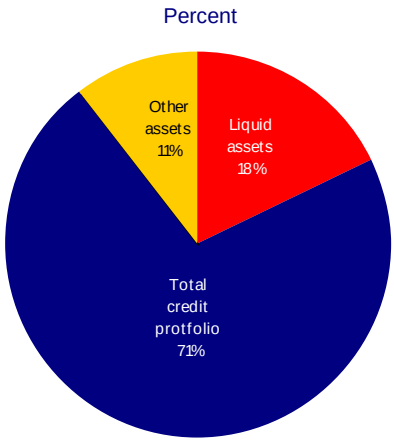
[129] Greater attention is being paid to liquidity risk regulations worldwide. At the start of 2007, the Basel Committee on Banking Supervision began to analyze the liquidity risk regulations in force in industrialized countries and announced that it would be issuing new guidelines in 2008.

Graph 70
Asset Structure According to Commercial Banks' Liquidity by Type of Bank

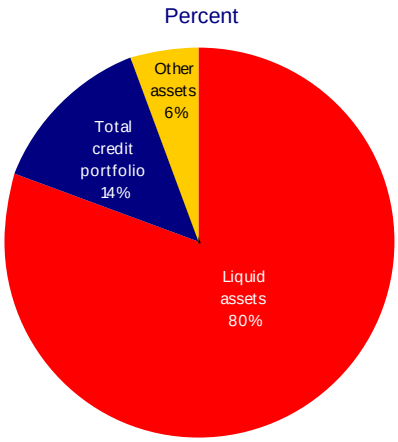
a) Six Largest Banks' Asset Structure



b) Medium-Sized Banks' Asset Structure



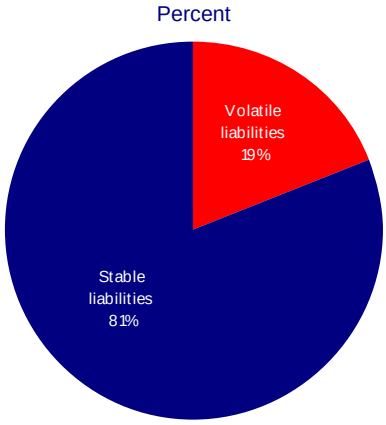
c) Asset Structure of Small Subsidiaries



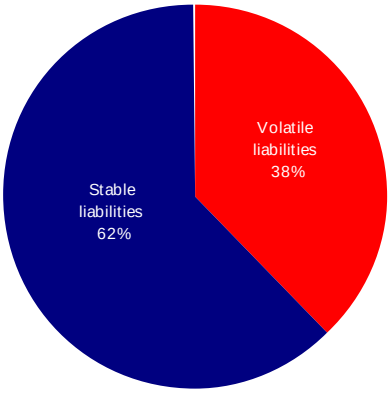
Monthly average for 2007.
Source: Banco de México.

Graph 71
Liability Structure According to Commercial Banks' Volatility by Type of Bank

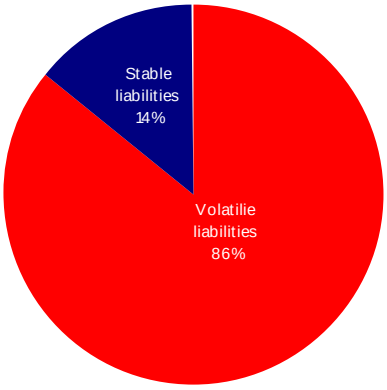
a) Six Largest Banks' Liability Structure



b) Medium-Sized Bank's Liability Structure



c) Small Subsidiaries' Liability Structure



Monthly average for 2007.
Source: Banco de México.

Box 30

Central Bank Mechanisms for Providing Liquidity

Central banks use three different mechanisms to provide liquidity to interbank market participants: i) open market operations (OMOs), ii) standing liquidity facilities (SLF) and iii) emergency liquidity assistance (ELA).

Each mechanism is different from the others in terms of purposes and characteristics, however they all impact interbank liquidity, therefore it is impossible to examine the structure of one without considering the other two. The following are the main characteristics of each mechanism.

i) Open Market Operations (OMOs)
OMOs are the central banks' most important instrument for regulating market liquidity, maintaining interest rates at levels consistent with monetary policy objectives and informing the market of policy goals. One of the main features of OMOs is that they are performed at the request of the central bank, which sets the amounts, frequency, term, access conditions (types of collateral) and the procedure for setting interest rates (type of auction, minimum rate).

Every business day, Banco de Mexico intervenes in the money market to balance supply with the monetary base demand. This is done through repos, credit or deposit auctions and sale or purchase of government securities. Banco de México sets the amount for all of these operations and the market freely determines the interest rates.

Banco de Mexico has prior knowledge of all operations that affect banking account balances in the central bank, with the exception of withdrawals and deposits of banknotes and coins by credit institutions. It therefore makes a daily estimate of changes in the demand for banknotes and coins.

Banco de Mexico also performs credit or deposit auctions to offset discrepancies between estimated and actual demand. It also allows banks, at 6:30 pm every day to exchange funds for one hour (leveling market) once the final balance of different payment systems is registered in their accounts.

ii) Standing liquidity facilities (SLF)[2]

Standing liquidity facilities are "windows" through which commercial banks may obtain automatic liquidity, providing they comply with the conditions of the central bank. One of the main characteristics of standing liquidity facilities is that access is provided at the request of the commercial bank. Another feature is that the central bank predetermines the interest rate. Standing liquidity facilities are intraday credits and overnight credits and credits with longer maturity.

Intraday credits are granted by the central bank over the course of the day (overdrafts in central bank accounts) to help payment system settlement. The purpose of liquidity during the day is to reduce the amount of reserves financial institutions would have to maintain in their central bank accounts to settle their operations over the course of the day.

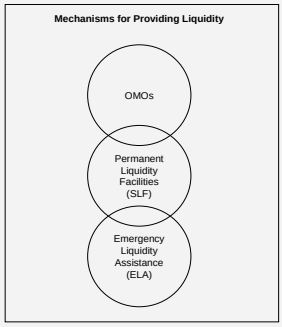
Banks' intraday liquidity needs are closely linked to payment system design. The greater the frequency of fund transfers between commercial bank accounts in the central bank, the higher the balances in these accounts need to be.[1] Not all central banks have intraday liquidity facilities.

Overnight credits are similar and usually include a penalty interest rate. Central banks publish the total balance of their window loans, but not the identity of banks receiving the credit.[3]

Intraday loans provided by Banco de Mexico to commercial banks through overdrafts in their central bank accounts, ought to be guaranteed at all times. If a bank fails to repay the overdrafts before market closure, they will automatically receive an overnight credit from Banco de Mexico at a penalty interest rate, which is double the money market rate.

Standing facilities are developed for the sole purpose of offsetting operating problems. Banco de México does not remunerate positive balances, in order to encourage credit institutions to balance funding surplus or deficit with other banks at market interest rates, which is also the purpose of the penalty rate of overnight credits.

iii) Emergency Liquidity Assistance (ELA)[4]
These operations are granted at the discretion of the central bank as the lender of last resort. Banks seek emergency liquidity when they have no other options left for obtaining liquidity. There is therefore a close relationship between the characteristics of standing liquidity facilities and emergency liquidity assistance, due to the fact that better access to permanent facilities means less need for emergency liquidity assistance.



1. Payment systems can be settled by offsetting charges and deposits throughout the day or at the end of the day (netting). They can also be settled on a transaction-by-transaction basis (gross), which requires greater liquidity.
2. A description of the facilities used by different central banks is given in: Borio Claudio 1997, "Monetary Policy Operating Procedures in Industrial Countries", BIS Working Papers No. 40. Bank of International Settlements. Borio Claudio, 1999, Monetary Policy Operating Procedures in Emerging Market Economies.BIS Policy Papers No. 5. Bank for International Settlements. Escrivá Jose Luis and Fagan G.P., 1995, "Empirical Assessment of Monetary Policy and Procedures in EU Countries", Staff Paper No. 2, European Monetary Institute. Banco de México, "La conducción de la política monetaria a través del régimen de saldos diarios" http://www.banxico.org.
3. In the case of the United States, information on the loans of each of the twelve Reserve district banks is published weekly, which has made it easier for market members to identify institutions receiving loans.
4. For a more detailed discussion on this subject, see: Freixas, Giannini, Hoggarth and Soussa, 1999, "Lender of Last Resort: A Review of the Literature", Bank of England, Financial Stability Review, Nov 1999, and Hawtrey, R, 1932, "The Art of Central Banking", London.

Box 31

Mortgage Sofoles (Special-Purpose Financial Companies) and Sofomes (Multiple-Purpose Financial Companies) Liquidity Analysis

Sofoles play an important role in supplying home loans, accounting for 9 percent of mortgages and one-third of the total amount provided by banks.[1]

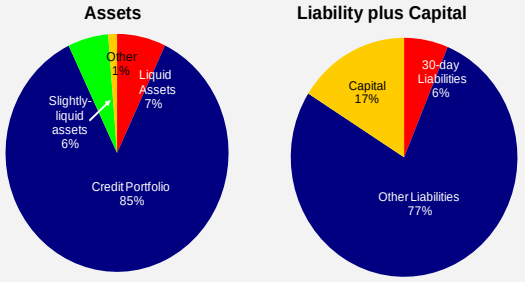
Sofoles credit has grown thanks mainly to three sources of financing: loans obtained from the Federal Mortgage Company (Sociedad Hipotecaria Federal, SHF), commercial paper issues and mortgage securitization. Recent worldwide events indicate that investors may need higher premiums for risk or even reduce financing during periods of financial instability and uncertainty. In these cases, liquidity problems may be caused by the short-term nature of commercial debt and other liabilities, and the difficulty of issuing other securities.

The liquidity analysis for Sofoles[2] uses the same methodology as that used to investigate banking sector liquidity in the 2006 Financial System Report.

This liquidity indicator is the ratio of assets to liabilities (A/L) with 30-day limits. Liquid assets and liabilities must be classified by date in order to formulate this coefficient. The following classification is described in Box 13 of the 2006 Financial System Report. The A/L ratio makes it possible to know whether a financial institution's available liquid assets are enough to meet its liabilities in a 30-day term (immediate period). Development of the A/L ratio allows us to evaluate the liquidity conditions that Sofoles face over time.

Mortgage securitization plays a vital role in liquidity management of Sofoles, as it allows long-term assets to be turned into liquid assets, to create new mortgages or meet short-term liabilities, if necessary.

The following chart shows the balance structure of Sofoles in terms of their degree of liquidity. The chart shows that sufficient liquid assets were available in 2007 to cover liabilities expiring in the next 30 days.



2007 quarterly average.
Source: Banco de México.

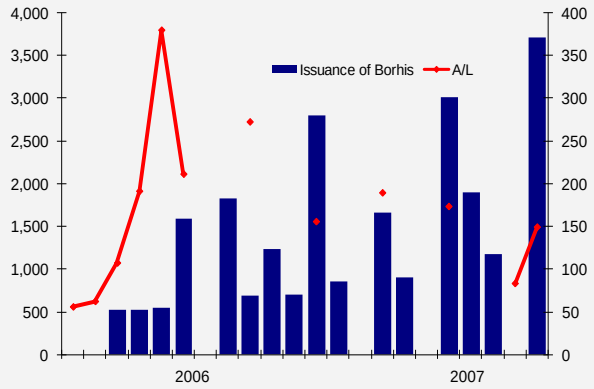
Sixty percent of Sofoles liabilities are accounted for by loans from banks and other organizations. The largest lender is SHF, and most of its loans are long-term. Commercial banks offer mostly short-term loans.

Liability Structure, September 2007

Debt securities		
	Short term	6%
	Long term	19%
Loans from banks and other organizations		
	Short term	18%
	Long term	46%
Other		10%

The graph below confirms that the (A/L) ratio remained above one on average. It also shows that from March 2006, when the securitization boom began, the ratio was above 1.5. A sizeable drop is noted in September 2007, a month marked by worldwide uncertainty, especially regarding the conditions of mortgage-backed securities. This uncertainty led to delays in the issuance of Mortgage-Backed Securities (Bonos Respaldados por Hipotecas, Borhis).

Assets as a Proportion of Liabilities and Issuance of Borhis
Issuance of Borhis in million pesos (left axis)
A/L percent (right axis)[1/]



Figures as of October 2008
Source: Banco de México and SHF
1/ Estimated A/L

The negative impact of global liquidity restriction on the Mexican market was limited. The drop in the asset-liability ratio in September 2007 appears to be due to the delay in issuance of Borhis. Preliminary data show a substantial recovery in this indicator in October 2007.

---

1. As of December 2007, Infonavit was the country's main housing financing institution, with 59 per cent of the market. Banks account for 32 per cent.
2. The analysis includes Sofoles which changed legal structure (i.e. Sofome or Commercial Banks). After this change, they have provided information solely on a quarterly basis, and the analysis is therefore limited to these periods from July 2006.

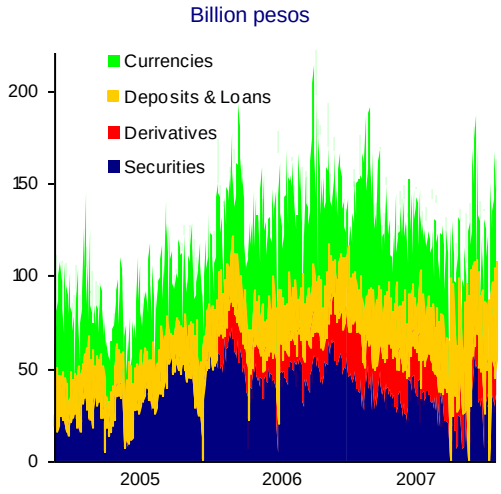
Contagion Risk

The results of exercises made to estimate contagion risk size are provided in this section. Contagion risk is the likelihood of problems affecting one bank being passed directly to other institutions through the interbank market.[130]

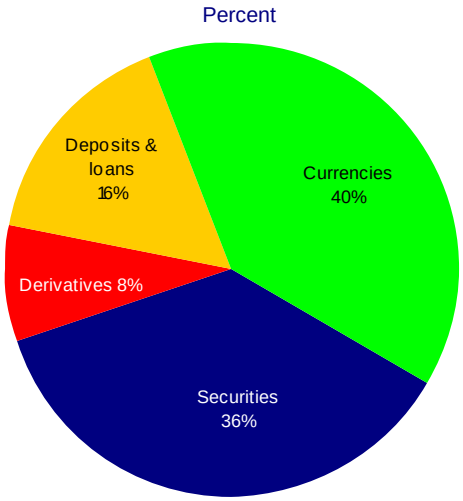
The main interbank risk positions in 2007 arose from currency operations. They accounted for 40 percent of the total amount at risk on average (Graph 72). This figure is similar to previous years.

Graph 72
Interbank Risk Positions

a) Daily Value of Inter-bank Risk Positions



b) Composition of Inter-bank Risk Positions[1/]



Figures for December 2007.
Source: Banco de México.
1/ Daily average for 2005, 2006 and 2007.

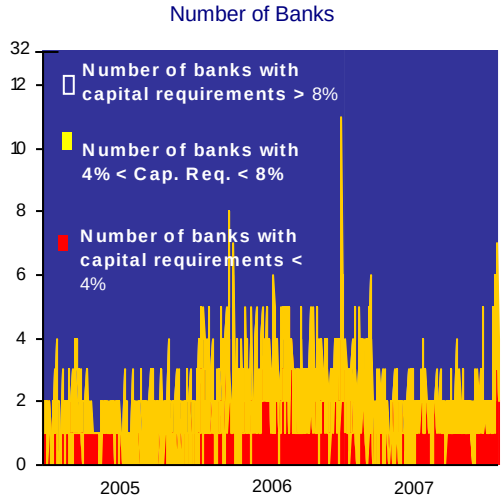
A chain of contagion was found on most days in the time horizon chosen (Graph 73a). However, on just two of the 757 days examined, the assets of banks whose ICAP would fall below 4 percent accounted for over 5 percent of total system assets (Graph 73b). Furthermore, neither of these days was in 2007.

In the exercise, the number of banks whose ICAP fell below the minimum regulatory ICAP of 8 percent was relatively high in most chains of contagion. This means that banks in this situation should be prepared to take prompt corrective measures in the future to restore their capitalization level. Failure to do so would imply a reduction in their funding or severe liquidity problems.

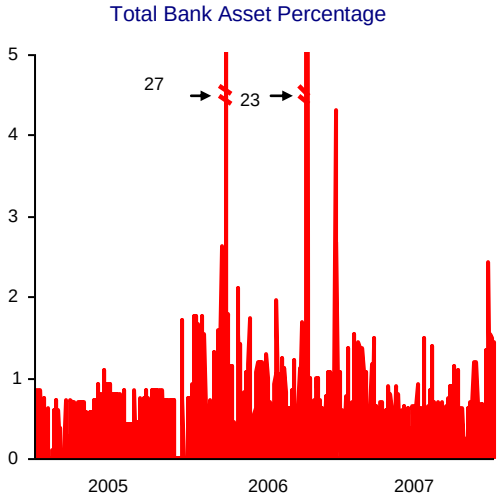
[130] The methodology and assumptions used are outlined in the 2006 Financial System Report.

Graph 73
Main Results of Contagion Effect Calculation[1/]

a) Capital Adequacy Indexes Arising from Daily Triggering of Worst Chain of Contagion



b) Assets of Banks whose Capital would be Lower than 4 percent in the Event of Daily Triggering of Worst Chain of Contagion



Figures as of December 2007.
Source: Banco de México.
1/ Assumptions: Loss in view of 100 percent defaulting and 4 percent ICAP.

A contagion effect that could cause system-wide problems or threaten payment systems seems to be remote but not impossible. The most significant of interbank risks continued to be the payment risk in foreign currency transactions. Therefore, it is important to integrate Mexico's currency in the Continuous Linked Settlement Bank, which allows banks to reduce this type of risk significantly (Box 32).

Box 32

Incorporation of the Peso into the Continuous Linked Settlement Bank and Implications for Payment Risk in Foreign Currency Transactions

On May 26, the Peso was added to the currencies included in the international currency payment system operated by the Continuous Linked Settlement Bank known as CLS.

The CLS was set up in New York in September 2002, and its main shareholders are 71 financial organizations from around the world. It was specifically designed to perform currency transaction payments via a PvP (payment vs. payment) arrangement that virtually eliminates counterparty settlement risk. There are currently 17 currencies operating in CLS: the Australian, Canadian, US, New Zealand, Singapore and Hong Kong Dollar; the Yen; the Euro; the Swiss Franc; the Danish, Norwegian and Swedish Krone; the British Pound; the South African Rand; the Korean Won, the Israeli Shekel[1] and the Mexican Peso. Nowadays, 55% of foreign currency transactions involving these currencies are settled through this system.[2]

In recent years Banco de México promoted the incorporation of the Mexican peso in the CLS. The pertinent legal modifications were proposed and approved by Congress in February of this year. Some of Mexico's main banks and Banco de Mexico developed the technological platform and procedures needed to start operations.

Currency transaction at CLS is carried out as follows: direct participants are CLS shareholders who, in turn, provide the service to other organizations. Each direct participant has a multicurrency account in CLS. At the beginning of trade (6:30 Central European Time), CLS calculates the net positions for each participant in each currency. Those who have sold more than they have bought will have a short position while those who have bought more than they have sold will have a long position. This allows participants to identify the amount to deposit (if they have a short position) or the amount to receive (if they have a long position) in each currency. Participants with short positions liquidate them through the account that the CLS have in the corresponding central bank within the next 5 hours. CLS pays long-position participants with these funds. Obligations between counterparties are maintained until CLS settles the transactions one by one in its books. If the process is completed successfully, the members will have a balance of zero at the end of the day in their CLS account and CLS will have no funds in its central bank accounts.

CLS virtually eliminates the settlement risk in currency transactions through controls that limit exposure in the system. Moreover, CLS reduces the liquidity necessary to pay obligations, as obligations of payment to the system are calculated on a net basis.

Mexican banks have two options for settling their transactions via CLS: to become shareholders of CLS and develop into direct participants or to operate through a correspondent bank that is in turn a direct CLS participant.

Some Mexican subsidiaries of large foreign banks operate through their parent companies, when the latter are already CLS participants. Some large banks have become CLS Nostro Agents (correspondents of CLS member banks).

Currency transactions between CLS Nostro Agents are expected to be settled through this mechanism.

Also, only a few Mexican banks not belonging to any international group are expected to use the system, especially the ones that perform most of their currency transaction payments with Mexican subsidiaries of international banks. The limited number of transactions and cost of membership make it highly likely that these banks will decide to use the system through third parties, instead of becoming CLS shareholders.

Therefore, interbank risk in foreign currency transactions will drop substantially in Mexico. This is an excellent opportunity to practically eliminate this risk, as long as institutions find efficient ways to manage their foreign currency transactions through CLS with correspondent banks.

_____

1. The Israeli Shekel began operating at the same time as the Mexican Peso.
2. Committee on Payments and Settlement Systems (2007), "Progress in reducing foreign exchange settlement risk", BIS.

Legal Risk

Legal risk refers to the potential loss faced by financial entities due to unfavorable court and administrative rulings (Box 33). It is a component of operational risk, which is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events.[131]

Legal risk would be higher to the extent applicable penalties increase, regulatory effectiveness drops[132] and uncertainty over the way differences likely to emerge between private parties are resolved increases. Also, if the legal system cannot guarantee adequate proceedings to make the counterparties comply with a contract or to assert the agreed guarantees, the greater the risk faced by players in the economy. The speed and ability of courts to hear and resolve disputes between private parties are a fundamental factor in the economy's legal certainty. Legal risk is closely linked to the efficiency and impartiality of proceedings and the resultant settlements. All this has an effect in all individuals and companies, not just in financial intermediaries.

There is no way to measure the legal risk faced by financial institutions. However, a number of domestic and international institutions calculate scores and make comparisons, including evaluations of legal systems and their performance. Table 10 and Graph 74 give the scores given to Mexico's legal system in the Economic Freedom of the World Index (EFWI).[133]

[131] The Basel II Accord sets forth that legal risk includes, but not to be limited to, exposure to fines, penalties or punitive damages resulting from supervisory actions, as well as, noncompliance with private agreements.

[132] Regulatory effectiveness refers to the rule of law applied to a society, provided that whoever sets the regulations must comply with them too (Cossío (2003), ITAM Working Paper).

[133] This index is published annually by The Fraser Institute and includes five different points: 1) size of government; 2) legal framework and security of property rights; 3) access to financing; 4) free international trade and 5) credit regulation. Scores are given on a decimal scale from 0 to 10, where 10 is the highest possible score. The index is obtained by compiling data from various international sources, including the World Bank, the International Monetary Fund and the World Economic Forum.

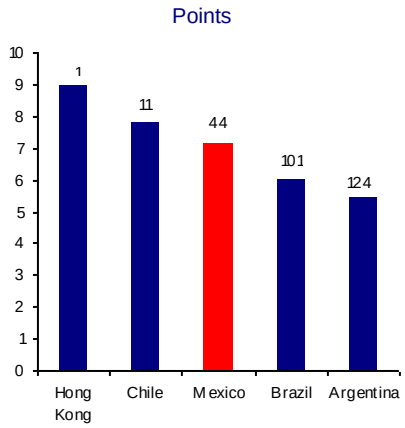
Table 10
Evaluation of Mexico's Legal Framework

Category	Average	Mexico	
		Score	Rank
Judicial independence	4.86	4.41	64
Impartial courts	4.80	3.85	86
Protection to intelectual property rights	6.06	6.05	59
Military involvement in politics	6.53	6.67	78
Law and order	6.41	5.00	85
Contractual enforcement	6.27	6.08	75
Regulatory restrictions on sales	6.56	6.86	69
Overall score	5.85	5.68	72

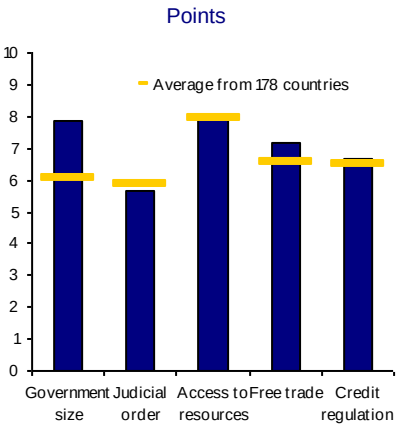
Source: EFWR

Graph 74
Economic Freedom of the World Index

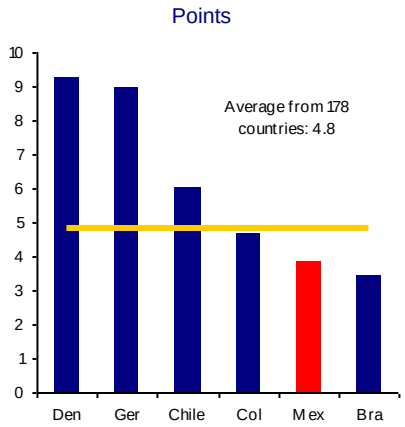
a) General Scores



b) Scores by Area for Mexico



c) Impartial Courts Score



Figures as of 2005.
Source: EFWR.

Annually the World Bank publishes a report on the feasibility of doing business in 178 countries. [134] This report includes indicators for each country that measure the efficiency of the legal system to resolve a contractual dispute. One of these indicators evaluates the enforcing of contracts by quantifying the costs,[135] time[136] and procedures[137] involved. This index ranks Mexico in 83rd place amongst the 178 countries included in the study sample (Graph 75).

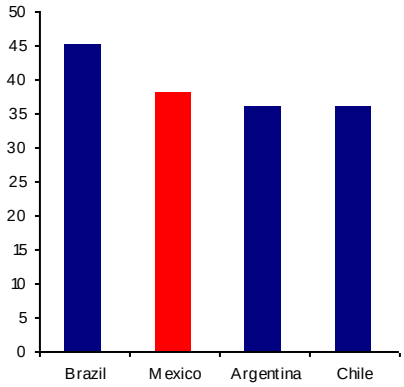
[134] *Doing Business.* This report is published annually by the World Bank. The index is generated on the basis of a simple average of the positions obtained in each of the 10 points considered by the report. High scores mean greater protection of property rights and vice versa.

[135] This is measured as a percentage of the claim, which is estimated at twice the country's per capita income.

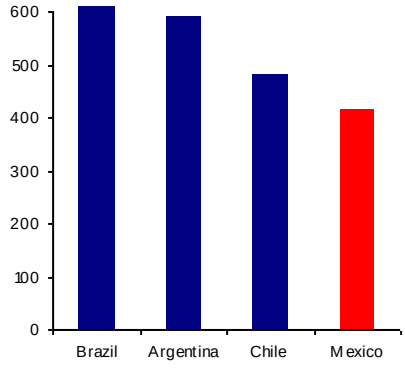
[136] This is measured as the number of days that elapse from the moment the dispute arises until payment of the contract.

Graph 75
Enforcing Contracts by State[1/]

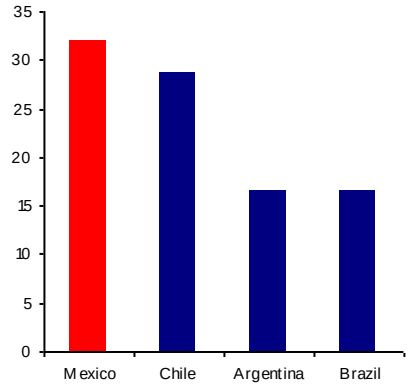
a) Cost of Contract Enforcement



b) Extent of Contract Enforcement



c) Procedures Required for Contract Enforcement



Figures as of 2007.
Source: World Bank.
1/ The higher the percentages and number of days that elapse, the higher the cost and complexity of executing contracts.
2/ This refers to the value of the contract, which is estimated from twice the country's per capita income.

The World Bank also conducted a research project for Mexico to assess the legal system's performance in the country's states (Graph 76). The findings reveal that the cost of enforcing a contract is higher in states such as Tlaxcala, Oaxaca and Quintana Roo than in Aguascalientes and Zacatecas. Furthermore, it takes more than 500 days to enforce a contract in Baja California Sur and Quintana Roo. Yet this procedural formalism[138] is even more complex in states like Guerrero, Michoacán, Chihuahua, Colima and Puebla.

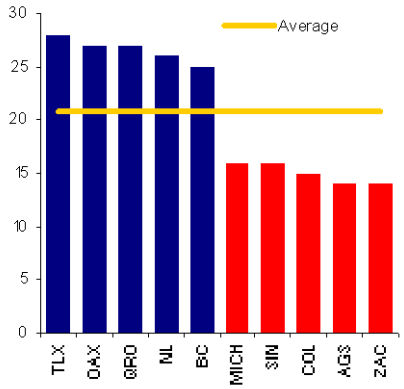
[137] This is defined as the interaction between the parties in a dispute, or between the parties and the courts. The Index of Procedural Formalism by Djankov, S., La Porta, R., et al (2002), "Courts: The Lex Mundi Project", *NBER Working Paper 8890,* is used as a reference.

[138] Procedural formalism refers to all the regulations and procedures involved in solving disputes between private parties in accordance with a legal framework.

Graph 76
Enforcing Contracts by State

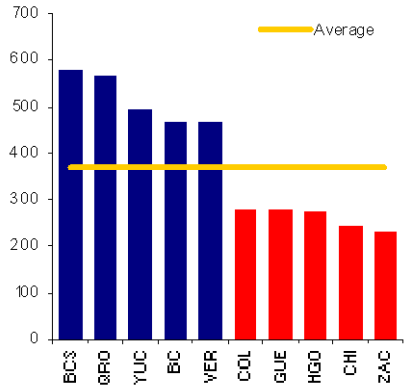
a) Cost of Contract Enforcement

Percentage of amount[1/]



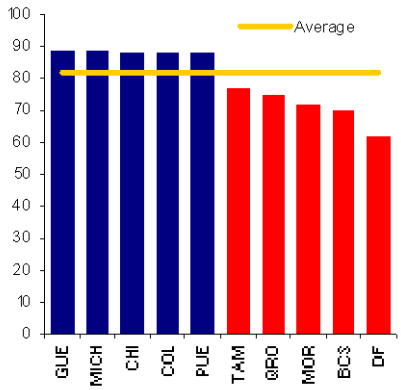
b) Extent of Contract Enforcement

Days



c) Procedures Required for Contract Enforcement

Points[2/]



Figures as of 2006.
Source: World Bank.
1/ This refers to the value of the contract, which is estimated to be equivalent to twice the country's per capita income.
2/ This score indicates the degree of formalism or complexity in dispute resolution procedures, and gauges statutory and procedural involvement in legal cases examined in local civil courts.

Table 11 shows the findings of another survey called Business and Mortgage Contract Enforcement in the States (Ejecución de Contratos Mercantiles e Hipotecas en las Entidades Federativas)[139] which compiled the views of lawyers and courts regarding the enforcement of commercial and mortgage contracts. This study considers different components of the local judicial and executive powers involved in the enforcing of business and mortgage contracts. However, due to the subjectivity of this survey, no scores are given for the intrinsic quality of local legal powers.[140]

[139] The Consejo Coordinador Financiero, A. C. (Financial Coordination Board) commissioned surveys of this type in 2002, 2004 and 2007, and they were carried out by the ITAM, Gaxiola Moraila y Asociados S.C. and Moody's de México, S.A. de C.V. The study is based on questionnaires designed to gather the opinions of different litigation lawyers with extensive experience in commercial and mortgage proceedings regarding institutional development and a number of other factors involved in mandatory business and mortgage contract enforcement in the states. Questionnaires were also used at the Supreme Courts, and appraisal visits were made to state courts and chambers. The data obtained were arranged into four relevant areas based on different categories and components in which questions were asked about specific matters relating to each area. These areas are: institutional quality, extent of procedures, efficiency in judgment enforcement, and adequate and efficient use of human and material resources.

[140] The survey gives each area a score between 0 and 5, with 5 as the highest score, based on the views of 267 litigation lawyers of financial institutions from all the country's states and 29 Supreme Courts. Participants were asked about their experiences in legal proceedings in connection with commercial and mortgage contract enforcements. There are three main areas: i) institutional quality, which examines opinions on the preparation of judges and magistrates; soundness, uniformity and consistency of judgments; the efficiency of expert services and of the public prosecutor; ii) the extent of commercial and mortgage enforcement proceedings, which looks at the estimated extent of these proceedings, periods of inactivity attributable to the legal authorities, speed of enforcement proceedings and speed of citation and notification procedures; and iii) the efficiency of judgment enforcement, which means how effectively the legal judgment is complied with and involves police intervention, as well as the interruption of enforcement procedures due to pressure by third parties or the parties themselves.

Table 11
Evaluation of Business and Mortgage Contract Execution in the States

Institutional Quality		Extent of Commercial Proceedings		Efficiency in Enforcement of Judgments	
State	Score	State	Score	State	Score
NAY	3.60	MEX	3.88	BCN	4.07
QUE	3.45	TAM	3.71	QUE	3.98
MEX	3.32	QUE	3.65	COA	3.93
NLE	3.30	NAY	3.55	NLE	3.93
GUA	3.28	CHS	3.50	TAM	3.86
AGS	3.24	AGS	3.47	COL	3.74
SON	3.23	GUA	3.46	DUR	3.68
COL	3.17	DUR	3.45	GUA	3.65
TAB	3.15	CAM	3.39	SIN	3.53
DUR	3.02	BCN	3.34	AGS	3.51
SIN	2.98	GRO	3.33	JAL	3.49
BCN	2.96	CHH	3.30	QROO	3.47
OAX	2.96	COL	3.29	MEX	3.44
COA	2.94	DIF	3.27	CHS	3.40
TAM	2.94	NLE	3.16	SLP	3.30
SLP	2.93	OAX	3.14	OAX	3.28
CAM	2.88	TAB	3.14	TAB	3.22
MIC	2.87	ZAC	3.02	DIF	3.19
JAL	2.83	COA	2.92	YUC	3.15
YUC	2.77	SIN	2.87	BCS	3.13
CHH	2.75	SON	2.85	PUE	3.13
HID	2.75	SLP	2.84	GRO	3.10
DIF	2.74	MIC	2.82	NAY	3.06
ZAC	2.65	YUC	2.79	TLA	3.03
GRO	2.59	VER	2.74	MOR	2.95
CHS	2.58	HID	2.58	CAM	2.93
QROO	2.58	MOR	2.58	MIC	2.90
MOR	2.56	BCS	2.51	HID	2.87
TLA	2.36	JAL	2.46	SON	2.70
VER	2.05	PUE	2.45	ZAC	2.43
BCS	2.04	TLA	2.34	CHH	2.26
PUE	1.99	QROO	2.25	VER	2.13

Source: Financial Coordination Board (Consejo Coordinador Financiero (2007)), Business and Mortgage Contract Enforcement in the States, Indicators of Confidence and Local Institutional Development.

Findings of this research reveal that institutional quality scores are higher in states such as Nayarit, Querétaro and the State of Mexico, and lower in Veracruz, Baja California Sur and Puebla. Ratings on the extent of proceedings are higher in the State of Mexico, Tamaulipas and Querétaro, and lower in Puebla, Tlaxcala and Quintana Roo. Finally, perception of the efficiency of judgment enforcement is better in Baja California, Querétaro and Coahuila, and less favorable in Zacatecas, Chihuahua and Veracruz.[141]

[141] It is not possible to directly compare the findings of this survey with the ones obtained by the World Bank, even though the aim of both studies was to set a parameter for measuring the practicability and ease of enforcing contracts. In addition, there are differences in the methodologies used in each case.

Box 33

Legal Risk for Financial Institutions in Mexico

Two Mexican regulations deal with the types of risk to which financial institutions, as well as their financial subsidiaries, are exposed: the "Circular Única de Bancos" (Circular on Banks, CUB) issued by the National Banking and Securities Commission (Comisión Nacional Bancaria y de Valores, CNBV), and the Capitalization Requirements issued by the Ministry of Finance (Secretaría de Hacienda y Crédito Público, SHCP).

The CUB classifies these risks as follows[1]:

I. **Quantifiable Risks** When potential losses may be measured They are classified as:

a) Discretionary Risks: They stem from a risk position.

1. Credit Risk: Potential loss due to a debtor's or counterparty's non-payment, including tangible or personal security granted, as well as any other mitigation mechanism used.

2. Liquidity Risk: Potential loss due to the organization's inability or difficulty to renew or contract liabilities under normal conditions, as a result of the advance or forced sale of assets at excessive discounts to settle its obligations, or of the fact that a position cannot be timely disposed of, acquired, or hedged by holding an opposite position.

3. Market Risk: Potential loss due to changing risk factors affecting valuation or differences in expected results of asset, liability or contingent liability trading, such as interest rates, exchange rates and price indexes, among other.

b) Non-discretionary Risks: They stem from business operations. This category includes the operating risk, i.e., the potential loss due to internal control failures or deficiencies, to errors in the processing and storage of operations or in the transmission of information, as well as to adverse administrative and court rulings, fraud or theft. Non-discretionary risks further comprise:

1. Technological Risk: Potential loss due to damage, interruption, alteration or failures caused by the use of or reliance on hardware, software, systems, applications, networks or any other information distribution channel used for providing banking services to customers.

2. Legal Risk: Potential loss due to noncompliance with the applicable legal and administrative provisions, unfavorable administrative or court orders, and the application of penalties with regard to institutions' operations.

II. **Unquantifiable Risks** They arise from unforeseen events for which a statistical base to measure potential losses cannot be established.

Given that this is a non-discretionary risk, the CUB sets forth the following legal risk management measures:[2]

1. Establish policies and procedures to ensure that legal actions are validly taken and accomplished, including the formalization of collateral. The aim must be to avoid flaws in the execution of operations.

2. Estimate potential losses arising from unfavorable court or administrative orders (as well as possible penalties) with regard to operations.

3. Analyze actions taken by the institution if abided by a foreign legal system, and assess any differences between the system in question and the Mexican system, including legal proceedings.

4. Inform managers and employees of any legal and administrative provisions applying to operations.

5. Perform internal legal audits at least once a year.

6. Maintain a historical database on court and administrative rulings, their causes and costs.

The classification of legal risk as a component of operational risk is based on Rule Five of Capitalization Requirements, which sets forth the methodology for calculating capital requirements for exposure to this type of risk.

The only method set forth in the Rules is the Basic Indicator Method. The CNBV, however, is authorized to determine alternative methods through general rules[3].

_____

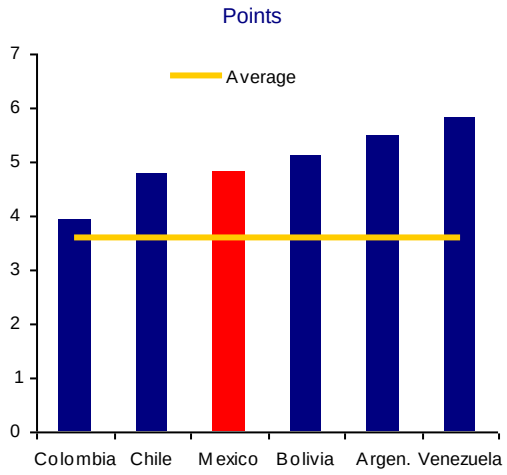
1. Article 66, CUB.
2. Article 86, section III paragraph c), CUB.
3. Credit Institutions Law, Article 102.

However, both studies provide a complementary insight into how easy it is to execute commercial contracts in Mexico.

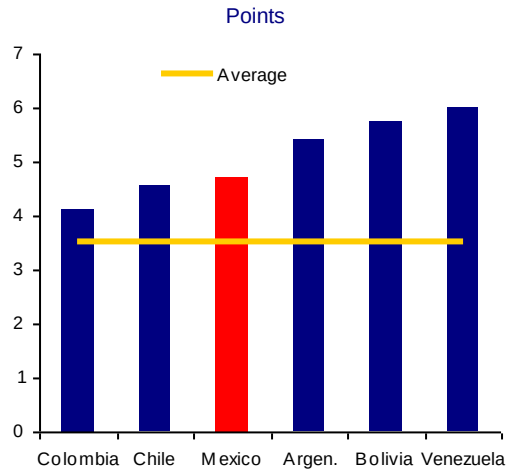
Procedural formalism refers to regulations and procedures involved in solving disputes between private parties in accordance with a legal framework. The purpose of the procedural formalism is to compare how different courts resolve disputes between private parties. An index is used to estimate the degree of formalism in different courts in order to measure their efficiency. The rule is quite simple: the greater the degree of formalism, the lower the efficiency of the legal framework and, hence, less certainty regarding property rights.[142] Graph 77 shows the two main concepts assessed by the Index of Procedural Formalism.[143]

Graph 77
Index of Procedural Formalism

a) Difficulty Involved in a Housing Eviction



b) Difficulty Involved in Cashing a Check with Insufficient Funds



Figures as of December 2002.
Source: Djankov, S., La Porta, R., et al (2002), "Courts: The Lex Mundi Project", *NBER Working Paper 8890.*

For some authors legal and political risk levels provide solid guidelines for determining the degree of regulatory effectiveness in a state. Some indices, such as the World Bank Rule of Law Index[144], were formulated to estimate regulatory effectiveness in 211 countries. The country with the highest score on this index is Denmark, with 2.01 points, as shown in Graph 78a. Mexico, on the other hand, holds 127th place with -0.49 points, which is below the average of 0.125 for countries with a Romanist structured legal system.

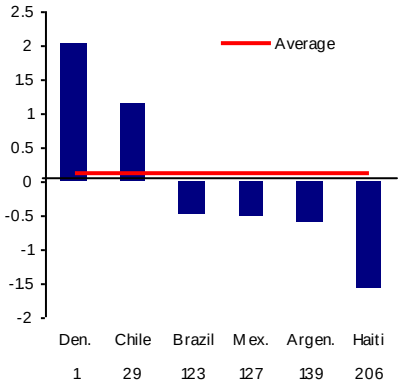
[142] Based on the theoretical model of court performance described by Shapiro (1981), which looks at a dispute between two neighbors that can be resolved by a third party under circumstances of fairness with limited use or knowledge of the law, without lawyers or written requirements, or restrictions on the way evidence, witnesses or arguments are presented, and without any subsequent appeals against the final ruling.

[143] The Index of Procedural Formalism is based on information from surveys conducted in most Lex Mundi and Lex Africa countries (international law firm associations in 115 countries). The surveys pose two simple cases of disputes to be resolved by the courts. The first one rules on a residential eviction due to nonpayment of rent, while the second deals with a claim for the return of a check with insufficient funds. A scale from one to seven is used. Scores close to zero reflect a more positive evaluation of the functioning of a court, which means less formalism so that contractual disputes can be processed more quickly.

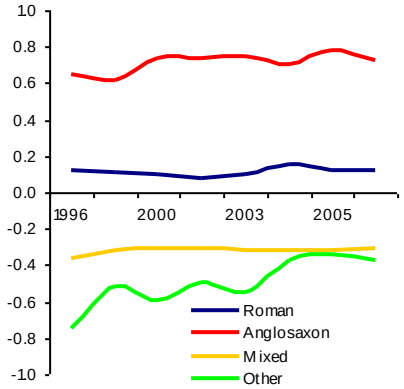
[144] The index is obtained from a survey conducted in 211 countries and territories, with data from 33 sources provided by 30 different organizations, between 1996 and 2006. It gives the points of view of public and private organizations, experts and citizens. A scale from -2.5 to 2.5 units is used. The higher the index score, the better the level of regulatory efficiency in the country in question.

Graph 78
Indicators of Regulatory Effectiveness

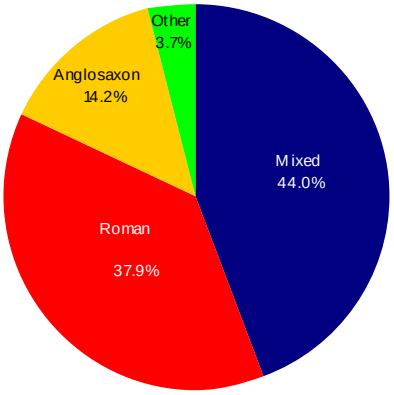
a) Rule of Law Index



b) Legal Framework Index



c) Worldwide Legal Frameworks



Figures as of 2006.
Source: World Bank and University of Ottawa Faculty of Law.

The Freedom House Index was created to assess the political and civil freedom of individuals in states, and includes a section on regulatory effectiveness.[145] In this section, Mexico achieved a score of 8 points out of a maximum of 16, which means it stands below the average of 8.7 for a sample of 193 countries.

Briefly, the purpose of these indices is to measure the legal risks faced by different economic agents in a country from different perspectives. The information obtained indicates that legal risk in Mexico could be reduced. The sophistication attained by operations and financial contracts has further complicated the resolution of possible disputes between parties. Interpretations and the corresponding resolutions require specialized knowledge of the subject. The main problems economic agents tend to face in commercial proceedings relate to procedure and the judgment enforcement. Therefore, many countries have decided to create specialized courts in different fields, finance being one of them. The establishment of a financial specialized court in Mexico could reduce legal risk for both users and intermediaries in the financial system.

Specialized Courts

The jurisdiction of these courts is limited and exclusive to certain areas, in which judges are specialists in particular fields. Judicial specialization offers two main benefits:

i) Better resolutions in complex and specific cases.

ii) Cutting resolution times in legal proceedings by involving experts in the matter over dispute. The use of this type of court allows judges to acquire experience and, hence, cut learning and resolution costs.

[145] This is why the index includes questions on the degree of independence of the legal system, interference from other authorities in legal decisions, impartiality of the courts, appointment of judges, and compliance with and the implementation of court judgments by other political and non-parliamentary authorities.

This model is now used in countries such as the United States, Austria, Belgium, Finland, France, Germany and Spain (Table 12). This model is not unknown in Mexico, where there are specialized courts for different matters. Article 94 of the Mexican Constitution grants powers to the Federal Judiciary Board (Consejo de la Judicatura Federal) to determine whether there should be specialized courts in a particular subject. At the moment, there are no specialized courts in Mexico to address matters related to the financial system and its institutions.

Table 12
Existence of Specialized Courts:
International Comparison

Country	Specialist Courts
United States	There are federal (law courts) and state specialist courts and at state level for almost every sector. However, most proceedings are filed with general courts.
European Union	As in the United States, most proceedings are filed with general courts. However, if necessary, cases are sent to specialist divisions that have their own courts.
Austria	There are courts specialized in labor and corporate issues. The Vienna Commercial Court is responsible for hearing matters relating to property right violation.
Belgium	Specialized commercial courts hear proceedings that involve large sums of money. There are also specialized courts for labor contracts.
Finland	This country has specialized courts for labor, military, ecclesiastical and governmental issues, as well as relating to land, insurance and markets.
Germany	Matters relating to administrative and labor laws and taxes are dealt with at specialty courts.
Spain	There are specialty courts for labor and administrative issues. For other areas, cases are resolved at general courts.
Australia	Although this method is not provided for in Australia, each area can be dealt with in different sections (criminal, civil, family, commercial, administrative and minors).
Mexico	The Law allows for the existence of courts specialized in electoral, labor, military, family, criminal, federal and local matters. The financial system is the first-instance jurisdiction of local civil courts.

Source: American Bar Association and Central European and Euroasian Law Initiative (CEELI).

5.5. Transparency and access to financial services

In 2007, the Mexican Congress issued the new Law for the Transparency and Regulation of Financial Services (Ley para la Transparencia y Ordenamiento de los Servicios Financieros, LTOSF) and approved amendments to other related laws in order to improve access to financial services, encourage competition among intermediaries and promote transparency and disclosure of interest rates, fees and commissions. Banco de México carried out a series of amendments to its regulation in order to implement the new framework.

The new Law extended the obligation to publish Total Annual Cost (Costo Anual Total, CAT), to express ordinary and moratorium interest rates in annual terms as well as the limitation to collect interest in advance to non-bank financial entities such as Sofoles, Sofomes, and savings and loan associations and other companies that grant credit (Box 34).

In addition, the Law required that credit providers inform the public of the fees and commissions they charge through their websites and on posters and leaflets at their branches. Furthermore, Banco de México created a register of the commissions charged by banks, and the regulated Sofoles and Sofomes for payment and credit services, pursuant to requirements of the Law. The Law also grants Banco de México authority to make and disclose observations to the modifications of fees and commissions.

Condusef will publish tables comparing fees and commissions on its website and will provide calculators and tools to assist customers to compare the cost of services offered by different entities. Box 35 gives some examples of CAT for different credits.

CAT allows financial service users to compare the costs of credit offerings with different payment characteristics (interest rates, fees and commissions, payment frequency, term and amount). The methodology used in Mexico to calculate CAT is the same as the one used in the United Kingdom to calculate the Annual Percentage Rate (APR) and similar to the one for the Annual Equivalent Rate (Tasa Anual Equivalente, TAE) in Spain.[146] The procedure differs from the one used in the United States for the APR.

The Law also requires that banks receiving deposits from the public offer two standardized basic bank accounts that charge no fees for a set of services (Box 36).

[146] The methodologies for calculating UK APR and Mexican CAT in the case of credit cards include fees and commissions for issuance and renewal. TAE in Spain does not include these.

Box 34

Total Annual Cost (Costo Anual Total, CAT)

CAT is the cost of financing in annual percentage terms that, for information and comparison purposes, includes all costs and expenses of a credit, and it includes:

- Interest rate
- Fees and commissions
- Insurance premiums (excluding cars when customers freely elects an insurance company)
- Value Added Tax (VAT)
- Discounts and bonuses
- Difference between a good's credit and cash price
- Any other credit charge made to the user.

Most developed countries use a concept similar to CAT. In the United States, Canada and the United Kingdom, this is known as "APR" (Annual Percentage Rate) and in Spain as Equivalent Annual Rate (*Tasa Anual Equivalente,* TAE). The methodology used in the United States is an annualized simple Internal Rate of Return (Tasa Interna de Retorno, TIR) while it is an annualized compound IRR in the United Kingdom, Spain and Mexico.

Two examples of CAT calculation are given below as illustration (methods for redeeming capital and for payment of interest differ).

Example 1: Method of Declining Balances
Loan amount: 1,000 pesos
Term: 4 months with weekly payments
Nominal interest rate: 45 percent, 51.2 percent with VAT

Week	Interest Payment	VAT on Interest	Principal Payment	Total Payment	Principal Balance Remaining
0	0.0	0.0	0.0	0.0	1,000.0
1	8.7	1.2	58.0	67.9	942.0
2	8.2	1.1	58.6	67.9	883.4
3	7.6	1.0	59.2	67.9	824.2
4	7.1	1.0	59.7	67.9	764.5
5	6.6	0.9	60.3	67.9	704.2
6	6.1	0.8	60.9	67.9	643.2
7	5.6	0.8	61.5	67.9	581.7
8	5.0	0.7	62.1	67.9	519.6
9	4.5	0.6	62.7	67.9	456.8
10	4.0	0.5	63.4	67.9	393.5
11	3.4	0.5	64.0	67.9	329.5
12	2.9	0.4	64.6	67.9	264.9
13	2.3	0.3	65.2	67.9	199.6
14	1.7	0.2	65.9	67.9	133.7
15	1.2	0.2	66.5	67.9	67.2
16	0.6	0.1	67.2	67.9	0.0
TOTAL	75.4	10.3	1,000.0	1,085.7	

Annualized simple IRR:	51.2%
APR (USA):	51.2%
Annualized compound IRR:	66.5%
APR (UK)	66.5%
TAE (Spain):	66.5%
CAT (Mexico):	**66.5%**

CAT is the value of *i* that satisfies the following equation[1]:

$$1{,}000 = \frac{67.86}{(1+i)^{\frac{1}{52}}} + \frac{67.86}{(1+i)^{\frac{2}{52}}} + \ldots + \frac{67.86}{(1+i)^{\frac{15}{52}}} + \frac{67.86}{(1+i)^{\frac{16}{52}}}$$

By rounding to one decimal point and expressing it as a percentage, we obtain:

$$CAT = 66.5\%$$

The method used for APR (UK) and TAE (Spain) gives the same result. In United States APR, a discount factor of $\left(1+\frac{j}{52}\right)^{n}$ is used instead of the $(1+i)^{\frac{n}{52}}$ used by CAT.

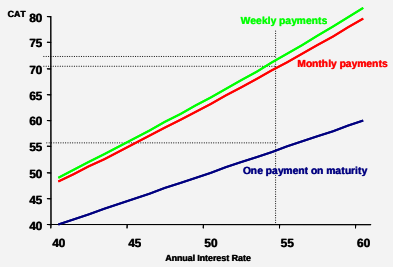
Example 2: Method of Constant Principal and Interest Payment
Credit amount: 1,000 pesos
Term: 4 months with weekly payments
Nominal interest rate: 45 percent, 51.2 percent with VAT

Week	Interest Payment	VAT on Interest	Principal Payment	Total Payment	Principal Balance Remaining
0	0.0	0.0	0.0	0.0	1,000.0
1	8.7	1.2	62.5	72.3	937.5
2	8.7	1.2	62.5	72.3	875.0
3	8.7	1.2	62.5	72.3	812.5
4	8.7	1.2	62.5	72.3	750.0
5	8.7	1.2	62.5	72.3	687.5
6	8.7	1.2	62.5	72.3	625.0
7	8.7	1.2	62.5	72.3	562.5
8	8.7	1.2	62.5	72.3	500.0
9	8.7	1.2	62.5	72.3	437.5
10	8.7	1.2	62.5	72.3	375.0
11	8.7	1.2	62.5	72.3	312.5
12	8.7	1.2	62.5	72.3	250.0
13	8.7	1.2	62.5	72.3	187.5
14	8.7	1.2	62.5	72.3	125.0
15	8.7	1.2	62.5	72.3	62.5
16	8.7	1.2	62.5	72.3	0.0
TOTAL	112.5	15.4	812.5	1,157.5	

Annualized simple IRR:	92.3%
APR (USA):	92.3%
Annualized compound IRR:	149.6%
APR (UK):	149.6%
TAE (Spain):	149.6%
CAT (Mexico):	**149.6%**

The higher the interest rate and the lower the period between payments (higher frequency) the higher CAT will be.

CAT for Different Payment Frequencies
Percent



Legal Obligations
The Law for the Order and Transparency of Financial Services (Ley para la Transparencia y Ordenamiento de los Servicios Financieros, LTSOF) sets forth the obligation to publish CAT for loans below 900 thousand Udis and mortgages for any amount. It also specifies that payment of interest on loans may not be collected in advance, and requires that ordinary and moratorium interest rates be expressed in annual terms. This law grants authority to regulate contracts, advertising, statement of accounts and receipts. These obligations apply to: banks; Sofoles and Sofomes; savings and loan associations; financial entities acting as trustees in lending trusts; lending companies and commercial entities. The law makes Banco de México responsible for determining the CAT calculation methodology, the model used in the United Kingdom was adopted. CAT is used to compare loans with different installment frequencies, terms and methods of amortization of principal and interest. Additionally, the Profeco Law sets forth that interest will be paid exclusively on loan declining balances and that payment may not be collected in advance (only for expired periods).

[1] When the value of *i* is not unique, the closest positive value to zero is taken as the solution.

Box 35

Comparison of CAT for Different Credits

The interest rate of a loan must reflect the creditor's funding and capital costs, as well as debtor-associated risks and the costs of granting, managing and collecting the loan.

Therefore, setting limits or maximum interest rates tends to have a different effect to what is intended. Instead of making credit more accessible, it reduces the amount available, mostly affecting needy borrowers.

Financial service users vary greatly. Consequently, setting limits on interest rates, even in uncompetitive markets, would exclude credit claimants who pose high risks for lenders. These credit claimants include small and medium-sized business (Pymes) and lower income sectors.

Adopting differentiated interest rates, besides being impractical, would be very costly and encourage the growth of parallel informal markets. Loans are usually more difficult to obtain in these markets.

Studies sponsored by different organizations, such as the European Commission[1], the UK Department of Trade and Industry[2], the Competition Commission[3] and the Treasury Department[4] have reached this conclusion.

Banco de Mexico considers that the best way to reduce the cost of credit is by encouraging competition between lenders, promoting a better access to information and a greater financial culture among users.

The following tables set examples of CAT for different credits offered by financial and non-financial companies.

Mortgage Credit

CAT calculated for a 600,000 peso 15-year term loan granted to a 35-year old person to buy property in Mexico City.

	CAT
Banco Santander	11.6%
Banco Nacional de México	12.8%
Banca Mifel	13.2%
Scotiabank Inverlat	13.2%
Hipotecaria Nacional – BBVA (Sofol)	13.8%
Patrimonio (Sofol)	14.1%
Fincasa Hipotecaria (Sofol)	14.8%
Ixe Banco	14.9%
Hipotecaria Vértice (Sofom NR)	14.9%
ING Hipotecaria (Sofol)	15.2%
Hipotecaria México (Sofol)	15.4%
Banco HSBC	15.7%
Hipotecaria Su Casita (Sofol)	15.7%
Hipotecaria Crédito y Casa (Sofol)	15.9%
Hipot. Casa Mexicana (Sofom NR)	16.2%
Hipotecaria Independiente (Sofol)	17.1%
Finpatria (Sofol)	17.3%

CAT calculated for a 35-year old person for a 280,000 peso loan to buy property in the Mexico City with Apoyo Infonavit, to be paid in 15 years.

	CAT
Banco Nacional de México	12.9%
Banca Afirme	13.7%
Hipotecaria Nacional – BBVA	13.8%
Hipotecaria Crédito y Casa (Sofol)	14.0%
Patrimonio (Sofol)	14.1%
Fincasa Hipotecaria (Sofol)	14.8%
ING Hipotecaria (Sofol)	15.0%
Hipotecaria Su Casita (Sofol)	15.8%
Banco Inbursa	15.9%
Hipot. Casa Mexicana (Sofom NR)	16.1%
Hipotecaria Vértice (Sofom NR)	16.3%
Hipotecaria México (Sofol)	16.8%
Finpatria (Sofol)	16.8%
Hipotecaria Independiente (Sofol)	17.1%

Figures as of April 2008.
Source: Banco de México.

Bank Credit Cards

In credits associated to credit cards, the greater the annual fee in proportion to the credit line, the greater the CAT calculated for the same interest rate. The banking sector offers differentiated rates regarding each customer's profile.

CAT calculated for a 10,000 peso 3-year term revolving credit line with monthly payments.

	CAT
Banco Inbursa - Efe Clásica	42.8%
Banco Santander - Serfin Light	43.8%
Banco Afirme - Clásica	45.2%
Banco del Bajío - Clásica	48.9%
Scotiabank Inverlat - Clásica	52.5%
Banco Mercantil del Norte - Clásica	53.2%
Ixe Banco - Clásica	57.3%
Banco Regional de Monterrey - Clásica	58.1%
American Express Bank - Blue	61.4%
Banco HSBC - Clásica	63.7%
BBVA Bancomer - Azul	64.2%
Banco Nacional de México - Clásica	66.1%
Banco Santander - Uni-K	70.8%
Banco Invex - SPIRA	86.2%

CAT calculated for a 25.000 peso 3-year term revolving credit line.

	CAT
Banco Inbursa - Efe Oro	29.5%
Ixe Banco – Oro	35.7%
Banco Mercantil del Norte - Oro	49.6%
Scotiabank Inverlat - Dorada	50.0%
BBVA Bancomer - Oro	52.0%
American Express Bank - Gold Card	57.0%
Banco HSBC - Oro	58.1%
Banco Nacional de México - Oro	62.3%
Banco Santander - Oro Tradicional	76.8%

Figures as of April 2008.
Source: Condusef.
http://portalif.condusef.gob.mx/tarjetas/calc_comp.php

Commercial Credit Cards

CAT calculated for a 10 thousand peso 3-year term revolving credit line with monthly payments.

	CAT
Cetelem (Sofol)*	38.6%
Coppel (Store)	39.0%
El Palacio de Hierro	54.0%
Sears	54.0%
Mixup	54.0%
Liverpool	62.6%
C&A Modas	83.3%

Figures as of April 2008.
*Provided to Banco de México by the intermediary.
Source: Profeco.

Consumer Durable Loan

CAT calculated for a loan to buy a 184,000 peso car with a 30 per cent down payment with 36 monthly payments.

	TAC
Banco Autofín	17.2%
Banco HSBC	17.8%
Banco Mercantil del Norte	18.2%
Banco Inbursa	18.6%
Banco Afirme	19.1%
Scotiabank Inverlat	19.1%
Banco del Bajío	19.6%
Banco Nacional de México	21.1%
BBVA Bancomer	21.3%

Figures as of May 2008.
Source: Condusef.
http://portalif.condusef.gob.mx/condusefautomotriz/sca_valor_vehiculo.php

CAT for a loan to buy an audio system with an approximate value of 7,700 pesos, in weekly fixed payments, for 48 and 52 weeks.

	CAT
Famsa (Store)	43.5%
Mega Elektra	97.3%
Wal Mart (Store)	167.4%
Bodega Aurrera	171.5%
Gigante	310.7%

CAT for loans to acquire a washing machine with an approximate value of 5,000 pesos, in weekly fixed payments, for 48 and 52 weeks.

	TAC
Famsa (Store)	98.2%
Viana	98.3%
Mega Elektra	160.8%
Wal Mart (Store)	167.3%
Gigante	171.1%
Bodega Aurrera	171.4%

CAT for loans to buy a washing machine with an approximate value of 4,800 pesos, in fortnightly fixed payments, for 12 and 24 fortnights.

	CAT
Famsa (Tienda)	86.1%
Wal Mart (Tienda)	168.1%
Salinas y Rocha	214.1%

Figures as of April 2008.
Source: Profeco.
http://www.profeco.gob.mx/pagos/cpfcostos.asp

Personal Loans

CAT calculated for a 20,000 peso loan with 72 fortnightly payments.

	CAT
Scotiabank	34.5%
Banco del Bajío	40.0%
Banco Regional de Monterrey	50.4%
Banco Mercantil del Norte	56.0%

CAT calculated for a 20,000 personal payroll loan for no specific purpose with 12 monthly payments.

	CAT
BBVABancomer	35.6%
Cetelem (Sofol)	57.9%
Banco del Ahorro Famsa*	95.6%
Banco Wal-Mart*	104.9%

Figures as of May 2008.
*Provided to Banco de México by an intermediary.
Source: Intermediary webpages.

Simulators for Calculating CAT:

Credit simulators are used to calculate CAT for specific characteristics of the loan (amount, term, frequency, down payment) and the borrower (age, income).

Following are Web sites of different publicly available CAT simulators:

CAT Calculator
(http://www.banxico.org.mx/CAT/index.html)

Mortgage Credit Simulator: Banco de México
(http://www.banxico.org.mx/ccth11/ccth1.jsp)

Mortgage Credit Simulator: Condusef
(http://portalif.condusef.gob.mx/condusefhipotecario/index.php)

Mortgage Credit Calculator: Conavi
(http://estadistica.conafovi.gob.mx/simula5/)

Automobile Credit Simulator: Condusef
(http://portalif.condusef.gob.mx/condusefautomotriz/sca_simulador_5.php)

Credit Card Simulator: Condusef
(http://portalif.condusef.gob.mx/tarjetas/index.php)

Pawn Broker Calculator: Profeco
(http://www.profeco.gob.mx/encuesta/brujula.asp)

Fixed Payment Credit Calculator: Profeco
(http://www.profeco.gob.mx/pagos/cpfpagos.asp)

CAT figures are given in this Box to illustrate the use of this methodology in the types of credits contained in the Law for the Transparency and Regulation of Financial Services (Ley para la Transparencia y Ordenamiento de los Servicios Financieros).

1. European Competition Commission (2006), "Interim Report II: Current Accounts and Related Services".
2. United Kingdom Department of Trade and Industry (2004), "The effect of interest rate control in other countries".
3. United Kingdom Competition Commission (2006), "Home Credit Market Investigation".
4. United Kingdom Treasury Department (2004), "Promoting Financial Inclusion".

Box 36

Basic Accounts

International Experience

International experience of bank accounts designed to cover sectors of the population whose low income levels routinely exclude them from banking services abounds. Services offered by these basic accounts are limited and homogenous. Besides being offered at a low price, this facilitates comparison between accounts and improves transparency in the system.

Several countries, including Canada, the United States, France, South Africa, Brazil, Australia and the United Kingdom, have introduced low-cost accounts. These provide basic services in order to extend banking services to low-income sectors of the population or to reduce exclusion of certain groups from the financial system. Internationally speaking, the recent cases of South Africa and Brazil are significant, as both countries introduced a product with these features in 2004. Firstly, the "*Mzansi*" account was introduced in South Africa. This account includes, among other features, deposits, withdrawals and debit payments. Charging fees for account management is not allowed and at least one free deposit per month is offered. As a result, there are currently more than 3 million accounts, and 91 percent of account holders are new to the bank where they opened their account, according to the Banking Association of South Africa. Secondly, Brazil announced the creation of Banco Popular do Brasil in September 2004. The task of this subsidiary of Banco do Brasil is to offer financial services to low-income sectors of the population. The *cuenta simplificada*, is one such service. It is intended for individuals, and allows cash withdrawals, deposits and direct payments. Moreover, no commission is charged for opening an account or account management, and 4 deposits, 4 withdrawals and 4 account statement deliveries are provided for free. As is the case in South Africa, the number of these accounts has grown very quickly, with around 7,000 new basic accounts per day over the first nine months of operation.

The Mexican Experience

A constant cause for concern for Mexican Congress and the financial authorities in recent years has been how to make banking services available to low-income groups and make it easier to compare fees and commissions charged by the banks. The Credit Institutions Law (Ley de Instituciones de Crédito, LIC)[1] was modified in 2007 in order to: i) set forth the obligation for banks receiving deposits from the public to offer the *cuentas bancarias básicas* service, and ii) authorize Banco de México to determine the specific features of these products through general provisions.[2] Basic accounts began to be offered based on these regulations in December 2007. Two types of basic accounts are defined in the rules issued by Banco de México: one for the general public and another for payroll. Both types of accounts must offer the following services at no cost:

- Account opening and maintenance
- A debit card for the account holder
- Replacement of the card
- Funds may be deposited in the account by any means
- Cash withdrawals from the ATMs of the bank where the account was opened[3]
- Payment of goods and services through the debit card in affiliated businesses
- Balance enquiries at ATMs of the bank holding the account
- Direct debit payment of services to providers who allow this
- Account closure

Basic accounts may include additional services that banks may charge fees for. However, they are optional for customers.[4]

There are certain differences between each type of account. The payroll account may only be opened at the bank where the employer has contracted the payroll distribution service. On the other hand, accounts for the general public may be opened at the bank of the customer's choosing. Moreover, the regulations allow banks to set a minimum average monthly balance (AMB) in accounts for the general public, while this is not permitted in those for payroll. The bank may not charge fees to account holders that do not comply with the established AMB. However, the bank may close the account if the customer does not comply for three consecutive months. The following table specifies the AMB required by different banks currently offering the service. Many banks do not require an AMB.

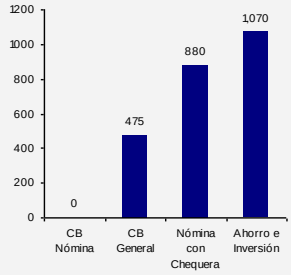
Minimum Average Balances (pesos)

Institución	Saldo promedio mínimo	Institución	Saldo promedio mínimo
Ahorro FAMSA	0	Bajío	500
American Express	0	Banamex	1,000
Banco Amigo	0	BBVA Bancomer	1,000
Bancoppel	0	Mifel	1,000
Banco Ve por Más	0	Santander	1,000
Banco Wal-Mart	0	Scotiabank	1,000
Banorte	0	Multiva	1,500
Banregio	0	Inbursa	1,577
Bansi	0	Banco del Ahorro Nac.	2,000
HSBC	0	Interacciones	2,000
Azteca	200	Banco Autofin	3,000
Banjercito	250	IXE	3,000
Afirme	500		

Figures as of December 2007
Source: Banco de México

Banks require that the deposits made in a month in basic accounts for the general public do not exceed the equivalent of 165 minimum monthly wages for the Federal District. The purpose of this restriction is to make sure that only low-earning individuals benefit from basic accounts.[5] Nearly 6.5 million basic accounts had been opened by March 2008. However, most accounts are not new, as some institutions adapted a previously-existing product to the rules for basic accounts, and kept account holders in them. One benefit of this change for consumers is that basic accounts are cheaper.

Weighted Average for Minimum Balance (2002 pesos)



Figures as of December 2007
Source: Banco de México

1. Article 48 A 2.
2. Banco de México (2007), "Reglas a las que deberán sujetarse las instituciones de crédito respecto de las cuentas básicas de nómina y para el público en general, a las que se refiere el artículo 48 Bis 2 de la LIC".
3. If the institution does not have ATMs installed or functioning when the account holder wishes to use them, the institution is obliged to offer this service in the branch at no cost.
4. The amount of fees for additional services must not exceed the minimum fee charged by the bank for the same service in other accounts.
5. If deposits exceed the specified limit on three consecutive occasions, the bank may charge fees to the account.

6. Other Intermediaries

This section examines the situation of Afores and insurance companies.

6.1. Pension Fund Managers (Afores)

At the end of March 2008, the total amount of funds managed by Afores had risen to 876.2 billion pesos, which accounts for 7.6 percent of GDP.[147] In the same month, the Retirement Savings Systems Law (Ley de los Sistemas de Ahorro para el Retiro, LSAR) was amended to simplify price comparison between the different options available to workers and to increase the importance of pension funds' yield in the selection of an Afore. The main amendments were:

i) Elimination of fees on flows.[148]

ii) Focus on net yield[149] as the variable on which workers should base their Afore selection.[150]

iii) Modification of transfer regulations.[151]

These amendments will make it possible to compare fees and commissions and reduce costs used to persuade workers to change Afore. It is expected that this measures will reduce fees, thereby offering workers greater benefits.

However, fees on flow allowed new Afores to recover their investment more rapidly, thus, the new regulation might discourage new players from entering the market.

[147] The total amount of managed funds corresponds to Specialized Retirement Fund Investment Firms (Siefores) net assets.

[148] Prior to these legal changes, Afores could charge fees on flow and asset-based fees. Thus, it was difficult to compare charges between Afores. With the implementation of a single type of fee, comparison between Afores is immediate and transparent.

[149] The new rules allow workers to transfer their funds twelve months after entering or changing Afore. Any change can be made before the twelve months pass by, but only to an Afore with a higher Net Yield Ratio. Once this right has been used, workers must stay with the chosen Afore for at least twelve months. This guarantees that transfers made before the established twelve month period, will benefit the worker, and bad practices will also be reduced.

[150] Workers that have been affiliated to the Mexican Social Security Institute (*Instituto Mexicano del Seguro Social,* IMSS) but have not yet exercised their right to choose an Afore will be assigned by the Consar to one of the Afores offering the best net yield ratio. Previously, the assignation was made according to the fee equivalent to one year. This procedure has two inconveniences: first, the equivalent fee was calculated on the basis of assumed worker characteristics, and if the characteristics of a particular worker were different from those of the representative worker, the equivalent fee did not reflect the true cost. Second, this criterion did not consider the net yield ratio of each Afore, even though this variable, as shown in our analysis, might be more important in calculating the worker pension than fees.

[151] The previous regulations specified that workers had to wait one year before switching from one Afore to another. However, they were allowed to switch to an Afore charging lower fees and commissions before this timeframe elapsed. This situation produced a very high number of transfers. The new rules maintain the one-year waiting period, and switches may be made before this deadline but only once and it must be to an Afore offering a higher net yield. The new regulations also give the Consar Board of Directors the future option of reducing the period required to make a transfer. A total of 3.5 million switches were made in 2007, which means that on average one out of ten workers changed Afore in 2007.

Furthermore, since March 2008, each Afore can offer five Specialized Retirement Fund Investment Firms (Siefores) with different risk profiles, and workers' funds will be managed by a specific Siefore depending upon their ages. The older they are, the lower the risk[152], so Siefores with savers furthest from their retirement date may take on more exposure to risk, which will be offset in the long term by greater yield. This measure also allows investment funds to offer a more attractive portfolio that is suitable with the investment timeframes of different worker age groups.

Historical Profitability of Afores

In 2007, the downward trend in profitability of Afores, as measured through ROE, continued. A lower scattering between Afores with higher and lower ROE was also noted (Graph 79a). However, in comparison with the previous year some significant qualitative differences emerged. Income from fees and commissions stopped declining and there was a slowdown in the growth of administrative costs. These trends might be the result of a higher volume of assets under administration and greater supervision of transfer practices. Despite the reduced growth in expenses and the slowdown in the contraction of income from fees and commissions, the efficiency index[153] continued to worsen, rising from 57.7 percent in 2006 to 62 percent in 2007.

Performance

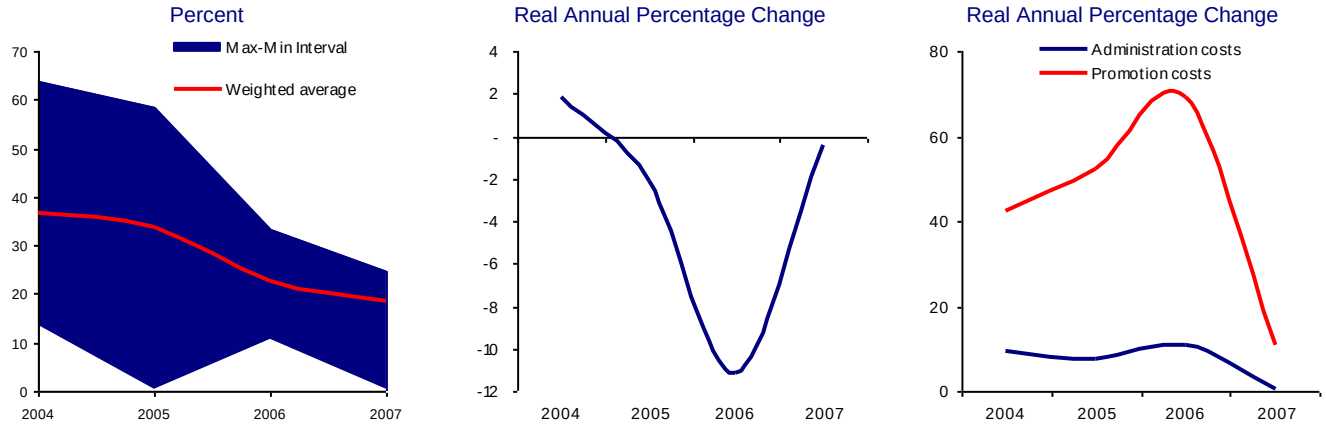
The performance of an investment is usually assessed in terms of its rate of return. The complex structure of fees that was in force until March 2008 caused that the rate of return was highly sensitive to its calculation methodology. Subsequent changes to the law simplified this calculation, making comparisons simpler and more transparent.

[152] Workers are assigned to one of the five basic Siefores in accordance with their age: workers up to the age of 26 are assigned to the Basic 5 Siefore; workers between 27 and 36 to the Basic 4 Siefore; those between 37 and 45 to the Basic 3 Siefore; those who between 46 and 55 to the Basic 2 Siefore and those over the age of 56 to the Basic 1 Siefore. Risk-averse workers may choose a more conservative Siefore. However, they cannot select a Siefore with a higher risk profile than the one corresponding to their age.

[153] The efficiency index is defined as the ratio between administrative expenses and total income.

Graph 79
ROE, Income from Fees and Commissions and administrative expenses (Seven Largest Afores)

a) Return on Equity (ROE) b) Income from Fees and Commissions c) Administrative expenses



Figures as of September 2007.
Source: Consar.

Management yields

Afores manage their affiliates' funds according to Consar's Investment Guidelines. The management yield is used to measure percentage increases in Siefores share prices before asset-based fees are charged. Table 13 shows the structure of account balance fees and of fees on flow. Table 14 shows the annual management yields in real terms of total resource invested by Siefores between August 1998 and December 2007.

Affiliates' yields

Management yields only indicate the performance of Siefores regarding resource management and not in terms of the yield obtained by affiliates on the whole. Table 15 shows the affiliates' yields between 1998 and December 2007.[154],[155] Affiliate resources include SAR 92 transfers made between 1998 and 2007.

[154] The yield shown refers to the entire system, and not just to a particular affiliate. Affiliate yields will depend on contribution wage, the frequency of contributions, the funds transferred from SAR 92 and the Siefore savings.

[155] The methodology explained in Box 18 of the 2006 Financial System Report was used for this calculation.

Table 13
Structure of Fees
Percent

Pension fund Managers	On Flows[1/]			Asset-based		
	2006	2007	2008[2/]	2006	2007	2008[2/]
Actinver[3/]	15.7	15.5	NA	0.2	0.2	NA
Afirme Bajío	9.5	9.5	0	0.2	0.2	1.70
Ahorra Ahora	13.8	10.8	0	0.2	0.2	3.00
Argos	16.5	14.9	0	0.3	0.1	1.18
Azteca	13.8	13.8	0	0.4	0.4	1.96
Banamex	11.5	11.5	0	1.5	1.5	1.84
Bancomer	18.5	18.5	0	0.5	0.5	1.47
Banorte Generali	19.2	10.8	0	0.4	1.1	1.71
Coppel	14.2	14.2	0	0.3	0.3	3.30
De la Gente[3/]	13.8	12.3	NA	0.3	0.3	NA
HSBC	21.5	11.5	0	0.4	1.2	1.77
Inbursa	7.7	7.7	0	0.5	0.5	1.18
ING	20.3	10.8	0	0.3	1.5	1.74
Invercap	15.8	12.3	0	0.2	0.4	2.48
Ixe	16.9	11.7	0	0.3	0.3	1.83
Metlife	18.9	18.5	0	0.3	0.7	2.26
Principal	24.6	24.6	0	0.4	0.4	2.11
Profuturo GNP	25.2	24.6	0	0.5	1.2	1.96
Santander[3/]	19.7	10.8	NA	0.5	1.5	NA
Scotia	18.8	18.8	0	0.3	0.3	2.33
XXI	20.0	9.2	0	0.2	1.5	1.45
Average	17.0	13.9	0	0.4	0.7	1.96

Source: Consar
1/ This commission is obtained by dividing the fee on the contribution wage (Salario Base de Cotización, SBC) flow by 0.065.
2/ Fees in force as from March 28, 2008.
3/ These Afores are no longer listed: Actinver merged with Metlife, Santander with ING and Afore De la Gente transferred its operations to Pensionissste.

The difference between the two columns in Table 14 indicates the importance of the fees' structure. The fee on flow is relatively insignificant for workers with little seniority, and it is no coincidence that affiliates from new Afores (mostly workers who have not been in the system for very long) have lower yields (Table 15). Affiliate's yields will approach those of the Siefore they belong to once fees on flow disappear.

Affiliates' yield differs from the Net Yield Ratio published by Consar, because of methodological differences. Affiliate yield is an *ex post* estimation of Afore performance, from the moment it is created and considering the fees and commissions in force at any given time. Consar's net yield ratio[156]: i) only considers yield over the last 36 months, ii) focuses on management yields, and iii) considers only fees currently in force.

[156] The net yield published by Consar considers yield for the last 36 months and asset-based fees in force.

Table 14
Management and Affiliates' Yield
Real Annual Percent

Year	Management Yield	Affiliates' Yield
1998	5.9	-0.1
1999	13.6	8.2
2000	7.6	3.4
2001	12.9	9.0
2002	5.0	1.9
2003	6.5	3.7
2004	1.7	-0.6
2005	7.7	5.5
2006	8.6	6.7
2007	2.5	0.8
Average 1/	7.2	3.8

Source: Banco de México.
1/ Average corresponds to the geometric mean of annual yields for the whole system.

Table 15
Affiliates' Yield
Real Annual Percent

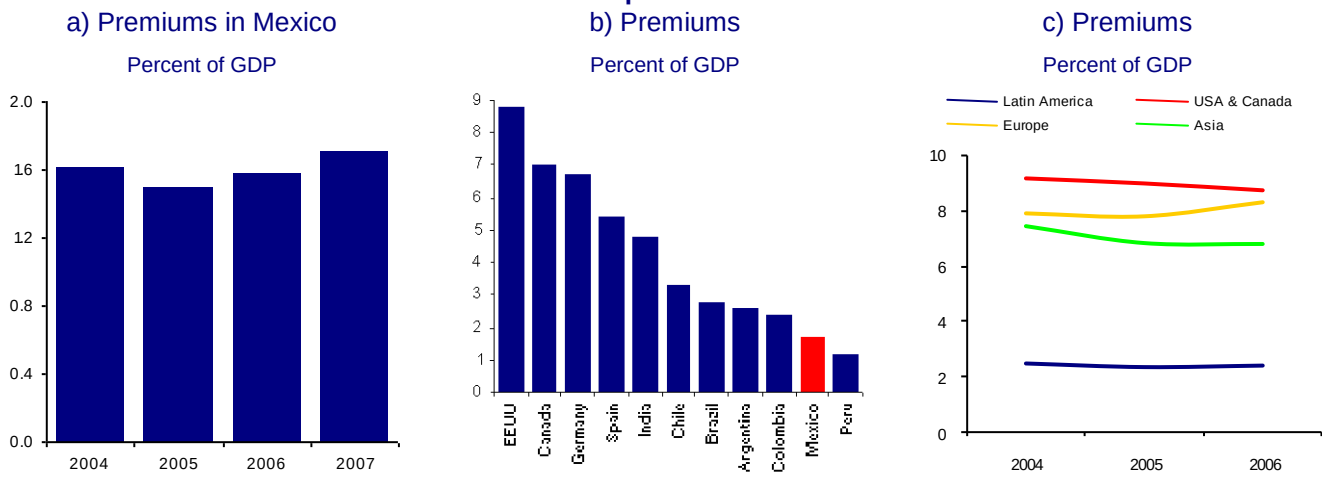
Pension Fund Manager	Average Management Yield[1/]		Historical Affiliates' Yield	
	2006	2007	2006	2007
Actinver[2/]	4.5	4.5	-0.6	-0.6
Afirme Bajío[4/]	3.8	4.2	1.1	1.1
Ahorra Ahora[5/]	0.0	3.4	0.0	-11.5
Argos[5/]	0.0	0.0	0.0	0.0
Azteca[2/]	4.0	4.1	-1.0	-1.0
Banamex	8.3	8.0	4.8	4.8
Bancomer	7.5	7.2	4.1	4.1
Banorte Generali	7.6	7.3	3.5	3.5
Coppel[5/]	0.0	3.4	0.0	-6.4
De la Gente[5/]	0.0	4.0	0.0	0.0
HSBC	7.5	7.3	3.7	3.7
Inbursa	6.7	6.5	5.1	5.1
ING	7.8	7.6	3.8	3.8
Invercap[4/]	5.3	5.5	1.6	1.6
Ixe[3/]	5.7	5.3	1.1	1.1
Metlife[4/]	4.2	5.0	0.8	0.8
Principal	7.8	7.5	4.4	4.4
Profuturo GNP	8.6	8.2	4.3	4.3
Santander	7.9	7.6	2.6	2.6
Scotia[5/]	0.0	2.8	0.0	0.0
XXI	7.9	7.6	4.4	4.4
Average	7.5	7.3	4.0	3.9

Source: Banco de México.
1/ Geometric mean of real annual yields between August 1998 and December 2006 and 2007. 2/ Data as from 2003 . 3/ Data as from 2004. 4/ Data as from 2005 data. 5/ Data as from 2006.

6.2. Insurance Companies

In December 2007, there were 95 authorized private insurance companies[157] managing 6 percent of total financial system's assets.[158] This statistic includes two reinsurance companies and a mutual insurance company.[159] During the last three years there has been an increase in the volume of assets managed by insurance companies. However, market share for this sector in the whole financial system has remained relatively low. Direct premiums[160] increased their share of GDP from 1.1 percent in 1990 to 1.7 percent at the end of 2007 (Graph 80a). Direct premiums in Chile, Brazil and Argentina, account for 3.3, 2.8 and 2.6 percent of GDP, respectively. In the United States and Canada the figure stands at 9 and 7 percent, respectively (Graph 80b and c).

Graph 80
Market Development Indicators



Figures for México, December 2007 and for other countries. December 2006.
Source: National Commission for Insurance and Bond Companies (Comisión Nacional de Seguros y Fianzas, CNSF) For the rest of the countries, Aseguradora Sigma, Swiss Re (2006), "Premiums came back to "life"", 4/2007.

Life insurance direct premiums are another indicator of development in this sector. In December 2007, these accounted for less than one percent of GDP in Mexico. In contrast, the corresponding figure for the United States and Canada is 4.0 percent, 4.5 percent in Europe and 5.2 percent in Asia.

The rate of growth in the insurance sector has increased in recent years. In 2007, premiums grew by 12.1 percent in real terms. Although the increase is lower than in 2006 (13.6 percent) it was superior to the real rate of growth observed during 2004 and 2005 (Graph 81a).

[157] There is also a public institution called Agroasemex currently in operation.

[158] See Graph 46a in the Commercial Banks Section.

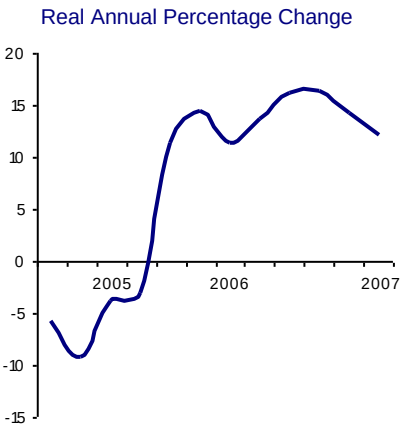
[159] A mutual insurance company (sociedad mutualista) is an insurance company formed through a partnership between different parties who spread between them the risks they face individually. It sets the amounts each member must contribute in order to offset any individual or collective damages or losses.

[160] The premium is the amount charged by the insurance company to the policyholder in exchange of the coverage provided. The premiums written correspond to policies underwritten by an insurance company. Direct premiums written do not include premiums generated by another insurance company or the premiums ceded to another insurance company.

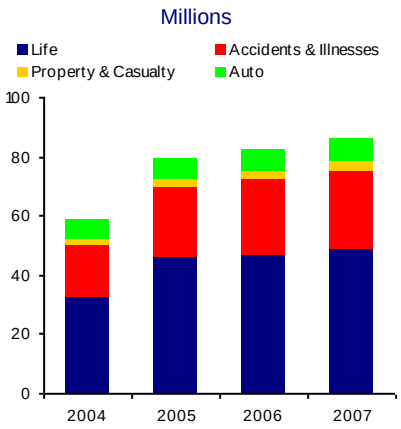
The number of policies sold grew from 58 million in 2004 to 82 million in December 2007 (Graph 81b). The life insurance sector accounted for 56 percent of all policies sold (48 million policies), followed by accidents and illnesses (31 percent). The number of pensions[161] paid out also increased from 134,734 in 2004 to 160,969 in December 2007, with the average pension standing at about 2,100 pesos per person (Graph 81c). Auto insurance has become the most popular insurance coverage in recent years. Approximately 47 percent of cars were insured in 2006.[162]

Graph 81
Insurance Sector Indicators

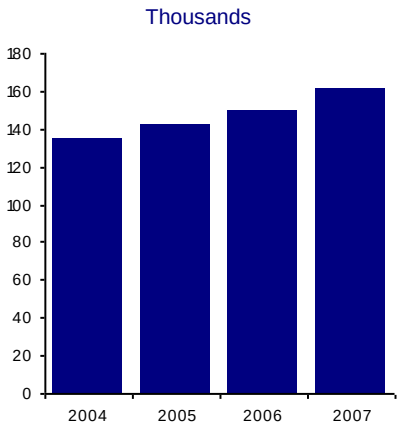
b) Premiums



b) Number of Policies Sold



c) Number of Pensions Paid Out



Figures as of December 2007.
Source: CNSF.

However, coverage remains low concerning other types of insurance. For instance, in December 2007 only 16 percent of the economically-active population had an individual life insurance policy, and just 1.4 percent had acquired an insurance plan to face medical expenses for unexpected illnesses and accidents. Although the acquisition of health maintenance policies is growing the coverage is still not significant (Table 16).

The prevention culture in Mexico is still deficient. Furthermore, the low income levels of large sectors of the population make it difficult to acquire an insurance policy. The introduction of mass insurance, known as micro-insurance, could play an important role in the development of the sector and in the promotion of a prevention culture. The simplicity and low cost of these instruments would allow low-income sectors of the population to buy coverage, as well as small and medium-sized firms. In other countries, the supply of this type of insurance has focused on life insurance policies acquired| to guarantee credit payments. Yet the potential market is much broader and includes life, health and funeral insurance. Micro-insurance development is just starting in Mexico, and few insurance companies have so far entered this market (Box 37).

[161] It refers to the pensions for invalidity, permanent incapacity or death paid by the insurance companies in accordance with the new Social Security Law.

[162] This behavior is partly explained by the fact that people using loans to buy cars must acquire auto insurance (which protects the vehicle) and life insurance (which guarantees debt repayment if the borrower dies).

Table 16
Insurance Penetration Indicators in Mexico

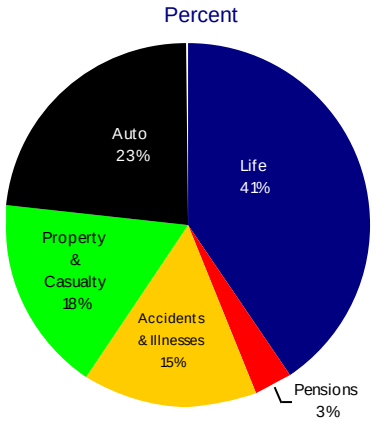
	2000	2006
	Percent	Percent
Life Insurance / Working Population	9.5	15.9
Auto Insurance / Number of Cars	36.0	47.0
Maintenance Health Insurance / Total Population	0.1	0.3
Individual Insurance for Medical Expenses for unexpected illnesses and accidents / Total Population	0.6	1.4
Group Insurance for Medical Expenses for unexpected illnesses and accidents / Total Population	2.2	3.8

Source: CNSF, the Mexican Association of Insurance Institutions (Asociación Mexicana de Instituciones de Seguros, AMIS) and the National Institute of Statistics, Geography, and Information (Instituto Nacional de Estadística, Geografía e Informática, INEGI)

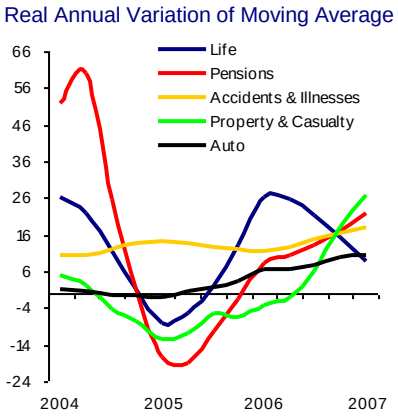
Insurance may be classified into: personal insurance and property and casualty insurance (Table 38). Most of the premiums paid in 2007 were for life insurance, which made the largest contribution to the total number of policies issued. Auto and property insurance came next in terms of importance. In the property sector, excluding auto, just over one-third of premiums were issued to cover risk of fire and 21 percent to cover earthquakes (Graph 82).

Graph 82
Structure of Direct Premiums

a) Structure of Premiums



b) Direct Premiums[1/]



Figures as of December 2007.
Source: CNSF.
1/ Direct Premiums do not include premiums ceded or premiums taken from other insurance companies. Information on property and casualty premiums does not include auto insurance. The accidents and illnesses sector includes health maintenance sector.

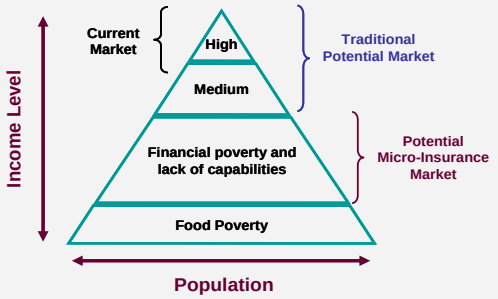
Box 37

Micro-insurance[1]

Potential Market

Illness, unemployment and death are the greatest risks faced by the poorest sectors of the population. To face any of these adverse events, these demographic groups tend to cut spending on food and children's education, sell animals or productive assets or even take extremely onerous loans. These actions considerably affect their standard of living and sometimes even exacerbate their level of poverty.

Under these circumstances, micro-insurance may be useful for decreasing the vulnerability of these sectors to adverse events. There is a big potential market, as insurance companies have so far focused in the medium and high income sectors.



Source: Martínez, L. (2007), "Estrategia para el desarrollo del Microseguro en México", Seminario de Microseguros AMIS-FIDES.

Development of microinsurance faces certain difficulties in Mexico. On the supply side, the costs of issuance and collection are high and traditional distribution channels are not quite effective. Products are not well-designed and there are no regulations to simplify the requirements for this particular market. Furthermore, there are no reliable statistics on claims and mortality for the sector that micro-insurance is aimed at, which makes it difficult to decide the level of premiums to be charged.

On the demand side, there is little experience and knowledge of insurance among the poorest sectors. This means the population is unaware of the benefits that an insurance policy can offer to improve their standard of living. There is also some mistrust as to the ability of insurance companies to fulfill the insurance agreement. The regulatory framework must therefore promote the use of contracts easy to understand for people with scarce or no financial knowledge.

Features of Micro-insurance

In order to develop microinsurance market, it is necessary to change common practices. Products must be simple and the relationship with the customer should be more personal. Insurance agents should generally reside in the same community, which would give them important knowledge concerning the needs and background of potential buyers. The alliances forged between insurance companies and micro-financial companies have worked well.

The extent of the coverage must be variable so, for example, a farmer could buy coverage just for the sowing cycle or during the rainy season.

Contracts must also contain few exclusions and claims must be paid within a very short period.

In order to keep premiums low, it is essential for insurance companies to generate large volumes of business and adequate diversification in order to guarantee profitability and solvency.

Differences Between Conventional Insurance and Micro-insurance

Conventional insurance	Micro-insurance
Premium is paid in cash or through direct debit	Premium paid in cash and/or linked to another transaction, such as a loan monthly payment
Sold through insurance companies	Sold by an alliance between an insurance company and an organization, such as a micro-financial company or a government entity
Sales are made by insurance agents	Frequently sold to groups and there is a close relationship between the agent and the community
Targeted to medium- and high-income sectors	Targeted to low-income sectors
Health check-up is carried out	Only a good health statement is required
Large insured amounts	Small insured amounts
Price is based on age and specific risk	Price is frequently fixed for a group or community
Exclusion clauses are set forth	Few or no exclusion clauses
Complex policy	Simple and easy to understand policy
Claim process may be complex due to exclusions set forth in the contract	Simple and quick claim process

Source: International Association of Insurance Supervisors and CGAP Working Group on Microinsurance (2007), "Issues in Regulation and Supervision of Microinsurance".

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1. Sources:

Consultative Group to Assist the Poor (2005), Working Group on Microinsurance. "Mejorar el Manejo de los Riesgos para las Poblaciones Pobres".
Gafner, R. (2007), "Nuevos modelos de seguro para ayudar a más gente a proteger su vida y su dignidad" Seminario de Microseguros AMIS-FIDES.
Illanes, E. (2007), "Relación Microcrédito y Microseguro" Seminario de Microseguros AMIS-FIDES.
International Association of Insurance Supervisors and CGAP Working Group on Microinsurance (2007), "Issues in Regulation and Supervision of Microinsurance"
Martínez, L. (2007), "Estrategia para el desarrollo del Microseguro en México", Seminario de Microseguros AMIS-FIDES.
Rodríguez, A. (2007), "Microseguros como herramienta alternativa de penetración de seguros en países emergentes", Seminario de Microseguros AMIS-FIDES.
Roth, J; McCord, MJ; and Liber, D. (2007), "The Landscape of Microinsurance in the World's 100 Poorest Countries."

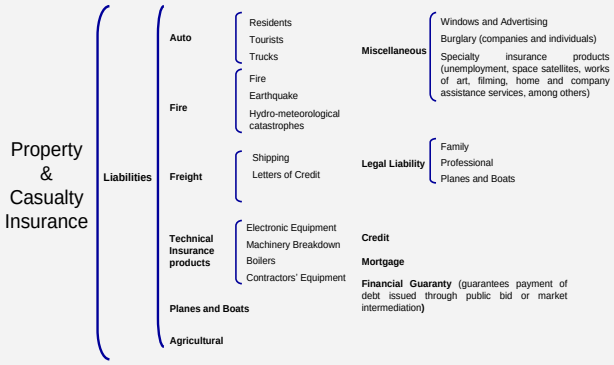
Box 38

Types of Insurance

The General Law on Insurance and Mutual Institutions (Ley General de Sociedades Mutualistas de Seguros), Article 7, specifies the type of insurance and the sectors in which insurance companies may provide their services after obtaining authorization from the Ministry of Finance. There are two main types of coverage that an insurance company can provide: personal insurance and property and casualty insurance. The same institution cannot offer life insurance and liabilities insurance.[1]

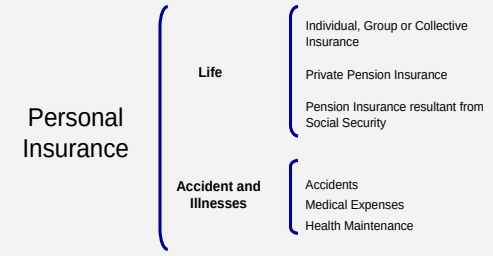
In the liabilities sector it is a common practice to pack products, bringing together insurance from different sectors, in order to cover specific needs, of large, medium and small sized companies or households.

Following are the types of property and casualty insurance that companies may offer:



Health maintenance insurance, pension insurance, credit insurance, mortgage insurance and financial guaranty insurance must be offered by insurance companies authorized to operate exclusively in one of these sectors.[2]

Types of personal insurance are listed below:



1. Insurance companies authorized prior to 2002 to provide life and liabilities insurance were allowed to continue with their operations, however the original authorization may not be modified to include new lines of business.
2. Insurance for Medical expenses for unexpected illnesses and accidents may be provided together with health maintenance insurance. Insurance contracts based on pension or survival plans resultant from social security laws may be provided only by insurance companies exclusively authorized to provide these services. Insurance contracts based on private pension or survival plans relating to age, pensions or retirement must be offered by insurance companies authorized exclusively to offer life coverage.

A total of 38 percent of insurance companies in Mexico are authorized to operate life and non-life insurance together (mixed insurance companies).[163] This is a high percentage compared to Canada, Italy, France and the United Kingdom, where less than 10 percent of insurance companies are mixed. Mixed insurance companies do not operate in Germany and the United States.[164]

Twenty-three of the specialized insurance companies offer property insurance, other 9 are specialized in life insurance and just 2 offer policies to cover for medical expenses for unexpected illnesses and accidents. The 10 insurance companies authorized to offer pension insurance, in accordance with the provisions established by the Social Security Law, are not allowed to offer any other type of insurance. The 13 institutions offering health maintenance insurance operate under this scheme. [165]

[163] In 2002, the General Law of Mutual and Insurance Companies (Ley General de Instituciones y Sociedades Mutualistas y de Seguros) was amended to limit the authorization of new mixed insurance companies.

[164] A total of 4,350 insurance companies operate in the United States, 1,111 of which provide life coverage and 3,239 provide non-life coverage.

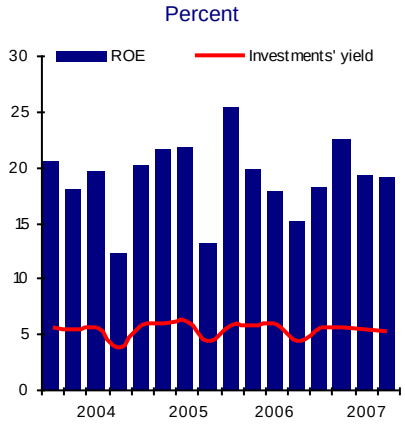
[165] According to the new Social Security Law (July 1997), once the IMSS grants a pensioner the right to receive a pension for invalidity, permanent disability or death, he or she may decide whether the IMSS or a specialized pension company authorized to operate social security pension insurance policies will pay the pension.

Profitability and Efficiency

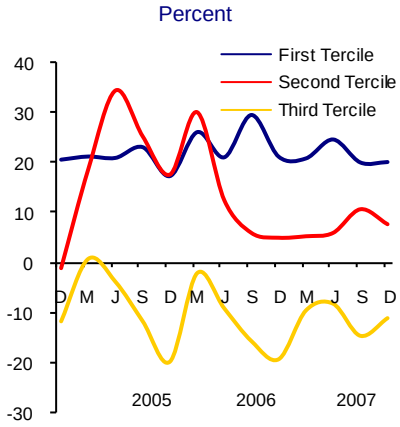
The insurance sector has reached high profitability levels, with ROE up from 15.1 percent in 2006 to 18.6 percent in 2007.[166] This increase in profitability was largely due to the return on investments (Graph 83a). Profitability levels vary among insurance companies, depending on their size. Therefore, for the purposes of analysis, different institutions were grouped into terciles based on capital levels. The ROE of the largest insurance companies stood at almost 20 percent in 2007, a substantially higher return compared to the ratio in 2nd and 3rd terciles (Graph 83b). Mexican insurance company profitability is similar on average to levels in more developed markets (Graph 83c).

Graph 83
Profitability

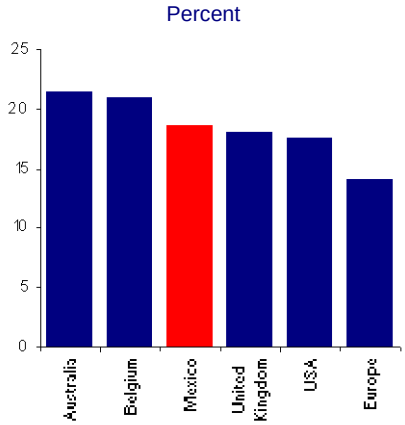
a) Return on Equity (ROE)



b) Net Profit as a Proportion of Average Capital



c) Return on Equity (ROE)



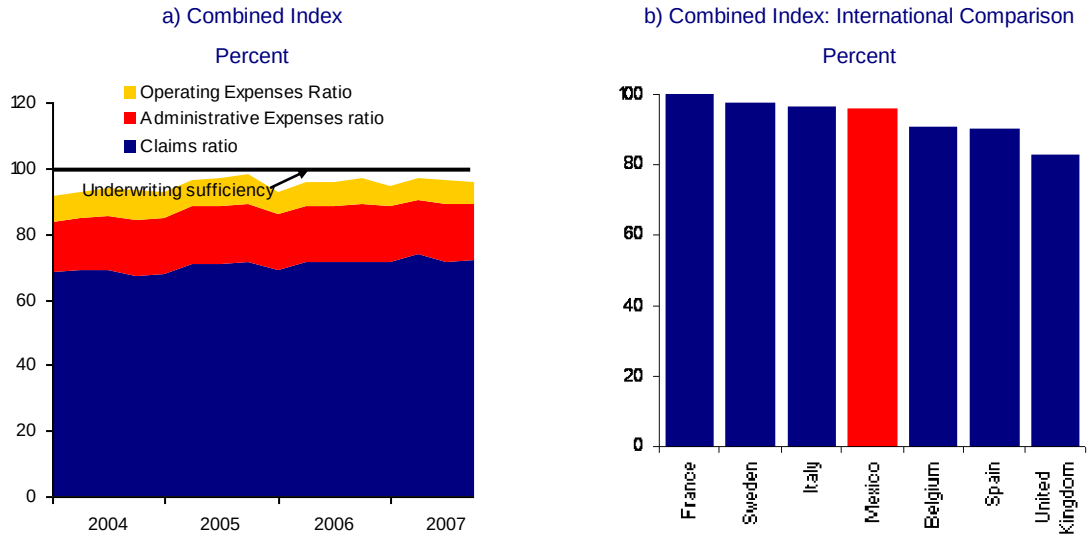
Figures as of December 2007 for Mexico and as of 2006 for other countries.
Source: For Mexico, CNSF. For Australia, the United Kingdom, the United States and Europe, General Insurance and Reinsurance Update (2006), "The Value of Risk-Financing to the Modern Day Organization", Australian Prudential Regulation Authority (APRA). For Belgium, the National Bank of Belgium (2007), "Financial Stability Review".

The combined index measures the technical profitability of an insurance company. It evaluates whether administrative expenses can be covered by the income from premiums.[167] The combined index for the whole insurance industry remained below 100 percent throughout the period studied, and stood at 96 percent in September 2007 (Graphs 84a and b).

[166] This includes pension and health insurance policies.

[167] A combined index score of below 100 percent means that the value of the premium is sufficient to cover premium generation and administrative costs, as well as any losses during the lifetime of the insurance policy. If it is above 100 percent, the insurance company is incurring operational losses. The combined index score is the sum of the following three indicators: a) administrative costs as a proportion of premiums issued, which measures premium investment efficiency by evaluating the insurance company's total spending for each peso of premium issued; b) net acquisition cost as a proportion of premiums retained, which shows direct costs for each peso retained in premiums (premium issued minus premiums), in other words, the direct costs generated by policy sales, and lastly; c) the cost of claims as a proportion of premiums, which measures whether the volume of claims was covered by the income from policy sales once costs from creating reserves were deducted.

Graph 84
Efficiency



Figures as of December 2007 for Mexico and as of 2006 for other countries.
Source: CNSF for Mexico, for other countries Committee of European Insurance and Occupational Pensions Supervisors (CEIOPS).

The claims ratio is the main combined index component. This indicator measures the sufficiency of premiums received and the volume of policies sold to pay for claims covered by the insurance company during a certain period. Insurance companies have had to pay out considerable sums in recent years due to hydro-meteorological disasters in Mexico (Box 39).[168] Nonetheless, the sector has maintained high profitability and solvency levels. It should also be noted that, unlike in other countries, Mexican insurance companies do not have guaranty funds.[169]

Insurance companies must comply with certain regulatory requirements to calculate the minimum required capital[170] and the level of technical reserves, as well as the investment of their resources. In 2007, 22 percent of insurance companies maintained a technical reserves coverage ratio of more than 1.5. As

[168] AMIS (2007), "Informe Trimestral".

[169] In the United Kingdom, the Statutory Fund of Last Resort covers, among other things, policies issued by insurance companies and insurance company bankruptcy. The role of the Insurance Compensation Consortium (Consorcio de Compensación de Seguros) that operates in Spain includes winding up insurance companies. In the United States, there are two Insurance Guaranty Associations, one specifically for life and health insurance and another for damage coverage. These are state agencies set up to protect the policyholders of an insolvent insurance company. The Policyholder Protection Corporation operates in Japan. Assuris in Canada is a non-profit organization that protects policyholders if their life insurance company becomes insolvent.

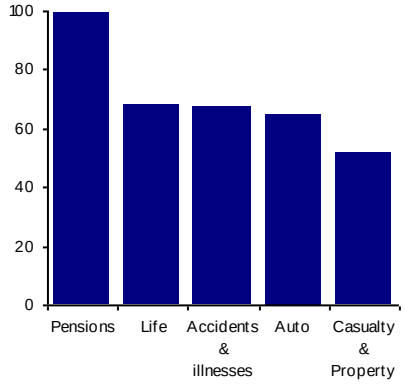
[170] The minimum required capital established by the regulation is intended to guarantee that insurance companies would be able to cover operating risks. The methodology established to calculate this requirement takes into consideration the operation volume, the nature of risks taken, the trend in the claims, as well as, reinsurance and refinancing practices and investments' structure. The Minimum Required Capital Coverage Ratio (Índice de Cobertura de Capital Mínimo de Garantía) is obtained by dividing investments backing the minimum required capital plus the surplus in the investments backing the technical reserves by the company's capital requirement. Ratios higher than one means the investments are sufficient to back the minimum required capital.

for minimum required capital coverage ratio, 52 percent of insurance companies maintain an index score of more than 1.5. [171]

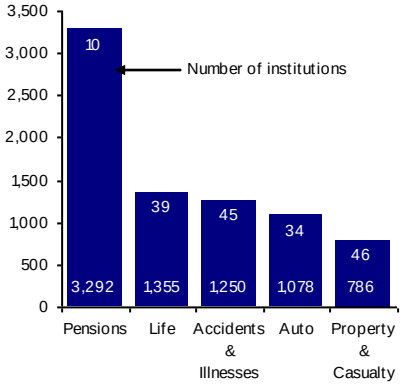
Market concentration is low, and has reduced since 2004. The five largest private insurance companies concentrate 51 percent of premiums issued. In December 2007, the Herfindahl Hirschman Index (HHI) for the industry stood at 690 points. The sector with the highest volume concentration in terms of activity was pensions. At the other end of the scale, property and casualty coverage had the lowest (Graph 85).

Graph 85
Concentration[1/]

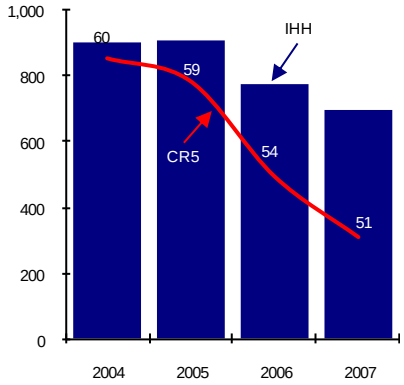
a) CR5[2/] Concentration by Sector



b) IHH[3/] by Sector



c) Insurance Industry CR5[2/] and IHH[3/] Evolution



Figures as of December 2007.
Source: CNSF and Banco de México.
1/ Data for Accident and Illnesses coverage include the Health Maintenance sector. Data for property and casualty coverage do not include auto insurance.
2/ The CR5 concentration index is the sum of the share of the five largest institutions in the industry.
3/ The Herfindahl Hirschman Index (IHH) consists of the sum of squared market shares for each economic agent. The value of this index may range between zero and ten thousand. The higher the index score, the higher the market concentration.

[171] Technical reserves are provisions required to cover underlying risks. These reserves must be backed by investments that comply with adequate conditions of security, profitability and liquidity. When this ratio is higher than or equal to one, it means the institution holds sufficient funds to back its obligations.

Box 39

Catastrophic Risks and their Impact on the Mexican Insurance Industry

In recent years damage caused by weather events and other natural disasters have had a significant impact on Mexican insurance companies.

The Six most Costly Natural Disasters for the Insurance Industry in Mexico
Billion pesos of 2007

Disaster	Year	Cost
1. Hurricane Wilma	2005	19,157
2. Tabasco Floods	2007	6,600
3. Hurricane Gilbert	1997	6,600
4. Mexico City's Earthquake	1985	5,172
5. Hurricane Isidore	2002	3,367
6. Hurricane Emily	2005	3,302

Source: AMIS

In 2005, Hurricane Wilma was responsible for insurance industry losses of more than 19 billion 2007 pesos. In August 2007, Hurricane Dean caused losses of 280 million pesos due to the personal and property claims presented (AMIS).

After hurricanes, the effects of floods are considered the second most devastating event among hydro-meteorological catastrophes. The floods in Tabasco and Chiapas in November 2007 generated insurance company payouts of 6.6 billion pesos, a figure only surpassed by Hurricane Wilma in 2005. The case of Tabasco illustrates the lack of depth of Mexico's insurance industry. In a state with 1,989,969 inhabitants, which accounts for 2.5 per cent of total premiums, only 10 percent of losses were insured. The scale of the Tabasco disaster stands in sharp contrast with the amount that insurance companies will have to pay out. Of the 6.6 billion pesos paid in claims, 140 million corresponded to damage to cars. Only 2,195 of the 22,000 vehicles damaged by the floods were reported to insurance companies, therefore the total amount covered was considerably lower compared to actual damage. Even so, claims arising from the floods amounted for the biggest loss in auto insurance. Also, only 20 percent of houses affected in Tabasco was insured. These were mainly properties recently acquired through home loans.

Damages Caused by the Floods in Tabasco

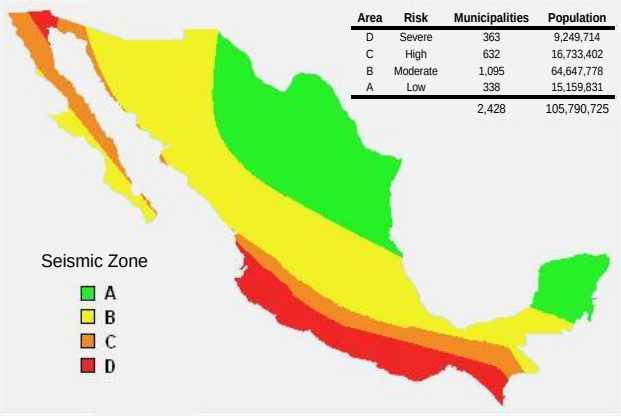
	Claims (number)	Estimated Amount (millions)
Liabilities	7,570	3,713.5
Homes	4,239	963.1
Schools	2,317	416.1
Livestock	673	32.4
Automobiles	2,195	140.2
Small & medium sized firms	297	208.2
Retail Stores	23	878.6
Others	321	235.1
Total	17,635	6,587.2

Source: AMIS (preliminary).

Additionally, only 5 percent of crops in Tabasco were covered against catastrophes.

As for disasters caused by earthquakes, Mexico is one of the countries with the most seismic activity (it centers about 6 percent of total world seismic activity).

Seismic Risk Zones

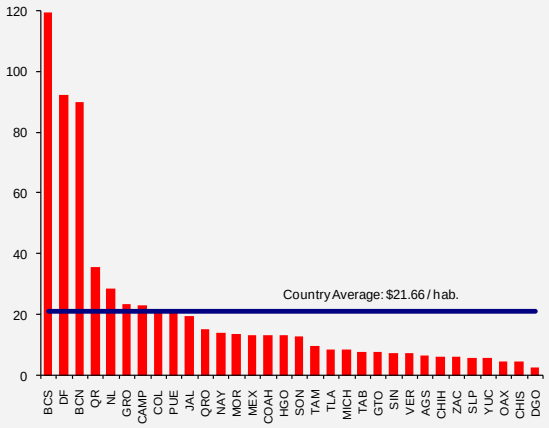


Area	Risk	Municipalities	Population
D	Severe	363	9,249,714
C	High	632	16,733,402
B	Moderate	1,095	64,647,778
A	Low	338	15,159,831
		2,428	105,790,725

Source: Cenapred.

The Mexico City's earthquake of 1985 was the most significant in the country's seismic history. The damages calculated for this disaster stood at 5.172 billion 2007 pesos, the number of people affected came to 130,204 and deaths totaled 7,000.

Amount of Earthquake Premiums per Capita By State



Source: CNSF.

Catastrophe Bond

Insurance companies turn to the capital market to reinsure themselves as an alternative form of protection against catastrophes, thereby minimizing expected losses. The Federal Government issued a bond for protection against catastrophes for the first time in 2006. This bond is the first investment of this type in Latin America and the first in the world issued by a government. By issuing a Catastrophe Bond, the Federal Government obtains funds exclusively for covering disasters. In return, investors buying this bond can receive high rate coupons to offset their investment risk. In the event of a catastrophe, coupon and principal payments would be deferred for investors. The Federal Government has explicitly defined the events and/or limits for which bond funds would be used.

The bond for catastrophes diversifies risk and protects insurance companies, which now have additional source of reinsurance to reduce losses from natural disasters.

Source: SHCP, CNSF, Amis, Cenapred, INEGI, IADB and ECLAC.

Box 40

Solvency Indexes

Minimum Required Capital Coverage Ratio
The minimum required capital (MCR) strengthens the equity of insurance companies in order to improve their ability to cope with unfavorable fluctuations and maintain their financial viability.

MCR is defined as the amount of equity an insurance company must have to face risks and obligations contracted with policyholders, in addition to technical reserves. MCR is calculated as follows:

$$MCR = GSR - D$$

Where:

MCR = Minimum Capital Required
GSR = Gross Solvency Requirement
D = Deductibles

The Gross Solvency Requirement (GSR) is the amount of equity required to face deviations in expected claims, bankruptcy due to insolvency of reinsurance companies, adverse fluctuations in the value of assets and the gap between assets and liabilities. It is calculated as follows:

$$GSR = \sum_{i=1}^{15} Ri$$

Where:
R_i is the solvency requirement for:

(R_1) Life
(R_2) Pension Insurance resultant from Social Security laws
(R_3) Accident and Illnesses
(R_4) Health Maintenance
(R_5) Agricultural and Livestock
(R_6) Auto Sector
(R_7) Credit Sector
(R_8) Legal Liability Sector
(R_9) Other types of insurance related to the liabilities sector
(R_{10}) Bond companies
(R_{11}) Investments
(R_{12}) Earthquake Insurance
(R_{13}) Housing Credit Sector
(R_{14}) Financial Guarantee Sector
(R_{15}) Hurricane Insurance

In accordance with the regulations, insurance companies must cover MCR with investments that comply with the minimum requirements for security and liquidity.

This coverage is known as the Minimum Required Capital Coverage Ratio and must score one or higher.

Technical Reserve Coverage Ratio
Technical reserves are provisions set aside by insurance institutions to ensure liquidity and cover claim payment.

The following technical reserves must be set aside by insurance companies:

a) Reserves for current risks: set aside to cover claims that may take place during the period that the policy is in force.
b) Reserves for unpaid claim liabilities: provisions for claims pending payment.
c) Special reserves (contingency and catastrophic risks, among other): assigned to cover deviations in claims or risks of a catastrophic nature.

Investments backing technical reserves must comply with adequate security and liquidity conditions. Therefore, regulations outline an explicit investment scheme to guarantee high yields while limiting financial risks.

Technical reserves can usually be invested in securities issued or backed by the Federal Government, in securities approved by the National Banking and Securities Commission (Comisión Nacional Bancaria y de Valores), in bank deposits (except for checking accounts) and in mutual funds. They may also use these resources, although in a very limited way, to grant credit and invest in real estate. Regulations set forth that technical reserves constituted in foreign currency must be invested in securities in foreign currency. Moreover, if the insured amount is linked to inflation, the reserves must be invested exclusively in securities offering a guaranteed return higher than or equal to inflation. In all events, investment in private securities requires that all securities are assessed by a credit rating agency.

Insurance companies must comply with certain investment limits depending on the type of security and the type of issuer in order to guarantee adequate investment diversification.

There are no restrictions on investing in government securities. This means that insurance companies may invest 100 percent of their technical reserves in this type of securities. However, in the case of bank securities, they may invest up to 60 percent of their reserves, and hold up to 18 percent with the same issuer. For other types of securities, limits are lower.

Liquidity rules are established in order to guarantee that investments have the correct proportion with respect to the maturity structure of the liabilities. This means all investments to cover reserves for current risks must be made in short-term securities, whereas to cover catastrophic risk reserves only 20 percent of investments need to be made in short-term securities.

The Technical Reserve Coverage Ratio is obtained by dividing the total investment backing technical reserves by the amount of these reserves. When this ratio is higher than or equal to one, it means that investments cover technical reserves and that the insurance company is capable to back its obligations.

7. Payment Systems

This section explores current Mexican payment systems,[172] as well as recent changes to the laws regulating them.

7.1. Large Value Payment Systems

There are three systemically important payment systems:[173]

i) The Banco de México Account Holders Service System (Sistema de Atención a Cuentahabientes de Banco de México, SIAC)

ii) The Electronic Inter-bank Payment System (Sistema de Pagos Electrónicos Interbancarios, SPEI)

iii) The Interactive Security Deposit System (Sistema Interactivo para el Depósito de Valores, SIDV)

The average daily amount of transactions settled in these three systems came to approximately 2.6 trillion pesos in 2007, 18.4 percent up on the previous year (Table 17, Graphs 86a and b).[174] SPEI and SIDV development is examined below.

Table 17
Average Daily Volume and Amount of Large Value Payment Systems 2006-2007

System	Billion pesos				Thousand Operations			
	2006	2007	Annual Change	Share in 2007	2006	2007	Annual Change	Share in 2007
			Percent	Percent			Percent	Percent
SIAC	109	118	8.2	4.6	1,043	1,053	1.0	0.8
SPEI	468	540	15.4	20.9	76,888	117,675	53.0	92.7
SIDV	1,611	1,931	19.9	74.6	7,164	8,265	15.4	6.5
TOTAL	2,188	2,590	18.4	100.0	85,095	126,993	18.4	100.0

Source: Banco de México.

[172] A payment system is a set of instruments, procedures and systems for transferring funds between banks to ensure money circulation. Due to their influence on the stability of the financial system, the payment systems used to settle transactions in financial markets and for obligations generated between the payment systems themselves and financial intermediaries are described as having "systemic importance". Systemically important payment systems that process payments for large amounts are known as "large value" systems. Payment systems used to settle minor obligations, usually between individuals and companies, are known as "small value" systems.

[173] See Banco de México (2007), "2006 Financial System Report" and BIS (2001), "Core Principles of Systemically Important Payment Systems".

[174] These systems process transactions for a value greater than annual Mexican GDP in five days of operation.

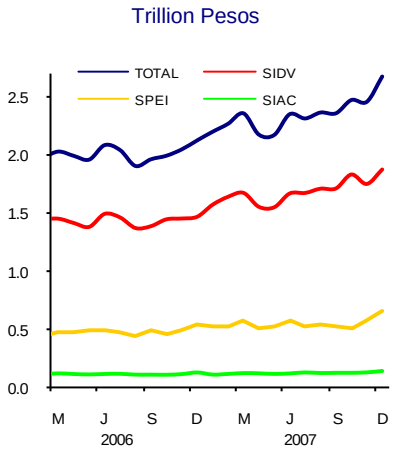
Electronic Interbank Payment System (SPEI)

SPEI is run by Banco de México and is a hybrid payment system offering the benefits of a real-time payment system (immediate final payments) and a multilateral clearing system. SPEI is the main payments system for money transfers (Graph 86c).

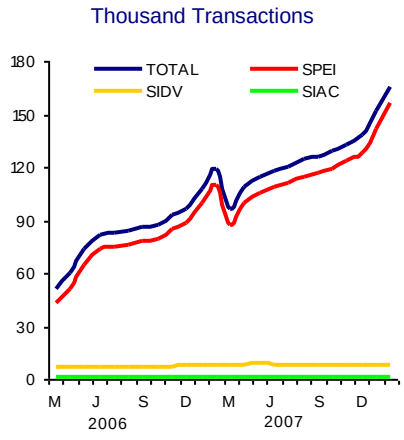
The recent increase in small-value payments was brought about by facilities that SPEI provides to banks for automating payment processes and by banks offering their clients SPEI payment services via Internet. Moreover, Banco de México has allowed non-banking financial institutions to participate directly in SPEI since the end of 2005. As a result, the number of financial institutions participating in SPEI came to 66 at the end of December 2007. A total of 21 of these were not banks (Table 18).

Graph 86
Large Value Payment Systems

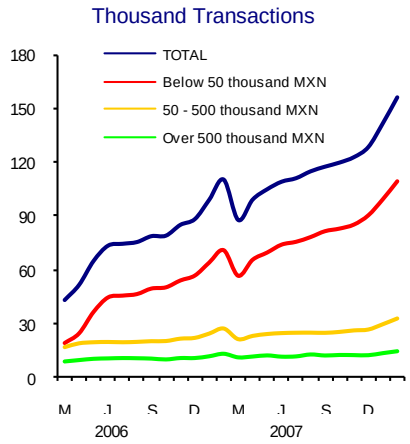
a) Daily Average of Transaction Values



b) Daily Average of Transaction Numbers



c) Daily Average of SPEI Transaction Numbers



Figures as of December 2007.
Source: Banco de México.

Table 18
Number of SPEI Participants

Institution	Number of Participants	
	Dec. 2006	Dec. 2007
Commercial Banks	29	39
Development Banks	6	6
Brokerage Houses	5	10
Exchange Houses	3	7
Pension Fund Managers (Afores)	0	1
Insurance Companies	0	1
Mutual Fund Operators	0	1
Sofoles	0	1
Total	**43**	**66**

Source: Banco de México.

Interactive Securities Deposit System (SIDV)

SIDV is run by S.D. Indeval S.A. de C.V., Institución para el Depósito de Valores, Indeval. This system settles transactions performed with securities in the debt and capital markets. The bulk of the total amount settled in SIDV involves government security transactions (Graph 87). All banks and brokerage houses in Mexico participate in SIDV. Settlement of transactions is carried out under the "Delivery versus Payment" model.[175]

SIDV has design defects that entail serious risks and prevent it from following best international practices for systems of this type (Box 41).[176] Banco de México has therefore been encouraging Indeval to develop a new system to replace the current one. In 2004, Indeval began to design and develop a new system, which shall be called the Securities Deposit, Administration and Settlement (Depósito, Administración y Liquidación de valores DALI) system. The DALI system will rely less on manual processes and substantially increase the operational reliability of the securities settlement system.

This drive to replace the SIDV with the DALI system included the development by Indeval of a new mechanism for communicating with participants in 2007. It is known as the Indeval Financial Protocol (Protocolo Financiero Indeval, PFI) and is based on the ISO 15022 standard for exchanging messages. In 2008, Indeval is scheduled to copy securities deposit information to DALI's records and process the instructions of its depositors in both systems over a trial period. Once the trials have been successfully completed, Indeval will announce DALI as the new system for securities deposits.

PFI is better than the communications mechanism used by SIDV, as it makes it easier for system participants to implement fully automatic processing.[177] This alternative will cut transaction settlement costs and errors. Additionally, participants with foreign customer transactions will be able to simplify their processes, as global investors generally use the ISO 15022 standard in their communications.

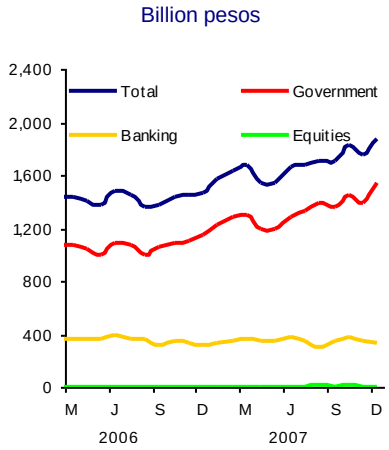
[175] This is abbreviated as DvP. Settlement of transactions in SIDV ensures that participants will not be charged the amount of a transaction to their cash account unless the corresponding certificates are credited and vice versa. The final transfer of securities and funds in the transaction settlement process performed via SIDV is simultaneous at the close of each settlement cycle, when transactions that can be settled are identified. These cycles close very frequently (every 15 minutes at most), so SIDV combines the efficiency of a net settlement system and the security against credit risks of a real-time gross settlement system. SIDV retains any transactions that cannot be settled in a given cycle and tries to settle them in subsequent ones. SIDV does not settle transactions that generate overdrafts in participants' accounts.

[176] For further details, see Banco de México (2007), Evaluación conforme a las recomendaciones para sistemas de liquidación de valores y contrapartes centrales del CPSS-IOSCO.

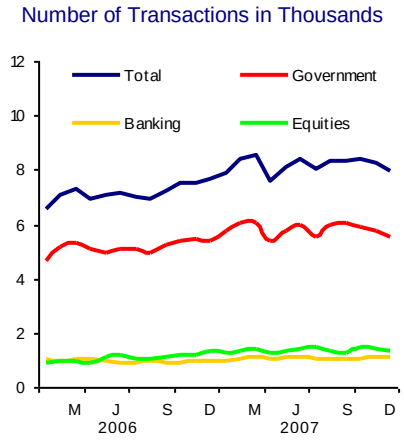
[177] This is abbreviated as STP.

Graph 87
Intraday Securities Settlement and Liquidity System

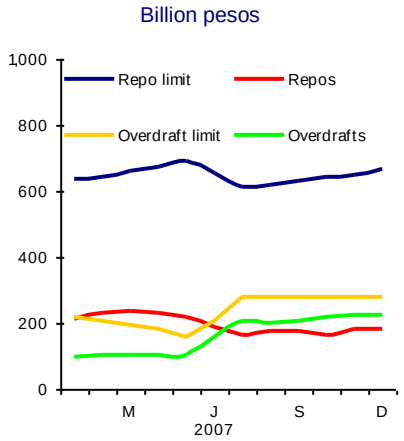
a) Average Daily Amount



b) Average Daily Volume



c) Use of Intraday Credit Lines Extended by Banco de México



Figures as of December 2007.
Source: Banco de México.

7.2. Intraday Liquidity Provision

Banco de México provides intraday liquidity to payment systems through repo transactions and by allowing (guaranteed) overdrafts in the current accounts of SIAC financial institutions. The overdraft limit for each bank used to be calculated on the basis of its capital, but Banco de México changed the rules for granting liquidity in June 2007. Under the new rules, each bank may overdraw its account up to an amount equal to the monetary regulation funds (DRMs) they have deposited in Banco de México that are being used to guarantee other loans. This change meant an increase in the credit capacity for overdrafts of most banks.[178]

The maximum amount for repo transactions that banks can hold with Banco de México was adjusted in parallel with credit limits for overdrafts.[179] This modification was made so that the total amount of intraday liquidity granted by Banco de México was kept constant after the abovementioned changes, except for banks that hold more DRMs than their previous overdraft and repo limits. The new rules have reduced the amount of liquidity that most banks can access through repos. This change was made because overdrafts in current accounts entail far fewer credit risks than repos and the registration procedures are much simpler.

Banco de México also allows brokerage houses to use these repos. No changes were made to brokerage house repo limits. These liquidity limits have been sufficient to keep the market and banks comfortably liquid.

[178] Only banks may obtain liquidity through the current account overdraft mechanism. Overdrafts must be fully guaranteed by monetary regulation deposits made by banks in the Central Bank. No other type of guarantee is accepted.

[179] Brokerage houses may obtain liquidity by making use of the repo mechanism through the Repo Module to Provide Payment Systems with Liquidity (Módulo de reportos para proporcionar liquidez a los sistemas de pagos, RSP). For further details, see Banco de México (2007), "2006 Financial System Report".

7.3. Small Value Payment Systems

Small value or retail payments are used mainly to settle obligations arising from the purchase of goods or services between individuals or between individuals and companies. Small value payment systems include paper-based (cash and checks) and electronic payments (cards and electronic transfers), in this section the progress made by small value non-cash payments is examined.

Credit and Debit Cards

Most small-value transactions are performed in cash. There is therefore great potential for developing electronic means of payment, which are more efficient than paper-based ones.[180] In terms of the number of transactions, the most commonly-used payment instruments are credit and debit cards.[181]

The Discount Rate (DR) and the fees cardholders pay for having a card (issuance and annual payment) are factors that affect the acceptance of card payments. These fees are closely linked to the Interchange Fee (IF).[182] These fees have come under intense international scrutiny because they are set through agreements between competitors (Box 42). Mexican interchange fees are set by the Association of Mexican Banks (Asociación de Bancos de México, ABM) as multilateral arrangements. This means that the same price scale is applied to all transactions, regardless of who the issuing and acquiring banks are. The ABM had originally set significantly higher interchange fees for small merchants. Banco de México has encouraged banks to review the level of interchange fees periodically, as well as the methodology used to determine them, in order to increase card payments.

The ABM developed a mechanism for setting more uniform interchange fees based on a catalogue of business types from 2006 onwards, and in January 2008 agreed to a new interchange fee price scale based on this methodology. As a result, the weighted average of the new interchange fee was set at 1.6 percent for credit card payments and 0.7 percent for debit card payments.

[180] Some studies estimate that savings equivalent to one percent of GDP could be achieved by switching all transactions carried out on paper (cash and checks) to electronic means (transfers and payment cards). Humphrey, D. et al (2003), "What does it Cost to Make a Payment?", *Review of Network Economics*.

[181] Credit and debit cards may be issued by both the banking sector and by non-financial entities. Cards issued by business establishments are not widely accepted, so only the development of bank cards is analyzed in this section.

[182] Box 16 and Graph 51 of the 2006 Financial System Report outline the workings of card transactions. Also, an explanatory note can be found under the heading of "Material de Referencia" on the webpage: http://www.banxico.org.mx/sistemasdepago/index.html.

Box 41

Recommendations for Security Settlement Systems

In December 1999, the Committee on Payment and Settlement Systems (CPSS), comprised of the central banks of the Group of Ten countries, and the Technical Committee of the International Organization of Securities Commissions (IOSCO) created the Task Force on Securities Settlement Systems (SSSs). The Task Force's work culminated in the publishing, by the Bank for International Settlements (BIS) and the IOSCO in November 2001, of the "Recommendations for Securities Settlement Systems" report, which makes 19 recommendations and identifies minimum standards that SSSs should meet. These recommendations are listed below:

Legal Risk

R1: Legal Framework Securities settlement systems should have a well-founded, clear and transparent legal basis in the relevant jurisdictions.

Pre- settlement risk

R2: Trade Confirmation. Confirmation of trades between direct market participants should occur as soon as possible after trade execution, but no later than trade date (T+0). Where confirmation of trades by indirect market participants (such as institutional investors) is required, it should be provided as soon as possible after trade execution, preferably on T+0, but no later than T+1.

R3: Settlement Cycles. Rolling settlement should be adopted in all securities markets. Final settlement[1] should occur no later than T+3. The benefits of a settlement cycle shorter than T+3 should be evaluated.

R4: Central Counterparties (CCPs). The benefits and costs of a CCP should be evaluated. Where such a mechanism is introduced, the CCP should rigorously control the risks it assumes.

R5: Securities Lending. Securities lending and borrowing (or repurchase agreements and other economically equivalent transactions) should be encouraged to speed up the settlement of securities transactions. Barriers that inhibit the practice of lending of securities for this purpose should be removed.

Settlement Risk

R6: Central Securities Depositories (CSDs). Securities should be immobilized or dematerialized and transferred by book entry in CSDs to the greatest extent possible.

R7: Delivery Versus Payment (DVP). CSDs should eliminate principal risk by linking securities transfers to funds transfers in a way that achieves delivery versus payment.

R8: Timing of Settlement Finality. Final settlement should occur no later than the end of the settlement day. Intraday or real-time finality should be provided where necessary to reduce risks.

R9: CSD Risk Controls to Address Participants' Failures to Settle. CSDs that extend intraday credit to participants, including CSDs that operate net settlement systems, should institute risk controls that, at a minimum, ensure timely settlement in the event that the participant with the largest payment obligation is unable to settle. The most reliable set of controls is a combination of collateral requirements and limits.

R10: Cash Settlement Assets. Assets used to settle the ultimate payment obligations arising from security transactions should carry little or no credit or liquidity risk. If central bank money is not used, steps must be taken to protect CSD members from potential losses and liquidity pressures arising from the failure of the cash settlement agent whose assets are used for that purpose.

Operational Risk

R11: Operational Reliability. Sources of operational risk arising in the clearing and settlement process should be identified and minimized through appropriate systems, controls and procedures. Systems should be reliable and secure, and have adequate, scalable capacity. Contingency plans and backup facilities should be established to allow timely recovery of operations and completion of the settlement process.

Custody Risk

R12: Protection of Customers' Securities. Entities holding securities in custody should employ accounting practices and safekeeping procedures that fully protect customers' securities. It is essential that customers' securities be protected against the claims of a custodian's creditors.

Other issues

R13: Governance. Governance arrangements for CSDs and CCPs should be designed to fulfill public interest requirements and to promote the objectives of owners and users.

R14: Access. CSDs and CCPs should have objective and publicly-disclosed criteria for participation that permit fair and open access.

R15: Efficiency. While maintaining safe and secure operations, securities settlement systems should be cost-effective in meeting the requirements of users.

R16: Communication Procedures and Standards. Securities settlement systems should use or accomodate the relevant international communication procedures and standards in order to facilitate efficient settlement of cross-border transactions.

R17: Transparency. CSDs and CCPs should provide market participants with sufficient information for them to identify and evaluate accurately the risks and costs associated with using the CSD or CCP services.

R18: Regulation and Oversight. Security settlement systems should be subject to transparent and effective regulation and oversight. Central banks and security regulators should cooperate with each other and with other relevant authorities.

R19: Risks in Cross-border Links. CSDs that establish links to settle cross-border trades should design and operate such links to effectively reduce the risks associated with cross-border settlements.

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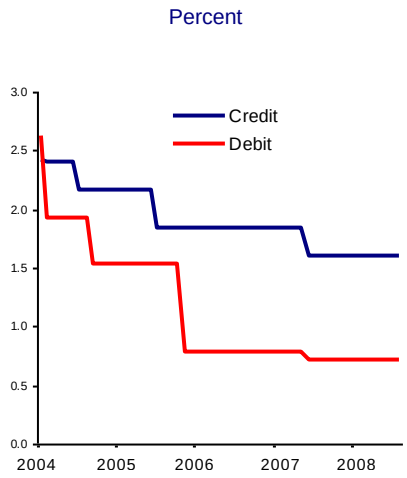
1. Finality means that a transfer cannot be revoked by the sending party. For further information on terms relating to payment systems, see: Committee on Payment and Settlement Systems of the Center for Latin American Monetary Studies (CEMLA) (2002), "Glossary of Terms used in Payment and Settlement Systems".

The new interchange fees entail a 12.5 percent reduction for credit and 9 percent for debit compared to 2007. Graph 88a shows the development of the weighted average of interchange fees over the last four years. The scales used as of the date of this report are given in Table 19. These scales must remain in effect until April 2009.

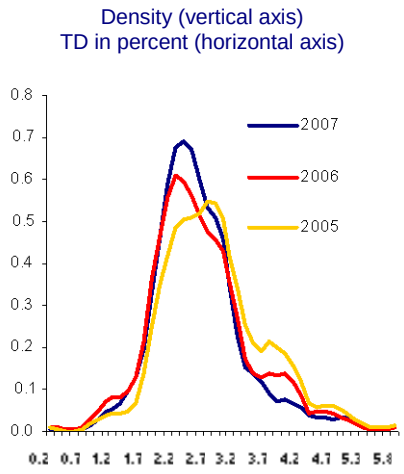
Graph 88
Interchange Fees and Discount Rates

a) Interchange Fees

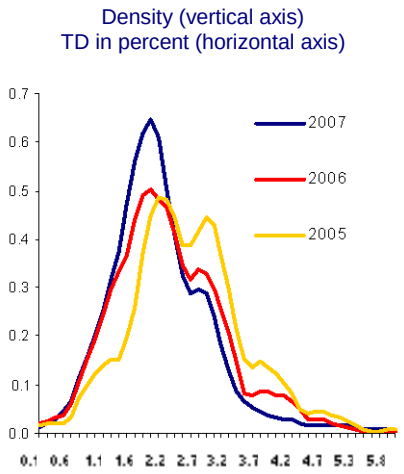


Agreed figures until 2009.
Source: Banco de México.

b) Distribution of Discount Rates for Credit Cards



c) Distribution of Discount Rates for Debit Cards



Source: Banco de México and INEGI (2006, 2007), "Encuesta a Empresas Usuarias y Receptoras de Pagos diferentes al Efectivo".

Reduced interchange fees are reflected in turn by the discount rates paid by businesses. This drop can be seen in Graphs 88b and c, which show the discount rate distribution for a broad sample of businesses that accept card payments.[183] It can therefore be seen that between 2005 and 2007 there has been a drop in discount rate mean values, for both credit and debit card transactions. At the same time, discount rate distributions for credit and debit have remained close to their respective mean values.[184] Table 20 shows discount rates by business type for the same sample of companies. One notable feature of this table is that the reduction of debit discount rates (44 base points on average) has been greater than for credit (24 base points on average).

Banco de México announces the maximum discount rate in force charged by acquiring banks to businesses on its website for each business type.[185]

[183] The information was obtained from the "Survey of Businesses Using and Receiving Non-Cash Payments" ("Encuesta a Empresas Usuarias y Receptoras de Pagos Diferentes al Efectivo") conducted by Banco de México through INEGI in 2006 and 2007. The survey is not probabilistic, so inferences from the results cannot therefore be made on a national level. Other results from the same survey are given in Box 43.

[184] The standard deviation for the distribution of credit card discount rates dropped from 0.87 to 0.79 percent from 2005 to 2007, while for debit the standard deviation dropped from 0.95 to 0.84 percent during the same period.

[185] www.banxico.org.mx.

Table 19
Interchange Fees (CI) for Credit and Debit Card Transactions

Business Activities	Credit (Percent)			Debit (Percent)
	2007	2008	Change	2007 and 2008
Charities	0.00	0.00	0.0	0.00
Gas Stations	1.10	1.10	0.0	0.50
Schools and Universities	1.25	1.25	0.0	0.75
Government	1.25	1.25	0.0	0.75
Large Surfaces	1.75	1.64	-6.3	93 cents[1/]
Fast Food	1.75	1.61	-8.0	0.75
Drugstores	1.75	1.53	-12.6	1.00
Tolls	1.75	1.61	-8.0	1.00
Parking Lots	1.75	1.22	-30.3	1.00
Retail Stores	1.80	1.77	-1.7	1.10
Ground Passenger Transportation	1.80	1.30	-27.8	1.10
Car Hire	1.80	1.71	-5.0	1.10
Travel Agencies	1.80	1.80	0.0	1.10
Hotels	1.80	1.80	0.0	1.10
Entertainment	1.80	1.37	-23.9	1.10
Air Transportation	1.80	1.62	-10.0	0.75
Telecommunications	1.95	1.56	-20.0	1.15
Insurance Companies	1.95	1.66	-14.9	1.15
Hospitals	1.95	1.74	-10.8	1.15
Restaurants	1.95	1.91	-2.1	1.15
Retail Sales	1.95	1.68	-13.8	1.15
Others	1.95	1.68	-13.8	1.15

1/ The fixed fee per transaction was 90 cents of a Mexican peso in 2007.
Source: Banco de México, with information provided by banks.

Table 20
Discount Rates (DR) for Credit and Debit Cards

Business Activity	Average Discount Rates (Percent)					
	Credit Card			Debit Card		
	2005	2006	2007	2005	2006	2007
Schools and Universities	3.21	2.87	2.59	2.80	2.42	1.94
Drugstores	3.18	2.78	2.53	2.90	2.33	1.80
Hospitals	2.98	2.86	2.95	2.68	2.51	2.43
Hotels	2.55	2.35	2.39	2.29	2.05	1.95
Others	2.98	2.74	2.83	3.18	2.89	2.49
Restaurants	2.86	2.64	2.80	2.51	2.19	2.17
Retail Stores	2.97	2.54	2.27	2.62	2.02	1.76
Air Transportation	2.63	2.43	2.03	2.02	1.79	1.04
Ground Transportation	2.90	2.57	2.21	2.41	1.90	1.71
Wholesale	2.96	2.74	2.77	2.59	2.28	2.23
Total	2.85	2.63	2.62	2.53	2.23	2.09

Source: Banco de México and INEGI (2006, 2007), "Survey on Businesses Using and Receiving Non-Cash Payments"

The recent reduction in interchange fees prompted acquiring banks to review these rates in 2008. Table 21 reveals a drop of 13 and 12 average base points in maximum discount rates for credit and debit respectively. The reduction in maximum discount rates is noteworthy for transactions with credit cards in retail sales, air and other transportation services, which account for around 40 percent of the total value of these transactions.

Table 21
Maximum Discount Rates (TD)

Business Area	Credit		Debit	
	Percent		Percent	
	2007	2008	2007	2008
Charities	0.62	0.62	0.50	0.50
Gas Stations	1.72	1.69	1.34	1.31
Schools and Universities	2.41	2.39	2.01	1.99
Government	2.23	1.92	1.86	1.52
Large Surfaces	2.68	2.56	$ 3.11	$ 2.79
Fast Food	2.91	2.86	2.29	2.22
Drugstores	3.06	2.95	2.57	2.37
Tolls	2.96	2.81	2.43	2.25
Parking Lots	2.93	2.73	2.35	2.24
Retail Stores	2.95	2.91	2.44	2.45
Ground Passenger Transportation	2.83	2.67	2.29	2.20
Car Hire	2.91	2.77	2.40	2.35
Travel agencies	3.04	2.99	2.49	2.43
Hotels	3.14	3.01	2.67	2.60
Entertainment	3.25	2.89	2.79	2.47
Air Transportation	2.80	2.51	2.13	1.78
Telecommunications	2.76	2.71	2.30	2.26
Insurance Companies	3.05	2.90	2.53	2.40
Hospitals	3.19	3.13	2.70	2.67
Restaurants	3.31	3.31	2.77	2.80
Retail Sales	3.50	3.14	2.97	2.64
Others	3.54	3.36	2.97	2.90
Total Average1/	2.81	2.67	2.32	2.21

Source: Banco de México with information provided by the commercial banking sector
1/ The total average only includes areas of business that charge an *ad valorem* discount rate. For specific areas of business, this is the simple average via banks.

Box 42

Recent Experiences in the European Union with Interchange Fees

The role and level of Interchange Fees (cuotas de intercambio, CI) have been discussed extensively in the European Union. Cross-border transactions in continental Europe and the United Kingdom were two of the most interesting cases in 2007. The circumstances of both cases are described below.

Analysis of Cross-border Interchange Fees in the European Union

Actions that limit competition, such as directly or indirectly fixing prices are prohibited under Article 81 of the Treaty on European Union (TEU). Interchange fees can restrict competition because they are prices agreed collectively, outside market processes, and work like multilateral agreements. Furthermore, interchange fees affect competition in the acquiring market because they set a floor on the discount rate (tasa de descuento, TD) that businesses pay. Exceptions can be granted to Article 81 if pricing promotes economic progress, encourages innovation and provides benefits to consumers. Specifically, card associations should present empirical evidence that interchange fees generate efficiencies (technical and economic progress) greater than the distortions created by the restriction of competition so that an interchange fee is exempt. They should also prove that:

- Consumers obtain a significant portion of the benefits.
- There are no less restrictive ways of achieving efficiency.
- Competition is not completely removed.

Moreover, there has been concern among European authorities over the effect of cross-border interchange fees on implementation of the Single Euro Payments Area (SEPA). The purpose of SEPA is to develop a payments area where Euro transactions are considered domestic. In this case, cross-border interchange fees could become a reference point for domestic European markets.

The Visa Case

The European Commission began to analyze multilateral interchange fees in 1992 after receiving a complaint from the British Retail Consortium. It consequently opened an investigation, the result of which was a declaration of objections to interchange fee charges for international (cross-border) transactions. This was published in October 2000.[1]

Visa filed a proposal in April 2001 to revise the scheme for determining interchange fees after a consultation period with businesses and card associations. The changes proposed by Visa reduced the level of interchange fees, introduced objective criteria for determining them[2] and provided greater transparency so that businesses could find out about interchange fees and their components. After a new consultation period, the European Commission decided in July 2002 to give an exemption to Visa until December 31 2007. However, the Commission announced on March 26 2008 that it would reopen the investigation into Visa's multilateral cross-border interchange fees.

The MasterCard Case

The European Commission launched a formal investigation in 2002 into the multilateral interchange fees established by MasterCard. These are known as fallback prices, since multilateral interchange fees are adopted as transaction prices when there are no bilateral agreements between banks.

In June 2006, the European Commission adopted the temporary stance that interchange fees restricted competition in cross-border transactions, as they set the floor for discount rates. It considered that this breached the provisions of article 81 of the TEU.

On December 19, 2007, the European Commission issued a decision prohibiting MasterCard's multilateral interchange fee for cross-border payment card transactions with debit and consumer credit cards in several EU countries. The Commission concluded that this fee violated the aforementioned article. The European Commission's decision will also serve as a guide and give clarity to the different authorities evaluating interchange fees in Europe.

The Commission considered that MasterCard had not provided sufficient evidence in support of the efficiencies generated by multilateral interchange fees, and nor had it demonstrated the benefits obtained by consumers and retailers.

MasterCard was given six months to comply with the decision. If it does not do so, it will be fined daily 3.5 percent of daily sales volume for the preceding year (about 316,000 dollars).[3]

Analysis of interchange fees in the United Kingdom

In March 2000, after the Competition Act had entered into effect, MasterCard announced its institutional arrangements, including modifications to the Multilateral Interchange Fee (Cuota de Intercambio Multilateral (CI)).[4]

In September 2005, following an Office of Fair Trading (OFT) investigation, the conclusion was again reached that MasterCard's interchange fee agreement restricted competition. Firstly, this fee discouraged parties from making bilateral agreements and set a floor for the discount rate (TD). Secondly, the interchange fee included costs unrelated to the service provided (known as "extraneous costs").

The OFT also specified that the highest interchange fees were assigned directly to retailers through higher discount rates, which led to higher consumer prices.

In February 2007 the OFT decided to extend the scope of the investigation into Visa and MasterCard-fixed interchange fees to include debit cards.

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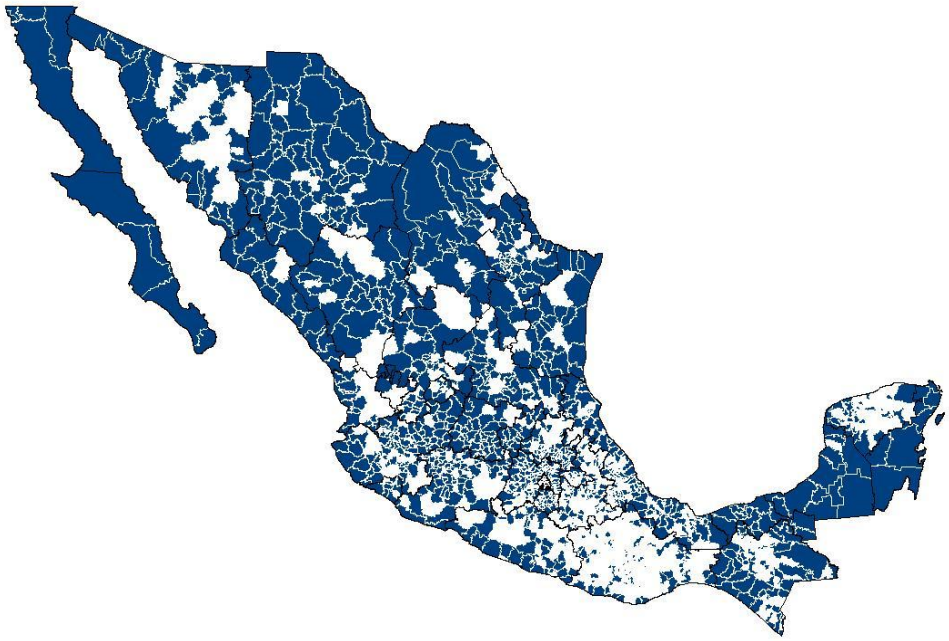
1. The Commission received complaints from EuroCommerce (representing European Union retail and wholesale commerce) in 1997, in relation to different aspects of Visa's payment cards scheme, in particular interchange fees.
2. The approved costs are for: processing transactions, payment guarantees and a free funding period.
3. Tait, Nikki (December 19 2007), "Brussels tells MasterCard to cut fees", *ft.com*, accessed: February 7 2008.
4. The multilateral interchange fee in the United Kingdom is also a fallback price that applies if the parties involved do not enter into a bilateral agreement.

Graph 89
Municipalities where PST[1/] Transactions with CC and DC are performed



Source: Banco de México, with information provided by the multiple banking sector.
1/ The blue areas of the map show municipalities that performed transactions with credit and debit cards in December 2007. The sample used comprises 75 percent of transactions performed with credit cards and 94 percent of those performed with debit cards. The cataloging of geographical identifiers for PST transactions with bank cards was performed based on the territorial division of the 2000 General Population and Housing Census (INEGI). The Federal District is regarded as a geographical unit. The map includes the political divisions of the country at state and municipal levels.

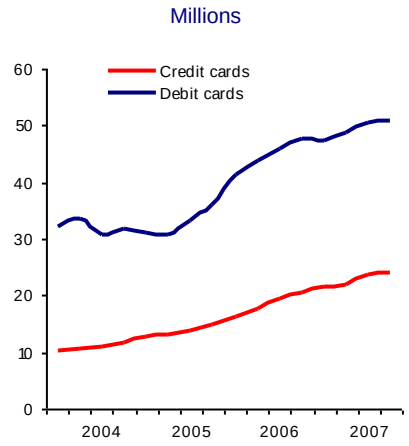
The effect of reduced interchange fees and discount rates, the Ministry of Finance's (SHCP) program promoting cards as a form of payment,[186] and banking sector efforts to install point of sale terminals (PST) in businesses has been positive. The number of credit cards issued by the banks has risen from 14.7 million in December 2005 to more than 24 million in December 2007 (Graph 90a). This amounts to an average annual growth rate of 28 percent during the period. Similarly, the number of PSTs installed rose from 201,000 at the close of 2005 to 418,000 in December 2007, with an average annual growth rate of 44 percent over the last three years (Graph 90b). This network expansion has led to broader local coverage. Businesses are currently using devices for accepting card payments in 1,351 different localities in 1,214 of Mexico's municipalities (50 percent). Of these localities, over a thousand have populations under 100,000. However, nearly half the transactions were performed in 10 localities with over a million inhabitants (Graph 89).

The growing number of cards and the development of the corresponding infrastructure have helped bring about a substantial increase in the number of PST transactions performed with bank cards (Graph 90c). The number of PST transactions carried out with credit cards over the fourth quarter of 2007 was 17 percent up on the same period the previous year, while the number of PST transactions carried out using debit cards was 23 percent higher.

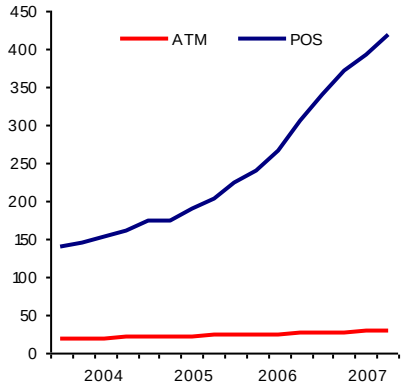
[186] This program is part of the Electronic Means of Payment Infrastructure Fund (Fondo de Infraestructura de Medios de Pago Electrónicos, FIMPE), created in 2005 to promote and increase access to the electronic means of payment network.

Graph 90
Credit and Debit Cards

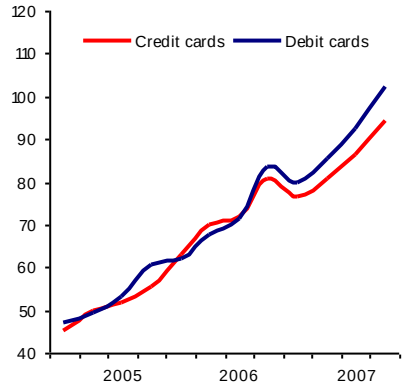
a) Number of Credit and Debit Cards Issued



b) Number of ATMs and PSTs



c) Number of Card Transactions at Point of Sale Terminals



Figures as of December 2007.
Source: Banco de México.

According to a sample of transactions performed in December 2007, most business transactions were performed in large retailers under the category of "Large Surfaces"[187], restaurants, small retailers and gas stations. The increased proportion carried out by categories such as drugstores and fast food in 2006 and 2007 was also worthy of note.

Use of Most Efficient Means of Payment

Banco de México has also been encouraging the use of electronic transfers either in real time (SPEI) or settled on the business day following transfer (Transferencia Electrónica de Fondos, TEF).[188] An agreement with banks to reduce the commissions they charge for electronic transfers is one of the steps taken to encourage this form of payment. Additionally, non-banking financial intermediaries such as brokerage houses, currency exchanges and other intermediaries were allowed to participate directly in SPEI.

[187] Large Surfaces include wholesale clubs, supermarkets and department stores.

[188] The distinction between small and large value payments is disappearing because there are no restrictions on the amount of money that can be transferred in SPEI or TEF.

Box 43

Survey conducted among Companies that Use and Receive Non-Cash Payments

Banco de México has conducted surveys among companies that use and receive means of payment to settle retail transactions in order to understand how payment systems provided by banks work. The main findings of the 2006 survey are reported here. The survey is not probabilistic and was carried out by INEGI based on a sub-sample of 5,611 firms that answer the Industrial, Service and Business (monthly) National Economic Surveys.

Most of the companies surveyed were large. Two questionnaires were prepared: one for users and another for receivers, and the sample was distributed among 32 Mexican states. The survey was carried out in September and October 2006 through indirect (deferred) interviews.

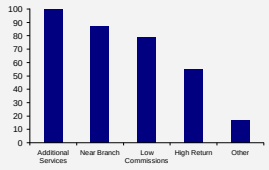
Percentage Structure of the Survey

	Receivers		Users		
	Comerce	Service	Comerce	Service	Manufacture
Large	5.3	70.4	5.8	68.8	61.6
Medium	3.6	27.5	5.3	25.3	29.6
Small	45.3	1.8	37.4	3.4	4.3
Micro	45.7	0.3	51.5	2.5	4.4
Total	**100**	**100**	**100**	**100**	**100**

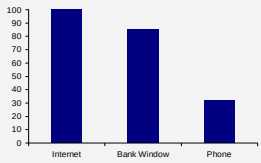
Findings among companies using means of payment (or have a bank account):

- More than 90 percent of firms have more than one bank account.
- More than 90 percent of firms, of all sizes, have used the same bank for over 3 years.

Choice of Bank



Most Common Payment Channels



Figures as of 2006

- For firms the main reasons for choosing a bank were additional services and a nearby branch.
- A total of 3.6 percent of firms had changed bank in the previous year. The main reason was fees and commissions.
- Almost 60 percent of firms that remained with their bank chose service satisfaction as the main reason. The proximity of the branch is important, even for large firms.

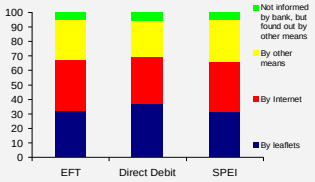
As regards use of means of payment:

- The use of checks is still widespread. However, a significant number of firms are aware of and use TEF[1], SPEI[2] and direct debit.
- A high proportion of payroll is paid with deposits into accounts. Payroll payment in cash is more common in micro-firms. The main reason for choosing means of payroll payment was security, followed by convenience.
- Internet is the most important channel used for transactions, although bank windows are still important.
- Suppliers are mainly paid with checks.
- Regulation for accepting checks and transfers from other banks has had a positive impact; 85 per cent of firms were aware of them and 62 percent used them.
- Banks inform customers about electronic means of payment, as required by regulations.
- Sixty-four percent of firms know that Banco de Mexico posts maximum fees and commissions on the Web.
- Banks are complying with the regulations on informing customers of fees and commissions.

The following answers were obtained from retailers that receive credit and debit cards:

- A total of 72 percent of retailers receive services from their bank in addition to the processing of card payments.
- The relationship with their bank is long term.
- Even for large firms, cash is still the most common means of receiving payment.
- Only 6.6 percent of firms have changed bank. Discount rates are the main reason for the change.
- The main reasons for staying with a bank are service satisfaction and additional services. For large firms, the lack of other banks offering these services is irrelevant.

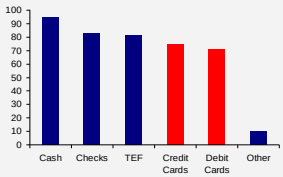
How Firms Discovered Electronic Means of Payment



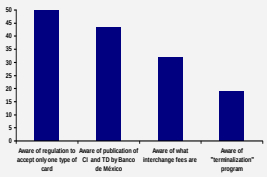
Figures as of 2006

- Only 7 acquirer banks attend 98 percent of the firms surveyed.
- The most important reasons for not accepting cards were that they did not expect customers to use them very much, and the cost of services.
- Banco de México's initiatives and regulations are well known.

Means of Payment Acceptance



Knowledge of Concepts and Regulations



Figures as of 2006.

1. TEF: (Transferencia Electrónica de Fondos) Electronic Funds Transfer
2. SPEI: (Sistema de Pagos Electrónicos Interbancarios) Electronic Interbank Payment System

Banco de México also reached an agreement with banks to reduce interbank fees for the direct debit payment service.[189] This step should cut the cost of the service and thus encourage its use. Interbank fees up to October 2007 were a function of the value of the transaction.[190] For example, the originating bank (and, ultimately, the customer) would have had to pay 300 pesos for the interbank fee on a direct debit payment of 40,000 pesos. From November, the interbank payment was reduced to 1.40 pesos per successful transaction, and 70 cents of a Mexican peso per rejected transaction.

Electronic transactions have shown good progress. The number of SPEI transactions rose 48 and their value 16 percent in real terms over the last year. The corresponding increases in TEF (electronic fund transfers) were 9 and one percent, respectively. Interbank transfers for paying off credit cards, which began in 2005 (Graph 91a), have so far reached almost one million transactions per month. These positive developments have also helped increase the number of Internet banking users (see Graph 91c) who can now carry out their transactions without having to go to a bank branch.

The use of cards for paying goods and services has also had a significant impact on the efficiency of the payment system. While the number of transactions carried out in businesses was only 15 percent of the number of cash withdrawals at ATMs in 2002, the proportion of payments in business premises at the close of 2007 had risen to 59 percent of the cash withdrawals at ATMs.

Furthermore, the number of electronic payments[191] had, by the first quarter of 2005, overtaken the number of checks issued (Graph 92b). It can therefore be concluded that the steps taken by Banco de México together with the banking sector are indeed encouraging the use of more efficient forms of payment.

[189] This is the service for performing previously authorized charge transactions by means of electronic transfers between banking institutions. The customer originating the charges instructs his or her bank to commence charges to third party accounts located in any bank providing in the service.

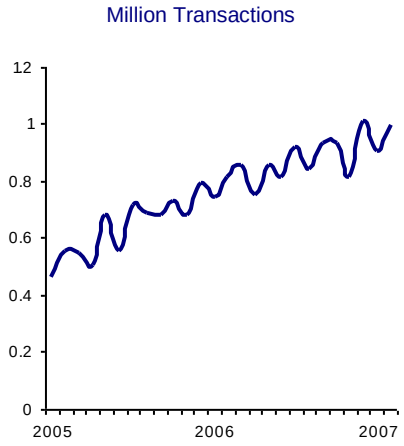
[190] Scale of inter-bank fees for direct debit payment until October 2007:

Amount of Transactions	**$0.01 to $15,000**	**Greater than $32,500**
Interchange Fee	**$3.00**	**$7.50 thousand**

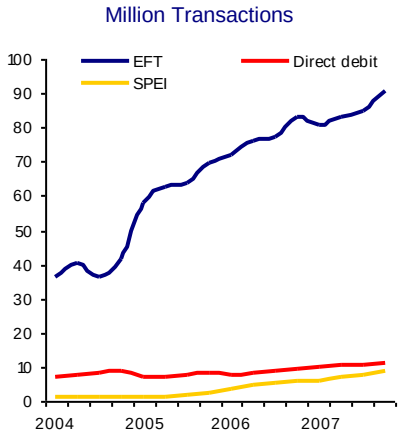
[191] These payments include transactions with bank cards at Point of Sale Terminals, direct debit payment, and TEF. Withdrawals from ATMs with bank cards are not included.

Graph 91
Use of Different Means of Payment

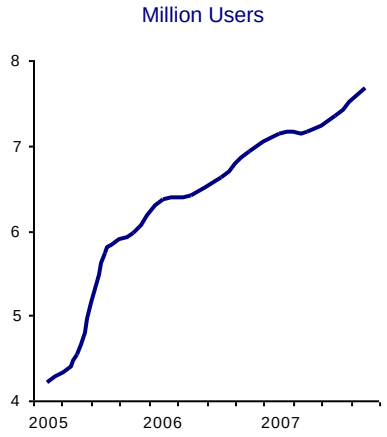
a) Interbank Transfers for Paying off Bank Credits Including Cards



b) Volume of SPEI, TEF and Direct Debit Transactions



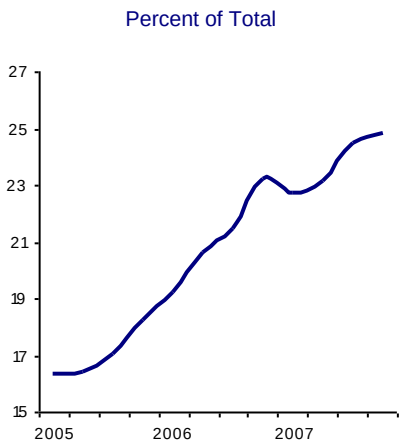
c) Users who Perform Transfers by Internet



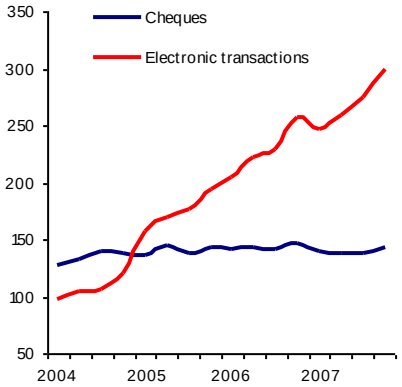
Figures as of December 2007.
Source: Banco de México.

Graph 92
Number and Structure of Transactions with Different Means of Payment

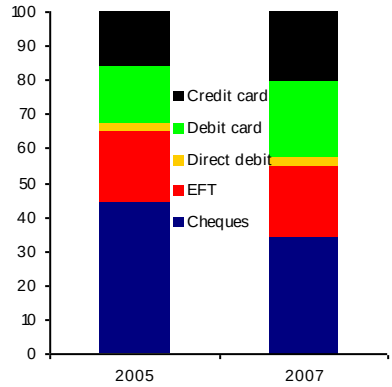
a) Transactions with Debit Cards Performed at PSTs



b) Electronic and Check Transactions



c) Structure of Non-Cash Means of Payment



Figures as of December 2007.
Source: Banco de México.

8. Conclusions

International financial markets are currently beset by an acute crisis that started in the US mortgage market, the breadth and severity of which have been amplified by the interconnection between markets and financial institutions.

The current crisis was preceded by an extended period of low real interest rates, abundant liquidity, numerous financial innovations and a major expansion of credit, especially in the US housing sector.

The bursting of the US housing bubble and increased default on so-called subprime mortgages have led to a substantial increase in risk aversion among lenders and investors alike, especially in developed countries. The negative impact of this trend has been threefold: significant losses for several financial institutions, more expensive credit and lower expectations for economic growth in a large number of countries.

Figures on economic activity in Mexico, for both demand and supply, suggest that the impact of US economic slowdown on Mexican output has been contained due to a number of factors. The most important are growth in credit to the private sector, greater export diversification in terms of destination markets and increased public spending. Furthermore, the origins and nature of the current financial crisis differ from other events in which US recession was a key factor in undermining Mexico's GDP.

Rising food and raw material prices, especially for fuel, have put upward pressure on inflation worldwide. The risks of both inflation and lower growth are especially poignant for Mexico at the moment.

The net financial positions of the public, private and external sectors in Mexico were subject to moderate changes similar to those of previous years. Fiscal and monetary discipline has helped maintain macroeconomic stability. As a result, the size of financial balance flows in these sectors in 2007 was free of any imbalances that could put the economy and the financial system at risk.

The trend of the last few years towards greater household loan availability continued throughout 2007. But it grew moderately only. Internal company financing also enjoyed the highest growth rate of recent years, driven by commercial banks mainly.

The Federal Government continued to obtain most of its financing from the peso debt market, instead of the external market, while the policy of replacing external liabilities with internal ones continued. The Government also took steps to reduce its debt maturity concentration and give preference to the liquidity of certain long-term references.

Volumes transferred in the exchange market continued to increase in the period studied in this report. The slight volatility of the peso in recent years and the low correlation between its fluctuations and those of other currencies has made the peso an asset with high diversification value. It is now the currency with the most transactions in the so-called emerging countries group. The addition of the peso to global investor portfolios has led to the extension of its trading hours. As

from the last week of May 2008, CLS bank included the peso in its FX settlement Payment versus Payment mechanism, so peso market participants can now avoid settlement risk caused by trading currencies in different time zones.

The Mexican banking sector is well capitalized with sufficient reserves, and the loan creation criteria have not been relaxed, as they have in other countries. Exposure of the Mexican banking sector to risks associated with the subprime market has been negligible. This stopped the value of Mexican banking assets from dropping, unlike in the advanced economies. However, the risk of a credit crunch still remains for Mexican banks that are subsidiaries of foreign banks with major losses. But the high profitability offered by the banking business in Mexico and the relative importance for certain global financial groups of the profits generated by their Mexican subsidiaries suggest that no significant modifications to the Mexican financial system will be made.

ROE-measured commercial bank profitability decreased in 2007 for two reasons: the fall in intermediation earnings and higher spending due to the creation of provisions. However, in 2008 first quarter net profits were up 54 percent in real terms on the same period the previous year. This was due to the recovery of income from trading and, to a lesser degree, net interest income growth.

Consumer loan defaults maintained their upward trend. As was the case in 2006, a substantial portion of this increase was due mainly to the granting of credit lines to people with no credit history. Nonetheless, the strategy of certain banks to compete by granting larger credit lines, as well as by reducing the amount of minimum monthly payments, could aggravate the volume of mature portfolios. Competition must be based on improvements in the cost of credit and not on greater facilities to get into debt.

Mortgage risk indicators remained low. Defaulting rates for different "mortgage vintages" (mortgages created in different years) therefore behaved similarly. This is consistent with the behavior of the creation criteria for banks' mortgage portfolio, which have not been relaxed recently. Bank loans to firms in 2007, on the other hand, were more buoyant than consumer and house loans.

Recent events in US and European markets will prompt banks and other financial institutions to review the parameters and assumptions their liquidity models are based on. The collapse of the English bank Northern Rock and US bank Bear Sterns also highlighted the need to continue updating the existing legal framework governing intervention in Mexico and the possible liquidation or stabilization of banks in trouble. Both episodes demonstrated, once again, the need for a country's financial authorities to dispose of wide-ranging powers to act quickly to protect the interests of depositors, contain losses, both in the value of the assets of the bank in trouble and for other intermediaries, and avoid any contagion effects that could put the entire financial system at risk.

The recent international financial crisis has also brought to the fore the need to design stress tests to evaluate interactions between decreasing liquidity in the main financial markets and banking balance liquidity. The interaction between the two factors is especially important for institutions whose cash management models rely largely on the smooth functioning of the financial markets. This is the case, for instance, of financial entities that do not receive deposits and whose

liquidity depends considerably on the issuance of securities and financing from other intermediaries.

The aims of Banco de México include driving the development of more efficient means of payment. It continued working with the banking sector to make sure the latter periodically reviews the level of Interchange Fees, as well as the methodology used to determine them. Reduced Interchange Fees and banking sector efforts to install point of sale terminals (PSTs) in business premises and service provider areas have had a positive effect on the development of payment infrastructure. Similarly, Banco de México reached an agreement with banks to reduce interbank fees for the direct debit payment service. This step should cut the cost of the service and thus encourage its use.

Basic accounts were implemented in 2008. These, along with the CAT, amount to important steps for encouraging financial inclusion, transparency and competition. Banks receiving deposits must henceforth offer the basic account service: one for payroll and another for the general public. Moreover, credit institutions, Sofoles, Sofomes, savings and loan associations, financial entities acting as trustees in trust funds that grant credit to the public and firms that routinely grant credit must publish the CAT for any credit with a balance of less than 900 thousand Udis and for mortgages of any amount.

Banco de México believes that inclusiveness, transparency and information disclosure are vital for ensuring the healthy development of the financial system. It has therefore been promoting transparency and access to information for the general public, and taken on the task of encouraging economic and financial education.

Finally, the losses incurred due to the bursting of a bubble are followed by a spate of de-leveraging and loss absorption, as is often the case in any financial crisis. How long this crisis lasts will be determined by how quickly losses are recognized and international banks recapitalize.

It is also essential to recognize that financial innovation tends to move a step ahead of the institutions in charge of risk identification, measurement, regulation and supervision, although it would be wrong to blame the crisis on innovation. Financial innovation is a crucial aspect of economic progress and will always have a role to play in development. This inescapable fact means the constant updating of regulations is necessary as financial products evolve.

In this regard, the nature of the current crisis and the speed and extent of the contagion effect highlight the need to continue improving coordination in the field of regulation and supervision of financial intermediaries among supervisory authorities and central banks of different countries.