FINANCIAL STABILITY REPORT

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Banco de la República
CENTRAL BANK OF COLOMBIA
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Executive Summary

During the first half of 2009, the world economy continued to experience the effects of the international financial crisis, although some indicators, such as those denoting risk aversion and private sector loan portfolio growth, have improved. In the case of the Colombian economy, the consumer confidence index and the expectation index for industry and commerce demonstrated some recovery, but are still at low levels. More momentum in the economy will have a positive impact on risks to the financial system, the fiscal situation and employment.

The slowdown in the gross loan portfolio held by the Colombian financial system continued in June 2009 (7.3% real annual growth compared to 12.9% the year before), especially consumer lending, which posted -0.5% real annual growth, as opposed to 13.7% a year earlier. On the other hand, the commercial loan portfolio was up 11.4% and mortgage loans, with securitization, registered a real annual increase of 6.6%. Credit institution investment rose considerably, at a real annual rate of 23.8% as opposed to -4.6% in June 2008. This performance explains much of the increase in new holdings of government bonds and their valuation, which occurred in conjunction with the stock market valuations.

The growth in assets (11.3%) was financed largely with deposits, which registered a real annual increase of 14.5% compared to 7.5% the year before. This performance is generalized for all types of deposits. Term certificates of deposit rose at a real annual rate of 19.5%, checking accounts increased 11.6% and savings accounts, 7.7%. The performance of checking and savings accounts was a highlight, considering their growth was near zero in December 2008.

The slowdown in traditional financial intermediation activities was concurrent with a slight deterioration in indicators of default and loan portfolio quality, reflecting further materialization of credit risk. However, credit institutions saw their return on assets (ROA) remain relatively stable at around 2.4%, whereas capital adequacy - measured as the ratio of technical equity to risk-weighted assets, increased 1.1 pp with respect to December 2008, reaching 14.7% in June 2009. Nevertheless, when looking at consolidated capital adequacy; that

is, taking into account the institutions with branches in Colombia and abroad, one sees this indicator is 90 bp lower than the individual indicator, which suggests the system is not quite as sound as expected, but is still above the regulatory minimum of 9%.

Market risk continued to rise as a result of the sharp increase in tradable securities held by credit institutions and their longer duration. Nevertheless, the prices of these securities have become less volatile.

Contrary to the situation in terms of market and credit risk, the first half of 2009 saw less liquidity risk, both in funding and market liquidity, thanks to increased holdings of liquid tradable securities.

Credit institutions have higher capital adequacy ratios than those stipulated by the regulators. The impact of international financial crisis will depend on its duration and depth, and could be less damaging if the external environment shows signs of recovery. The risks to the Colombian financial system during the remainder of the year and in early 2010 will be linked to the performance of the productive sector. Accordingly, it is crucial to continue to monitor those risks closely.

Board of Directors
Banco de la República (Central Bank of Colombia)

Financial Stability Report

Prepared by:
The Financial Stability Department of the Monetary and Reserve Division

One of the duties of Banco de la República, as stipulated in the Colombian Constitution and in Law 31/1992, is to ensure price stability. Doing so depends largely on maintaining financial stability, which is understood as a situation in which the financial system is able to broker financial flows effectively. Financial stability contributes to better resource allocation, which is important to preserving macroeconomic stability. For that reason, financial instability has a direct impact on macroeconomic stability and on Banco de la República's capacity to fulfill its constitutional mandate. In short, monitoring and maintaining financial stability are crucial to that activity.

Banco de la República provides for financial stability in a variety of ways. To begin with, it makes sure the payment system in the Colombian economy operates properly. Secondly, it extends liquidity to the financial system through its monetary transactions and by exercising its constitutional faculty as the lender of last resort. Thirdly, being the country's credit authority, it designs financial regulatory mechanisms to reduce episodes of instability. It does so in conjunction with the Office of the Superintendent of Financial Institutions. Moreover, Banco de la República carefully monitors economic trends that could threaten the country's financial stability.

The *Financial Stability Report* is part of this last task and accomplishes two objectives. First, it describes the recent performance of the financial system and its principal borrowers. This is done so future trends in that performance can be visualized. Secondly, it identifies the major risks to credit institutions. The reason for both these objectives is to inform the public of the trends and risks that can affect the financial system as a whole.

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(*) This report was prepared with the help of Diana Fernández and Carlos Eduardo Obando, who are student interns assigned to the Financial Stability Department. The assistance of Máryori Caviedes in data processing is much appreciated.

I. The Macroeconomic Environment

The impact on Colombia's financial system will depend largely on signs of recovery not only in the Colombian economy but also in the international environment.

A. BACKGROUND: THE INTERNATIONAL ENVIRONMENT

The global economic recession caused by the international financial crisis continued during the first six months of 2009. Nevertheless, this panorama might begin to change as a result of more internal demand in countries such as China and India, which could bolster growth worldwide during the remainder of this year and in 2010. Less inventory, more capital and a better job market have helped to ease the situation. The panorama for Latin America and Colombia might be better, but its impact on the productive sector and, therefore, on the financial system may be slower and warrant moderate optimism.

It should be noted that projections on growth will be influenced by the impact of counter-cyclical policies adopted by the governments of several developed countries. However, the situation is not the same for all countries. The International Monetary Fund (IMF) estimates the developed economies will recover only as of 2010, while the developing countries could begin to recover in late 2009 (Table 1).

Internationally, the financial markets remain weak, which is why credit for the private sector has increased slowly in the wake of the crisis, although there are positive signs, such as a further willingness among U.S companies to float new bond issues. Moreover, the capital markets for emerging economies have yet to recover completely, and substituting with more public spending brings pressure to bear, not only in terms of debt financing, but also inflationary pressure in the developed countries. The stress tests applied to the major banks in the United

Table 1
Economic Growth
(Variation %)

	Actual		Current Forecasts		Difference Compared to Forecasts in April 2009	
	2007	2008	2009	2010	2009	2010
World output	5.1	3.1	(1.4)	2.5	(0.1)	0.6
Advanced Economies	2.7	0.8	(3.8)	0.6	0.0	0.6
United States	2.0	1.1	(2.6)	0.8	0.2	0.8
Euro Zone	2.7	0.8	(4.8)	(0.3)	(0.6)	0.1
Japan	2.3	(0.7)	(6.0)	1.7	0.2	1.2
United Kingdom	2.6	0.7	(4.2)	0.2	(0.1)	0.6
Canada	2.5	0.4	(2.3)	1.6	0.2	0.4
Other Emerging Market Economies and Developing Countries						
America	5.7	4.2	(2.6)	2.3	(1.1)	0.7
Brazil	5.7	5.1	(1.3)	2.5	0.0	0.3
Mexico	3.3	1.3	(7.3)	3.0	(3.6)	2.0
Developing Asian Countries	10.6	7.6	5.5	7.0	0.7	0.9
China	13.0	9.0	7.5	8.5	1.0	1.0
India	9.4	7.3	5.4	6.5	0.9	0.9
Colombia	**7.5**	**3.2**	**0.0**	**2.5**		

Source: International Monetary Fund, "World Economic Outlook" (July 2009), Banco de la República and DANE

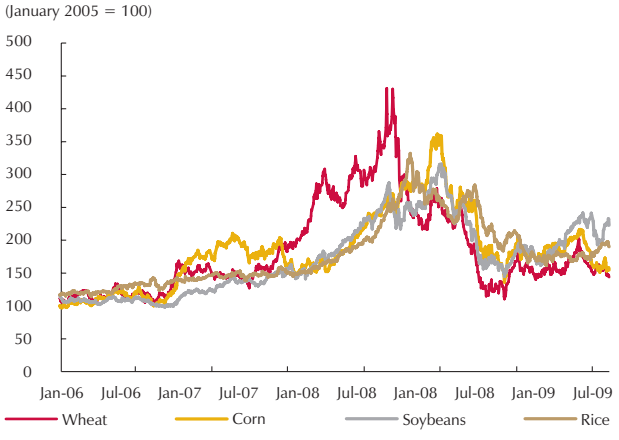
States and Europe, which suggest additional capital contributions for those institutions, are a good sign for financial system recovery; however, credit is not expected to recover in the near future and losses from the deterioration in credit continue to mount.

With less pessimistic forecasts for world growth than at the start of the year, but with slower recovery in the developed economies, Latin America will continue to experience an impact on its productive sector. Among other factors, this will be due to: i) changes in international prices for raw materials, which may rise as a result of more external demand (Graph 1); ii) slower recovery in international capital flows, to the extent that risk aversion among investors continues to decline; and iii) the momentum in Latin American exports, which generates better expectations for economic growth and jobs.

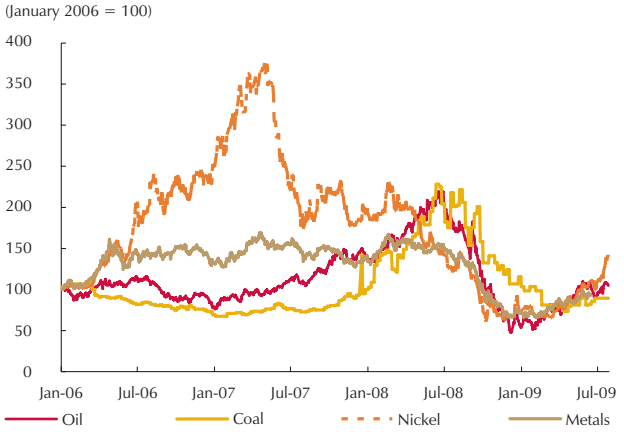
The slump in growth worldwide is manifest in Colombia as well, specifically in the form of less gross domestic product (GDP). However, the 0.6% decline

Graph 1
Commodity Price Index

A. Wheat, Soy, Rice and Corn

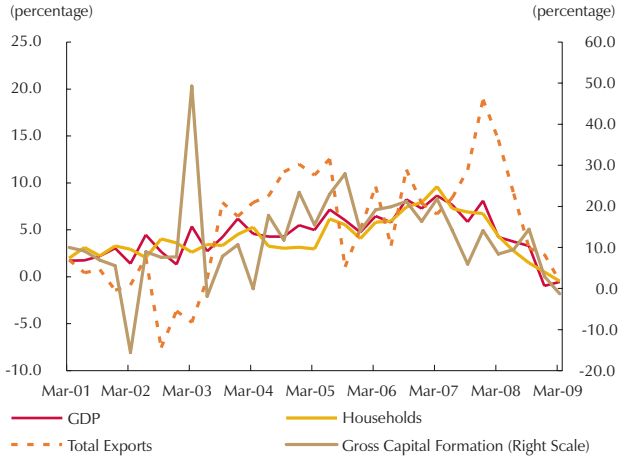


B. Oil, Coal, Nickel and Metals



Source: Bloomberg.

Graph 2
Growth in GDP and its Spending Components



Source: DANE.

in economic activity during the first quarter was less severe than the downturn in other Latin American economies.[1] It also compares favorably to the setback in production in the emerging Eastern European economies and in some Asian countries.

Under the present circumstances, public policies designed to stimulate internal demand are vital to cushion the economic slowdown, provided they are implemented in a context of macro-financial consistency that reduces their collateral effects.

B. PRODUCTIVE SECTOR DYNAMICS

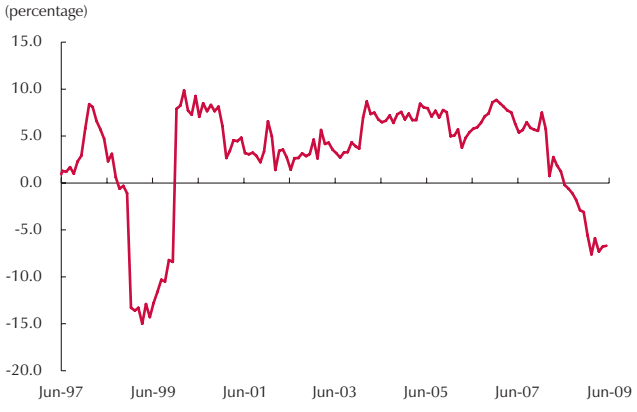
Exports, household consumption and gross capital formation deteriorated during the first quarter of 2009, posting real annual growth rates of -0.5%, -0.5% and -1.3%, in that order. It is important to point out that the gross capital formation rates between March 2009 and March 2008 were positive (Graph 2).

Industrial manufacturing, commerce, and transport and communications were among the sectors that were affected the most. On the other hand, the construction sector showed a moderate recovery, possibly owing to the development of port and mining projects that were behind schedule.

According to the Industrial Opinion Survey, which is conducted monthly by the National Association of Colombian Businessmen (ANDI), industrial production continued to decline between June 2008 and June 2009, having gone from 1.2% to -6.7% (Graph 3). As for commerce, the sales indicator calculated by the National Federation of Merchants (FENALCO) dropped considerable during the same period, having gone from -2 to -12, suggesting a worse perception of sales. Furthermore, expectations of sales six months forward indicate levels will remain low, as has been the case since January of this year (Graph 4).

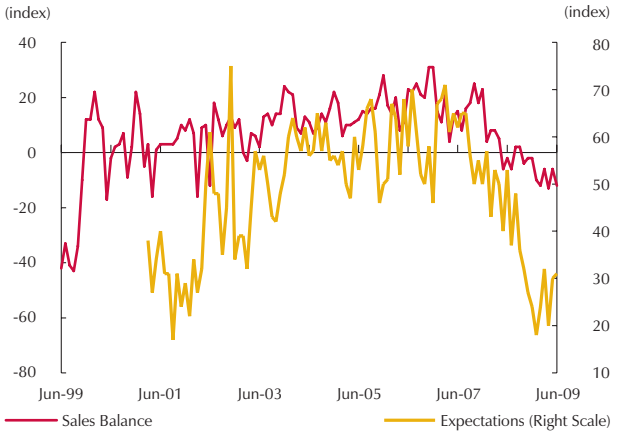
1 For example, in Brazil, Chile and Mexico, gross domestic product was down 1.8%, 2.1% and 8.2%, respectively.

Graph 3
Year-to-Date Industrial Production Growth Rate



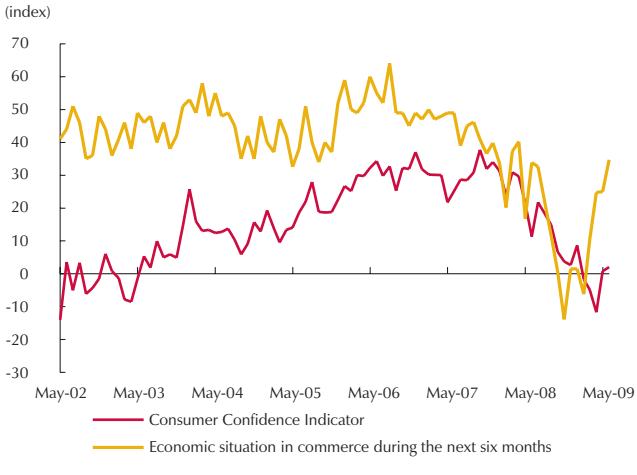
Source: ANDI (Joint Industrial Opinion Survey).

Graph 4
Sales and Expectations Six Months Forward



Source: Fenalco.

Graph 5
Consumer Confidence Index and Expectations for the Economy in Six Months



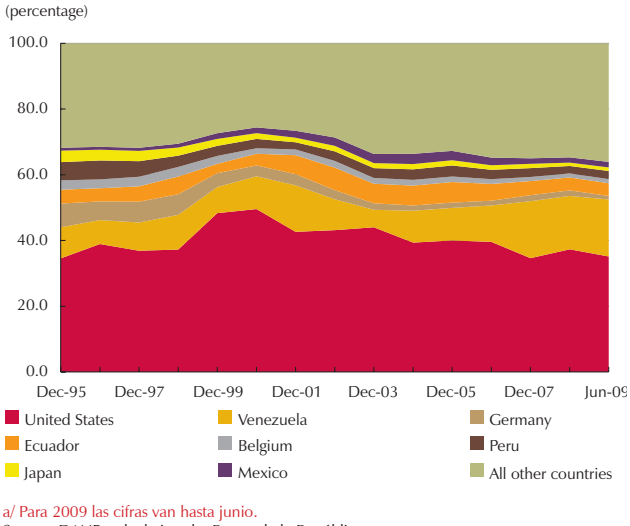
Source:Fedesarrollo.

Similarly, the Business Opinion survey conducted by the Foundation for Higher Education and Development (Fedesarrollo) shows a continued downward trend in the consumer confidence indicator, which went from 11.4 in June 2008 to 2.1 in June 2009; however, it did rebound during the last two months (May and June). On the other hand, considering what merchants expect the economy to be like in six months, one perceives an improvement during the remainder of the year, given an increase from 33.9 to 34.7 (Graph 5).

The trade balance during the first half of 2009 was not as troublesome, since there was no major deterioration, even despite the political situation with several neighboring countries. By June, the share of exports to Venezuela had increased with respect to last year, having gone from 16.2% to 17.3% of total exports (Graph 6).

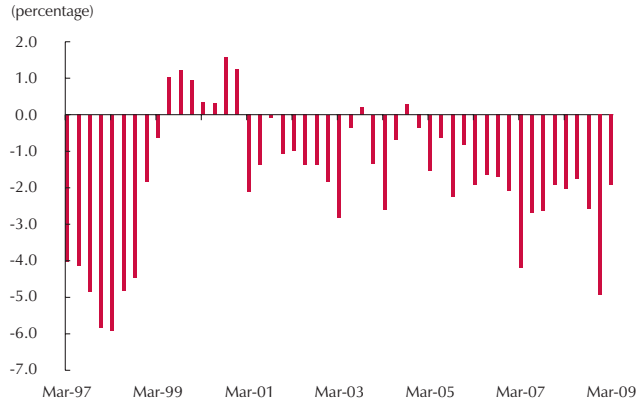
The current account in the balance of payments accumulated a considerable deficit during 2007 and 2008, making the economy extremely sensitive to reductions in the flow of capital. Nevertheless, this pattern has been moderate considering the deficit in the first quarter of 2009, which declined three percentage points (pp) with respect to the final quarter of 2008 (Graph 7).

Graph 6
Exports by Country of Destination



a/ Para 2009 las cifras van hasta junio.
Source: DANE, calculations by Banco de la República

Graph 7
Current Account as a Percentage of GDP



Source: DANE, calculations by Banco de la República.

Graph 8
Changes in TES 2020 Yield

Source: Bloomberg.

C. THE FINANCIAL SYSTEM DURING THE FIRST HALF OF 2009

Banco de la República cut its intervention rate by 550 basis points (bp) between December 2008 and June 2009, generating an almost parallel response from market interest rates, with commercial and consumer rates contributing the most to that drop. However, the latter did not decline as much as the commercial rates. Furthermore, the consumer loan portfolio has the most risk.

Real annual growth in the gross loan portfolio during the first half of 2009 came to 7.3%. This is 5.6 pp less than the increase registered during the same period in 2008, with a major setback in the consumer loan portfolio, which went from 13.7% to -0.5%.

In terms of credit risk, the rate of growth in the total risky portfolio between December 2008 and June 2009 showed less of a downturn (from 46.8% to 39.5%). During the same period, the coverage indicator showed a stable tendency in loan-loss provisioning, with the indicator remaining at 52%.

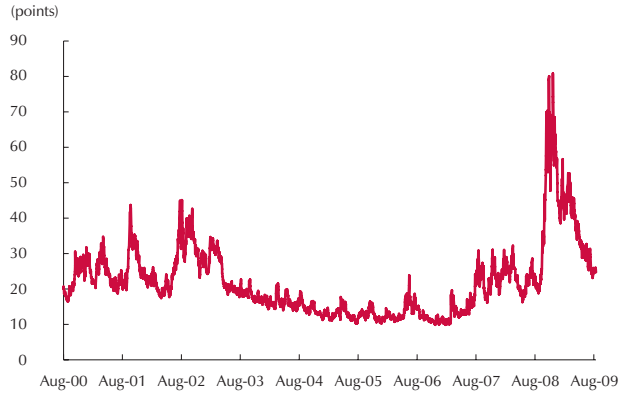
Interest rates on TES at all maturities declined until the end of May. June 2009 saw a reversal of that situation; however, the sharp drop in rates was not offset and they exhibited a generalized downward trend (Graph 8).

D. THE MACROECONOMIC OUTLOOK

International financial conditions during the first half of 2009 improved more than expected, as is apparent in the way the various financial indicators have evolved. This is explained primarily by the measures adopted by the different economies concerning regulations and government intervention. Despite the recovery in certain economic indicators, the world recession is not over yet and economic recovery is expected to be slow. It is important to point out that the speed at which the economy recovers will have an effect on risks to the financial system, the fiscal situation and unemployment.

The high levels of risk aversion that prompted a generalized decrease of investment position at the end of 2008 began to subside during the first half of the year. As a result, the risk aversion indictors have stabilized at the pre-crisis

Graph 9
Market Volatility Index (VIX)



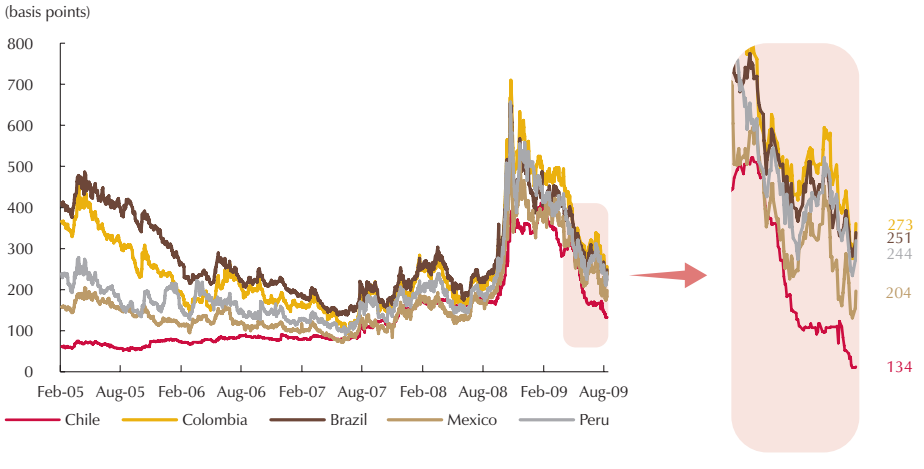
Source: Bloomberg.

levels witnessed in June 2007 (Graph 9). Likewise, given the improvement in international financial conditions, coupled with the headway in consumer confidence in the emerging economies, the spreads have declined for most Latin American countries during the course of the year (Graph 10). This may reflect more confidence on the part of investors, who might be motivated to direct their capital flows towards the emerging economies.

Graph 11 shows the pattern in the spreads for credit default swaps (CDS).[2] One can see they have declined from the highs achieved at the end of 2008, when a massive sell-off of assets in the developed economies - prompted by uncertainty about the plan to rescue the financial system in the U.S. and the panic created by the failure of Lehman Brothers - generated substantially more risk aversion and reduced the flow of investment towards developing economies.

Generally speaking and as indicated by the indicators mentioned earlier, there was less perception of risk during the second quarter of 2009. This was due largely to the increase in confidence worldwide, the good news about the implementation of fiscal packages in the developed economies, and the economic recovery in several Asian countries. The risk premiums associated with Colombia declined as well, consistent with the improvement in international financial circumstances and in the economic forecasts for

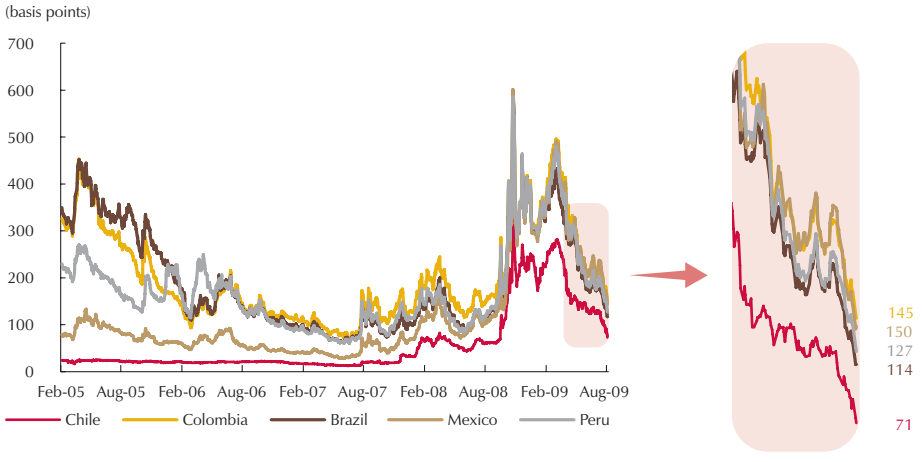
Graph 10
EMBI+ Spread for Several Latin American Countries



Source: Bloomberg.

2 A credit default swap (CDS) is a specific kind of financial instrument that allows the risk on a bond to be transferred from one party to another. The bond holder pays a premium to the party offering the CDS, in exchange for which the latter responds for the nominal value should the issuer default. The value a CDS is directly related to the level of risk aversion among investors; in other words, the higher the likelihood of default, the higher the value of the CDS and vice versa.

Graph 11
Credit Default Swaps (CDS) in Latin American Economies



Source: Bloomberg

emerging countries such as Colombia. This being the case, capital flows to the developing economies are not expected to subside.

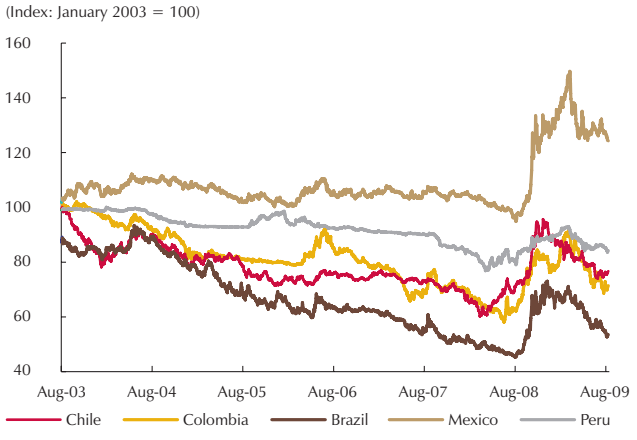
It should be noted that the risk premiums of many Latin American countries have begun to decline, not only because global risk aversion is down, but also because of better balance sheets for international financial institutions, moderate increases in international commodity prices, and better indicators of household and business confidence.

These conditions, as a whole, gave added stability to exchange rates and to fixed and equity income markets in Colombia and in other countries of the region, which saw stock markets deteriorate, substantial pressure brought to bear on exchange rates, and episodes of considerable volatility after Lehman Brothers went under.[3] As a result of less risk aversion and the exchange flexibility of the Latin American economies during the crisis, relative stability has returned to the stock markets in those economies.

Graph 12 shows to what extent the region's currencies gained strength with respect to the dollar during the first half of the year and how the exchange rates have fluctuated freely during the crisis. As mentioned already, they have not been affected by the controls set by regulators. On the other hand, it is important to consider how the behavior of the exchange rate can affect companies dedicated to foreign trade. In the case of exporters, it can mean less income during a period when external demand is only beginning to recover and merchandise prices are still low.

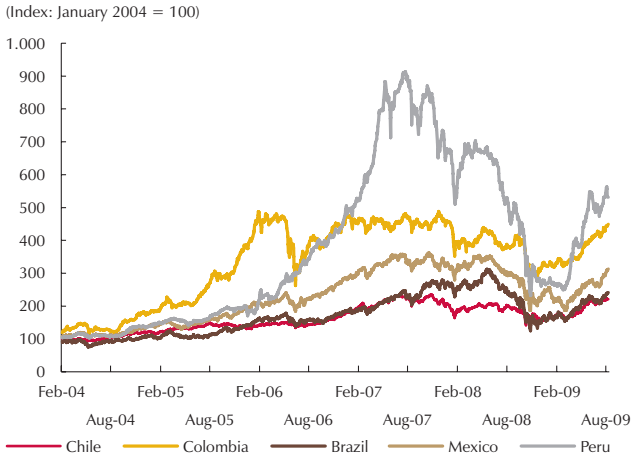
3 The correlations and volatility of financial indicators after the start of the subprime crises and the failure of Lehman Brothers are analyzed, in detail, in Box 1.

Graph 12
Latin American Exchange Rates against the Dollar



Source: Bloomberg.

Graph 13
The Stock Market in Latin America



Source: Bloomberg.

The stock markets in the region's major economies have begun to improve, and the second quarter of 2009 saw a build-up in growth, as reflected in the indicators that confirm a moderate recovery in the global economy is underway. The major Latin American Stock market indicators are included in Graph 13, which shows the general index for the Colombian Stock Market (IGBC) gained 36.40% in value during the period from January to August 2009,[4] while average valuation for the stock indexes in Chile, Mexico, Brazil and Peru was 50%.[5]

The international financial crisis continued to deepen during the first quarter of 2009 and spread throughout different markets. However, the latest economic indicators show the effects of the crisis are starting to become more moderate and some indicators even demonstrate positive signs. For Colombia, as with the rest of the region, prolongation of the severe contraction in the global economy is the main threat to financial stability and could make financial intermediaries even more vulnerable.

Slower economic growth, coupled with rising unemployment, continues to be reflected in slower portfolio growth and added potential risks. As for credit, the risky loan portfolio continues to grow at historically high rates, though less so than in 2008. The increase in non-performing loans is evidenced by the materialization of that risk.

On the other hand, the added amount of TES in the hands of financial institutions, which have been replacing loans with investments, has given these institutions more liquid assets to meet their current liabilities. This, in turn, means less funding liquidity risk. However, the increase in their TES holdings makes them more vulnerable to market risk, because their exposed balance is larger. It is important to mention that we are still at a stage where it is uncertain how investment returns will perform (Graph 8).

This being the case, the impact on Colombia's financial system will depend largely on whatever signs of recovery emerge, not only in the Colombian

4 Growth from January 2, 2009 to August 3, 2009.

5 The Peruvian market, with a 107% increase during that period, explains the high average growth in Latin American stock markets.

economy but also on the international scene. Financial intermediaries will continue to face the effects of added pressure on employment, since economic growth rate in the short-term will remain low. Likewise, the pressure stemming from an adverse financial position for Colombian companies, as a result of failing to generate a flow of revenue and significant profits, may result in default on their debt, which would mean more credit risk. However, in spite of the crisis, the financial system has continued to generate a good measure of profit so far this year. Yet, if economic recovery is not significant, adverse scenarios could emerge that would impair the health of financial system through the appearance of added credit risk.

Box 1
CORRELATIONS BETWEEN FINANCIAL ASSETS IN THE CONTEXT OF THE CRISIS

The relationship between a range of local financial assets and several international indicators during the recent global financial crisis is examined in this section. According to the findings, the theory that there is a separation between markets in advanced economies and those in emerging countries during the crisis does not appear to be valid. Although many stock markets in emerging countries peaked during the final quarter of 2007, the associations between the correlation between various financial indicators increased for that period and have continued to do so in major way at specific times during the crisis, such as Lehman Brothers episode.

A number of emerging countries, including Colombia, were less affected during the initial stage of the subprime crisis in comparison with advanced economies. However, the persistent imbalance in financial markets, worsening fundamentals in the developed economies, and the increase in risk aversion worldwide had a significant impact on the performance of the local market late last year.

The approach used to assess the associations between indicators of advanced and emerging economies during the global financial crisis is based on an analysis of co-movements between relevant financial variables. This is done by means of a multivariate GARCH module[1] to estimate the correlations of those variables over time.

Because the standard correlation[2] method poses limitations when it comes to studying spillovers[3] and the capacity with which systemic risk is distributed within the markets, dynamic conditional correlations models (DCC-GARCH)[4] are an alternative to reduce some of those limitations by making it possible to model correlations and variances as a measure of risk that changes over time. This is essential when trying to determine whether or not the most recent episode of financial stress has become systemic.

The variables used for analysis include the Colombian Stock Exchange Index (IGBC), also known as the General Index; the representative market rate of exchange (TRM); the public debt price index (ITES); international indicators such as the Latin American Emerging Bond Market Index Plus (EMBILAT); Standard and Poor's 500 (S & P500), as a representative indicator of the market; the spread between the three-month Libor and the Overnight Swap Index (LIBOIS), as a proxy for liquidity conditions in the international interbank market; and the U.S. Federal Reserve rate on T-bills. The series offer a daily frequency, beginning in February 2003 and ending in July 2009. Because most of the variables are not stacionary, the first differentials of the series are used.[5]

The initial step to develop a multivariate GARCH method is to estimate a multivariate autoregressive AR (2) model to filter the returns of the series. The use of this method, which functions as a pre-filter of returns, was prompted by the potential presence of common shocks among the indicators. From that point, the DCC was estimated in three stages, using the series obtained from the AR (2). In the first stage of the DCC, a univariate GARCH is used for each of the seven variables employed in the analysis. In the second stage, the intercepts are obtained for the returns of the transformed indicators and, finally, the coefficients generating the dynamic conditional correlations are estimated in the third stage.

The results suggest the implicit correlations between indicators for the advanced economies and local financial indicators have increased considerably since the subprime crisis began. Likewise, the episode in China's stock market[6] during February 2007 showed a temporary increase in the correlations between all assets and financial indicators. In addition, the collapse Lehman Brothers was followed by an increase in the correlations of the indicators, to the point of generating a structural change during the period under analysis.

Finally, the results of the DCC-GARCH suggest the theory of a separation in financial markets between those of advanced and emerging economies is not valid. Although

1 Generalized autoregressive conditional heteroskedasticity models (GARCH).

2 For example, the Pearson correlation coefficient, which is a widely accepted measure because it is easy to calculate, has major limitations; namely, it can define only one type of dependency. In general, its use is limited to situations where the degree of association is not linear.

3 Spillovers are understood as the indirect effects generated during the spread of risk.

4 Models proposed by Engle (2002).

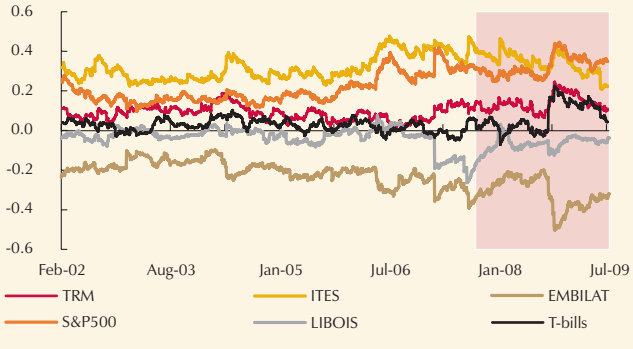
5 The unit roots of ADF, PP and KPSS were tested for this purpose. The results suggest all the series I (1), with the exception of LIBOIS, which is stationary.

6 There was a sharp correction in the Shanghai Stock Market at the end of February 2007, given the high asset overvaluation witnessed in that market.

the local stock market peaked in late 2007, just when the advanced economies were experiencing the onset of the crisis, the connections between local assets and the advanced economies became stronger and have continued to experience sudden increases at specific times during the crisis. The economic imbalances witnessed in the developed countries and the strong connection among global financial markets prompted increase risk aversion, which spread from the advanced economies to the emerging countries. This made capital flow not toward emerging market assets, but towards in safer and more liquid assets, such as the fixed-income securities of advanced economies.

Graph B1.1 shows the dynamic correlations between different financial indicators and the IGBC. The results indicate temporary increases in the correlation of some indicators with the IGBC, following the frenzy witnessed as a result of the performance of the Shanghai Stock Exchange. However, the collapse of Lehman Brothers caused the largest increases in the co-movements of the variables analyzed. For example, the correlation between the IGBC and the S & P 500 increased from 0.25 to 0.42, while the correlation between the IGBC and EMBILAT went from -0.2 to -0.45. Graph B1.2 shows the correlations between the financial indicators and the ITES, which appear to be more stable. However, they do respond momentarily to the shocks stemming from the more representative events of the crisis. The correlations between the financial indicators and the ITES are stable, although they momentarily respond to the shocks generated by the most representative events of the crisis (Graph B1.3).

Graph B1.1
Implicit Correlations between Financial Indicators and the IGBC

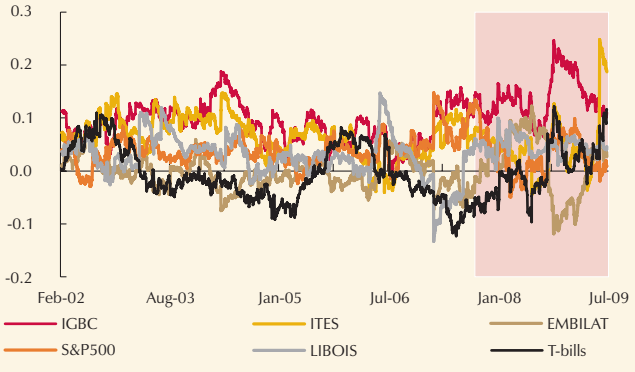


Sources: Bloomberg; calculations by Banco de la República.

Finally, the correlations between EMBILAT and all other financial assets are shown in Graph B1.4. The results suggest that the largest increases in correlations during the crisis period are between EMBILAT and LIBIOIS, and between EMBILAT and the S & P500.

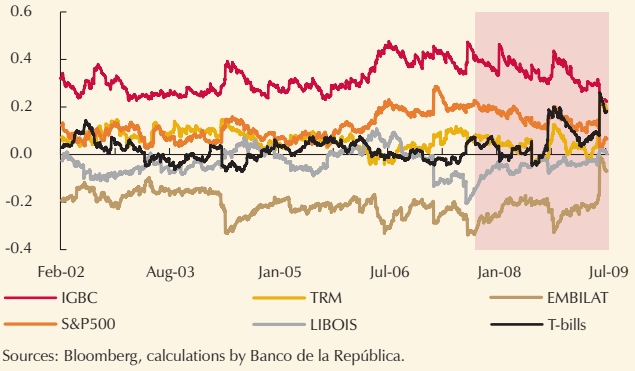
Given the connection between international financial markets, the increase in risk aversion stemming from the economic problems countries faced, has moved quickly to the emerging market economies, including Colombia. This has prompted investors to refrain from placing their capital in developing countries during the crisis and to invest in safer and more liquid securities (such as bonds issued by the governments of the advanced economies).

Graph B1.2
Implicit Correlations between Financial Indicators and the TRM



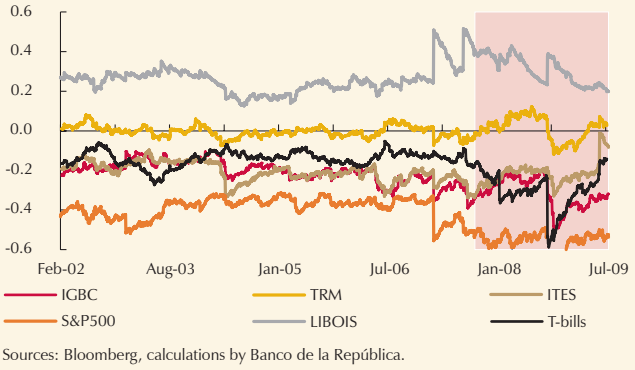
Sources: Bloomberg; calculations by Banco de la República.

Graph B1.3
Implicit Correlations between Financial Indicators and the ITES



Sources: Bloomberg, calculations by Banco de la República.

Graph B1.4
Implicit Correlations between Financial Indicators and EMBILAT



Sources: Bloomberg, calculations by Banco de la República.

II. The Financial System

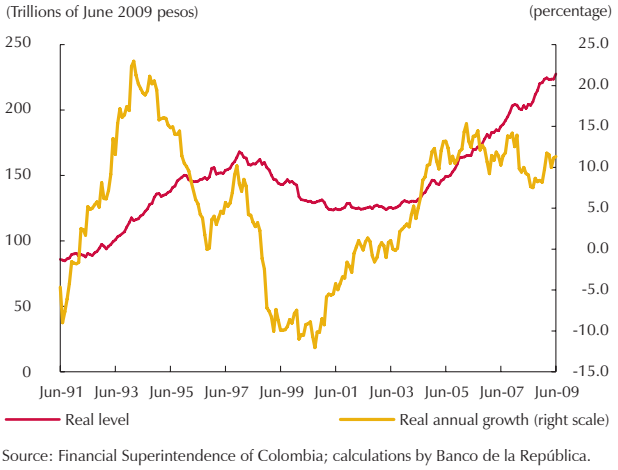
The first half of 2009 saw a slowdown in the loan portfolio, coupled with an increase in risk. However, profitability and capital adequacy remained stable. This suggests intermediaries have the resources they need to support their activities.

A. CREDIT INSTITUTIONS

Gross loan portfolio growth continued to slow during the first half of 2009, particularly with respect to consumer lending, while investments posted a further increase, adding to their share of credit institution assets.

In terms of credit risk, the growth rate for the risky portfolio was less than during the second half of 2008, although these rates remain at historically high levels. On the other hand, the extent of loan-loss provisioning has increased in proportion to the risky portfolio. Consequently, coverage for that risk has been relatively stable.

Graph 14
Credit Institutions Assets



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

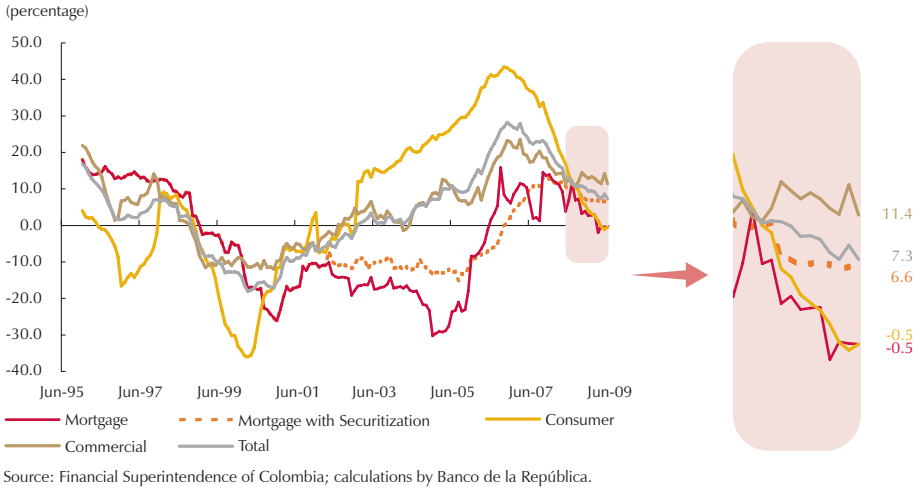
1. General Balance Sheet Positions

a. Asset Accounts

Credit institutions as a whole reported COP$227.6 trillion (t) in assets at June 2009, an amount that represents 11.3% real annual growth and is an all-time high for the series (Graph 14). Moreover, the first half of 2009 saw a change in the pace of asset growth, which offset the decline that occurred in 2008. This performance is explained largely by added investment in government bonds during the first half of 2009.

So far this year, the momentum in the gross loan portfolio has continued to drop sharply, as has been the case since early 2008 (Graph 15). Specifically, the consumer loan portfolio at June 2009 showed a real annual variation of -0.5%, which is 14.2 pp less than the Graph observed a year earlier. The change in the commercial loan portfolio during the last six months is worth noting, as it is the type of lending with the highest average growth rates since August of last year and a real annual increase of 11.4% in June 2009. However, this Graph is 1.5 pp lower than the one recorded in December 2008, reflecting a slight decrease in the commercial loan portfolio. This performance is consistent with the findings present in the June 2009 edition of *The Report on the Credit Situation in Colombia* (RSCC in Spanish), which indicates the demand for this type of lending began to weaken in the first quarter of 2009.

Graph 15
Real Annual Growth in the Gross Loan Portfolio of Credit Institutions

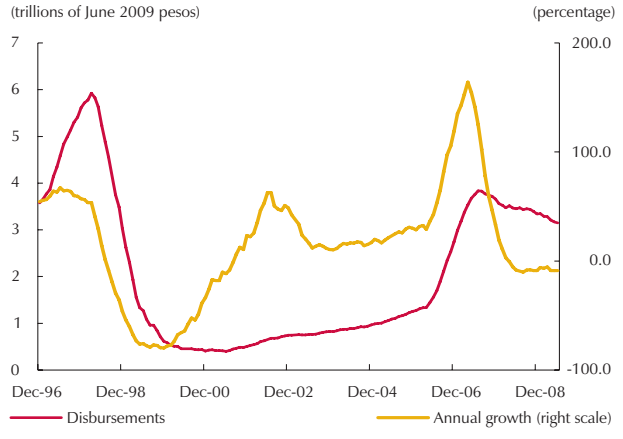


Source: Financial Superintendence of Colombia; calculations by Banco de la República.

The growth rate for the mortgage portfolio including securization remained steady and the real annual increase was 6.6% by June 2009. This is explained by an increase in securitizations (30.5%) proportional to the decline in disbursements.[6] As mentioned in the last edition of the *Financial Stability Report*, annualized monthly disbursements continued to decline at rates similar to those witnessed as of September 2008 and their real annual growth came to -8.8% at June of this year (Graph 16). Similarly, in line with the trend witnessed since July 2007, the annual approval rate for home building permits continued to drop and was -20.3% in May 2009 (Graph 17). Disbursements in pesos, as a share of all mortgage disbursements, continued to increase and accounted for 92.4% in the final week of June 2009. This is 2.6 pp more than the figure posted a year earlier.

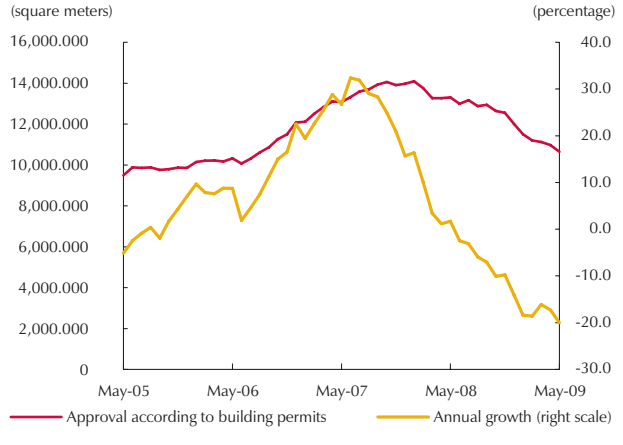
6 The disbursement series is compiled by the Savings and Home Loan Institute (Instituto de Ahorro y Vivienda -ICAV), an organization of Asobancaria.

Graph 16
Monthly Disbursements for Home Purchase



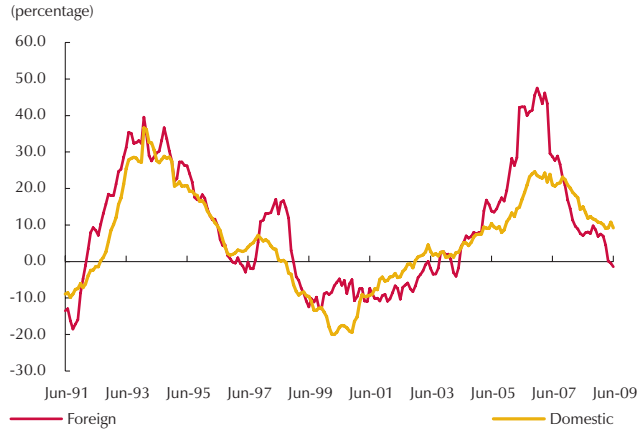
Source: ICAV; calculations by Banco de la República.

Graph 17
Area Approved for Home Construction According to Building Permits



Source: ICAV; calculations by Banco de la República.

Graph 18
Real Annual Loan Portfolio Growth by Type of Capital



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

The development of the portfolio responds to a set of factors; namely, the slowdown in economic growth, higher unemployment and persistently high interest rates on consumer lending, which may have affected the demand for credit. This trend is reflected in the total gross loan portfolio, which was up 7.3% in real annual terms by the end of the first half of 2009. However, this Graph is 5.6 pp lower than the increase recorded for the same period in 2008.

A look at real growth in the loan portfolio, according to the capital of the institutions involved, be they national or foreign,[7] shows the increase in national capital has declined since November 2006, when it was 24.6% as opposed to 9.2% in June 2009. This adjustment is even greater for institutions with foreign capital: 47.5% in December 2006 and -1.5% in June 2009 (Graph 18).

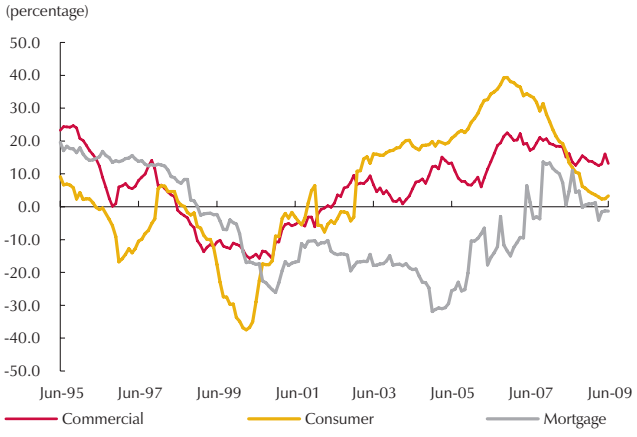
When considering the changes based on portfolio type, one sees the more pronounced adjustment was in the consumer portfolio, with foreign entities posting the sharpest drop (-8.7% versus 3.7% for national entities) (Graph 19).

On the other hand, the investments portfolio of credit institutions rose significantly during the first half of the year, having gone from COP$36.8 t at June 2008 to COP$45.6 t at June 2009. This amounts to 23.8% real annual growth and warrants special attention, particularly considering that investments were growing at a real rate of -4.6% in June 2008 and, a year later, the balance was up COP$8.7 t (Graph 20). The shift in the make-up of the investment portfolio is explained by two factors: the first is a higher level of risk in lending; the second involves the current expansionary monetary policy, lower aggregate demand in the economy and lower inflation expectations. These factors have produced a scenario conducive to valuation of the government debt (TES), which accounts for a large part of the credit institution investments.

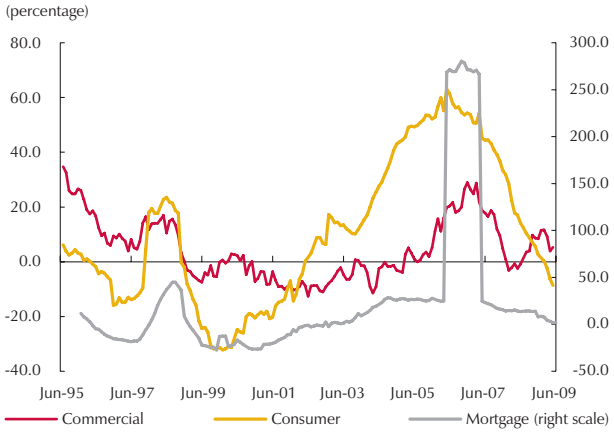
7 An entity is considered foreign if 50% of its total capital is foreign.

Graph 19
Real Annual Loan Portfolio Growth by Type of Loan and Capital

A. Domestic Entities

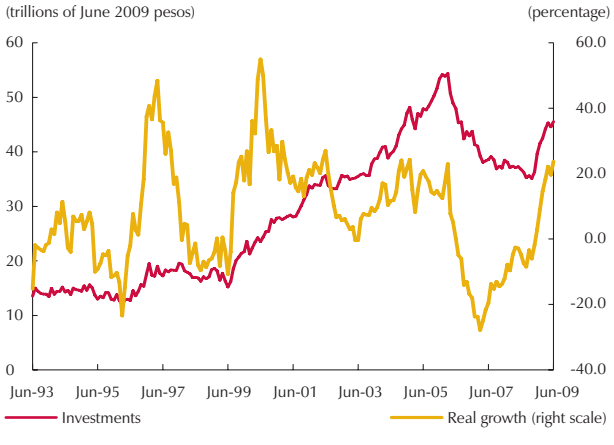


B. Foreign Entities



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 20
Credit Institutions Investments

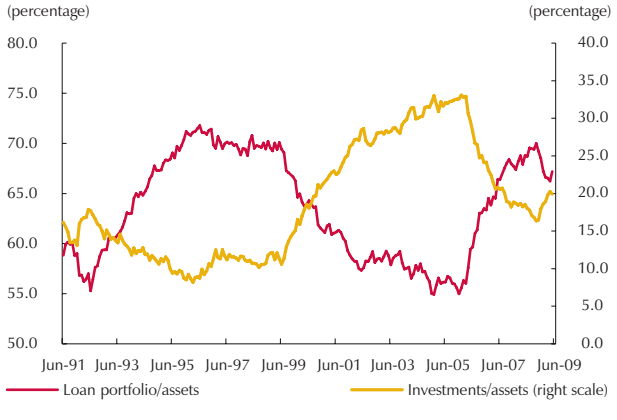


Source: Financial Superintendence of Colombia; calculations by Banco de la República.

The added growth in investments means an increase in their share of the total assets of credit institutions. In December 2008, investments accounted for 17.9% of those assets; six month later, they amounted to 20% (Graph 21), which is similar to the proportion on record in September 2007. It is worth noting that the build-up in TES holdings has different effects on the risks facing financial intermediaries. To begin with, an increase in investments of this type raises the market risk for credit institutions; secondly, it lowers their liquidity risk (see Chapter IV). Finally, the gross portfolio, as a share of the total assets of credit institutions, declined 2.3 pp from 68.5% in December 2008 to 66.3% in June 2009.

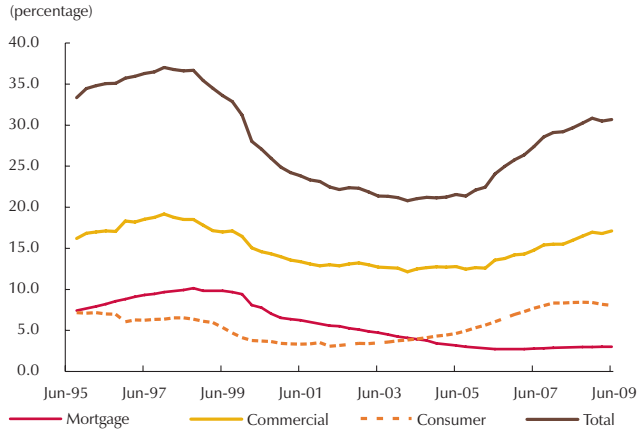
Despite slower portfolio growth, coupled with less economic growth, financial depth (measured as the ratio of the loan portfolio to GDP) remained relatively stable at around 30.7% in June 2009, suggesting there has been no disintermediation. A look at this indicator, by portfolio type, shows consumer lending was the only form of credit to experience a reduction, having gone from 8.4% in December 2008 to 8.0% six months later. During the same period of analysis, the commercial and mortgage portfolios increased 5 bp and 15 bp in depth, respectively, with growth rates of 3.0% and 8.0%. It should be noted that these indicators are still higher than they were during the period following the crisis of the late nineties; the mortgage portfolio is the only exception (Graph 22).

Graph 21
Investment and the Gross Loan Portfolio as a Share of the Total Assets of Credit Institutions



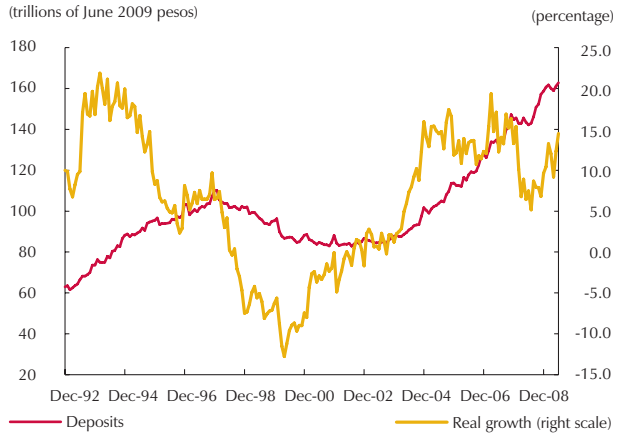
Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 22
Financial Depth (Loan Portfolio /GDP)



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 23
Credit Institutions Deposits



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

b. Passive Accounts

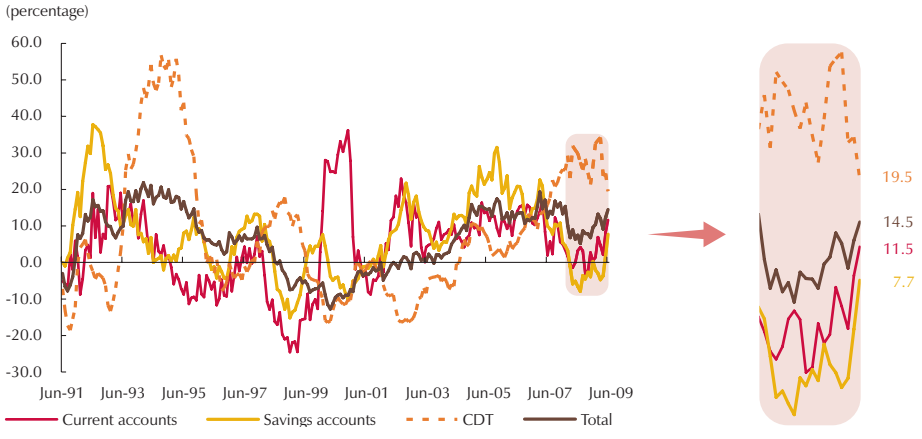
Contrary to what was noted the March 2009 edition of this report, deposits with credit institutions rose during the first half of year. In June 2009, total deposits with the financial system came to COP162.8 t, which is COP20.6 t more than the Graph recorded during the same month in 2008. The result is a real annual increase of 14.5% (Graph 23). This performance is explained by the increase in the three types of deposits, particularly current and savings accounts, seeing as their growth rates in December were close to zero.

As illustrated in Graph 24, the real annual increase in current accounts was 11.6%, which is 11.2 pp higher than six months before. Savings accounts began the year with negative rates, but that trend changed in May and, by June, their growth came to 7.7%. Contrary to these types of deposit-taking, the increase in term certificates of deposit (CDs) declined from 26.4% in December 2008 to 19.5% in June 2009. However, this remains the type of deposit with the highest growth rate for the past two years. The decline in CD growth can be explained by: i) the slowdown in the economy, which bolstered the preference for liquidity and raised the demand for sight deposits, and ii) the fact that financial intermediaries have not faced liquidity constraints, which means they are under no pressure to seek funding. However, the CD growth rate is still the highest among the various types of deposit taking. Along with other reasons, this is the result of more demand for liabilities of this type on the part of non-bank financial institutions (NBFIs) (see Chapter II, Section B).

Financial intermediaries are expected to shift the make-up of their liabilities during the next few months in response to the elimination of interest on the reserve for term certificates of deposit,[8] effective as of the first week in August 2009. In other words, CDs are now relatively more expensive than sight deposits. It is important to keep an eye on this possible shift or substitution, because the decline CDs, as a share of deposits, increases liquidity risk, inasmuch as sight deposits have a higher volatility.

8 External Resolution 09, adopted by the Board of Directors of Banco de la República in July 2009, eliminates the interest on the reserve for term certificates of deposit, effective as of the bi-weekly required reserve starting on August 5, 2009.

Graph 24
Real Annual Growth in Deposits with Credit Institutions, per Type of Deposit



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

2. Credit Institution Exposure to Major Debtors

Credit institution exposure in June 2009 was COP171.3 t, with 10.8% real annual growth versus 9.6% a year earlier. As a percentage of assets, this amount represents 75.3%, which is similar to the proportion registered during the last two years and slightly below the Graph witnessed in June 2008 (Table 2).

Contrary to what was noted in earlier reports, a look at the components of the aforementioned amount shows an increase in the portion corresponding to the public sector, which went from 18.1% in June 2008 to 21.0% a year later (Graph 25). This rise is explained by the portfolio and by government bonds, which experienced 45.2% and 25.3% real annual growth, respectively. As for private-sector borrowing, the share remained relatively stable at 47.2%, having gone from COP$73.2 t in June of last year to COP$80.8 t a year later. The amount of exposure to households continued to decline, even with the increase in securitization, and accounted for 31.8% in June 2009. This implies a reduction of 2.7 pp compared to the year before

3. Loan Portfolio Quality and Loan-loss Provisioning

The portfolio quality indicator (QI), measured as the ratio between the gross and risky portfolios,[9] deteriorated sharply compared to December 2008. The QI for the total portfolio increased from 8.9% at the end of 2008 to 9.7% in June 2009 (Graph 26). This trend in quality has been evident since late 2007 and is explained by the deterioration in loan portfolios of all types, but

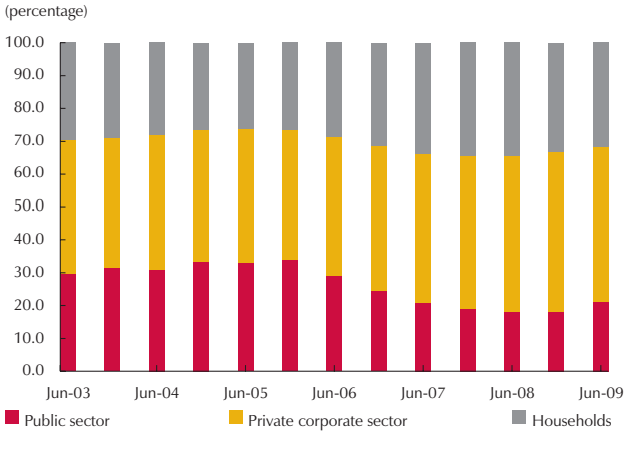
9 The risky portfolio is defined as all loans apart from A-rated loans.

Table 2
Credit Institution Exposure to Major Debtors

Type	Jun-08		Jun-09		Percentage Real Annual Growth
	Trillions of Jun-09 pesos	Share (%)	Trillions of Jun-09 pesos	Share (%)	
Public sector					
Loan Portfolio	4.98	3.2	7.23	4.2	45.2
Securities	22.99	14.9	28.80	16.8	25.3
Total	**27.97**	**18.1**	**36.03**	**21.0**	**28.8**
Private corporate sector					
Loan Portfolio	72.88	47.1	80.42	46.9	10.3
Securities	0.37	0.2	0.39	0.2	4.5
Total	**73.25**	**47.4**	**80.80**	**47.2**	**10.3**
Household sector					
Loan Portfolio	49.94	32.3	49.71	29.0	(0.5)
Consumer	39.75	25.7	39.58	23.1	(0.4)
Mortgage	10.19	6.6	10.14	5.9	(0.5)
Securitizations	3.45	2.2	4.78	2.8	38.7
Total	**53.39**	**34.5**	**54.49**	**31.8**	**2.1**
Total Exposed Amount	**154.61**	**100.0**	**171.32**	**100.0**	**10.8**
Exposed Amount over Assets (%)	**75.6**		**75.3**		

Source: Financial Superintendence of Colombia; calculations by Banco de la República

Graph 25
Financial System Exposure by Debtors



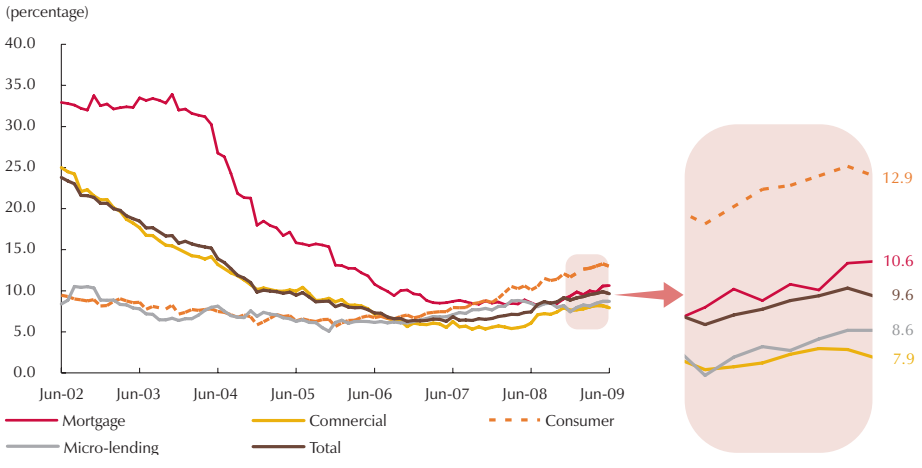
Source: Financial Superintendence of Colombia; calculations by Banco de la República.

particularly in the case of commercial and consumer lending.

The quality indicator for the commercial loan portfolio has deteriorated since March 2008, when it was 5.4%; in June 2009, it was 7.9%. This amounts to an increase of 32 bp with respect to the level witnessed six months earlier. The consumer portfolio also began to deteriorate in December 2006 and, by the end of the first half of this year, its QI was 13%, which is twice what it was a year earlier. The mortgage loan portfolio is the one that has deteriorated the most in terms of quality. At the end of 2008, its QI was 9.3%; six months later, it had increased 1.3 pp to 10.6%.

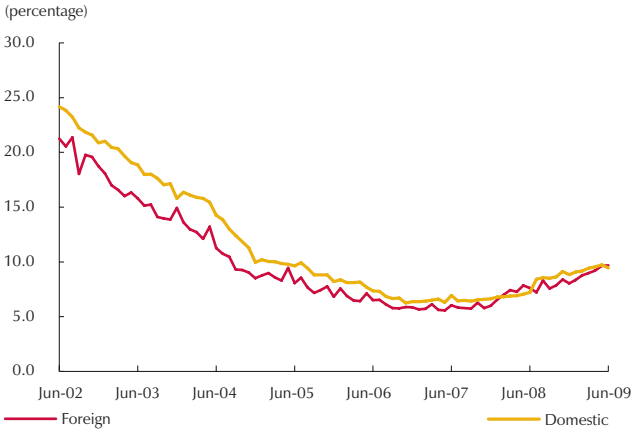
When looking at this indicator based on the type of capital invested in credit institutions, we see no significant differences between them (Graph 27). However, when analyzing the QI by type of loan, we find the indicator for the consumer loan portfolio of foreign intermediaries

Graph 26
Loan Portfolio Quality by Type of Loan: Risky Portfolio/Gross Portfolio



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 27
Loan Portfolio Quality by Type of Capital



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

(14.5%) is higher, by 2.1 pp, than it is for national intermediaries (12.4%). The difference is mainly a question of the added deterioration experienced by foreign intermediaries as of June 2007. For the commercial and mortgage loan portfolios, the situation is just the opposite: the difference for the former is 2.7 pp and 1.2 pp for the latter (Graph 28, Panels A and B).

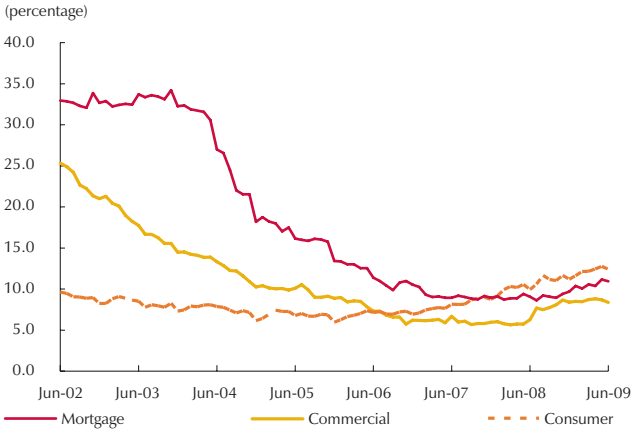
Growth in the risky portfolio has declined so far this year, but is still at historically high levels. As shown in Graph 29, real annual growth was 39.5% by June 2009, which amounts to a reduction of 7.3 pp compared to December 2008. This downward performance is due primarily to developments in the risky commercial loan portfolio,[10] which went from 54.7% at the end of 2008, in real terms, to 45.7% six months later. The pace of deterioration in the risky consumer loan portfolio has become more moderate and was 28.2% at the end of the first half of 2009, which is 13.4 pp less than in December 2008. It also is important to underscore the deterioration in the mortgage portfolio, which posted a real annual rate of 23.7% in June this year, compared to 12.7% six months earlier. [11]

10 The risky commercial loan portfolio accounts for 45.9% of the total risky portfolio.

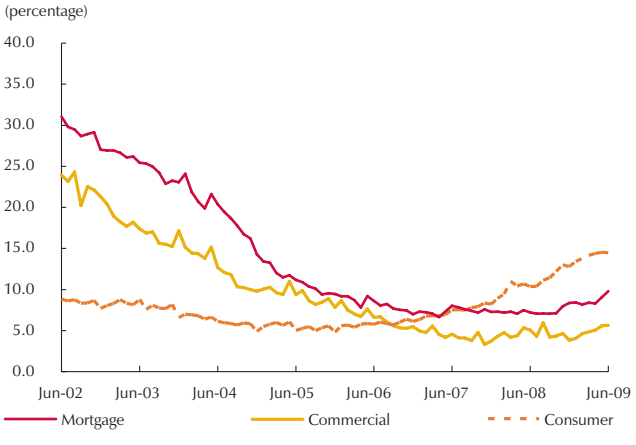
11 This indicator does not include mortgage portfolio securitization.

Graph 28
Loan Portfolio Quality by Type of Intermediary

A. Domestic Intermediaries

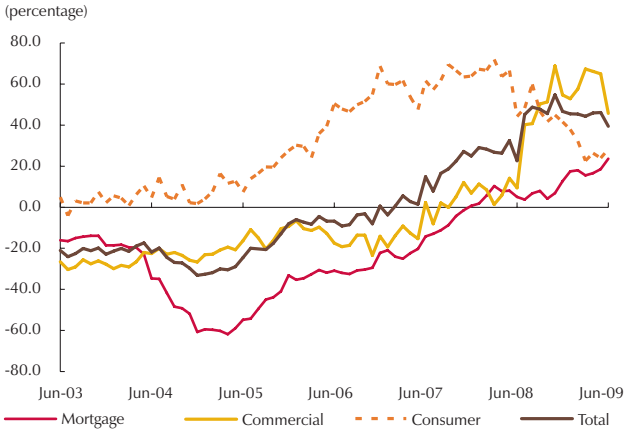


B. Foreign Intermediaries



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 29
Annual Growth in the Risky Loan Portfolio



Source: Office of the Superintendent of Financial Institutions; calculations by Banco de la República.

When analyzing the Deliquency Ratio (DR) measured as the ratio of the non-performing portfolio[12] to the total gross portfolio, one sees a general deterioration in all types of lending. In June 2009, the DR was 4.6%, which represents an increase of 55 bp with respect December 2008 (Graph 30). The mortgage loan portfolio has the highest and fastest growing DR; it went from 11.4% in December 2008 to 12.7% six months later. This is an increase of 1.3 pp in the indicator. The commercial loan portfolio saw its default level go up 49 bp between December 2008 (2.4%) and June of this year (2.9%), while the DR for the micro-loan portfolio went from 6.1% to 6.6% during the same period. Also worth noting is the continued increase in the DR for the consumer loan portfolio, which went from 5.3% in June 2006 to 8.1% three years later.

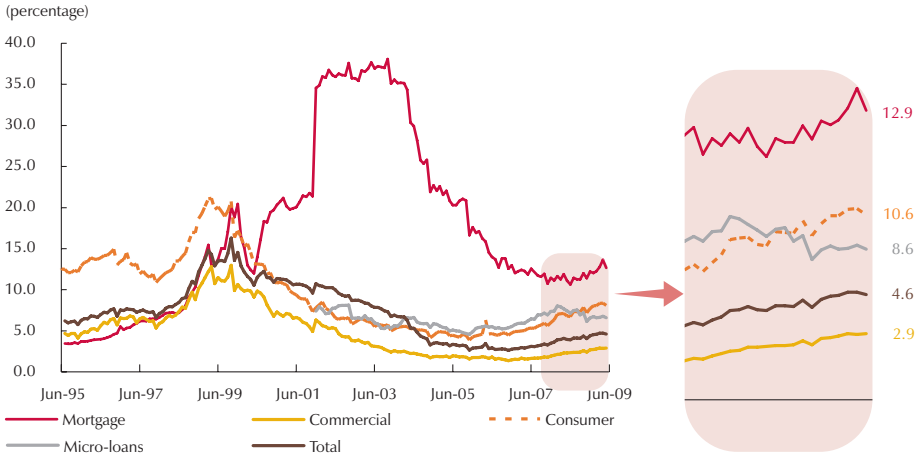
Furthermore, an analysis of default based on the type of capital shows the default level for foreign institutions was 90 bp higher in June 2009 than for national institutions, contrary to the trend observed since June 1997. The deterioration is consistent with the rapid increase in the loan portfolio held by intermediaries of this type during the credit expansion phase (Graph 31). As shown in Graph 32, much of this performance is explained by the added relative deterioration in the DI for consumer portfolio of foreigner institutions since March 2007.

The deterioration in the DI, particularly for consumer lending, is consistent with appearance of the credit risk assumed by financial intermediaries during the upward phase of the credit cycle. This being the case, the default indicator could be expected to continue to increase during the next few months, as a result of less economic growth and existing portfolio risk levels; hence the importance of continuing to keep a close eye on that risk.

Contrary to what was noted the previous edition of this report, the coverage indicator —measured as the ratio of loan-loss provisioning to the risky

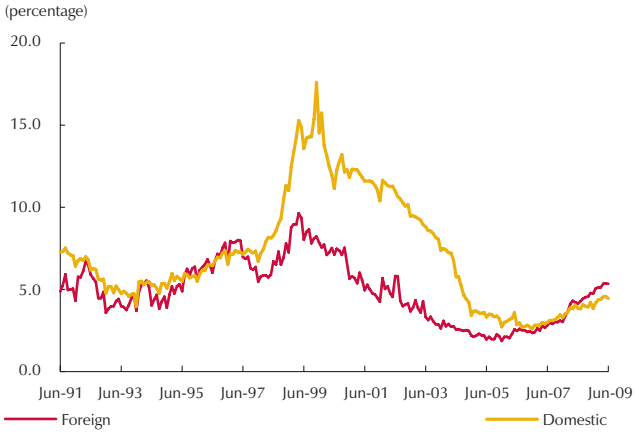
12 The non-performing portfolio is comprised of loans that are 30 days or more overdue.

Graph 30
Delinquency ratio: Non-performing Loan Portfolio/Gross Loan Portfolio



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 31
Delinquency Ratio by Type of Capital



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

portfolio— remained relatively stable throughout the first half of 2009 (Graph 33). The coverage indicator for the portfolio as a whole was 52.7%, which represents an increase of 7 basis points compared to December 2008.

The evolution of this indicator for the commercial loan portfolio during the last two years has been ambiguous. After the Credit Risk Management System (SARC in Spanish) took effect, the coverage indicator reached levels above 65%. However, as of July 2008, it was at levels similar to those on record prior to SARC. And, in June of this year, it was 52.7%. Contrary to the performance of the commercial loan portfolio, after SARC took effect, the levels of loan-loss provisioning for lending of this type have remained quite close to 60% and were 59.6% in June of this year. Coverage for the mortgage loan portfolio remained stable: approximately 32.3% in June 2009, which is 2 bp less than in December 2008.

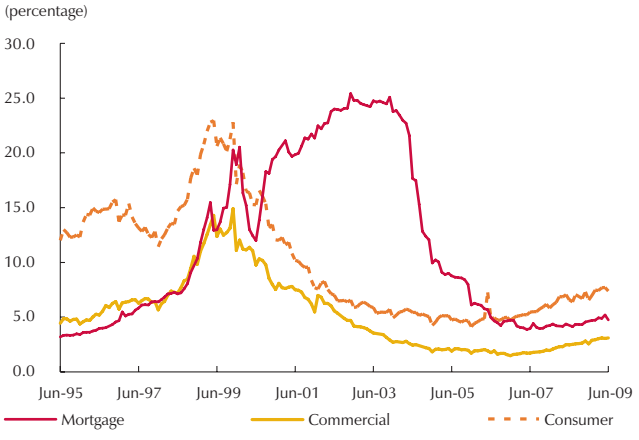
4. Earnings, Profitability and Capital Soundness

During the first half of 2009, the increase in profits maintained the trend observed since mid-2008 and, in real annual terms, was 14.4% by June 2009, reaching COP5.2 t compared to COP4.9 t six months earlier. This growth is due to more of an *ex post* spread and, particularly, to TES valuation.

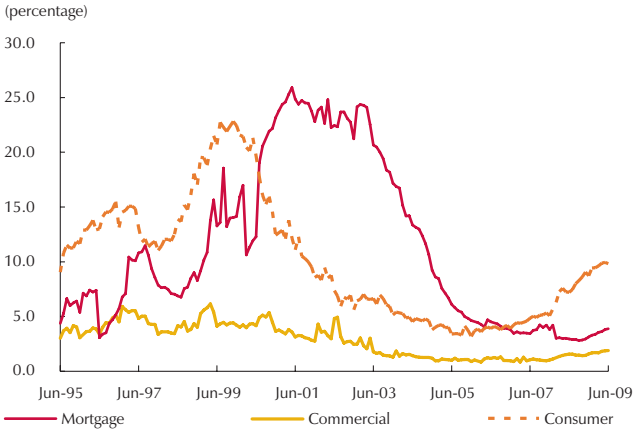
Yet, even with the added in growth in profits, return on assets (ROA) remained relatively stable and was 2.4% in June 2009, which is 4 bp less than in December

Graph 32
Delinquency Ratio

A. Domestic Intermediaries

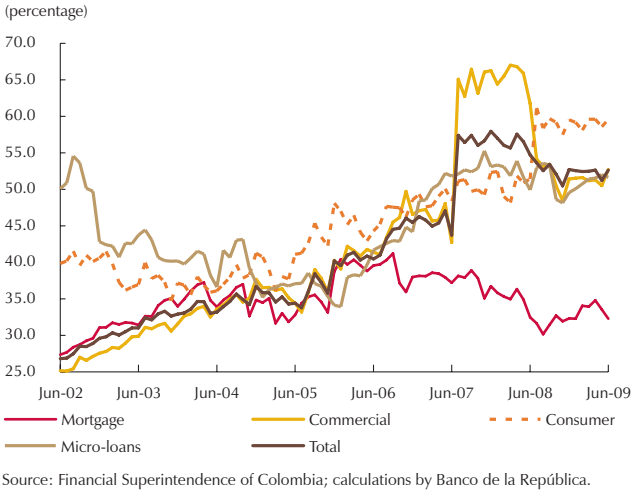


B. Foreign Intermediaries



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 33
Coverage Indicator: Loan-loss Provisioning/Risky Portfolio



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

2008. (Graph 34). Moreover, the profitability of institutions with foreign capital has been stable for the last three years, at around 1.5%, which is 1.2 pp below the average for the same period with respect to institutions with local capital. (2.6%) (Graph 35). Despite the sharp slowdown in portfolio growth, profitability has stayed at levels similar to those witnessed during the credit expansion period in past years.

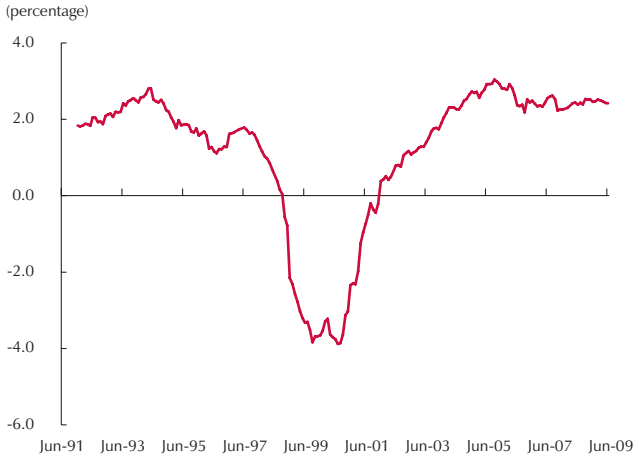
A look at the components of financial income shows that income from interest accounted for 65.7% in June 2009, which is 63 bp less than in December 2008. Nevertheless, it is still the largest component (Graph 36). Contrary to what was noted in the last edition of this report, income from commissions showed an upward change in trend and accounted for 9% of financial income by the end of the first half of 2009. This Graph represents an increase of 22 bp compared to last December. Meanwhile, income from investment valuation continued to rise and was 10.1% in June, which amounts an increase of 1.2 pp compared to December 2008. This performance is explained by the pace of this income, which went from a real annual rate of -8.7% in June 2008 to 35.0% one year later.

As to the soundness of the system, the capital adequacy ratio[13] continues to exceed the average for the decade (13.5%) and the 9% regulatory minimum. It reached 14.7% in June of this year, which is 1.1 pp more than in December 2008 (Graph 37). The higher capital adequacy ratios mean the financial system has more backing for its risky assets.

However, when analyzing the institutions with subsidiaries, is important to look at the consolidated capital adequacy ratio, which considers the leveraging of both the parent company and its

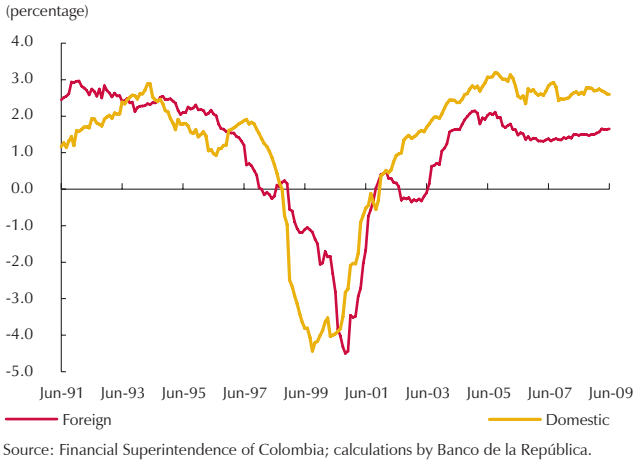
13 The capital adequacy indicator is the ratio of technical capital to risk-weighted assets, where technical capital is the sum of basic equity capital and additional equity capital combined (Article 4, Decree 2360/ 1993).

Graph 34
Return on Assets (ROA)



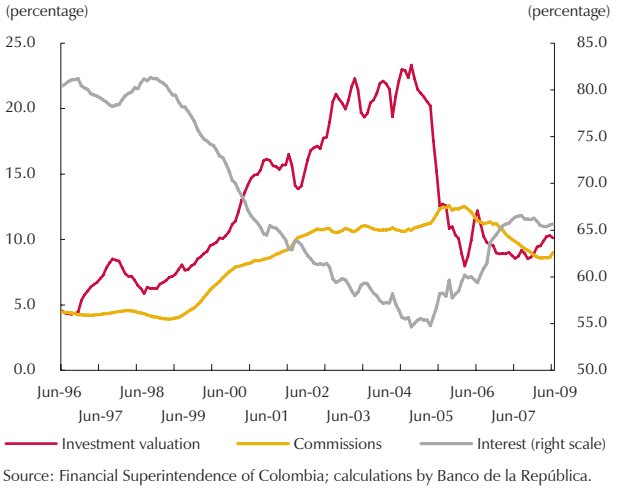
Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 35
ROA by Type of Capital



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 36
Financial Income Components



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

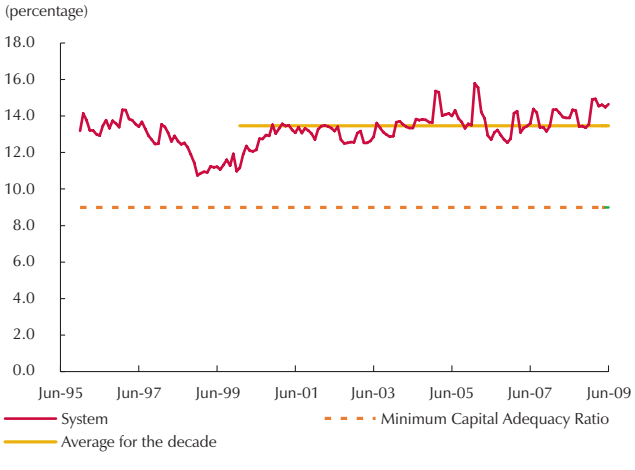
dependent companies.[14] As shown in Graph 38, consolidated capital adequacy, weighed by each establishment's share of equity, was 89 bps lower in December 2008 (11.9%) than a year earlier (12.8 %). The recent behavior of this indicator shows that credit institutions are not in as comfortable a position when balances are consolidated, as when their capital adequacy is considered individually.

As for capital adequacy according to the type of equity capital invested in institutions, this indicator has been more volatile in the case of foreign capital, as opposed to national capital, and was 14.6% in June 2009, due to the sharp increase as of late 2008 in the capital adequacy ratio of institutions with foreign equity (Graph 39).

5. Intermediation Spreads

The impact of the monetary-policy measures taken by the Central Bank's Board of Directors since December 2008, when the policy interest rate cuts started, has affected lending and deposit rates in

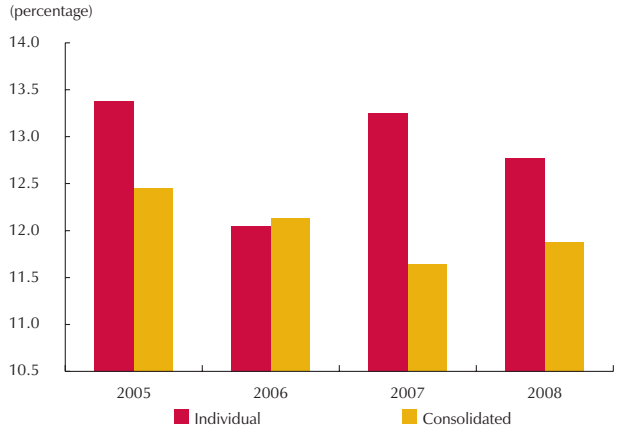
Graph 37
Capital Adequacy Ratio of Credit Institutions



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

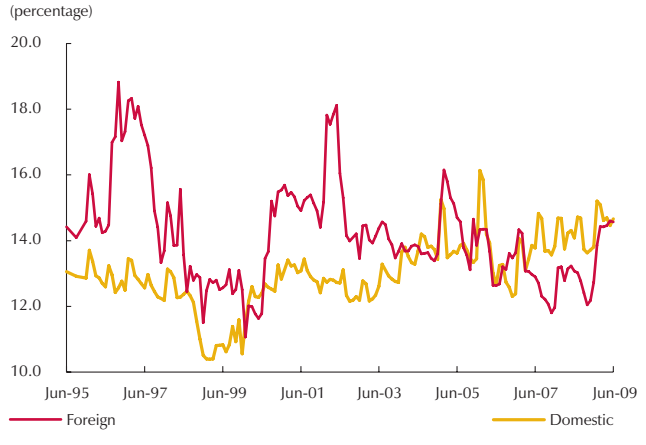
14 According to the regulations set by the Superintendent of Financial Institutions, lenders with subsidiaries own more than 50% of those subsidiaries and are required to present the consolidated capital adequacy ratio for the group. On the other hand, if the credit institution has less than a 50% interest, it must deduct the subsidiary's technical capital.

Graph 38
Weighted Capital Adequacy Ratio



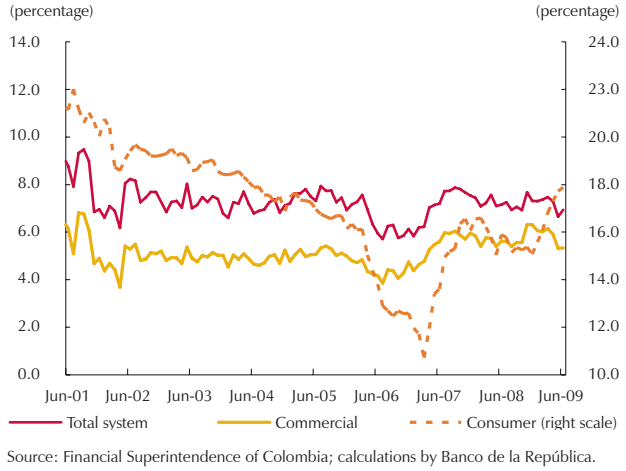
Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 39
Capital Adequacy Ratio by Type of Capital



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 40
Ex ante Spread, Using the Term Deposit Rate



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

the financial system and both have begun to decline gradually. As shown in Graph 40, the *ex ante* spread[15] for the system as a whole dropped during the first half of 2009, reaching 6.9% in June this year. This implies a reduction of 38 bp with respect to December 2008 (7.3%) and is explained largely by reductions in the spread on commercial lending, which was 5.3% at the end of the first half of 2009, compared to 6.3% six months earlier. However, the *ex ante* spread on consumer lending rose during the period between December 2008 (15.1%) and June 2009 (17.9%), owing to less of a reduction in the lending rate compared to the rate on deposits, given the risk associated with loans of this type.

On the other hand, the *ex post* spread[16] continued to rise and was 8.6% in June 2009, which is 73 bp more than the level on record in December 2008 (7.9%) (Graph 41). This is explained by higher implicit lending rates in the system, which went from 15.3% to 16.1% between December 2008 and June this year, coupled with a less than proportional increase of 4 bp in implicit deposit rates during the same period to 7.5% in June 2009 (Graph 42).

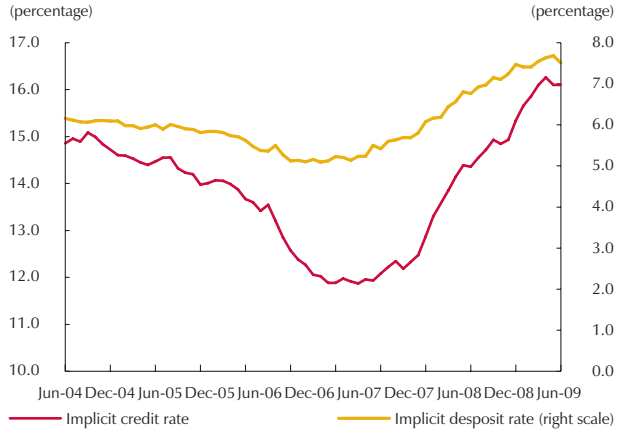
Graph 41
Ex post Spread

Source: Financial Superintendence of Colombia; calculations by Banco de la República.

15 The ex ante spread is the difference between the rates charged by intermediaries for different types of loans and the average rate on term deposits (CDT).

16 The ex post spread is calculated as the difference between the implicit lending and deposit rates. The first includes earned interest, plus indexation as a percentage of the performing portfolio. The latter includes outlays for interest, plus indexation as a percentage of liabilities with cost.

Graph 42
Implicit Interest Rates of Credit Institutions



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

In short, the loan portfolio continued to exhibit lower growth during the first half of 2009, particularly for consumer lending. This reduction was accompanied by further manifestation of the credit risk assumed by intermediaries in past years. Consequently, the quality, default and coverage indicators have deteriorated. However, the risky portfolio rate did stabilize, although at historically high levels.

Investments as a share of financial system assets continued to increase, due to a favorable scenario for added government debt holdings. By the same token, profits and the capital adequacy indicator for the system continue to rise, owing to higher returns on investments as result of valuation and spreads. The level of these indicators is a sign of the financial system's current capacity to support its intermediation activities. Nevertheless, with the current economic situation, the lower rate of growth and higher unemployment make it imperative to keep a close eye on the risk indicators for financial intermediaries.

B. NON-BANK FINANCIAL INSTITUTIONS

An analysis of non-bank financial institutions (NBFIs) is crucial for the effects of this report, given their possible impact on financial stability. On the one hand, NBFI are savings and investment vehicles for households and the general public, through portfolio management. On the other, they are linked closely to all other financial agents, either as counterparts in their market transactions or because they are part of a financial group. Consequently, NBFI can serve as systemic agents in certain contingencies. The NBFI analyzed in this section are pension and severance fund managers (PFM), life and general insurance companies (LIC and GIC), collective portfolio managers, brokerage firms (BF) and investment management companies (IMC).

To examine the role of the NBFI portfolio in the financial system, Table 3 shows the value of investments for each type of institution within the sector. As illustrated, the investment portfolio of financial institutions increased 11.4% during the first half of 2009 and came to COP317.2 t by the end of June. This performance, which is consistent with the trend witnessed in earlier periods, was prompted largely by an increase of COP$22.9 t in the NBFI investment portfolio, which is equivalent to a variation of 23.4% for the six months. The change in the portfolio of credit institutions also contributed to the additional value of investments by institutions financial, but less so. Credit institutions increased their investment portfolio by COP9.6 t, which amounts to 5.2% growth.

The build-up in the NBFI investment portfolio is the result of growth in the portfolio of mandatory pension funds, which was up COP10.2 t during the first half of 2009 (17.5%) due to better profits during that period. The collective portfolios (special and ordinary mutual funds) also contributed to the increase in the value of the NBFI investment portfolio, but to a lesser extent. The value of that portfolio rose COP6.6 t and ended the first six months of 2009 at COP16.3 t, thanks to positive momentum in the market for stocks and government bonds (Table 3).

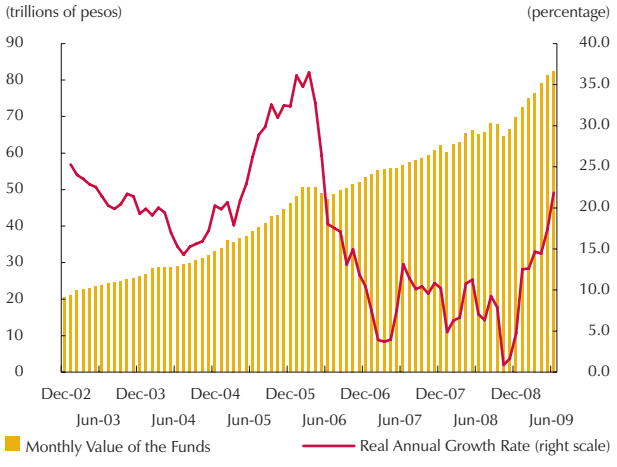
Table 3
Investment Portfolio: Financial Institutions

	2006		2007		2008		2009	
	Trillions of pesos	Percentage of GDP	Trillions of pesos	Percentage of GDP	Trillions of pesos	Percentage of GDP	Trillions of pesos	Percentage of GDP (proj)
Credit Institutions								
Investments	37.65	9.82	34.95	8.09	38.75	8.08	45.56	9.50
Portfolio	97.86	25.53	125.10	28.97	147.79	30.81	150.59	31.40
Total Credit Institutions	**135.51**	**35.35**	**160.06**	**37.06**	**186.54**	**38.89**	**196.15**	**40.90**
Non-bank Financial Institutions								
Mandatory Pensions	43.31	11.30	51.12	11.84	58.38	12.17	68.61	14.31
Voluntary Pensions	6.16	1.61	7.06	1.64	7.52	1.57	8.39	1.75
Severance Pay	3.74	0.98	3.80	0.88	4.01	0.84	5.28	1.10
General Insurance	3.31	0.86	3.59	0.83	3.96	0.82	4.16	0.87
Life Insurance	6.19	1.62	6.94	1.61	11.90	2.48	13.63	2.84
Ordinary Mutual Funds	3.79	0.99	4.33	1.00	7.53	1.57	11.50	2.40
Special Mutual Funds	1.54	0.40	1.82	0.42	2.21	0.46	4.80	1.00
Brokerage Firms and Investment Management Companies	3.80	0.99	3.35	0.78	2.60	0.54	4.67	0.97
Total Non-bank Financial Institutions	**71.85**	**18.75**	**82.01**	**18.99**	**98.10**	**20.45**	**121.04**	**25.24**
Total	207.36	54.10	242.07	56.06	284.64	59.35	317.19	66.13

(Proj) Projected at June 2009
Source: Financial Superintendence of Colombia; calculations by Banco de la República

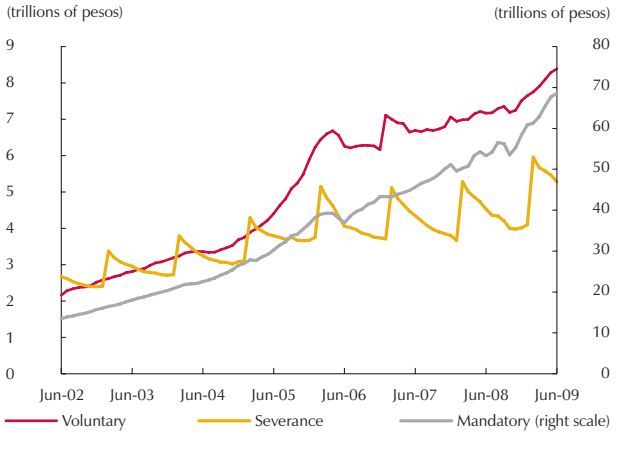
Specifically, the high concentration of PFM-managed resources in local securities and primarily in government bonds makes them sensitive to changes in conditions on internal markets. Consequently, the TES and stock valuations witnessed during the first half of 2009 allowed for a sizabe increase in PFM portfolio value. However, the positive effect this year contrasts with the less favorable results posted during the second half of 2008.

Graph 43
Pension Funds: Nominal and Real Growth



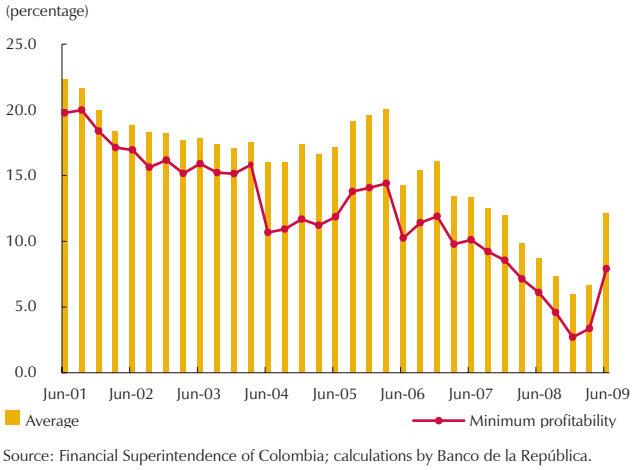
Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 44
Pension Fund Portfolio Value



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 45
Average Tri-annual MPF Profitability and Minimum Profitability



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

1. Pension and Severance Fund Managers (PFM)

a. Portfolio Value and Return

During the first half of 2009, the value of the PRM-managed funds improved significantly compared to a year earlier. The value of these funds increased COP$12.4 t during that six-month period, which is COP$4.4 t more than the variation witnessed in 2008. Consequently, PFM-managed funds were valued at COP$82.3 t by the end of June 2009, which is equivalent to a real annual increase of 21.8% (Graph 43). This momentum offsets the negative result in October, when the value of the portfolio dropped 4.6%.

The growth in total PFM-managed resources reflects the momentum in each of the components: the mandatory pension funds (MPF), the voluntary pension funds (VPF) and the severance funds (SF). These funds posted real annual increases of 23.9%, 12.7% and 12.3%, respective, owing to a much larger return on their investment portfolios (Graph 44).

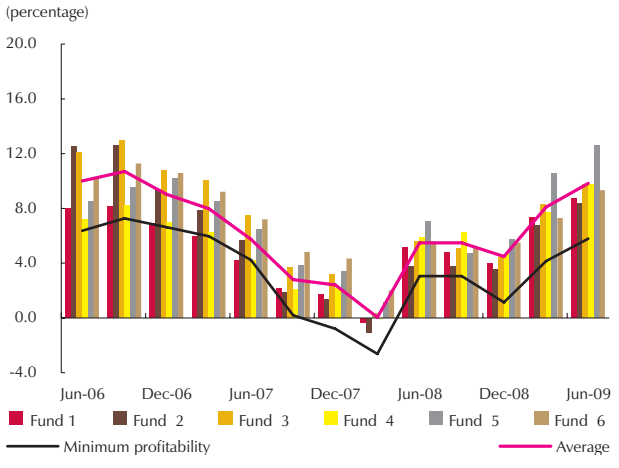
The good returns on the managed funds are due to their high concentration in government securities. The cut in the Central Bank's benchmark rate passed through directly to the discount rates on those financial instruments, increasing their price and, consequently, their benefits from valuation.

In the case of MPF, the tri-annual return[17] on their portfolios offset part of the downward trend observed since late 2005. As a result, the rate of return increased from 6.0% in December 2008 to 12.2% in June 2009. The minimum profitability of these funds was 5.1 pp higher than what it was at the close of 2008, and reached 7.9% in June (Graph 45).

As with the MPF, the returns for SF during the first half of 2009 were positive, allowing them to maintain the upward trend witnessed since the first quarter of 2008 (Graph 46). Accordingly, the

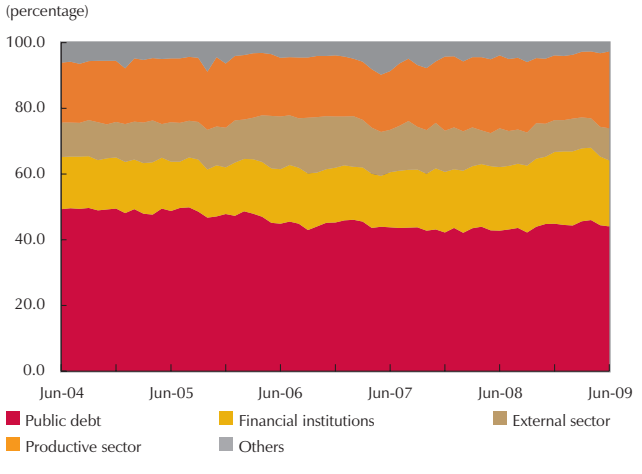
17 In the case of MPF, the reference period for calculating minimum profitability is three years. It is two years for severance funds.

Graph 46
Bi-annual Profitability of Severance Funds and Minimum Profitability



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 47
Pension Fund Portfolio Components, by Issuer



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

average bi-annual return on severance funds was 9.8% in June, which is 5.3 pp more than in December 2008. This upward performance was replicated by minimum bi-annual returns, which rose 4.7 pp in first half of 2009 to 5.8%. It is important to point out that none of the funds failed to comply with the minimum return during this period.

b. Portfolio Components by Issuer, Term and Currency

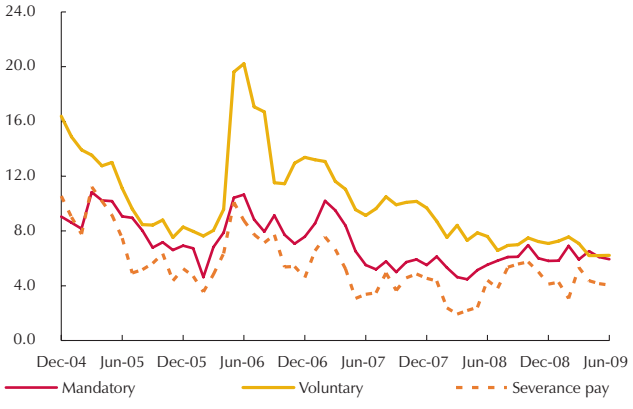
There were no major changes in the make-up of the PFM-managed portfolio during the first half of 2009, which remained concentrated largely in government bonds (44%) (Graph 47). However, financial-sector securities are being exchanged for investments in the productive sector. As a result, the share of the latter increased 3.8 pp and ended the first six months of 2009 at 23.5%. This is explained by the recovery of stock market momentum, which was characterized by higher trading volumes and a significant valuation in stocks.

On the other hand, the pace at which external sector investments are being replaced by financial sector assets, a process evident since the second half of 2006, slowed between January and June 2009. As a result, the share of the PFM-managed portfolio represented by investments in external sector instruments is similar to what it was in December 2008, when it averaged 9.4% of the value of all resources.

As with the share of external-sector investments, the percentage of portfolio value represented by the unhedged portion denominated in foreign currency for MPF and SF was similar to the levels witnessed at the end of 2008. These percentages were 5.9% and 4.0%, respectively, by the end of the first half of 2009. The VPF reduced their unhedged share in foreign currency by 86 bp, bringing their exposure to 6.2% of the value of the portfolio. This is well below the 30% limit on the unhedged position in foreign currency and shows a clear preference for local assets on the part of these funds (Graph 48).

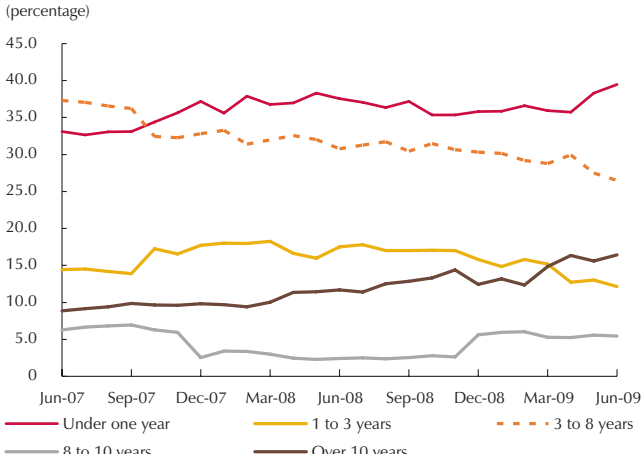
The Central Bank's benchmark rate cuts as of December 2008 prompted a restructuring of investments in TES on the basis of maturity (Graph 49). Bonds maturing in one to eight years were replaced with those maturing in less than one year and over ten. The result was a 3.7% increase in the share of the portfolio represented by public debt, which accounted for 39.5%.

Graph 48
Percentage of Foreign Currency Denominated Portfolio Value, without Coverage
(percentage)



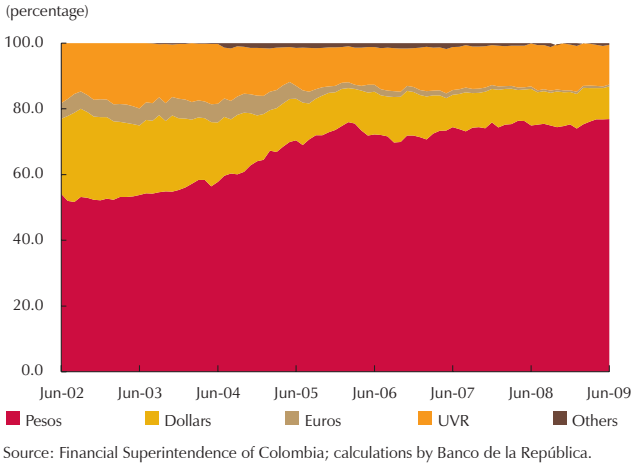
Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 49
Pension Fund Portfolio Components by Maturity



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 50
Pension Fund Portfolio Components by Currency



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Investments in TES maturing in more than ten years increased 4.0 pp and accounted for 16.4%.

Because the Central Bank's benchmark rate cut is passed through mainly to the short end of the yield curve, causing it to shift downward, the benefits from the valuation of securities on this portion of the curve materialize almost directly. Also, the securities furthest from maturity and, therefore, the ones with more duration, are more price sensitive to interest rate changes. Consequently, in a scenario of expansion with gradual cuts in the Central Bank's intervention rate, investors are prompted to buy securities situated at either end of the yield curve.

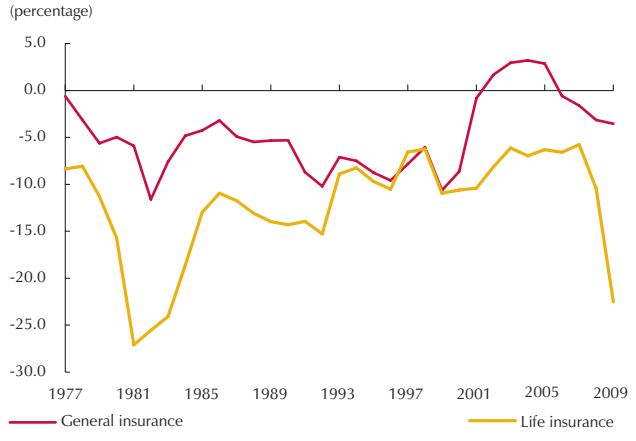
Long-term liabilities are a particular feature of pension and severance funds. Accordingly, the nature of their business points to a concentration of the portfolio in assets with similar maturities. However, the PFM-managed portfolio contains a large share of assets that mature in less than a year. This is due to the currently limited supply of investment securities in the local market.

The make-up of the portfolio by denomination saw no major changes between January and June 2009. Resources remain highly concentrated in peso-denominated securities, which accounted for 76.9% by the end of the first semester. This represents an increase of 1.6 pp, mainly due to investments in UVR (Graph 50).

2. Life and General Insurance

At June 2009, the investment portfolios of life insurance (LIC) and general insurance companies (GIC) were valued respectively at COP$4.2 t and COP$13.6 t. These levels represent increases of 5.1% and 14.5% compared to the previous half-year period. In the case of GIC, the growth in investments is explained primarily by an increase in productive-sector securities (13.0%) and government bonds (12.1%). In the case of LIC, it is due largely to added investment in the financial sector (22.8%), particularly in term certificates of deposit (CD).

Graph 51
Technical Profit Margin



Source: Fasecolda.

The technical profit margin, defined as the ratio of technical profit to issued premiums, [18] continued to decline throughout the first half of 2009, as it has during the past two years for both GIC and LIC. This indicator, which was -3.5% and -22.5%, respectively, in June 2009 dropped by 37 bp and 12.1 pp compared to December 2008 (Graph 51). The sizeable decline in the case of LIC is due to considerable less value in issued premiums (49.8%) during the first half of 2009.

The technical profit, as an operational profit for insurance companies, is an indicator of surplus or deficit in the operation of the business. A technical margin near zero signals efficiency in the system. Therefore, positive or negative indicators point to possible anomalies.

A negative technical margin is indicative of a situation where the extent of customer risk is underestimated, in which case the actuarial calculations predict a lower value for potential claims payable with respect to issued premiums. In other words, it indicates the projections on accounts payable should the insured contingencies occur are less than what actually would have to be paid. In contrast, a positive technical margin may suggest a problem with lack of competition among insurers, as it reflects a situation involving market power, where the premiums charged are higher than those suggested by the risk associated with the customers.

The technical margin for both life and general insurance companies is negative, which could suggest the system has a high potential for undervaluing the risk posed by its customers. However, the outcome for GIC is significantly better than for LIC; their margin has not been so low since the early eighties.

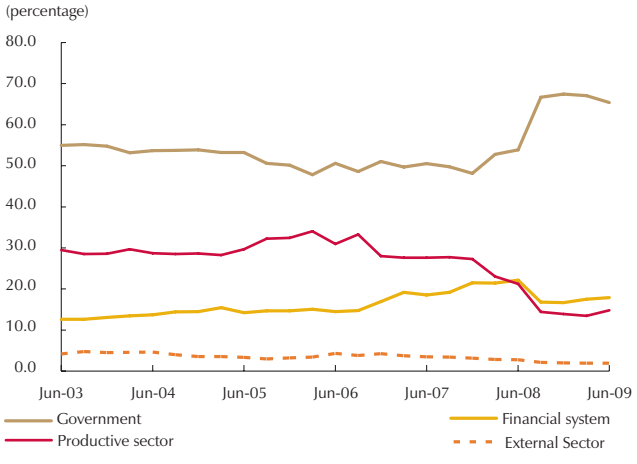
As illustrated in Graph 52, Panel A, LIC investments are highly concentrated in government securities, accounting for 65.4% in June 2009, which is 2.0 pp less than in December 2008. This decline is the result of a shift from government securities to assets in the productive sector and the financial system.

The GIC portfolio is concentrated mainly in government bonds; however, an important share is comprised of external-sector assets. Government bonds accounted for 40.5% in June 2009, while external-sector assets represented

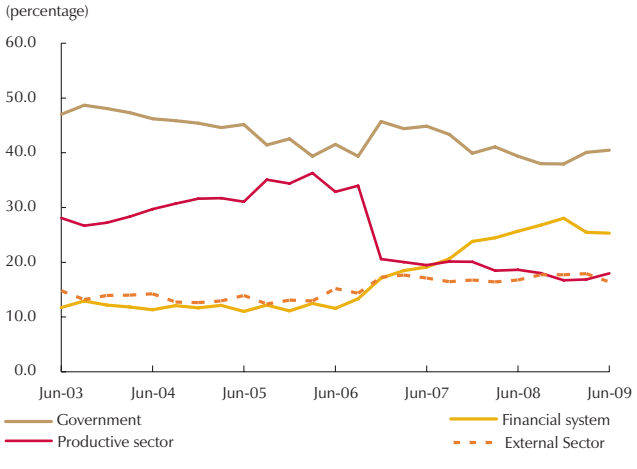
18 The technical profit is the operating profit earned by insurance companies. It includes insurance and reinsurance income, minus outlays for these same items, commissions and general expenses. Accordingly, the technical margin establishes the proportional surplus or deficit of insurance companies with respect to their business. A margin near zero is a sign of competitive and efficient insurance systems.

Graph 52
Investment Portfolio by Issuer

A. Life Insurance Companies

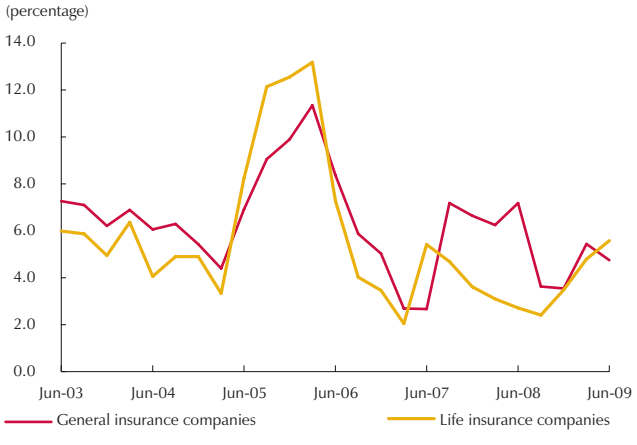


B. General Insurance Companies



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 53
Life and General Insurance Companies ROA



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

16.4% of all investments. Also, the last six months have seen financial sector assets being replaced by government bonds. The result being a 2.5 pp increase in the percentage of investments in the latter during those months (Graph 52, Panel B).

Despite less return on investments, insurance companies saw their return on assets increase during the first half of 2009 (Graph 53). For LIC, it was 5.6% by June, which is 2.1 pp above the outcome by December of last year. For GIC, the upward trend in ROA during the first quarter of the year was partly offset during the second quarter, which meant this indicator at 4.7% in June, or 1.2 pp higher than in December 2008.

Furthermore, the levels of coverage for the sector, estimated as the ratio of technical reserves to investments, are good. By June 2009, this indicator was 99.1% for GIC and 88.8% for LIC. These results imply respective annual variations of -3.0 pp and 1.8 pp (Graph 54).

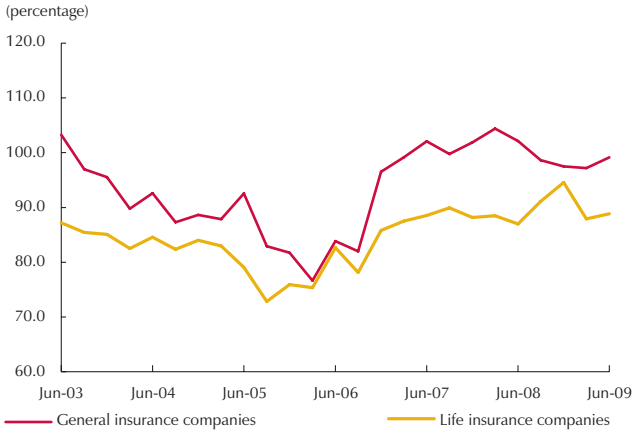
3. Mutual Portfolios[19]

Our analysis of mutual portfolios concerns the changes in the value of funds managed by fiduciary companies; that is, ordinary mutual funds (OMF) and special mutual funds (SMF). At June 2009, these companies reported an investment portfolio of COP$16.3 t. This amount represents 67.2% growth for the first quarter of 2009 and is comprised mainly of OMF resources, specifically 70.3%, which is equivalent to COP$11.5 t.

Both OMF and SMF witnessed strong growth in portfolio value during the first six months of 2009. In the case of OMF, it came to 51.9%, thanks an increase in holdings of CDs, government bonds and securities issued by companies in the productive

19 As of June 2007, any mechanism or vehicle designed to receive deposits or to manage money for a group of persons for the purpose of obtaining common economic returns is known as a mutual portfolio (Decree 2175 issued by the Ministry of Finance and Public Credit).

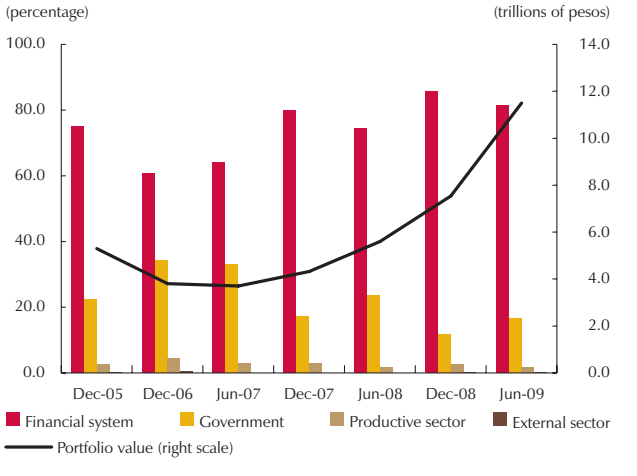
Graph 54
Coverage Indicator for Life and General Insurance Companies



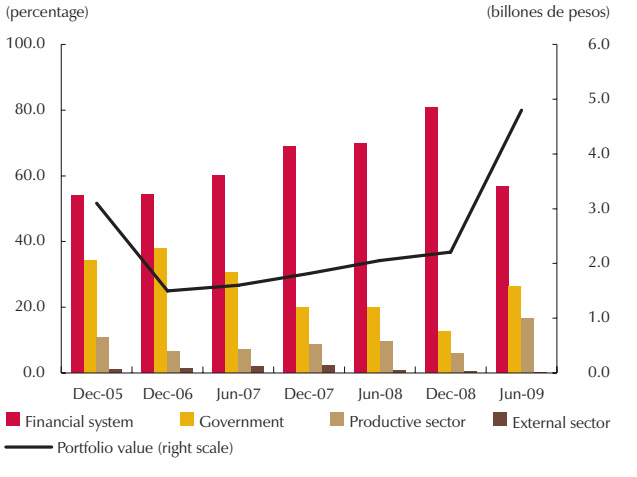
Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 55
Portfolio Value and Components by Issuer

A. Ordinary Mutual Funds



B. Special Mutual Funds



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

and financial sectors l (Graph 55, Panel A). The value of LIC investments, on the other hand, was up 117.5%, due to an increase in government bond holdings, which went from COP $175.2 billion (b) in December 2008 to COP$1.1 t in June 2009. As a result, the portfolio was valued at COP$4.8 t by the end of the first half of 2009 (Graph 55, Panel B).

A look at the components of the OMF investment portfolio shows it remains heavily concentrated in financial-system assets, primarily CDs; however, the first half of 2009 did see a shift towards government bonds. As a result, the share of financial-sector assets declined by 4.3 pp between December 2008 and June 2009, when it reached 81.5%. This shift raised the percentage invested in government bonds during the first half of 2009 to 16.6%, which is an increase of 5.0 pp.

The SMF portfolio changed dramatically during the first half of 2009. Although financial-system assets still account for the largest proportion (56.6%), their share declined 24.2 pp between December 2008 and June 2009. The share of government securities, which are mostly bonds, and of bonds issued by the productive sector - was up 13.9 pp and 10.6 pp, respectively, accounting for 26.5% and 16.7% of the portfolio.

Contrary to the situation observed since March 2007, the return on assets trended downward during the first half of 2009. As illustrated in Graph 56, the ROA at June 2009 is 4.7%, which is 2.9 pp below what was observed six months earlier.

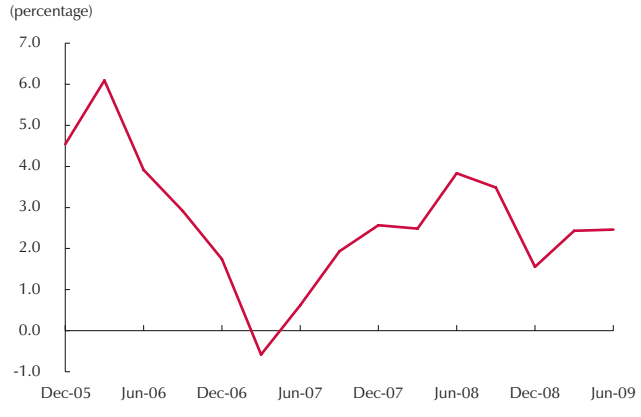
4. Brokerage Firms and Investment Management Companies

The value of the investment portfolio of brokerage firms and investment management companies rose 79.9% during the first six months of 2009 and closed the year at COP$4.7 t, reversing the downturn observed since 2005. This performance is consistent with the added momentum and valuation in stocks

Graph 56
Mutual Funds ROA

Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 57
ROA (BF and IMC)



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

quoted on the Colombian Stock Exchange[20] and in government bonds.

The ROA during the first half of 2009 reversed most of the downturn experienced during the latter half of 2008, having increased 90 bp. As a result, the ROA was 2.5% by the end of June 2009. With this correction, the ROA reflects the recovery witnessed in the sector during the period in question (Graph 57).

When analyzing how these institutions performed individually, ones sees a group tendency towards more return on assets during the first six months of the year. Graph 58, where yields increase in value in propotion to their distance from the center shows this momentum, for 41 institutions. In fact, 68% registered higher profit levels in June 2009 compared to the end of 2008.

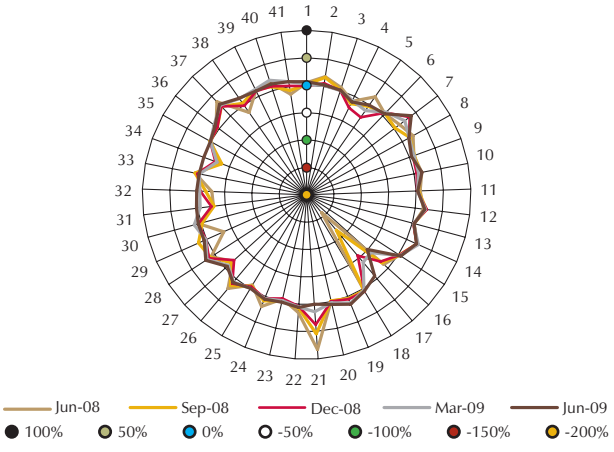
As noted in the past edition of the *Financial Stability Report,* institutions with quite a negative ROA are not overly leveraged. In fact, they have an investment/equity ratio that is below average for the sector: 5.6 at June 2009 as opposed to 3.4 in December 2008.

In short, considering the second half of 2008 was a time of high volatility and losses for the system, a comparative analysis shows relatively better returns for NBFIs by June 2009. More momentum in the markets, the valuation in government bonds and stocks, among other factors, led to a situation where the investment portfolio of these institutions outpaced economic growth and, as a result, its share relative to GDP increased as well. OMF and the mutual funds experienced the most growth; however, high exposure to local investments significantly adds to the frailty of the portfolio in terms of being sensitive to changes in local markets.

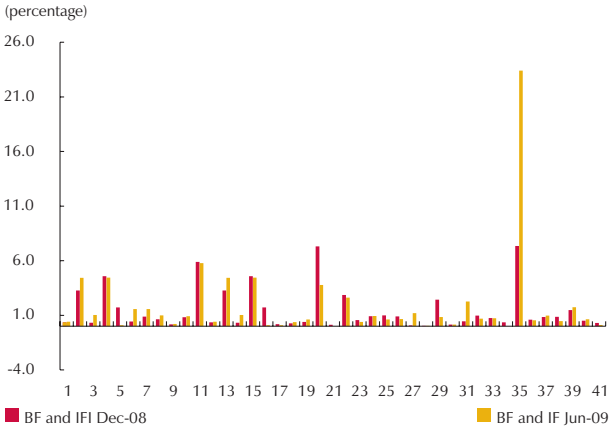
20 The Colombian Stock Exchange rose 30.7% during the first half of 2009.

Graph 58

A. ROA for Brokerage Firms and Investment Funds



B. Investments /Equity of Brokerage Firms and Investment Funds



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Box 2
ANALYSIS OF CONCENTRATION AND COMPETITION

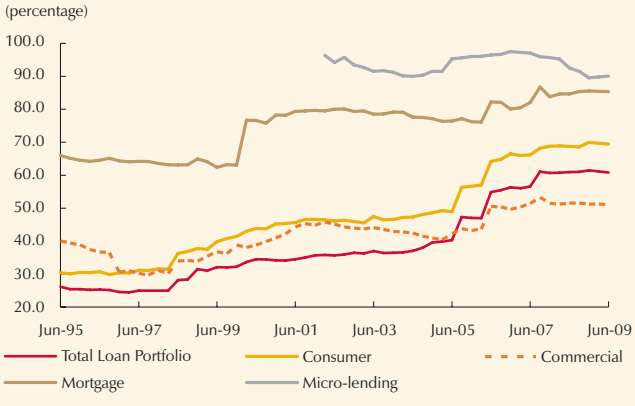
The level of concentration and competition on the part of financial intermediaries is analyzed in this section.1 The first measure of concentration uses the market share of the five largest loan and deposit market intermediaries, supplemented with the Herfindahl-Hirschman Index (IHH),[2] which makes it possible to quantify the level of concentration in each of those markets. Because high levels of concentration do not imply that a market is not competitive, several additional indicators are used to determine the degree to which financial intermediaries in the credit and deposit markets are competitive.

1. Concentration

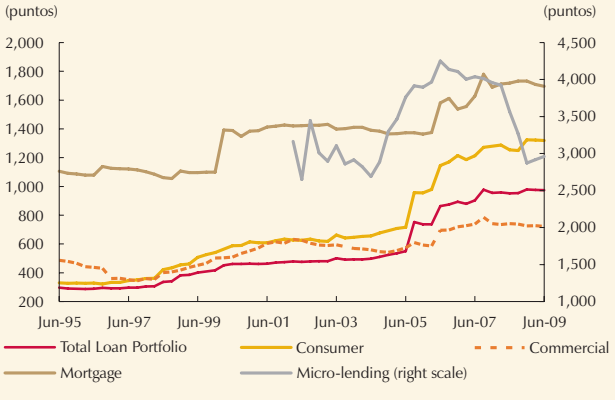
The share of the credit market corresponding to the five largest intermediaries (RC5) remained stable during the first half of 2009 (Graph B2.1, Panel A and Table B2.1). In terms of the entire loan portfolio, there were no significant changes in market share, but there was some decline with respect to December 2008 (from 61.4% to 60.8%). As to the different types of loans, the five largest intermediaries posted a slight reduction in consumer, commercial and mortgage lending, while micro-loans, as a share of the total portfolio, rose by about 50 bp. This was due to the focus on this type of lending by specialized institutions and changes in regulations that apply to micro-loans.[33] A look at the market share of the two largest institutions shows the major changes were in the commercial loan portfolio, where market share went from 24.4% to 23.5%. As for consumer and mortgage lending, market share declined slightly but for micro-lending the share increased.

Graph B2.1

A. Share of the Loan Portfolio Corresponding to the Five Largest Institutions



B. HHI of the Loan Portfolio



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

The change in the HHI during the first six months of 2009 is similar to that of the RC5 (Graph B2.1, Panel B). During that period, both the level of concentration with respect to the portfolio as a whole and for the different types of lending (except micro-loans) declined slightly, placing them within the range of moderately concentrated markets. For the micro-loan portfolio in particular, the HHI indicator rose 90 points, from 2,870 to 2,960, making it the portfolio with the highest level of concentration.

As in the loan market, the share of the deposit market pertaining to the five largest intermediaries remained relatively stable during the first six months of 2009 (Graph B2.2, Panel A and Table B2.2). Their share of total deposits declined 76 bp, from 58.4% to 57.7%, while the market share of the two largest

1 For more information on the methods, see "Concentration and Competition Measures," in Financial Stability Issues, *Financial Stability Report*, March 2008.

2 The HHI measures the level of concentration in a particular market. The indicator is in the $0 \leq IHH \leq 10.000$ range. A number below 1,000 denotes low concentration, while a number between 1,000 and 1,800 indicates medium concentration. Anything above 1,800 is considered high concentration.

3 As of March 2008, a portion of the loans entered on the books as part of the consumer and commercial loan portfolios came to be regarded as micro-loans.

Table B2.1
Loan Portfolio Concentration Indicators at June 2009

	Total Loan Portfolio	Consumption	Commercial	Mortgage	Micro-loans
Share (%)					
Two largest	34.08	44.37	23.54	46.82	68.01
Five Largest	60.81	69.41	50.93	85.38	90.05
HHI	**975**	**1.319**	**722**	**1.696**	**2.960**

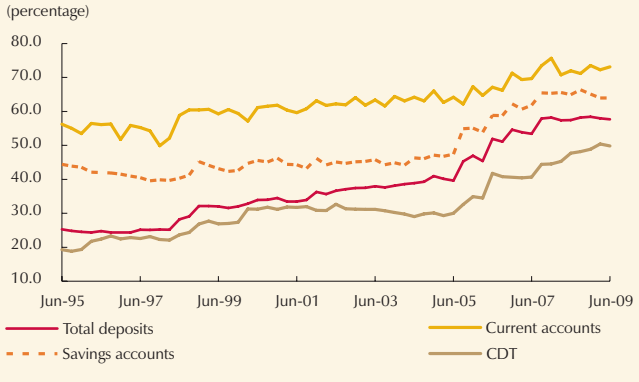
Source: Financial Superintendence of Colombia; calculations by Banco de la República.

intermediaries went up 55 bp, from 30.6% to 31.2%. A look at the type of deposits shows a slight decline in the share of current and savings accounts for these institutions. As for CDs, the share of the five largest institutions continues to grow, as it has in recent years, and was 49.9% by June 2009.

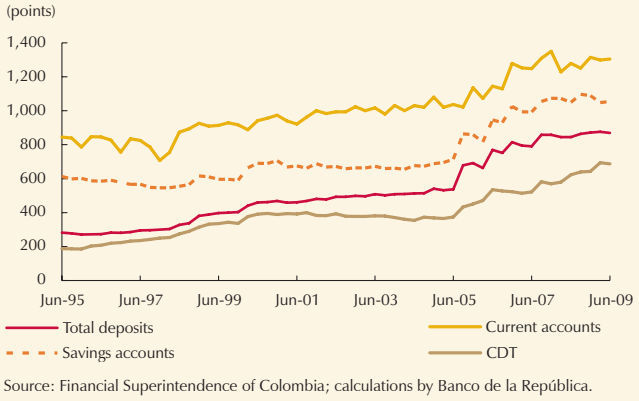
The evolution of the HHI in the first half of 2009 is similar to that of the RC5 for deposits (Graph B2.2, Panel B). During the period in question, the index for total deposits went from 872 to 869 points, which indicates a low level of concentration in this market.

Graph B2.2

A. Deposit Market Share of the Five Largest Institutions



B. HHI for Deposits



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Table B2.2
Deposit Concentration Indicators at June 2009

	Total Deposits	Current Accounts	Savings Accounts	CDT
Share (%)				
Two largest	31.17	41.02	33.76	26.13
Five largest	57.66	73.14	63.95	49.84
HHI	869	1.305	1.054	687

Source: Financial Superintendence of Colombia; calculations by Banco de la República.

The HHI for deposits in current and savings accounts show some decline in their levels. The HHI for the CD market continues to rise, but still shows the least concentration, with 687 points in June 2009.

In conclusion, the changes in the credit and deposit market indicators during the first six months of 2009 show the market share of institutions with respect to the different segments of the financial system remains quite stable, despite the variations in share. It is worth noting that the micro-loan and CD indicators are the only ones to reflect an increase in levels of concentration. In the case of the micro-loan indicator, this is due in part to performance by the banks that specialize in loans of this type (Bancamía and Procredit), while the increase in the CE indicator is explained by the fact that intermediaries prefer term deposits, especially the large institutions, given liquidity preferences and certain demand factors.

2. Competition

In terms of market structure, the outcome of the competition models shows no major variations us emphasized in past editions of the *Financial Stability Report*. The results of these exercises are presented as below.

The H statistics obtained with the Panzer and Rosse method indicate the intensity of competition varies from one type of loan to another. However, the structure of the loan markets is one of free-entry monopolistic competition (Table B2.3). The results for the different types of lending indicate the mortgage market has the highest level of competition, while the commercial loan portfolio leans towards a monopolistic balance.

Table B2.3
H Statistics by Portfolio Type

Portfolio	*H*
Total	0.27699
Consumer	0.19667
Commercial	0.41671
Mortgage	0.51061

Note: Unbalanced panel estimation. The exercise was done for the financial system as a whole, minus leasing institutions and with quarterly data from March 1995 to June 2009.
Source: Financial Superintendence of Colombia; calculations by Banco de la República.

The Panzar and Rosse method is supplemented with an analysis to determine the relationship between market power, concentration and risk. The results of this exercise show a positive relationship between market power and the levels of concentration in the system and risk in a similar proportion (Table B2.4). This suggests the more concentrated the market is, the more able financial intermediaries are to transfer the cost of business risk to their clients.

As an alternative, a conjectural analysis is used to determine the structure of the market by looking at how credit institutions react to changes in the terms under which their rivals compete. In the case of the loan portfolio, the results suggest the market has a monopolistic competitive structure in which competition is below Nash equilibrium[4] (Table B2.5).

4 Nash equilibrium is a situation where the agents are price takers, but the economic benefits may be above zero.

The results for deposits indicate the structure of these markets is more competitive than that of Nash equilibrium, possibly because price is the primary competitive factor in the deposit market.

In short, there were no important changes in competition levels during the first half of 2009. The structure of the loan market continues to be one of monopolistic competition for all types of lending. In contrast, the deposit market is highly competitive, indicating considerable rivalry to attract the various types of deposits.

Table B2.4
Relation between Market Power, Concentration and Risk
Dependent variable: Lerner Index

	Financial System
HHI	0.1273***
	(0.0209)
Loan Portfolio Quality	0.1102***
	(0.0157)

Note: The reduced forms were estimated using the full information maximum likelihood method. The exercise was done for the financial system as a whole, minus leasing institutions and with quarterly data from March 1995 to June 2009.
Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Table B2.5
Conjectural Parameters for the Loan Portfolio and Deposits

γ of the loan portfolio	6.65E+08***
	(8.35E+07)
γ of deposits	-3.865***
	(.5101)

Note: The reduced forms were estimated using the full information maximum likelihood method. The exercise was done for the financial system as a whole, minus leasing institutions and with quarterly data from March 1995 to June 2009.
Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Box 3
INTERNATIONAL INDICATORS

Most countries have already felt the repercussions of the financial crisis and, as a result, expectations for economic growth are now positive. Nevertheless, the principal financial indicators will respond gradually, and the Latin American countries are expected to recover faster than the developed economies.

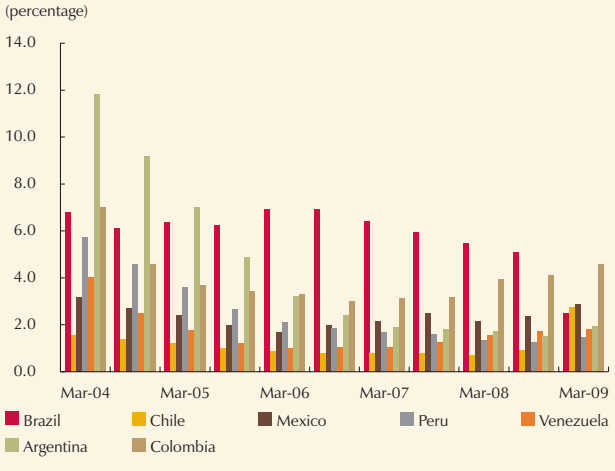
The principal financial indicators for several Latin American countries are analyzed in this section to evaluate the performance of variables such as profitability, efficiency and risk, and to verify the effects of the crisis on emerging economies.

All countries experienced less real gross loan portfolio growth between March 2008 and March 2009. The largest variations were in Chile, Venezuela and Mexico, with respective negative rates of -12.6%, -17.1% and -0.1%. On the other hand, the reductions in Brazil and Peru were moderate enough to maintain portfolio growth above 20%, while Colombia and Argentina posed increases under 10% (Graph B3.1).

Likewise, during the same period the default indicator showed deterioration for all countries except Brazil, where it went from 5.5% to 2.5%. The other economies analyzed saw their default rate increase, particularly Chile, which had the highest variation (from 0.7% to 2.3%). It is worth noting that Colombia has the highest default indicator; it is 2 pp above the average for the region (2.6%) (Graph B3.2).

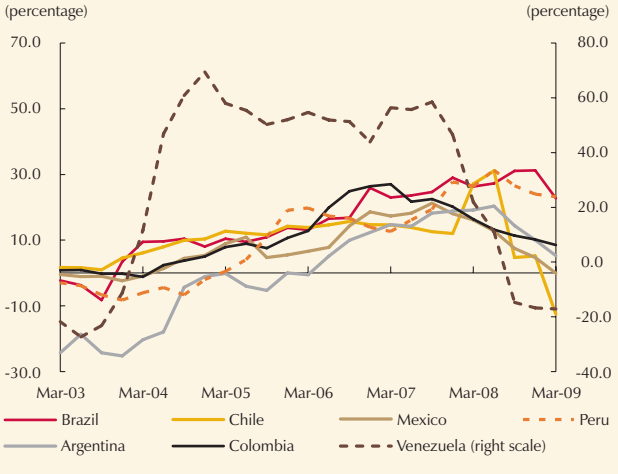
The efficiency indicator measures the proportion of administrative and labor costs (ALC) to assets. Among the different countries, it remained ambiguous during March 2008 and March 2009. On the one hand, Chile was still the most efficient economy, having reduced its administrative costs to 1.5% of assets, while Argentina occupied the least efficient position in the sample, having increased its ratio of administrative costs to

Graph B3.2
Delinquency Ratio



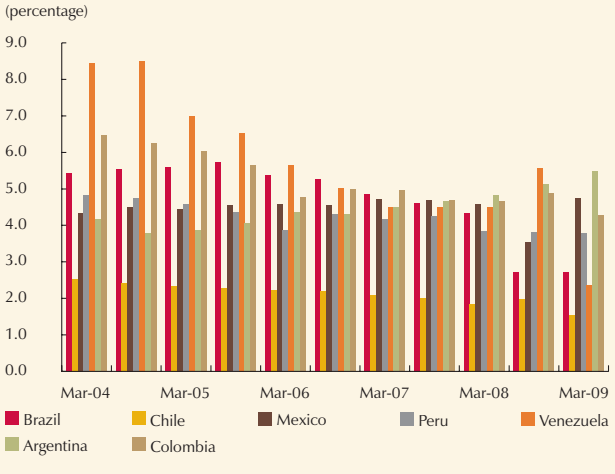
Sources: The central banks and banking authorities in each country; calculations by Banco de la República.

Graph B3.1
Real Gross Loan Portfolio Growth



Sources: The central banks and banking authorities in each country; calculations by Banco de la República.

Graph B3.3
Efficiency: Administrative and Labor Costs /Assets



Sources: The central banks and banking authorities in each country; calculations by Banco de la República.

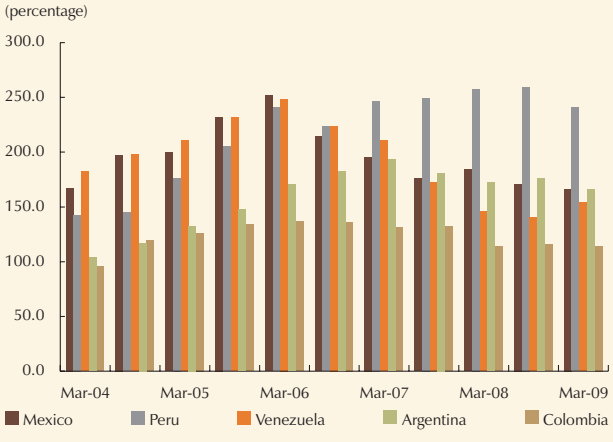
5.5% of assets. It is important to point out that Peru saw no variation in this indicator (Graph B3.3).

The loan portfolio coverage indicators for Mexico, Peru and Argentina have declined. Mexico posted the largest reduction: from 184% a 166% between the first quarter of 2008 and the same period in 2009, generating an increase in credit risk. In contrast, Venezuela and Colombia raised coverage for the total portfolio during that same period, by 8 pp and 40 bp, respectively. It should be noted that Peru has the best indicator of the countries analyzed (240.3%), while Colombia has the lowest indicator in the sample 114.5% (Graph B3.4).

Finally, in March 2009, as Graph B3.5 shows, Brazil and México were the countries with the highest intermediation spreads (11.9% and 9.4%, respectively), while Peru and Argentina continued to have the lowest (6.7% and 5.1%, respectively).

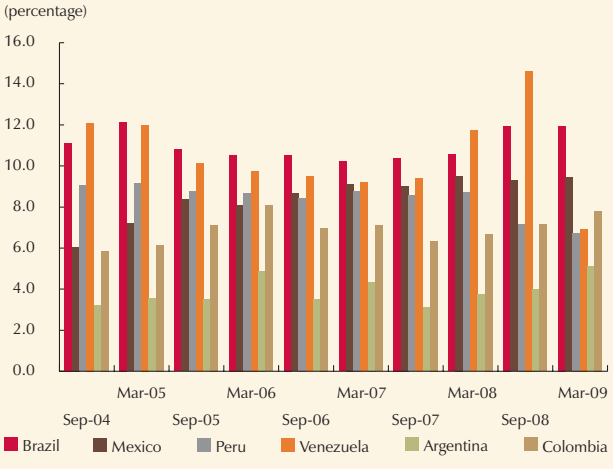
In short, the situation in the Latin American countries is diverse. On the one hand, financial system performance in economies such as those of Peru and Brazil exhibited higher real loan-portfolio growth rates, low payment default levels and good coverage for the non-performing portfolio. On the other hand, Venezuela and Colombia experienced deterioration in their real gross loan portfolio growth rates, high payment default and low coverage for the non-performing loans.

Graph B3.4
Coverage: Loan-loss Provisions/Non-performing Loans



Sources: The central banks and banking authorities in each country; calculations by Banco de la República.

Graph B3.5
Ex post Intermediation Spread



Sources: The central banks and banking authorities in each country; calculations by Banco de la República.

III. Current situation and the outlook for borrowers from financial system

The reduction in demand cause by the international crisis led to a decline in profitability indicators and higher corporate debt levels during 2008. The pace of growth in the financial burden slowed, accompanied by an increase in risk exposure for the consumer and mortgage loan portfolios.

A. PRIVATE CORPORATE SECTOR

The decline in demand as a result of the economic crisis has placed companies in a difficult situation. Indicators of profitability, liquidity and debt deteriorated in 2008 and, as a result, the business climate for the immediate future is one of greater uncertainty.

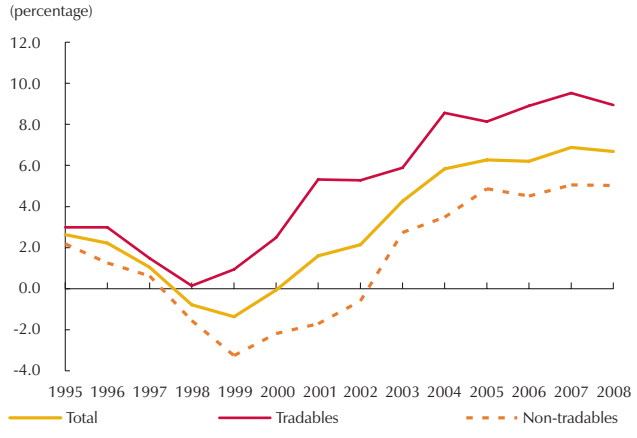
According to the Combined Industrial Opinion Survey (EOIC) conducted on January 2009 by the Colombia Business Association (ANDI), employers have designed strategies to take advantage of the opportunities that can emerge in the current situation. These strategies include, for example, optimizing costs, marketing strategies, improvements in innovation and the development of new products for local and international markets alike. Also, according to the survey, the policy for most companies this year is to avoid dismissing employees.

The present section provides an analysis of the situation in the private corporate sector, based on accounting information reported to the Finance and Corporate Superintendences.[21] The analysis of financial indicators was done for all the companies and by segments, pursuant to the classification of

21 Two samples were used. The first is comprised of companies that reported information during the 1995-2008 period. The second is a sample constructed with 20,434 companies that presented information jointly for the period from 2004 to 2008.

companies producing tradables and non-tradables.[22] The indexes analyzed are profitability, liquidity and indebtedness, which have been identified as the ones that determine the financial frailty of Colombian companies.[23]

Graph 59
ROA (Profit before Taxes/Total Assets)



Sources: Finance and Corporate Superintendencies; calculations by Banco de la República.

1. Return

Return on assets (ROA), defined as profit before taxes divides by total assets, declined from 6.9% to 6.7% between 2007 and 2008 (Graph 59). This is explained by a higher increase in total assets than in earnings. Real annual growth in profits before taxes was 1.0% (Table 4), while growth in total assets was 1.6% (Table 5).

As to the different sectors, ROA for companies producing tradables declined from 9.5% to 8.9% between 2007 and 2008. However, performance within this group was not uniform; in other words, while the agricultural and industrial sectors saw their ROA decline, fishing and mining reported an increase (Table 6). ROA for companies producing non-tradables stayed at 5.0%.

Small companies[24], according to the value of their assets, saw steeper decline in return between 2007 and 2008, with a drop of 1.3 pp. The medium-sized companies posted a 0.6 pp reduction and the large companies, 0.1 pp (Graph 60).

The reduction in returns is explained largely by the slump in demand during 2008 as a result of a tighter monetary policy, fewer exports and less foreign direct investment. This is consistent with the results of the EOIC conducted by ANDI in January 2009, which identified low demand, the exchange rate and the cost of raw materials as the most important problems companies faced during 2008.

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22 The companies producing tradable goods are those involved in agriculture, cattle-raising, hunting, fishing, mining, quarrying and industrial manufacturing. Those producing non-tradable goods pertain to the other sectors.

23 The indicators analyzed have been identified as those that determine the financial frailty of Colombian companies, according to Oscar Martinez (2003). "Determinantes de fragilidad de las empresas colombianas," in Borradores de Economía, No. 259, Banco de la República.

24 Pursuant to Law 590/1990, companies may be classified as follows, according to the value of their assets: i) micro: firms whose total assets are valued at less than 501 times the minimum monthly wage, ii) small firms whose: total assets are valued at 501to 5,001 times the minimum monthly wage, iii) medium-sized companies: firms whose total assets are valued at 5,001 to 30,000 times the minimum monthly wage, and iv) large companies: firms whose total assets are worth more than 30,000 times the minimum monthly wage.

Table 4
Income Statement: Private Corporate Sector (Total Sample: 20,434 Companies)

	Trillions of December 2008 Pesos			Growth Rate (%)		Percentage of Sales	
	2006	2007	2008	2007	2008	2007	2008
Total							
Sales	438.6	352.3	356.5	(19.7)	1.2	100.0	100.0
Costs	331.1	249.5	251.2	(24.6)	0.7	70.8	70.5
Gross Profit	107.5	102.8	105.3	(4.4)	2.5	29.2	29.5
Administrative Costs	41.0	31.8	32.7	(22.4)	2.7	9.0	9.2
Sales Costs	35.3	37.3	39.0	5.7	4.4	10.6	10.9
Operating Profits	31.2	33.6	33.7	7.7	0.2	9.5	9.4
Non-operating Income	24.1	27.3	43.2	13.3	58.5	7.7	12.1
Non-operating Costs	25.8	29.2	44.9	13.2	53.8	8.3	12.6
Profit before Taxes	29.5	31.7	32.0	7.4	1.0	9.0	9.0
Adjustments for Inflation	1.8	0.0	0.0	-	-	0.0	0.0
Taxes	10.0	8.5	8.7	(15.6)	3.0	2.4	2.4
Final Profit	21.3	23.2	23.2	9.1	0.2	6.6	6.5
Tradables							
Sales	148.9	159.1	159.1	6.9	(0.0)	100.0	100.0
Costs	104.4	111.2	110.4	6.5	(0.7)	69.9	69.4
Gross Profit	44.5	47.9	48.7	7.8	1.5	30.1	30.6
Administrative Costs	10.8	10.9	11.4	0.6	4.7	6.8	7.1
Sales Costs	15.1	17.9	17.9	18.7	(0.4)	11.3	11.2
Operating Profits	18.6	19.1	19.5	3.1	1.6	12.0	12.2
Non-operating Income	11.8	14.9	21.1	26.3	41.6	9.4	13.3
Profit before Taxes	13.8	16.0	22.4	16.3	39.8	10.1	14.1
Adjustments for Inflation	16.6	18.1	18.2	8.6	0.7	11.4	11.4
Adjustments for Inflation	0.6	0.0	0.0	-	-	0.0	0.0
Taxes	6.2	5.2	5.3	(15.1)	1.3	3.3	3.3
Final Profit	11.1	12.8	12.9	16.1	0.5	8.1	8.1
Non-tradables							
Sales	289.8	193.2	197.4	(33.3)	2.2	100.0	100.0
Costs	226.7	138.3	140.8	(39.0)	1.8	71.6	71.3
Gross Profit	63.1	54.8	56.7	(13.1)	3.3	28.4	28.7
Administrative Costs	30.2	21.0	21.3	(30.6)	1.6	10.8	10.8
Sales Costs	20.2	19.4	21.1	(4.1)	8.9	10.1	10.7
Operating Profits	12.6	14.5	14.2	14.5	(1.6)	7.5	7.2
Non-operating Income	12.3	12.4	22.1	0.7	79.0	6.4	11.2
Profit before Taxes	12.0	13.2	22.6	9.7	70.7	6.8	11.4
Adjustments for Inflation	12.8	13.6	13.8	5.9	1.3	7.0	7.0
Adjustments for Inflation	1.2	0.0	0.0	-	-	0.0	0.0
Taxes	3.9	3.2	3.4	(16.4)	5.8	1.7	1.7
Final Profit	10.2	10.4	10.4	1.5	(0.1)	5.4	5.2

Sources: Finance and Corporate Superintendencies; calculations by Banco de la República.

Table 5
General Balance: Private Corporate Sector (Total Sample: 20,434 Companies)

	Trillions of December 2008 Pesos			Growth Rate (%)		Percentage of Sales	
	2006	2007	2008	2007	2008	2007	2008
Total Assets	**465.8**	**451.3**	**458.7**	**(3.11)**	**1.64**	**100.00**	**100.00**
Current Assets	**168.5**	**157.9**	**164.7**	**(6.31)**	**4.28**	**34.99**	**35.89**
Available Funds	12.0	12.3	11.8	2.37	(4.36)	2.72	2.56
Investments	15.5	15.4	14.0	(0.61)	(9.60)	3.42	3.04
Debtors	86.9	80.5	86.2	(7.35)	7.10	17.84	18.80
Inventory	51.4	47.5	50.1	(7.53)	5.57	10.53	10.93
Deferred Assets	2.7	2.1	2.5	(20.67)	19.43	0.47	0.56
Non-current Assets	**297.3**	**293.4**	**294.1**	**(1.29)**	**0.23**	**65.01**	**64.11**
Investments	91.6	89.0	89.6	(2.90)	0.75	19.71	19.54
Debtors	7.0	9.2	9.6	31.75	3.62	2.05	2.09
Property, Plant and Equipment	77.8	73.1	75.8	(6.10)	3.75	16.20	16.53
Intangibles	15.3	14.7	16.2	(3.86)	9.93	3.26	3.52
Deferred	10.7	11.9	12.8	11.40	7.88	2.63	2.79
Other Assets	1.0	1.3	0.8	28.41	(35.63)	0.28	0.18
Valuations	93.9	94.3	89.2	0.46	(5.34)	20.89	19.46
Total Liabilities	**180.2**	**163.3**	**173.8**	**(9.39)**	**6.47**	**100.00**	**100.00**
Current Liabilities	**135.4**	**114.4**	**121.4**	**(15.50)**	**6.15**	**70.06**	**69.86**
Financial Liabilities	35.7	31.4	36.2	(12.28)	15.55	19.20	20.84
Suppliers	38.2	32.2	32.9	(15.72)	2.36	19.71	18.95
Accounts Payable	31.9	22.8	24.1	(28.38)	5.77	13.98	13.89
Taxes	8.6	7.9	8.1	(7.84)	2.50	4.86	4.68
Labor Obligations	3.0	2.8	2.8	(9.01)	0.70	1.70	1.60
Estimated Liabilities and Provisions	5.6	6.1	6.1	9.42	(0.26)	3.74	3.51
Deferred	1.4	1.2	1.2	(13.97)	(0.87)	0.73	0.68
Other Liabilities	9.9	9.2	9.1	(6.74)	(0.96)	5.65	5.26
Bonds and Commercial Paper	1.1	0.8	0.8	(24.70)	(2.15)	0.50	0.46
Non-current Liabilities	**44.8**	**48.9**	**52.4**	**9.05**	**7.21**	**29.94**	**30.14**
Financial Liabilities	19.7	23.5	26.9	19.52	14.44	14.41	15.49
Suppliers	0.0	0.9	1.1	-	-	0.53	0.62
Accounts Payable	7.8	7.3	7.6	(6.29)	3.81	4.46	4.35
Taxes	0.0	0.1	0.1	-	-	0.08	0.06
Labor Obligations	0.2	0.2	0.1	1.08	(16.32)	0.10	0.08
Estimated Liabilities and Provisions	3.8	3.8	3.9	(1.56)	3.35	2.32	2.25
Deferred	3.9	3.7	3.3	(4.18)	(11.65)	2.27	1.88
Other Liabilities	3.0	3.0	3.7	(0.05)	22.66	1.86	2.14
Bonds and Commercial Paper	6.4	6.4	5.7	(1.19)	(10.60)	3.90	3.28
Total Equity	**285.6**	**288.0**	**284.9**	**0.86**	**(1.09)**	**100.00**	**100.00**
Equity Capital	11.0	11.0	11.0	(0.32)	0.35	3.81	3.86
Surplus Capital	56.8	58.6	59.4	3.12	1.45	20.34	20.86
Reserves	28.9	31.7	37.4	9.54	18.05	10.99	13.12
Equity Revaluation	68.9	62.9	56.1	(8.82)	(10.79)	21.83	19.68
Dividends	0.0	0.0	0.0	85.99	192.01	0.00	0.01

Table 5 (continuation)
General Balance: Private Corporate Sector (Total Sample: 20,434 Companies)

	Trillions of December 2008 Pesos			Growth Rate (%)		Percentage of Sales	
	2006	2007	2008	2007	2008	2007	2008
Profit from the Accounting Period	20.9	22.9	22.7	9.50	(0.91)	7.95	7.96
Profits from Previous Accounting Periods	4.7	7.3	8.3	53.56	14.30	2.52	2.91
Valuation Surplus	94.3	93.8	90.0	(0.51)	(4.05)	32.56	31.58

Sources: Finance and Corporate Superintendencies; calculations by Banco de la República.

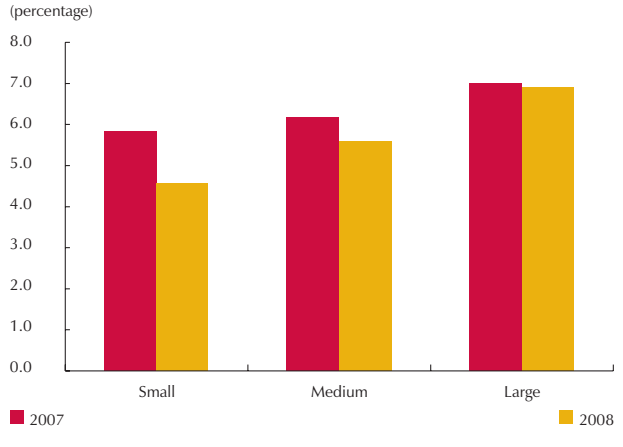
Table 6
Corporate Sector Financial Indicators [a/]
(Percentage)

	Year	Tradable				Non-tradable			Total
		Agriculture	Fishing	Mining	Industry	Construction	Commerce	Services	
ROA	2007	2.7	-5.8	25.1	7.5	4.6	6.8	4.5	7.0
	2008	2.0	-3.9	32.7	4.5	5.5	5.6	4.7	6.7
Total Indebtedness	2007	34.9	58.1	40.3	37.7	64.2	57.8	21.3	36.3
	2008	34.5	62.4	41.2	40.2	61.8	57.5	22.0	38.0
Financial Indebtedness	2007	13.6	31.8	4.0	13.7	21.0	19.9	7.6	12.2
	2008	13.9	31.0	4.0	16.8	20.8	20.9	7.9	13.7
Share of Sector [b/]		3.0	0.1	7.0	32.4	5.9	16.8	33.9	100.0
Number of Companies by 2008		1,440	43	412	4,423	2,045	7,029	6,771	22,163

a/ The Graphs in this table were obtained from a uniform sample comprised of companies that filed accounting information for 2007 and 2008.
b/ As a percentage of total assets at December 2008.
Sources: Finance and Corporate Superintendencies; calculations by Banco de la República.

By the end of 2009, returns are expected to decline or remain at 2008 levels by the end of 2009, given their performance during the first half of the year and expectations for the rest of 2009. However, the second half of 2009 could see an end to the drop in returns, inasmuch as the results of the Fedesarrollo business opinion survey (EOE) in May 2009 show a relative improvement in employer expectations regarding the economic situation during the following six months, compared to the results in previous months (Graph 61).

Graph 60
Return on Assets for Companies, by Size

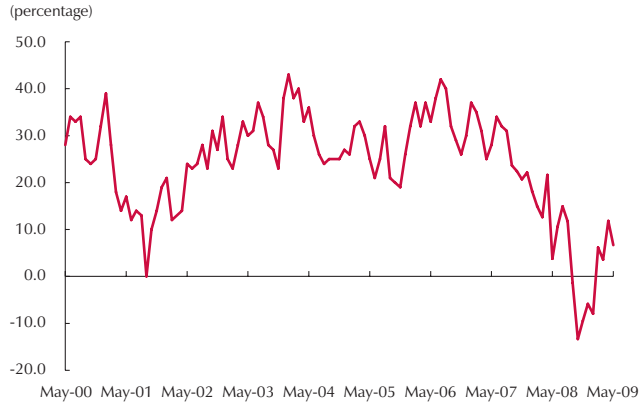


Sources: Finance and Corporate Superintendencies; calculations by Banco de la República.

2. Liquidity

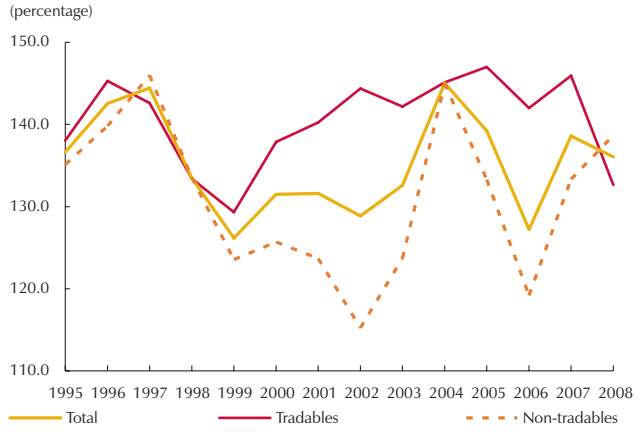
The liquidity indicator, measured as the ratio of liquid assets to short term liabilities, was 136.0% in December 2008, which means the companies analyzed are able to cover their short-term liabilities with their most liquid assets (Graph 62). This indicator declined 2.5 pp between December 2007 and the same month in 2008, owing to a higher

Graph 61
Expectations for the Company's Economic Situation



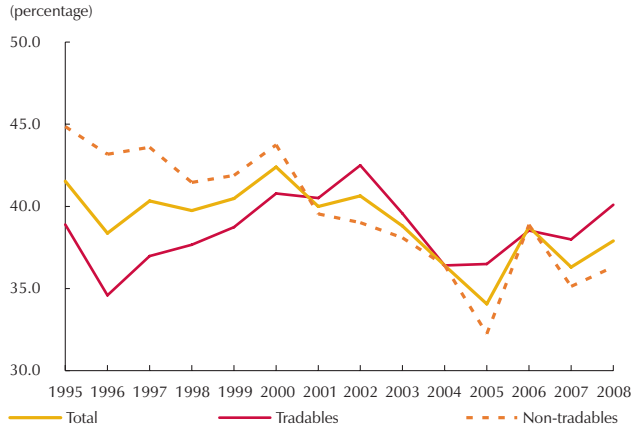
Source: Fedesarrollo (Business Opinion Survey, May 2009).

Graph 62
Current Liquidity
(Current Assets /Current Liabilities)



Sources: Finance and Corporate Superintendencies; calculations by Banco de la República.

Graph 63
Total Indebtedness
(Total Liabilities/Total Assets)



Sources Finance and Corporate Superintendencies; calculations by Banco de la República.

increase increase in current liabilities (6.8%) than in current assets (8.8%).

Contrary to the performance witnessed since the end of 1998, companies producing tradables posted lower liquidity indicators in December 2008 (132.6%) than those producing non-tradables (138.6%).

3. Indebtedness

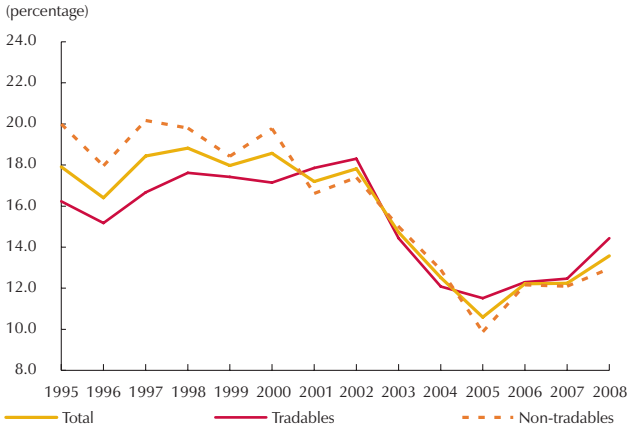
The ratio of total indebtedness (defined as the ratio of liabilities to total assets) increased from 36.3% to 37.9% between December 2007 and the same month in 2008 (Graph 63), owing to an increase in short and long-term financial liabilities. In addition to showing the highest further growth levels, these items account for the bulk of total liabilities (Table 5).

Regarding the different sectors, companies producing tradables showed higher levels of indebtedness than those producing non-tradables (40.1% vs 36.3%, respectively). The former raised their level of indebtedness by 2.1 pp between 2007 and 2008, while the latter increased theirs by 1.2 pp. Within these groups one sees the tradable sector's performance is explained mostly by industry and agriculture firms (Table 6), while the increase at the level of indebtedness of companies producing non-tradables was due to the service industries and commerce firms.

The increase in corporate financial liabilities raised the indicator of financial indebtedness (ratio of financial liabilities to total assets) During 2008 from 12.2% to 13.6% (Graph 64). For companies producing tradables, this indicator increased 2.0 pp to 14.4% last year, while the indicator for non-tradable producers was 12.9% in December 2008, which amounts to an additional 0.9 pp.

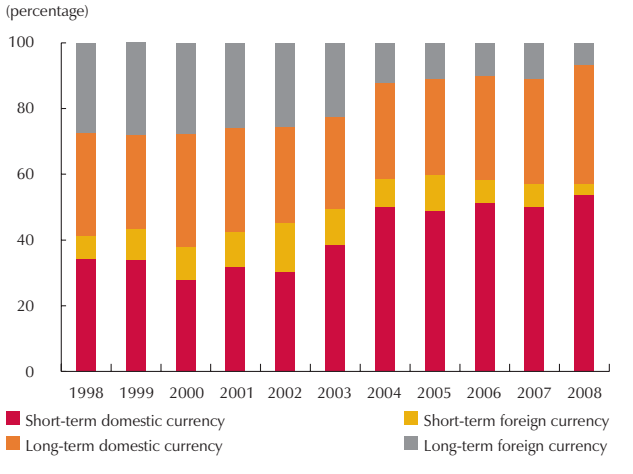
As for the components of financial liabilities based on maturity, the share pertaining to the short-term debt increased between 2007 and 2008, having gone from 56.9% to 57.2% in December 2008. The

Graph 64
Financial Indebtedness
(Financial Liabilities/Total Assets)



Fuentes: superintendencias Financiera y de Sociedades de Colombia; cálculos del Banco de la República.

Graph 65
Indebtedness by Currency and Loan Maturity



Sources: Finance and Corporate Superintendencies; calculations by Banco de la República.

share of financial liabilities denominated in pesos accounted for 89.9% in December 2008 (Graph 65).

As for the two groups, the companies producing tradables increased their share of short-term financial liabilities by 4.1 pp to 58.7%, whereas those producing non-tradables reduced theirsby 2.8 pp to 55.9% in December 2008.

According to currency type, the group of companies producing tradables increased its financial liabilities in pesos by 7 pp to 90.6%, while the group producing non-tradables expanded its share by 8.5 pp to 89.4%. As one can see, the reduction in external borrowing has increased since 2007, possibly because of the deposit requirement on external borrowing imposed by the Central Bank, which was effective from May 2007 to October 2008. The deposit had to be held for a period of six months and was equivalent to 40% of the amount disbursed.

Finally, no drop in the demand for credit is expected by the end of 2009, given the inverse relationship witnessed between the level of borrowing and corporate profitability (ROA). This can be explained by the decline in alternate sources of funding for companies and in their own resources, forcing them to turn to financial debt in times of crisis.

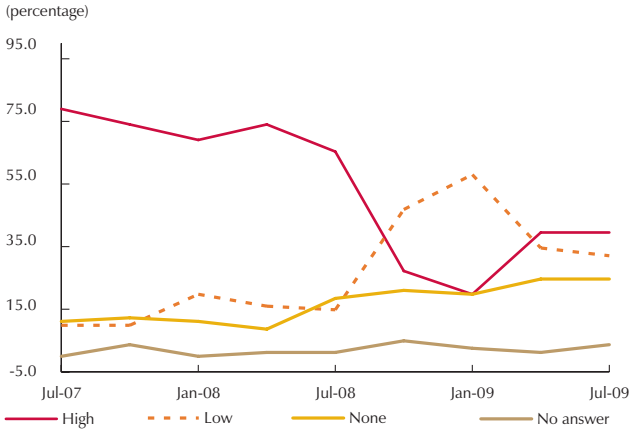
On the supply side, the findings of the Central Bank's expectation survey suggest that employers sensed a decline in the availability of credit during the first half of 2009 with respect to the same period in 2008 (Graph 66, Panel A). Also in terms of credit availability, expectations for the next six months indicate that employers anticipate no major changes (Graph 66, Panel B).

4. Exchange Risk Coverage with Forward Contracts

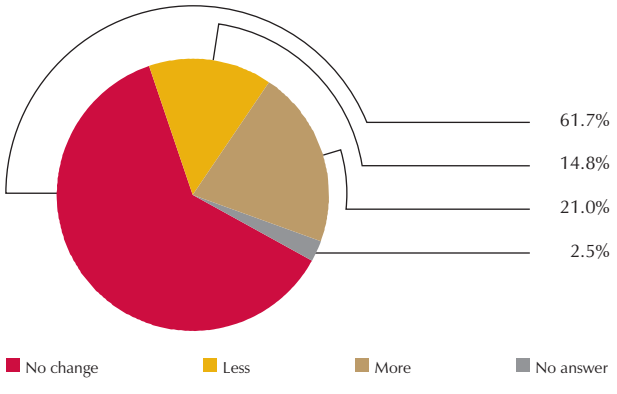
Companies in the productive sector may be exposed to exchange risk insofar as a high portion of their income and expenditure is denominated in foreign currency. As a result, importers and exporters are expected to use a variety of coverage mechanisms to prevent their flows from being dependent on fluctuations in the exchange rate.

Graph 66

A. Current Perception of Credit Availability in the Economy

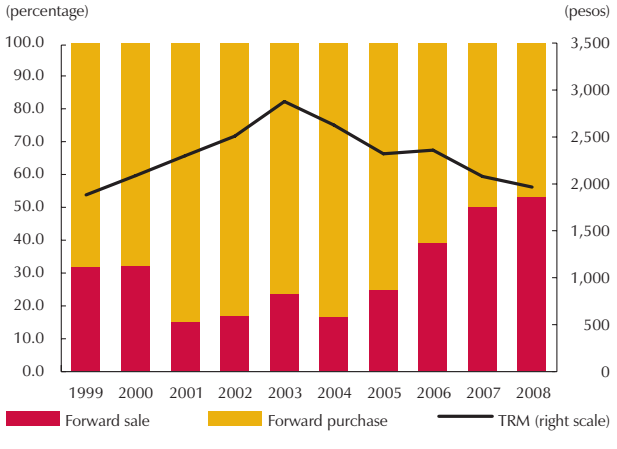


B. Changes in Availability during the Next Six Months



Source: Banco de la República.

Graph 67
Forward Contracts for Purchase and Sale versus the Representative Market Rate of Exchange (TRM)



Source: Banco de la República.

In Colombia, the derivative market is not as developed as in other Latin American countries (e. g. Chile). For example, only 5% of the sample of companies that reported accounting information to the Superintendency of Corporate Affairs in 2008 used forwards to cover exchange risk. However, in their case, total coverage with forwards accounted for 21.0% of their total assets.

So far, the situation indicates companies have used forward exchange contracts as a form of coverage rather than for speculative purposes.[25] Graph 67 shows the composition between long and short forward stances and the exchange rate. As one can see, the proportion of sale contracts has increased since 2003, consistent with the revaluationist trend in the exchange rate during that period.

Importers had a larger share of the forward exchange market between 1999 and 2008 (84.4% of the amount covered, on average). Nevertheless, the share of exporters has increased during the entire period analyzed, accounting for 33.5% of the amount covered in 2008. This increase accelerated as of 2003, when the share was 5.1%, which is consistent with the change in composition, depending on the type of contract (sale or purchase). Finally, the high exchange volatility anticipated for 2009 might add to the number of businessmen who use derivatives as a means of coverage.

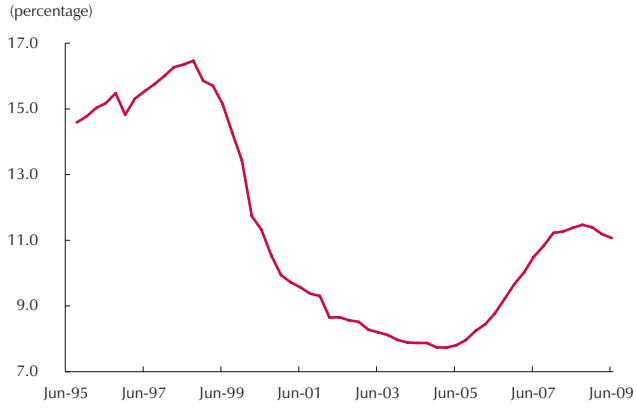
In conclusion, less aggregate demand as a result of the international crisis led to lower profitability indicators and higher debt levels during 2008. This suggests the risk to which the financial system and suppliers are exposed has increased during the year. Current perceptions and expectations for the future suggest corporate ROA might decline in 2009 or stay at the levels observed in 2008. Moreover, the indebtedness level could drop if the supply of credit contracts.

25 Herman Kamil, Ana Fernanda Maiguashca and David Pérez (2009), "How Do Firms Manage Currency Risk as Derivative Markets Develop? New Micro Evidence for Colombia: 1998-2006," (mimeograph), Banco de la República.

B. HOUSEHOLDS

An analysis of the household financial situation is crucial to understanding the evolution of the stability of the Colombians financial sector. This section looks at consumer and mortgage lending, taking into account its relation to wage income, the unemployment rate, changes in home prices and the household financial burden. Indexes on household expectations, confidence and economic conditions are considered, and home purchase and durable goods buying perception is explored for an indication of how it might evolve in the future.

Graph 68
Mortgage and Consumer Loan Portfolio/GDP



Sources: DANE and the Financial Superintendence; calculations by Banco de la República.

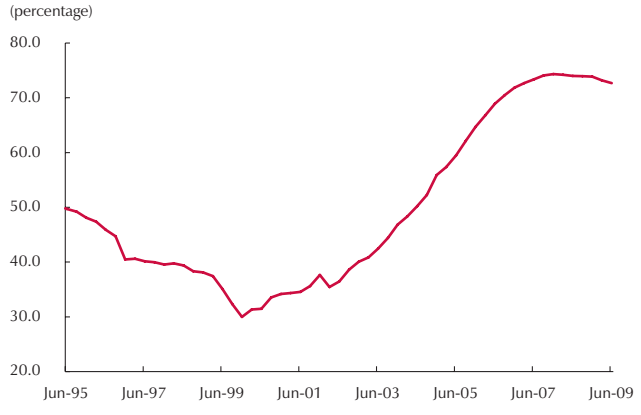
1. Household Debt

The household debt level (mortgage and consumer loans from the financial sector as a percentage of GDP) declined moderately during the three quarters from October 2008 to June 2009, due to the impact of the monetary-policy measures adopted by Banco de la República between March 2006 and December 2008 (Graph 68). Now at 11.1%, it is well below the all-time high posted in the third quarter of 1998 (16.5%). Reversal of the upward trend in New data corroborates the reversal of the upward trend in this indicator between March 2005 and December 2007. In effect, the increase in the combined portfolio (mortgage and consumer lending) declined from 29.0% in March 2007 to 1.4% in June 2009.

2. Components of Household Debt

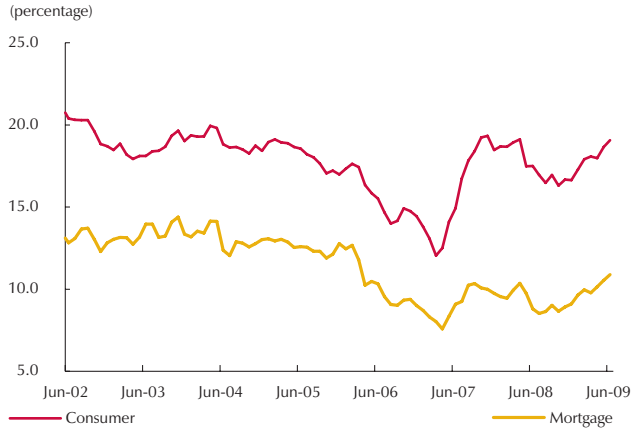
The composition of household debt should be analyzed separately to identify the different risk-exposure levels for each type of lending. According to the latest data, consumer lending as a share of the total household debt stabilized at around 73% during the first half of 2009 (Graph 69), having grown rapidly during the period from December 1999 to June 2007, when it reached a level similar to the one at present. This increase in the relative importance of consumer loans as a share of all household borrowing indicates the financial system is more exposed to credit risk. Consumer loans, in particular, offer financial institutions less collateral than mortgages.

Graph 69
Consumer Loans as a Share of Total Household Indebtedness



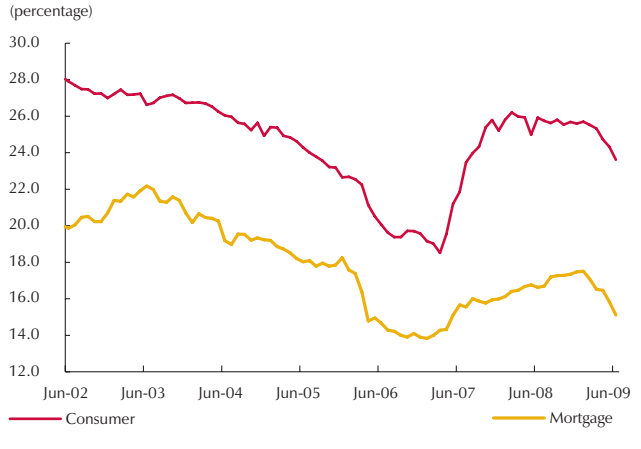
Sources: DANE and the Financial Superintendence; calculations by Banco de la República.

Graph 70
Real Lending Rates



Sources: DANE and the Financial Superintendence; calculations by Banco de la República.

Graph 71
Nominal Lending Rates



Sources: DANE and the Financial Superintendence; calculations by Banco de la República.

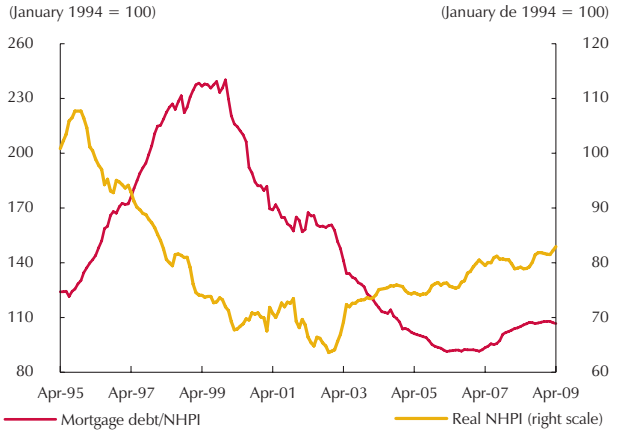
Historically, real rates for consumer lending have been higher than those for the mortgage portfolio (Graph 70). In part, this is explained by a higher exposure to risk and by high administrative and monitoring costs. At present, the real rates for the consumer and mortgage portfolios show a rebound associated with the recent slowdown in inflation and are at 19.1% and 10.9% respectively. Proof of this can be found in the performance of nominal lending rates, which have exhibited a downward trend, following the change in other nominal interest rates in the economy due to the expansionary monetary policy applied by Banco de la República since December 2008 (Graph 71).

a. The Mortgage Loan Portfolio

The trend in mortgage loan disbursements reversed as of December 2005 and, by June 2009, 92% pertained to fixed-rate mortgages denominated in pesos. The other 8% are denominated in UVR. This is contrary to the situation in 2003 when UVR-denominated mortgages accounted for 97% of all disbursements. Although this shift indicates economic agents have more confidence in the stability of the purchasing power of domestic currency, credit institutions are exposed to interest-rate risk originating with an increase in their deposit rates, while those on lending remain fixed.

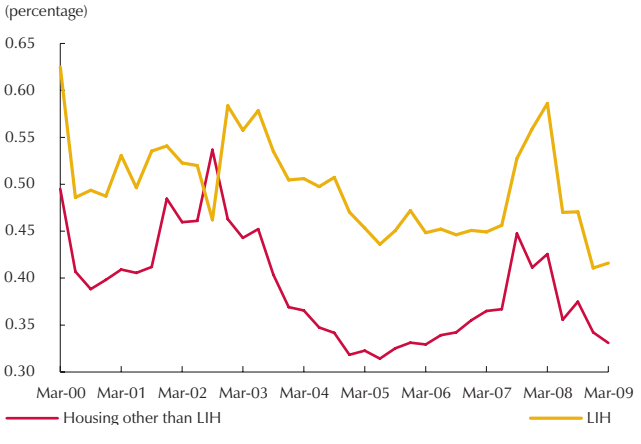
On the other hand, the ratio of the of mortgage debt growth rate to the new home price index (NHPI) stabilized as of July 2008 at a level close to 107% (Graph 72). This contrasts with the behavior of that ratio during the crisis at the end of the nineties, when it rose quickly and peaked at 240% in December 1999. The stability of this indicator suggests there are no incentives for households to stop paying their loans. At the same time, there continues to be a slight upward trend in the NHPI/CPI ratio, which suggests a favorable situation for the financial system. The increase in this indicator as of April 2003 reveals an improvement in household wealth and a build-up in the value of mortgage collateral, which lowers one of the components of credit risk (loss due to default [LDD]).

Graph 72
Ratio of the Mortgage Debt Growth Rate to the NHPI and Real Evolution of the NHPI



Sources: DANE, DNP and the Financial Superintendence; calculations by Banco de la República.

Graph 73
Loan to value



Source: Banco de la República.

Similarly, when analyzing the ratio of mortgage loans to home prices (loan-to-value), according to the size of the loan, one see that large loans are not as risky as small loans, because the former maintain a lower loan-to-value ratio than the latter[26] (Graph 73).

In short, the ratio of mortgage debt value to home prices remained stable between June 2008 and June 2009, well below the rate observed during the last financial crisis. Coupled with less household borrowing, this suggests exposure to mortgage risk is still relatively low, which is why no major changes are expected during the coming months.

b. Consumer Loan Portfolio

While consumer lending posted the largest increase up until the first quarter of 2007, since then, it has declined significantly. In fact, the real annual rate of growth in consumer loans fell dramatically from 40.4% in March 2007 to 0.5% in June 2009.

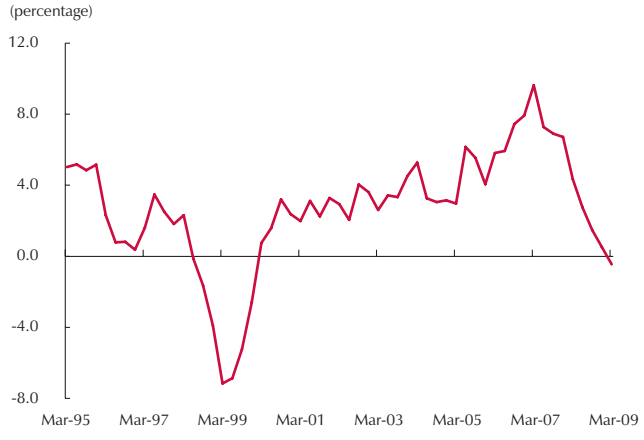
As noted in several past editions of the *Financial Stability Report,* timely monetary-policy action since mid-2006 prevented excessive growth in this type of lending and, consequently, in household indebtedness. It also helped to adjust household consumption (reported by DANE), which broke its upward trend in March 2007 (when it peaked at 9.6%). From then on, it has declined steadily, registering a negative real annual increase of 0.5% in March 2009 (Graph 74).

Despite this reduction in consumer lending, there was no decline in the risky portfolio indicator. On the contrary, it continued to increase and was 13% in June 2009, which is 5 pp more than it was two years before (8%).

On the other hand, although the persistent decline in local consumption and the reduced flow of exports contributed to less aggregate demand and, therefore, less income for companies, the decline in inflation during the first half of 2009 not only diminished the negative effect the behavior of these macroeconomic

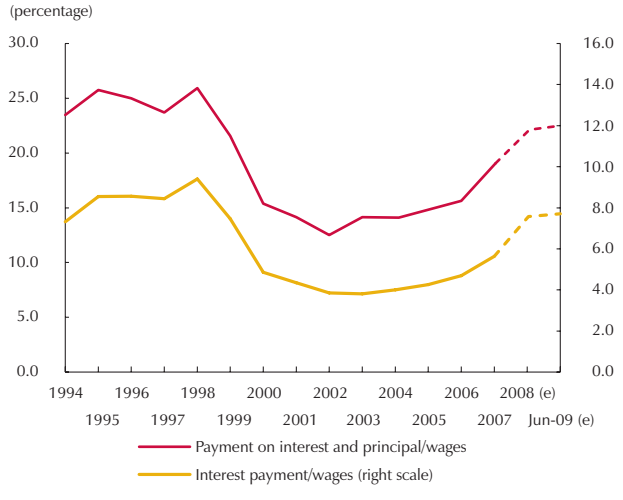
26 The indicator was constructed with information from Form 341, debtor by debtor, as provided by the Financial Superintendence.

Graph 74
Real Annual Household Consumption Growth



Source: DANE; calculations by Banco de la República.

Graph 75
Household Financial Burden



(e) Estimated
Sources: Financial Superintendence and DANE; calculations by Banco de la República.

variables had on the real wage, it also ended the downward trend in the real wage observed up to December 2008.

In short, even though one might expect a moderate improvement in household creditworthiness, thanks to the increase in the real wage stemming from the recent decline in inflation, that outlook might be clouded by economic conditions and the international environment (determined largely by risk aversion, international growth, capital flow and the performance of commerce and exports).

3. Household Financial Burden

After two years of strong growth, the indicator of household financial burden[27] tended to stabilize in June 2009 at 22.4% (Graph 75). This same trend is observed when payments applied to amortization are excluded from the numerator, leaving only interest payments (without including monetary indexing). One sees that payments applied to amortization are nearly triple the interest payments.

Accordingly, the outburst of household borrowing has begun to taper off, which means the build-up in non-performing loans may be less acute during the months ahead, provided unemployment does not get worse.

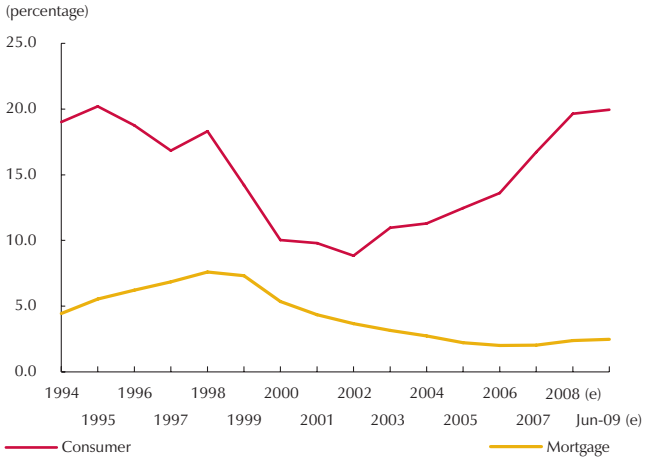
By separating the components of the financial burden into consumer and mortgage portfolios, one sees the former is the main cause of that burden and is the side where households begin to adjust their borrowing (Graph 76).

Another indicator of household financial burden is constructed as follows:

Financial burden = real component of paid interest / wages

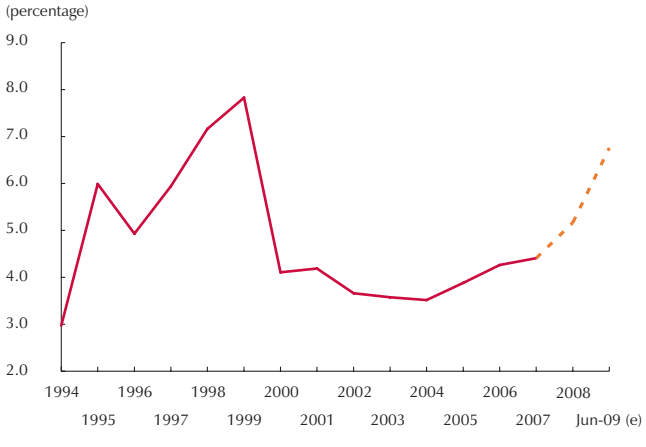
27 This indicator is defined as interest payment (without indexation) and amortization of principal associated with the consumer and mortgage loan portfolios, divided by the remuneration paid to salaried employees. The increase in the 2000-based series for DANE employee remuneration was used in this report to project the 1994-based series. Consequently, subsequent data up to 2005 changed slightly compared to the last Report. Remuneration for 2008 and June 2009 is projected using the increase in the real wage index for the manufacturing sector. The June flows are annualized.

Graph 76
Household Financial Burden
(Including Payment applied to Amortization)



(e) Estimated
Sources: Financial Superintendence and DANE; calculations by Banco de la República.

Graph 77
Household Financial Burden: Real Component
of Interest/Wages



(e) Estimated
Sources: Financial Superintendence and DANE; calculations by Banco de la República.

The numerator reflects spending on interest, but only with respect to its real component. It does not include the inflationary component of interest, as this is not an expense but a "partial payment" against the principal, since it compensates for the loss in the value of the nominal amount outstanding over time. This "partial installment" lowers the debt in real terms, leaving household wealth unchanged. Amortizations are not included for the same reason. Accordingly, the indicator measures the portion of household financial expenses that reduces household wealth.

With this indicator one sees a trend that is different from the other indexes, as the increase accentuates in June 2009 (Graph 77). This is because inflation dropped by about 4 pp, while the implicit rates in consumer and mortgage lending remained constant. This is a reflection of the fact that when inflation declines, lending rates are slow to react (partly because many loans are contracted at a fixed rate), so real rates rise.

From the standpoint of banks and CFC, the June 2009 edition of the *Report on the Credit Situation in Colombia* (RSCC in Spanish) states the main factor that could or, in fact, does prevent a larger volume of lending to the private sector is the creditworthiness of existing clients. This constraint was greater compared to last quarter, which suggests debtor creditworthiness has weakened.

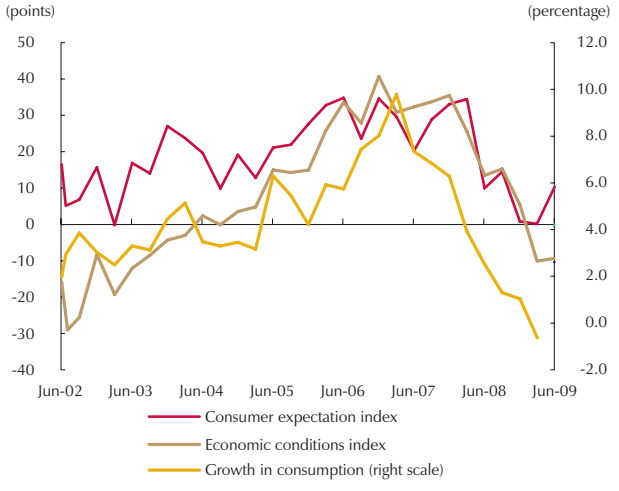
4. Outlook

Households' expectations concerning their economic situation and that of the country appear to signal a halt in the downturn observed since early 2008. The Fedesarrollo Consumer Expectation Index (IEC in Spanish)[28] shows positive values between May and June 2009 (Graph 78). The same is true of the indicator of economic conditions (IEC),[29] which has improved for

28 Based on the following questions: Do you believe your household economic situation will be better, worse or remain the same during the next 12 months? Do you believe we will be better off or worse economically in the next twelve months? Do you believe economic conditions in Colombia will be better or worse a year from now?

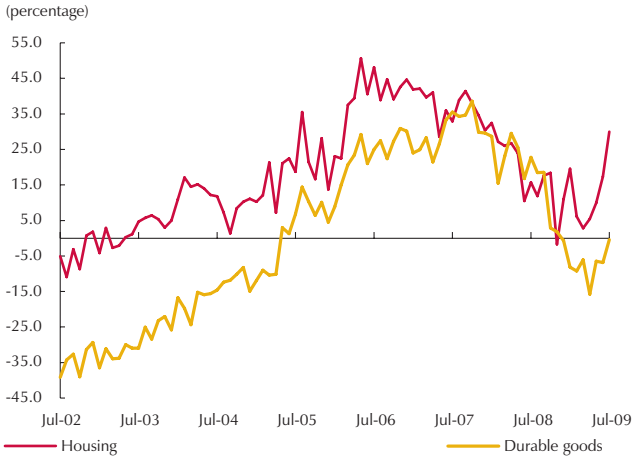
29 Based on the following questions: Is your household better or worse off economically than a year ago? Do you believe the time is right for a major purchase, such as furniture or domestic appliances?

Graph 78
Growth in Household Consumption and Indexes of Consumer Expectations, Confidence and Economic Conditions



Sources: Financial Superintendence and DANE; calculations by Banco de la República.

Graph 79
Home and Durable Goods Purchase Perception Index [a/]
(Balance)



a/ Percentage of households who believe the time is right to purchase a home or durable goods minus the percentage who do not.
Source: Fedesarrollo; calculations by Banco de la República.

three months in a row. However, it is still at negative levels comparable to those registered in 2003.

The housing and durable goods purchase perception indicators also appear to have broken their downward trend (Graph 79). The intention to purchase housing is particularly noteworthy, as it marks five straight months of steady improvement.

Finally, based on the June 2009 edition of the RSCC, one sees a decline during the last three quarters in the percentage of banks that plan to raise their requirements for allocating new consumer loans. This means their growing mistrust of the customer's ability to pay has begun to subside compared to what it was in December 2008. In the case of CFCs, that trend continues to be relatively stable.

In conclusion, most of the indexes in this section have begun to hit bottom, while others are showing signs improvement. This is not to say that credit risk will return to normal levels in the short term, but that credit risk is high and is beginning to stabilize. Therefore, credit institutions should continue to take a very prudent approach towards selecting new borrowers.

C. NON-FINANCIAL PUBLIC SECTOR (NFPS)

1. Aggregate Debt: NFPS

The NFPS gross debt reached COP$197.8 t in June 2009. This represents an increase of 4.7% with respect to December 2008. Although the increase in the external debt in pesos during this period was 2.6%, the outstanding amount in dollars came to U.S. $30.3 billion, which is 6.6% higher than in December 2008. This was due to placement of a $1 billion global bond in January,[30] an external pre-financing operation for the same amount,[31] and U.S. $542 m in disbursements

30 "Central Government Preliminary Balance Sheet for the First Quarter of 2009." Fiscal Policy Council (CONFIS), Ministry of Finance and Public Credit, July 28, 2009.

31 Revised Financial Plan for 2009, CONFIS, Ministry of Finance and Public Credit, August 21, 2009.

by multilateral agencies, among others, during March 2009. Accordingly, foreign debt as a share of the total was 33.1% by June 2009, while the NFPS gross debt accounted for 40.2% of GDP, having increased 62 bp with respect to the share observed six months earlier (39.6%) (Table 7).

2. Creditworthiness

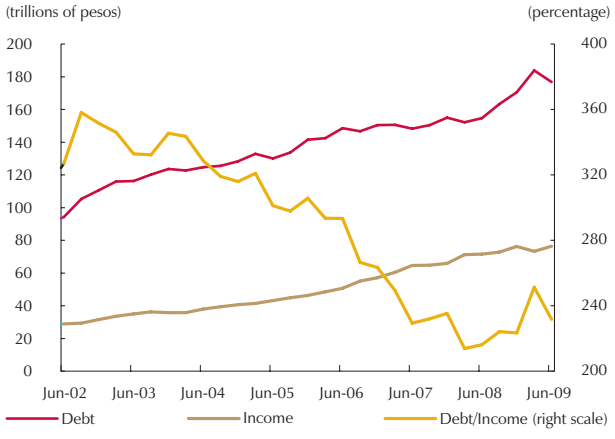
The level of the NFPS debt is explained largely by the central government's (CG), which accounted for 89.4% of the total during the first half of 2009. This is similar to the share reported for the second half of 2008 (90.3%). As illustrated in Graph 80, this item came to COP$176.9 t in June 2009, which is 3.7% more than it was six months earlier.

Table 7
NFPS Gross Debt

	Internal[a/]	External	Total	Internal	External	Total	Internal	External	Internal	External	Total
	(Billions of pesos)			(Percentage of GDP) [b/]			(share%)		(Percentage Nominal Annual Growth)		
Dec-95	9,929	12,018	21,946	10.3	12.5	22.8	45.2	54.8			
Dec-96	12,679	12,927	25,606	10.9	11.1	22.0	49.5	50.5	27.7	7.6	16.7
Dec-97	18,774	17,609	36,383	13.4	12.6	26.0	51.6	48.4	48.1	36.2	42.1
Dec-98	23,946	24,448	48,395	15.0	15.3	30.3	49.5	50.5	27.5	38.8	33.0
Dec-99	32,928	32,879	65,808	17.2	17.1	34.3	50.0	50.0	37.5	34.5	36.0
Dec-00	46,653	41,965	88,618	23.8	21.4	45.1	52.6	47.4	41.7	27.6	34.7
Dec-01	54,905	50,796	105,701	25.7	23.8	49.5	51.9	48.1	17.7	21.0	19.3
Dec-02	67,838	61,975	129,813	29.1	26.6	55.7	52.3	47.7	23.6	22.0	22.8
Dec-03	75,078	65,883	140,961	28.5	25.0	53.4	53.3	46.7	10.7	6.3	8.6
Dec-04	84,322	59,779	144,101	28.2	20.0	48.2	58.5	41.5	12.3	(9.3)	2.2
Jun-05	91,790	53,225	145,015	28.9	16.8	45.7	63.3	36.7	18.5	(16.5)	2.7
Dec-05	102,408	53,339	155,747	30.5	15.9	46.4	65.8	34.2	21.4	(10.8)	8.1
Jun-06	105,286	58,009	163,296	29.4	16.2	45.6	64.5	35.5	14.7	9.0	12.6
Dec-06	106,911	57,961	164,872	27.9	15.1	43.0	64.8	35.2	4.4	8.7	5.9
Jun-07	111,560	53,697	165,257	27.4	13.2	40.5	67.5	32.5	6.0	(7.4)	1.2
Dec-07	116,519	56,259	172,778	27.0	13.0	40.0	67.4	32.6	9.0	(2.9)	4.8
Jun-08	117,885	54,252	172,138	26.0	12.0	38.0	68.5	31.5	5.7	1.0	4.2
Dec-08	125,040	63,831	188,872	26.2	13.4	39.6	66.2	33.8	7.3	13.5	9.3
Jun-09	132,347	65,473	197,820	26.9	13.3	40.2	66.9	33.1	12.3	20.7	14.9

a/ The Central Government's internal debt includes public bank capitalization bonds.
b/ GDP in the twelve months prior to the observation.
Source: Banco de la República, Ministry of Finance and Public Credit

Graph 80
CG Creditworthiness



Sources: Ministry of Finance and Public Credit and Banco de la República.

The central government received COP$23.0 t in revenue during the second quarter of 2009, which represents an increase of COP$3.1 t compared to June 2008, while the amount outstanding on the debt rose 14.4% between that month and June 2009. Consequently, the creditworthiness indicator, measured as the ratio of outstanding debt to income for the year to date, deteriorated to 2.32, thereby continuing upward trend observed since March 2008. Although the outstanding stocks of domestic and external debt have risen steadily since 2008, the behavior of this indicator has been affected by exchange rate volatility and, consequently, part of the increase witnessed during March 2009 was offset by a drop in June.

3. Outlook

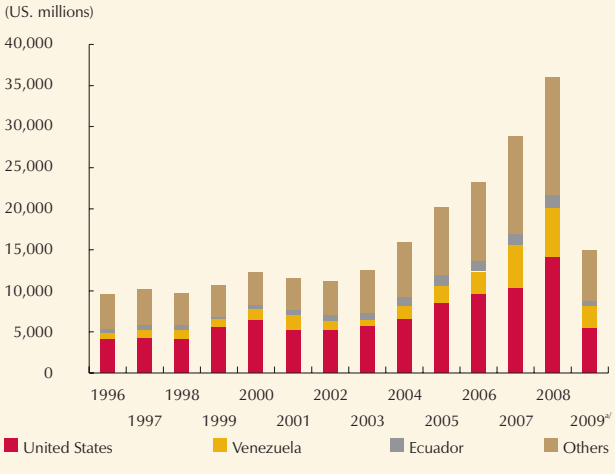
According to the CONFIS Revised Financial Plan for 2009, a CG deficit equal to 3.7% of GDP is expected by the end of the year. This is COP$7.7 t more than the deficit in December 2008, given the added expense of implementing the counter-cyclical policy described in the previous edition of this Report and because revenue did not increase as much as expenditure. The slowdown in the Colombian economy implies less tax revenue than was projected initially, although this reduction will be offset, in part, by more income tax revenue from the mining sector.

Considering the anticipated slowdown in the Colombian economy, the government increased its plans for financing and intends to place an additional COP$4 t in local debt. To the extent that the economic slowdown continues to translate into less tax revenue and this decline is not offset by other occasional funding, there will be a higher need for financing and the debt will continue to grow, implying deterioration in the CG creditworthiness indicator.

Box 4
VULNERABILITY OF THE COLOMBIAN FINANCIAL SYSTEM TO FLUCTUATIONS IN THE INCOME OF COMPANIES EXPORTING TO VENEZUELA OR ECUADOR

Approximately 60% of Colombia's exports go to three main trading partners: the United States, Venezuela and Ecuador. Venezuela is the destination that has increased its share of total exports the most in recent years (Graph B4.1). Exports that do not go to these three countries are distributed among approximately 153 nations, with Peru accounting for the largest share in June 2009 (only 2.4%). The limited diversification of export destinations means that fluctuations in the amount exported to Colombia's primary trading partners have an important impact on the economy. Therefore, and considering the political situation in recent months, this section features an exercise to measure the vulnerability of the Colombian financial system to a decline in the income of companies that export to Venezuela or Ecuador.

Graph B4.1
Total Colombian Exports



a/ Data at June 2009.
Source: DANE; calculations by Banco de la República.

Following the crisis experienced by Venezuela in 2003, exports to that country grew steadily (from US$ 696.0 m in 2003 to US$ 6,091.6 m in 2008). Exports to Ecuador doubled during that same period (increasing from US $ 779.8 m in 2003 to US $ 1,499.6 m in 2008). Accordingly, the share of exports to Venezuela and Ecuador has increased considerably, to a 21.1% of total exports in December 2008 (Table B4.1).

When comparing export performance in the first half of 2009 to the first six months of 2008, one sees a 17.7% decline in total exports. The reduction for Venezuela and Ecuador, in particular, came to 0.2% and 14.4%, respectively.

1. Borrowing from the Colombian Financial System

Commercial loan portfolio data reported to the Financial Superintendence Institutions in June 2009 was used to determine the extent to which companies that export to Ecuador and Venezuela are indebted to the financial system. According to the results of that analysis, 1,592 of the 3,926 companies that exported to those countries during the first half of 2009, are in debt with institutions in the Colombian financial system.

Most of the credit institutions that lend to companies exporting to Ecuador and Venezuela are banks (91.0%), and the loan portfolio of the companies in the sample accounts for 11.5% of their total portfolio.

Table B4.2 shows the number of loans extended to companies that export to Ecuador and Venezuela, along with the total number of loans in the commercial portfolio corresponding to each entity. As illustrated, commercial banks have 1.3% of the total portfolio in terms of the number of loans and 18.1% in terms of the amount. For the CFCs, the share of the portfolio of loans to companies that export to the countries analyzed is 1.0% in terms of the number of loans and 5.0% with respect to the amount. This suggests the average amount per loan extended to these companies is high.

To analyze the level of risk for each institution, Table B4.3 shows the portfolio quality indicator (QI) for commercial banks and for the CFCs as a whole. For most institutions, the QI for the portfolio extended to companies that export to Ecuador and Venezuela is better than the QI for the entire commercial loan portfolio. The case of the CFCs is similar.

2. Stress Test

The stress test described below was conducted to analyze the potential impact on institutions in the financial system after a break in trade relations with Ecuador and Venezuela.

Table B4.1
Exports to Venezuela and Ecuador
(Number and Amount)

Year	Number of Companies Exporting to Venezuela or Ecuador	Amount of Exports to Venezuela or Ecuador (US Millions)	Share (%) of Amount of Exports to Venezuela or Ecuador
1996	3,981	1,207	12.7
1997	4,077	1,532	15.1
1998	3,329	1,731	18.0
1999	2,887	1,239	11.6
2000	3,244	1,761	14.4
2001	4,106	2,439	21.2
2002	3,917	1,935	17.3
2003	3,548	1,476	11.8
2004	3,955	2,635	16.6
2005	4,082	3,420	17.0
2006	4,117	3,937	17.0
2007	4,683	6,476	22.5
2008	5,087	7,585	21.1
2009[a/]	3,926	3,284	22.0

a/ Data at June 2009
Source: DANE; calculations by Banco de la República.

Table B4.2
Share of the Amount and Number of Loans Granted to Companies Exporting to Ecuador or Venezuela

Company	Loans to Companies Exporting to Venezuela or Ecuador	Total Commercial Lending	Share (%) of Commercial Loans to Exporting Companies	Share (%) of Loans by Amount
1	985	82,698	1.2	22.0
2	1,262	99,239	1.3	16.2
3	240	7,002	3.4	18.5
4	377	25,074	1.5	18.6
5	536	51,591	1.0	16.7
6	293	3,392	8.6	20.0
7	763	38,872	2.0	18.0
8	306	4,225	7.2	29.2
9	68	657	10.4	28.9
10	555	7,087	7.8	19.3
11	272	11,109	2.4	13.3
12	30	73,254	0.0	3.7
13	156	8,242	1.9	22.6
14	84	67,614	0.1	6.2
15	180	863	20.9	39.3
16	8	29	27.6	29.2
17	2	341	0.6	0.8
18	0	0	0.0	0.0
Total Banks	**6,117**	**481,289**	**1.3**	**18.1**
Total CFC	**489**	**51,306**	**1.0**	**5.0**

Source: DANE and Financial Superintendence; calculations by Banco de la República.

Table B4.3
Risky Portfolio of Companies Exporting to Ecuador or Venezuela vs. Total Loans of the Institution

Company	Percentage of the Portfolio of Companies		Exporting to Ecuador and Venezuela		Total cartera comercial	
	In the Total Portfolio	In the Commercial Loan Portfolio	Risky Loans (Billions of Pesos)	QI[a/]	Risky Loans (Billions of Pesos)	QI[a/]
1	17.7	22.0	227.4	6.9	1192.8	8.0
2	12.8	16.2	156.0	4.3	1411.1	6.3
3	9.7	18.5	120.6	21.5	489.6	16.1
4	9.6	18.6	37.8	3.0	560.5	8.2
5	9.2	16.7	31.9	2.2	556.7	6.4
6	10.8	20.0	27.6	8.3	97.5	5.9
7	13.6	18.0	22.7	2.0	442.1	6.9
8	19.8	29.2	22.0	2.9	68.8	2.6
9	14.3	28.9	17.7	10.7	36.4	6.4
10	15.6	19.3	9.3	1.3	219.3	6.0
11	5.0	13.3	8.3	2.5	319.7	13.0
12	2.4	3.7	6.3	4.6	591.4	16.3
13	10.3	22.6	5.7	1.4	72.2	4.0
14	1.8	6.2	1.2	1.4	208.8	14.8
15	11.3	39.3	0.0	0.0	0.0	0.0
16	29.2	29.2	0.0	0.0	7.2	3.8
17	0.4	0.8	0.0	0.0	2.4	8.7
18	0.0	0.0	0.0	0.0	0.0	0.0
Total banks	**11.5**	**18.1**	**694.5**	**4.7**	**6276.3**	**7.7**
Total CFC	**2.4**	**5.0**	**26.2**	**14.5**	**743.7**	**20.4**

Source: DANE and Financial Superintendence; calculations by Banco de la República.

i) A complete halt in Colombia's trade relations with Ecuador and Venezuela is considered.

ii) It is assumed the companies in the sample experience a reduction in sales equivalent to the amount currently being exported to the countries in question.

iii) It is assumed the companies default on their loans, in an amount proportional to the reduction in income, and do not use their capital to meet financial obligations.

iv) Failure of these companies to meet their financial obligations leads to a larger non-performing loans. This, in turn, results in more provisions and less financial income. Therefore, financial institutions see fewer profits and their capital adequacy ratio declines.

The results, with the scenario in question, suggest the loss in earnings for commercial banks as a whole would amount to COP$ 1.2 t, which represents 19.8% of their total profits at June 2009. This drop in earnings would result in 0.6 pp less profitability. As for the CFCs, their losses would come to COP$ 17.5 trillion (Table B4.4).

However, this exercise measures only the direct effect of a decline in income for companies that export to Ecuador and Venezuela. In other words, it does not consider indirect effects such as higher unemployment and fewer benefits for companies, because of lower prices stemming from the surplus supply that would be generated in the local market. These effects cause deterioration in the commercial loan portfolio and in other types of lending as well.

Table B4.4
Stress Test Results

Comapny	Arrears Index (Percentage)	Stressed Arrears Index (Percentage)	Δ Profits (millions)	ROA (Percentage)	Stressed ROA (Percentage)
1	3.0	3.6	249,751	3.6	2.6
2	3.1	3.5	303,915	3.0	2.3
3	6.4	6.9	56,894	4.2	3.4
4	5.5	5.7	84,425	2.6	2.2
5	4.8	5.1	115,895	2.3	1.8
6	1.8	2.1	22,929	1.8	1.5
7	4.4	4.9	96,783	3.8	3.1
8	2.8	3.4	53,411	1.2	0.3
9	8.6	9.2	15,166	(2.3)	(3.2)
10	3.2	3.9	70,456	2.6	1.6
11	3.3	3.4	19,854	3.2	3.1
12	4.5	4.5	2,492	5.0	5.0
13	6.2	6.5	26,103	2.6	2.2
14	9.3	9.4	10,959	0.5	0.3
15	6.6	6.9	32,534	4.8	4.4
16	0.0	0.8	4,196	3.5	2.8
17	3.3	3.3	12	(19.0)	(19.0)
18	4.4	4.4	0	(1.2)	(1.2)
Total banks	**4.3**	**5.1**	**1,165,777**	**3.0**	2.4
Total CFC	**8.0**	**8.2**	**17,482**	**1.0**	0.8

Source: DANE and Financial Superintendence; calculations by Banco de la República.

Box 5
ASSET PRICE OVERVALUATION

One of the primary sources of economic and financial instability occurs when asset and credit prices are marked by imbalances and extreme volatility, and is known in literature as a financial accelerator this occurs when macroeconomic conditions are favorable. During such times, agents are optimistic about their anticipated income flow and asset prices increase as a result. Because agents perceive this increase as an increase in wealth, it alters their consumption (investment) patterns and their financial needs. Moreover, the enhanced value of assets is reflected in better collateral, thereby increasing the supply of credit. All this events increase the resources available in the economy, thereby stimulating demand and generating additional asset price increases.

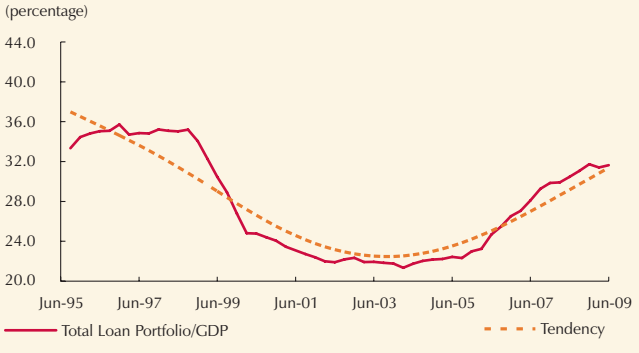
Accordingly, the evolution of these variables must be monitored continuously to determine whether or not potential asset prices increases are being reflected in higher indebtedness (or vice versa), which could jeopardize debtors' ability to pay if the current situation were to be reversed. The purpose of this section is to find evidence of asset price overvaluation in the mortgage and securities markets[1] and to analyze the growth in credit by looking at for the financial depth.[2]

1. The Loan Market

The Hodrick and Prescott filter is used to analyze the actual performance of total lending, the consumer and mortgage loan portfolios and mortgage loan disbursements. It estimates the smoothed tendency of these series,[3] which is compared to the actual level of the indicator to calculate the deviation of each series with respect to the tendency.

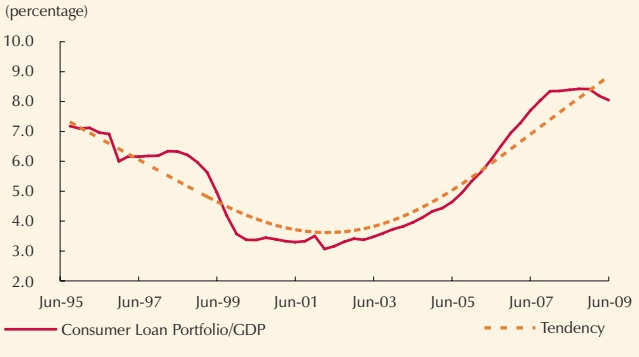
During the first half of 2009, the total loan portfolio as a percentage of GDP approached its smoothed tendency once again; in fact, it was 42 bp higher (Graph B5.1). The decline in consumer lending as a percentage of GDP accentuated, falling below its tendency during the period analyzed (Graph B5.2). The negative difference was 61 bp by June 2009, which is consistent with its pace of growth.

Graph B5.1
Total Loan Portfolio/GDP and Its Tendency



Source: DANE and Financial Superintendence; calculations by Banco de la República

Graph B5.2
Consumer Loan Portfolio/GDP and Its Tendency



Source: DANE and Financial Superintendence; calculations by Banco de la República

Unlike the consumer loan portfolio, the mortgage loan portfolio (as a percentage of GDP) at June 2009 showed a positive deviation of 59 bp in relation to its tendency. However, this value is still less than the maximum deviation registered in September 1998 (94 bp) (Graph B5.3).

The tendency in disbursements as a share of GDP remains on a downward course, partly due to the effects of the contractionary monetary policy implemented as

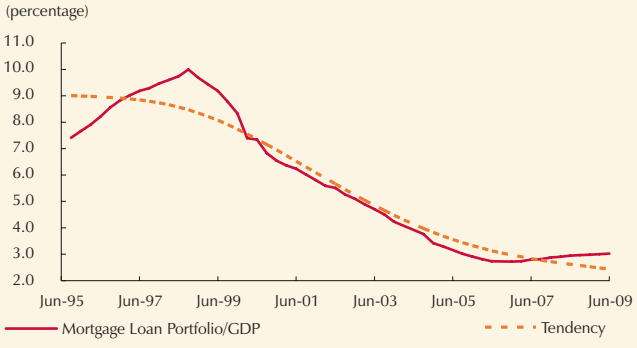
1 An analysis of the price of government securities (TES) is not included, as they account for only a small share of total household and corporate wealth. The opposite is true of housing and stocks.

2 Financial depth is the ratio of credit to nominal GDP.

3 We used the series for the total loan portfolio and the consumer loan portfolio as a percentage of GDP from December 1994 to December 2008. GDP at December was projected on the assumption that nominal annual growth would come to 11.11%.

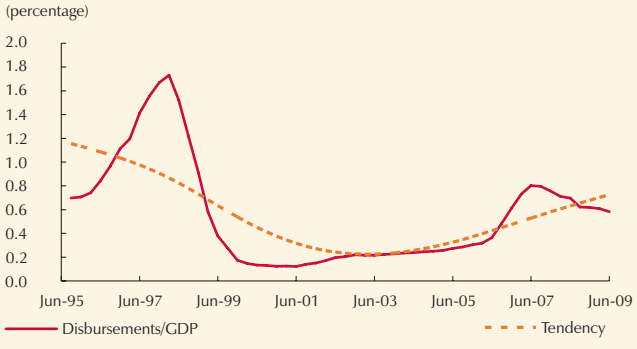
of mid-2006. Its share of GDP has lost ground since then and, in June of this year, was 14 bp below its tendency (Graph B5.4).

Graph B5.3
Mortgage Loan Portfolio/GDP and Tendency



Source: DANE and Office of the Financial Superintendence; calculations by Banco de la República.

Graph B5.4
Disbursements/GDP and Tendency



Source: DANE and Financial Superintendence; calculations by Banco de la República.

2. Housing Market

Two different indexes were used to identify the existence of possible overvaluation in the mortgage loan market: i) the new home price index compiled by the National Department of Planning (DNP in Spanish) and ii) the used home price index (UHPI) compiled by Banco de la República.[4] Two indicators are constructed with these two indexes: i) the ratio of the NHPI to the rental index (RI)[5] and ii) the ratio of the UHPI to the RI. These indicators are used to compare the price of an asset to the price of the one of the fundamental that determines this price (in this case, rentals). In addition, the Hodrick and Prescott filter is applied to both price series to evaluate deviations from their tendency.

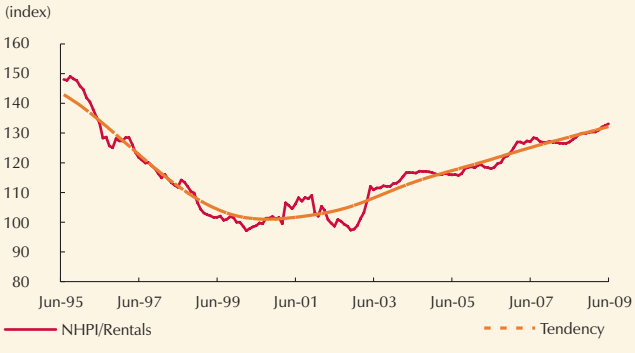
As shown in Graph B5.5, during the first half of 2009 the first indicator follows the same upward trend observed since March of last year, reaching 11.4% overvaluation in June of this year. Even so, the levels are lower than those on record between 1994 and 1995, when overvaluation of those assets was around 25%.

Graph B5.5
NHPI to Rentals
(1994 -Jun-2009 Average = 100)

Sources: DNP and Banco de la República

During the first half of 2009, the NHPI/RI ratio remained near its smoothed tendency, ranging from 33 bp below in the first quarter to 55 bp above in the second (Graph B5.6).

Graph B5.6
NHPI to Rentals and Its Tendency
(Index: Dec-99=100)



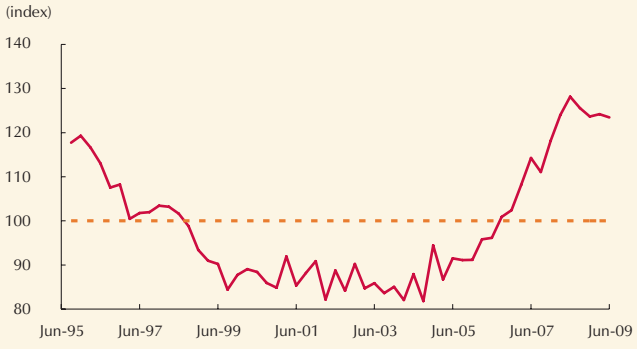
Sources: DNP and calculations by Banco de la República.

With respect to the market for used homes, the index shows 23.8% overvaluation during the first half of 2009, which is almost twice the average observed in the pre-crisis period (13.1%) (Graph B5.7). However, it is important to point out that the downward trend in this index has continued since March of last year, when

4 There is a third indicator, the Real Estate Registration Index (IRI in Spanish), which is compiled by Fedelonjas-ICAV. However, the IRI series is normalized to the average for 1998-2007, which means it cannot be analyzed in the same way as the other indexes used in this report.

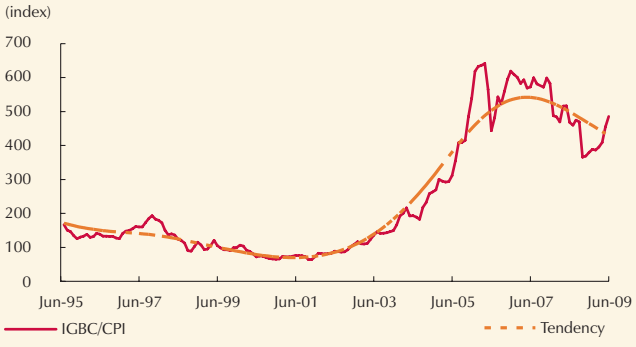
5 The rental index is the housing component of the CPI.

Graph B5.7
CHPI/ Rentals
(1994-June 2009 Average = 100)



Source: DANE and Banco de la República; calculations by Banco de la República.

Graph B5.9
IGBC/CPI and Its Tendency
(Index: Dec-99=100)

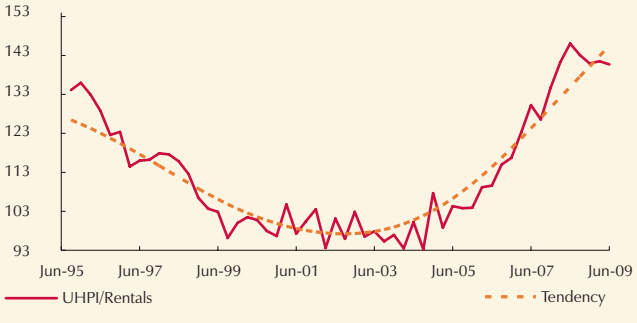


Source: Colombian Stock Exchange and DANE; calculations by Banco de la República.

it reached a record high (28.2%). This performance in used home prices could be explained by a preference for liquidity among agents, who opt for liquid assets and, thereby raise the rentals demand. The result is an increase in the price of rentals and a decline in the price of used homes.

As illustrated in Graph B5.8, despite growing overvaluation up to June 2008, the indicator reversed its performance during the second half of that year and dropped below its tendency during the first half of 2009, with a deviation of 3.3% by the end of the period in question.

Graph B5.8
UHPI/Rentals and Its Tendency
(Index: Dec-99=100)



Source: Banco de la República.

3. Stock Market

The Colombian Stock Exchange Index (IGBC in Spanish) is CPI deflated, and the deviations from its smoothed tendency are analyzed to evaluate the existence of overvaluation in the stock market (Graph B5.9).

The deviation in the IGBC was 13% higher in June 2009. This reflects the stock index corrections experienced following the deterioration witnessed during the second half of 2008, coupled with possible stock overvaluation. The recovery in the IGBC is related, first, to less uncertainty and risk aversion, given the stabilization achieved recently in local and international markets, and secondly to more consumer confidence and better economic conditions expected for the remainder of the year.

4. Conclusions

The results of the exercises suggest the presence of overvaluation in prices for both new and used homes, with the latter receiving the strongest price shock. As long as the mortgage portfolio continues to decelerate and agents' preference for liquidity continues, real estate asset overvaluation is expected to continue to decline.

The stock market has been quite volatile, exhibiting an upward trend since the end of last year. This is a reflection of less uncertainty in local and international markets, together with less risk aversion in the financial markets.

Finally, the fact that the indicator for the total portfolio is converging towards its tendency reflects the slowdown observed during the first half of 2009. However, the mortgage loan indicator slightly widened the positive gap compared to its tendency, despite a decline in the rate of disbursements.

IV. Potential Risks

Credit risk materialization continues to acentuate for all types of portfolios. Harvests and transition matrices suggest this tendency will not change in the short term. The increase in government bond holdings means less liquidity risk, but more exposure to market risk.

A. MARKET RISK

1. Financial System TES B Market Exposure

Securities are valued pursuant to the same method used in earlier editions of this Report.[323] Tables 8 and 9 show the value of the TES B portfolio in the financial system increased from COP$60.2 t on February 20, 2009 to COP$64.4 t on August 21 of the same year, which represents is a nominal increase of 7.0%.[33] This is akin to what was noted in the previous edition of the *Financial Stability Report*, although the amount of growth is much less.

The make-up of the portfolio by type of entity and the share of government bonds by type of currency remained relatively stable compared to what was reported in February 2009. Commercial banks and pension and severance fund managers (PFM) were still the most representative agents, with a share 32.8% and 46.3% respectively. Although these figures are very much like those observed on the aforementioned date (33.7% and 45.2%), the agents in question saw respective increases of COP$857.2 b and COP$2.6 t in the value of their government bond portfolios. This last figure accounts for 62.4% of the total increase for the financial system during the period in question. As for

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32 The value of each security is assessed according to the average price at which the issue was traded on the market. For details, see the December 2005 edition of the *Financial Stability Report.*

33 The valuation exercise includes all outstanding TES B (tradable, available for sale and those held to maturity).

composition by currency, peso-denominated TES continue to account for the largest share (70.0%).

Table 8
Outstanding TES B Stock Valued at Market Prices: Credit Institutions
(Millions of pesos)

	In pesos	At Variable Rate	In UVR	Total
Outstanding at February 20, 2009				
Commercial banks	16,340,541	521,329	3,422,824	20,284,694
Commercial financing companies	105,208	2,352	15,093	122,652
Upper-grade financial cooperatives	9,758	0	778	10,536
Financial corporations	692,964	2,355	316,743	1,012,062
Total: Credit Institutions	**17,148,471**	**526,036**	**3,755,438**	**21,429,944**
Outstanding at August 21, 2009				
Commercial banks	17,360,433	558,681	3,222,781	21,141,895
Commercial financing companies	237,363	14,419	7,920	259,703
Upper-grade financial cooperatives	57,201	11,092	18,025	86,317
Financial corporations	856,933	4,991	298,436	1,160,360
Total Credit Institutions	**18,511,930**	**589,184**	**3,547,162**	**22,648,275**

Source: Banco de la República

Table 9
Outstanding TES B Valued at Market Prices: Non-bank Financial System
(Millions of pesos)

	In pesos	At Variable Rate	In UVR	Total
Outstanding at February 20, 2009				
Brokerage firms	451,225	19,647	74,651	545,523
Insurance companies	1,918,341	220,838	2,616,164	4,755,343
Pension Fund Managers (PFM)	17,518,010	367,361	9,343,431	27,228,802
Trust companies	3,950,561	1,255,311	1,067,536	6,273,408
Total: Non-bank Financial Sector	**23,838,136**	**1,863,158**	**13,101,782**	**38,803,077**
Outstanding at August 21, 2009				
Brokerage firms	342,030	43,760	41,681	427,471
Insurance companies	2,044,671	187,470	2,699,385	4,931,526
Pension Fund Managers (PFM)	20,312,534	28,032	9,524,001	29,864,566
Trust companies	3,936,749	1,312,999	1,336,650	6,586,398
Total: Non-bank Financial Sector	**26,635,984**	**1,572,260**	**13,601,717**	**41,809,960**

Source: Banco de la República.

However, when analyzing the makeup of the portfolios according to the maturity of investments, one sees a smaller proportion of short-term securities than was the case six months earlier (15.1% in February 2009 as opposed to 6.7% in August of the same year.) This could be consistent with the market's expectations in that no further cuts in Banco de la República's benchmark rate are anticipated for the near future. The change in composition according to maturity is reflected in the average duration of investments in government bonds, which increased from 2.6 years to 4.6 years during the period in question, implying greater market risk caused by interest rate movement.

The period between February and August 2009 saw a nominal increase of 5.7% in the value of the TES portfolio held by credit institutions, which reached COP$22.6 t. Within this group of institutions, commercial banks are still the major market players, with a portfolio valued at COP$21.1 t. The portfolio of non-bank financial institutions (NBFIs) stood at COP$41.8 t by August 2009,[34] with 71.4% of that value (COP$29.9 t) pertaining to the PFM. It is important to point out that brokerage firms (BF) were the only institutions in the financial system to reduce their investments in government bonds during the period under study, having done so by 21.6%.

Table 10 provides a breakdown of the changes in peso-denominated TES B holdings with respect to quantity and price. The change in price is due to a shift towards securities quoted up or down during the period in question and is calculated as the residual between the total and observed change, according to quantities. It was positive for the financial system and accounted for 35.0% of the increase in the value of the portfolios. This increase is explained mainly by the increase in government bond holdings, which translates into more market risk exposure. An analysis by type of institution shows investment portfolio valuation for all of them, except brokerage firms, and a reduction in the amounts for BF and trust companies.

2. Sensitivity to TES B Rate Increases

The valuation losses that would occur with a 200 bp change in the interest rate on all maturities along the zero-coupon yield curve for fixed-rate and UVR-denominated TES[35] were calculated to determine how portfolio value would respond to interest rate changes. As with the exercises done earlier, only the

34 With respect to the NBFI considered in this section, trust companies include mutual investment funds.

35 This is the shock suggested by the Basel Committee on Banking Supervision for countries other than the G-10. An increase in the real spread on the UVR reference rate for TES-UVR is implied. Higher expectations of inflation would result in losses only on fixed-rate TES, since the real return on UVR-denominated TES would not change.

Table 10
Variations in TES B Holdings, at Fixed Rate in Pesos [a/]
(Millions of pesos)

	Variation in Quantity	Variation in Price	Total Variation
Total: Credit Institutions	770,009	593,449	1,363,459
Commercial banks	477,378	542,514	1,019,892
Commercial financing companies	112,158	19,997	132,155
Upper-grade financial cooperatives	44,017	3,426	47,443
Finance corporations	136,457	27,512	163,969
Total: Non-bank Financial Sector	1,936,344	861,504	2,797,848
Brokerage firms	(102,933)	(6,261)	(109,194)
Insurance companies	36,990	89,340	126,330
Pension fund managers (PFM)	2,079,419	715,105	2,794,524
Trust companies	(77,131)	63,319	(13,812)

a/ Changes between February 20, 2009 and August 21, 2009
Source: Banco de la República.

trading book positions of these securities were included.[36, 37] The valuation changes were estimated using the portfolio at August 21, 2009 (Table 11). The losses credit institutions would incur, with the hypothetical interest rate hike, came to COP $710.5 b, which is equivalent to 19.3% of their annualized profits at June 2009. In the case of commercial banks, the figure is COP$643.0 b (18.1% of their profits during the same period).

Table 11
Valuation Losses with a 200 bp Shock
(Millions of pesos)

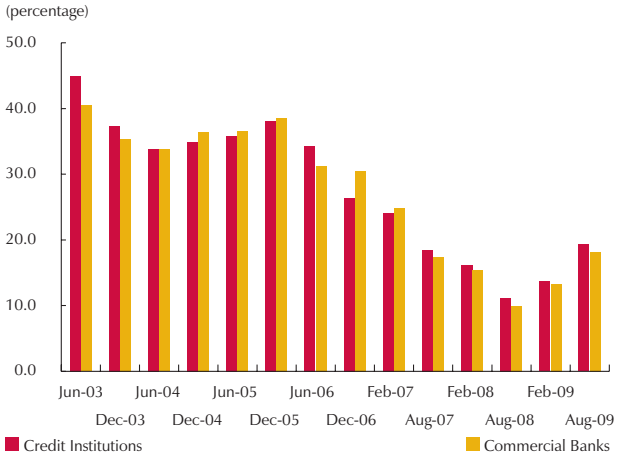
	In pesos	In UVR	Total	Annualized Profits/ Losses (June) (%)
Total Credit Institutions	(710,494)	(226,689)	(937,183)	19.31
Commercial banks	(643,048)	(160,732)	(803,780)	18.11
Commercial financing companies	(11,821)	(345)	(12,166)	25.83
Finance corporations	(55,625)	(65,612)	(121,237)	33.07
PFM	(3,458,796)	(1,174,423)	(4,633,219)	5.63 [a/]

a/ Loss as a percentage of the total value of the PFM portfolio at June 2009.
Source: Banco de la República.

36 The trading book is made up of the positions each bank maintains for the benefits to be derived from their short-term purchase or sale. In the Colombian case, it includes positions in tradable investments and those available for sale.

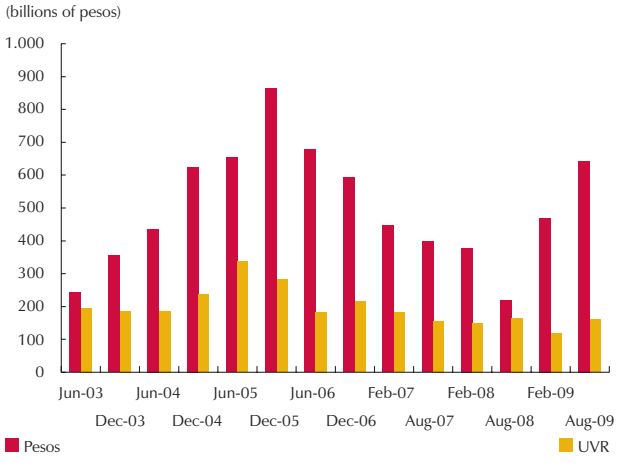
37 The Risk Metrics method was used to calculate the change in portfolio value (See the December 2005 edition of the *Financial Stability Report* for a more detailed explanation).

Graph 81
Valuation Losses as a Percentage of Annualized Profits, with a 200 bp Shock



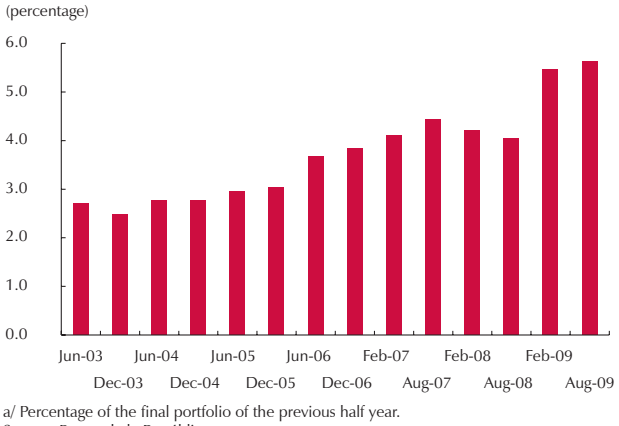
Source: Banco de la República.

Graph 82
Valuation Losses for Commercial Banks



Source: Banco de la República.

Graph 83
PFM Valuation Losses as a Percentage of Portfolio Value[a/], with a 200 bp Shock



a/ Percentage of the final portfolio of the previous half year.
Source: Banco de la República.

Graph 81 allows us to compare the result with what was found in previous periods.[38] The valuation losses credit institutions as a whole and commercial banks would incur with the August 2009 portfolio would be higher than those observed six months earlier, thus completing three straight quarters of increases. Essentially, this is because the increase in the exposed balance was more than proportional to the change in annualized profits.

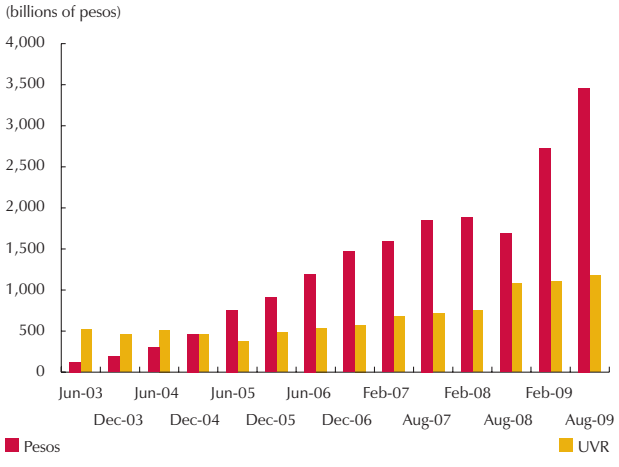
To isolate the effect profit performance has on the outcome for commercial banks, the valuation losses incurred by those organizations are shown in Graph 82. The change in the tendency of those losses, noted in the last edition of this Report, was more pronounced and would come to COP$803.8 b. in August 2008, which is COP$215.8 b more than was calculated six months before. Moreover, the losses on securities denominated in pesos and those denominated in UVR would rise. The valuation loss on peso-denominated securities would increase by COP$173.9 b. to COP$643.0 b in August 2009, while the valuation loss on UVR-denominated securities would reach COP$160.7 b, which is COP$41.9 b more than in February 2009.

Assuming the same interest rate shock, PFM valuation losses would come to COP$4.6 t. This figure represents 5.6% of the value of the portfolio at June 2009 and is a high point for the period in question (Graph 83). Despite the increase in the value of the portfolio of these institutions, the more than proportional growth in outstanding TES means the losses caused by the interest rate shock are greater.

The valuation losses PFM would incur are shown in Graph 84, based on the type of currency. As with the banks, the losses produced by holdings in peso-denominated and UVR-denominated securities would increase. However, there was more of an

38 The exercises were done for the portfolio on the last working days of June and December each year during 2003-2006. The latest figures on the sample pertain to February 16 and August 31, 2007, February 29 and August 22, 2008 and February 20 and August 21, 2009.

Graph 84
PFM Valuation Losses



Source: Banco de la República.

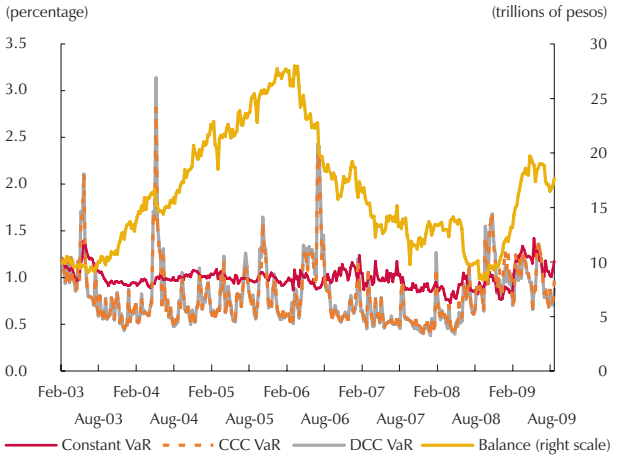
increase in the former, given more of an increase in outstanding peso-denominated securities compared to those denominated in UVR.

3. Value at Risk for Commercial Banks

Value at risk (VaR) is a measure of the maximum loss the system would incur with a particular investment portfolio at a specific point in time. It is included to have a more rigorous estimation of the market risk to which commercial banks are exposed. Specifically, by defining the system's VaR as the aggregate of the individual VaR of banks,[39] this indicator is a more exact measurement of market risk exposure for both the system and each bank in particular.

VaR was calculated for each commercial bank, using the portfolios observed every Friday from February 2003 to August 2009. In addition, VaR was estimated daily, with a 99% confidence level, assuming normality and using the technique suggested by Risk Metrics[40] to analyze a specific set of maturities. Three methods were employed to calculate the correlations and return variances for each risk factor (return on TES in pesos, TES- UVR and an additional exchange exposure factor determined by the changes in the representative market rate). Historic correlations and variances, constant conditional correlations and variances (CCC models), and dynamic conditional correlations and variances (DCC models) were the methods used to calculate the correlation matrix and the return variance matrix, which are required to calculate VaR.

Graph 85
Total VaR of Commercial Banks and Total Exposed Balance: 2003-2009



Source: Banco de la República.

Graph 85 shows the changes in VaR (calculated pursuant to each of the aforementioned methods) and in the exposed balances in the trading book for the system during the period under consideration. As illustrated, the balance exposed to market risk rose 16.6% during the last six months, going from COP$15.2 t in February to COP$17.7 t in August 2009. This increase in the balance continues the upward trend registered during the previous six months, but involves far less growth than was

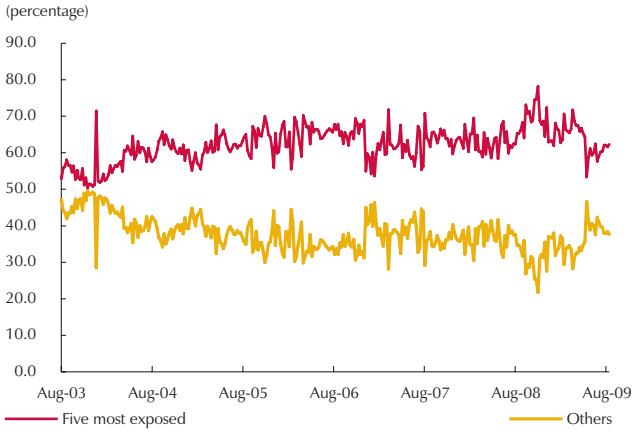
39 For details regarding the methodology used, see Martínez and Uribe (2008), "Una aproximación a la medición del riesgo de mercado para los bancos comerciales en Colombia," *Financial Stability Issues 31*, March 2008.

40 Risk Metrics (1996), Technical Document, J.P. Morgan/Reuters, Fourth Edition, December 1996.

observed during that period (78.8%), given the aforementioned increase in government bond holdings and an increase in the average share of the total portfolio represented by tradable TES and those on demand. This portion was 57.3%in December 2008; six months later, it was 67.2%.

On the other hand, TES returns became less volatile between February and August 2009, despite a major increase during the first half of June. The different measures used to quantify VaR mirror that downturn. In fact, the CCC and DCC are a more appropriate reflection of the change in volatility.

Graph 86
Share of Total VaR Pertaining to the Five Most Exposed Institutions



Source: Banco de la República.

Graph 86 shows the portion of the system's VaR for the five most exposed institutions at each point in time. That share declined between February and August 2009, partly offsetting the upward trend observed during the previous six months. Accordingly, the share attributed to these institutions was 62.3% in August, which is 8.3 pp less than six months before. This amount, which is similar to the average for the sample (62,1%), implies less market risk by virtue of concentration.

The analysis presented in this section points to the conclusion that market risk for institutions in the financial sector has declined based on the results for VaR. Nevertheless, the increase in the exposed balance during the last six months and the shift in the portfolio of the financial system towards longer-term securities are signs that this risk could increase in the future. In fact, the stress tests show a tendency in that direction.

B. CREDIT RISK

1. Credit Institutions

As mentioned in the section on credit institutions, the slowdown in portfolio growth has been accompanied by deterioration in loan portfolio quality and default indicators. This denotes materialization of the risk assumed by the financial institutions during the expansive phase of the loan cycle.

Given this turn of events, a set of stress tests was done to analyze the effect an adverse macroeconomic situation can have on the performance of commercial banks. The exercises were based on two scenarios: i) moderate and ii) extreme, but unlikely (Table 12).

Table 12
Description of the Shocks for Each Scenario

	Macroeconomic Variable	Moderate	Extreme
Shock 1	GDP	1.0% contraction in GDP	6.8% contraction in GDP
	Internal Demand	1.0% contraction in internal demand	13.7% contraction in internal demand [a/]
Shock 2	Interest rate	26bp increase	450 bp increase [b/]
	NHPI	1,0% decline in home prices	8.0% decline in home prices [c/]
Shock 3	Unemployment	1.0 pp rise in unemployment	4.2 pp rise in unemployment [d/]
Shock 4	Aggregate	All of the above	All of the above

a/ Pertains to reductions observed during the second quarter of 1999.
b/ Pertains to the increase posed between May and June 1998.
c/ Equivalent to the average for the reductions witnessed during 1996-2000.
d/ Pertains to the average increase registered 1999.
Source: Banco de la República.

The exercises in question assess how the described shocks affect default and profits for financial intermediaries.[41] The shocks to the various macroeconomic variables increase the non-performing loans portfolio for the different types of loans; this means fewer profits as a result of higher costs for provisioning and less income from interest.

The results for the moderate scenario show the macroeconomic shocks in question have a moderate impact on bank profitability (Table 13). Therefore, in terms of the aggregate shock, the ROA would decline by 82 bp from 2.4% to 1.7%. However, in this case, banks would not post negative returns due to the shock, but their profits would decline by about 35%.[42]

In the extreme scenario, with a shock to economic activity like the one observed during the financial crisis at the end of the nineties, the ROA for commercial banks would fall by 2.3 pp. This translates into a 94.3% reduction in profits (Table 14). If the unemployment rate increases, profits would be down by 33.7% and two banks would post negative returns. Moreover, assuming the shocks occur simultaneously, returns would plummet from COP$4.4 t to COP - $1.0 t, which amounts to a decline of 122.9%.

41 For more information on these methods, see Gutiérrez Rueda, J. and Vásques, D (2008) "Un análisis de cointegración para el riesgo de crédito" in *"Financial Stability Issues 35,"* Financial Stability Report, September 2008

42 The data show there are now two banks with negative returns.

Table 13
Stressed ROA, Stressed Profit and the Number of Banks with Negative Returns after the Moderate Shock

	Shock 1[a/]	Shock 2[b/]	Shock 3[c/]	Shock 4[d/]
ROA at June 2009 (percentage)	2.38	2.38	2.38	2.38
Commercial	1.91	2.21	2.19	1.80
Consumer	2.25	2.37	2.23	2.19
Mortgage	2.35	2.36	2.33	2.31
Total	1.76	2.18	2.00	1.56
Profit at June 2009 (billions)	4,423	4,423	4,423	4,423
Stressed Profit (billions)	3,268	4,035	3,711	2,899
Change in Profit (%)	(26.10)	(8.77)	(16.09)	(34.44)
Number of banks	0	0	0	0

a/ Internal demand (commercial and consumer) or GDP (mortgage)
b/ Interest rates (consumer and commercial) or housing prices (mortgage)
c/ Unemployment
d/ Combination
Source: Banco de la República.

Table 14
Stressed ROA, Stressed Profit and the Number of Banks with Negative Profitability after the Extreme Shock

	Shock [a/]	Shock [b/]	Shock [c/]	Shock [d/]
ROA at June 2009 (percentage)	2.38	2.38	2.38	2.38
Commercial	1.00	1.96	2.03	0.82
Consumer	1.51	2.34	1.96	1.11
Mortgage	2.30	2.33	2.24	2.15
Total	0.14	1.88	1.51	(0.54)
Profit at June 2009 (billions)	4,423	4,423	4,423	4,423
Stressed Profit (billions)	254	3,495	2,799	(1,006)
Change in Profit (%)	(94.26)	(20.97)	(36.71)	(122.75)
Number of banks	7	0	0	12

a/ Internal demand (commercial and consumer) or GDP (mortgage)
b/ Interest rates (consumer and commercial) or housing prices (mortgage)
c/ Unemployment
d/ Combination
Source: Banco de la República.

2. Analysis of Loan Portfolio Concentration and Credit Risk[43]

a. Commercial Loan Portfolio

The commercial loan portfolio is one of the main sources of financing for companies and has accounted for 61.1% of the total loan portfolio, on average, during the past seven years. Accordingly, an analysis of its features and the

43 The information on individual loans in each of the portfolios was taken from Form 341 filed with of the Financial Superintendence. It includes loans granted by special and official institutions (IOES in Spanish), apart from rediscount loans, which are not considered in the section on the financial system.

agents involved is relevant to identifying the risks facing institutions in the financial system.

The analysis presented in this section is based on information concerning individual loans in the commercial portfolio, as reported quarterly to the Financial Superintendence in Colombia.

A look at the changes in the total amount of the portfolio shows sustained growth since June 2003, possibly due to larger amounts granted to each borrower and an increase in the number of borrowers. The average amount per borrower between June 2000 and June 2009 was 64.2% higher, while the number of borrowers grew 48.7%, suggesting the growth in the commercial loan portfolio is explained by the amount awarded per borrower (Table 15). There was a build-up in this situation during the last half-year period, when the average amount increased at an average annual rate of 24.2% and the number of borrowers declined by 7.1%.

Table 15
Amount of Principal in the Commercial Loan Portfolio

Date	Balance [a/]	No. of Borrowers	Average Amount per Borrower
Jun-00	42.965	269.770	0.16
Jun-01	41.353	199.364	0.21
Jun-02	40.515	240.277	0.17
Jun-03	47.015	226.018	0.21
Jun-04	50.039	263.478	0.19
Jun-05	59.043	289.018	0.20
Jun-06	66.314	333.978	0.20
Jun-07	78.435	396.011	0.20
Jun-08	90.937	431.602	0.21
Jun-09	104.918	401.073	0.26

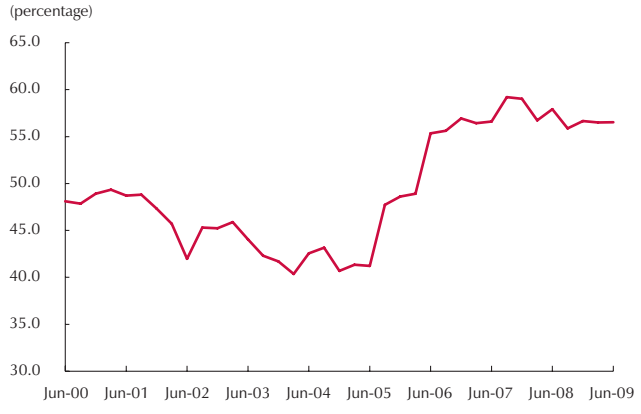
a/ Balances in billions of June 2009 pesos.
Source: Financial Superintendence of Colombia; calculations by Banco de la República

1) Commercial Loan Portfolio Concentration

The study of concentration in the commercial loan portfolio is done on the basis of institutions and borrowers. In the case of institutions, five lenders accounted for approximately 44.9% of the portfolio between June 2000 and June 2005. This concentration increased as of 2005 and the five largest lenders eventually had 56.5% of the portfolio (Graph 87), partly because of the bank mergers that took place during that period.[44]

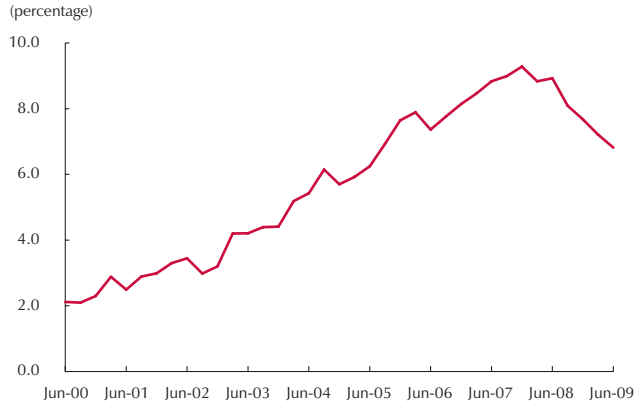
44 The following are some of the more important mergers: Banco de Bogotá and Megabanco, Bancolombia and Conavi, BBVA and Granahorrar, and Banco de Occidente and Banco Unión Colombiana.

Graph 87
Concentration of the Commercial Loan Portfolio of the Five Largest Financial Institutions



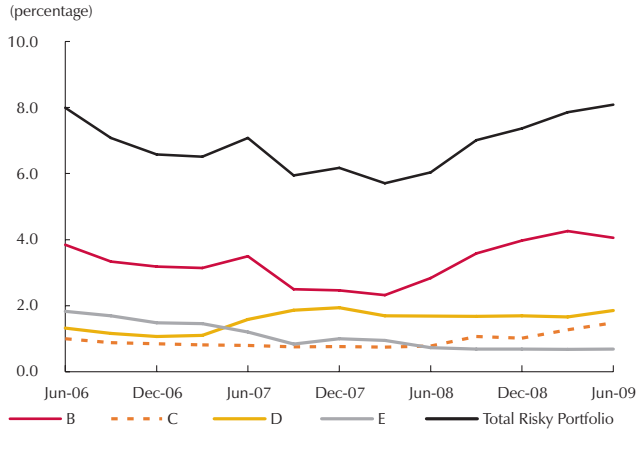
Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 88
Percentage of Borrowers Accounting for 90% of the Commercial Loan Portfolio



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 89
Share of the Risky Loan Portfolio, by Ratings



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

The change in the percentage of borrowers who account for 90% of the value of the commercial loan portfolio is shown in Graph 88. Increases in this indicator reflect lower concentration levels and vice versa.

As one can see, the commercial loan portfolio was highly concentrated during the period in question. The proportion of borrowers who accounted for 90% of the loan portfolio increased from 2.3% to 9.3% between June 2000 and December 2007, thereby reducing the extent of concentration. However, the situation changed as of December 2007 and the proportion was 6.8% in June 2009, which suggests the risk posed by credit concentration has increased during the last two years, which was a time of economic slowdown. This is consistent with the performance of banks during contraction periods, which is characterized by coverage through portfolio concentration on the best borrowers.

Credit risk concentration is important to the financial system, as unexpected shocks to companies that hold a major part of the portfolio would mean huge losses for the system. A diversified portfolio helps to mitigate that risk.

2) Credit Risk

A look at the commercial loan portfolio by credit-risk rating shows the trend towards deterioration as of June 2008 continues. Consequently, the QI rose by 2.1 pp between June 2008 and June 2009 (Graph 89).

A detailed analysis of the risky loan portfolio during the last quarter in question shows the increase in that portfolio is explained mainly by C and D rated loans, which accounted for 2.9% of the commercial loan portfolio in March 2009 and 3.3% three months later.

Credit risk also can be analyzed by calculating transition matrices, which make it possible to determine the conditional probability that a credit rating will change during a specific time period.

The results for the transition matrices calculated for commercial loans, using quarterly data from March 2002 to June 2009, are presented in the following section.

The average transition matrix for the entire analyzed period [45] is presented in Table 16. As one can see, the highest probabilities are found on the diagonal, which shows a considerable degree of persistence in ratings, particularly for A (95.2%) and E (91.2%). However, the probability of a loan in category C to change to D is higher than the probability of it remaining in category C.

Table 16
Average Transition Matrix between March 2002 and June 2009

	A	B	C	D	E
A	95.2	3.7	0.8	0.2	0.1
B	34.5	42.0	18.2	4.6	0.7
C	13.3	7.9	29.1	46.1	3.6
D	6.3	2.1	1.9	65.0	24.6
E	3.5	1.0	0.6	3.6	91.2

Source: Financial Superintendence of Colombia; calculations by Banco de la República.

The transition matrix calculated for June 2009 shows a situation similar to that of the average, with the highest probabilities concentrated on the diagonal (Table 17). Nevertheless, one sees a generalized deterioration during this period, as the probability of a loan retaining the same rating declines for A, B, C and E and the upper triangle shows greater density with respect to the average. Consequently, the probability of default increases for this last observation.

Table 17
Transition Matrix: June 2009

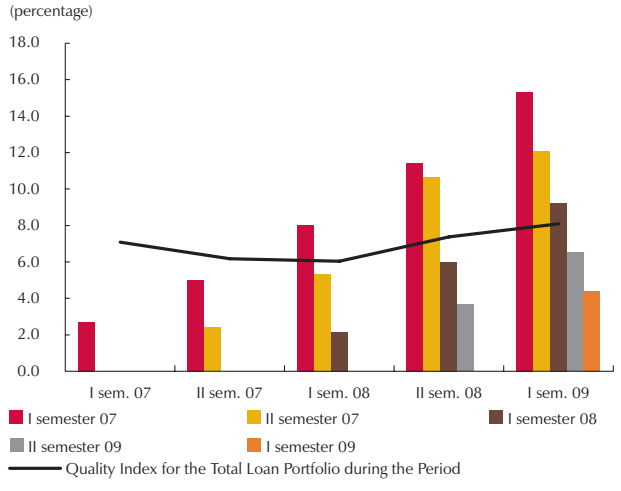
	A	B	C	D	E
A	93.1	5.5	1.1	0.2	0.1
B	30.5	41.0	18.9	8.4	1.2
C	9.2	7.0	28.8	49.4	5.6
D	2.8	2.0	2.2	83.5	9.5
E	2.2	1.5	0.6	4.7	91.0

Source: Financial Superintendence of Colombia; calculations by Banco de la República.

As for D-rated loans, the probability of maintaining the same rating is 18.3 pp higher with respect to the average matrix. This is reflected in a decline in the likelihood of moving to a lower rating, as the loans are already in the D category.

45 This matrix is constructed with data from periods of economic recovery or growth, which means it loses validity as an early warning indicator during times of crisis.

Graph 90
Loan Portfolio Quality Analysis by Harvests



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Finally, it is interesting to look at the quality of the portfolio by harvests of borrowers.[46] In this analysis, the loan portfolio quality indicator (QI) for each harvest is monitored throughout the life of the harvest to determine to what extent the performance of the current index can be explained by the criteria used to select borrowers in past harvests or in the more recent ones.

Graph 90 shows the changes in the QI for each harvest and with respect to the portfolio as a whole.[47] For example, the harvest of loans granted during the first half of 2007 is represented by the color red. Its loan portfolio quality indicator shows deterioration as the life span of the harvest increases, reaching 15.5% at June 2009.

When the QI of the harvests is analyzed during the six-month period when they originate, one sees the indicator for the two most recent harvests is higher than the indicator for all the others analyzed. During the first year the harvests are in effect, the ones with the highest indicator are those granted during 2008. By the third six-month period in the life of the harvests, the one granted during the second half of 2007 shows the most deterioration. The foregoing suggests the loan portfolio quality indicator could deteriorate even further during the second half of 2009, since the two most recent harvests have poorer initial ratings and the pattern up to this point indicates the QI will deteriorate as the life of the harvests progresses.

b. Consumer Loan Portfolio

There are three types of consumer loans: credit card, automobile and "other" consumer loans.[48] Each has its own average amounts, average duration, type of collateral and changes in quality.

The characteristics of consumer loans and the risk profile for each type are described in this section. The database used to do so contains approximately

46 A harvest is a set of loans granted within a specific period of time.

47 The harvest graphs can be read as follows. The horizontal scale shows the assessment of the harvest during the six-month evaluation period, while the colored bars are associated with each harvest. The line is the loan portfolio quality indicator for loans of each type, in their entirety, during each period. In the portfolio quality analysis of a harvest conducted several semesters after the loans were granted, the loans posing the most risk occupy a greater share. However, this bias is common to all harvests and, for that reason, they are comparable to one another.

48 Other consumer includes credits for investments credits, revolving credit, overdrafts, portfolio purchases and school loans.

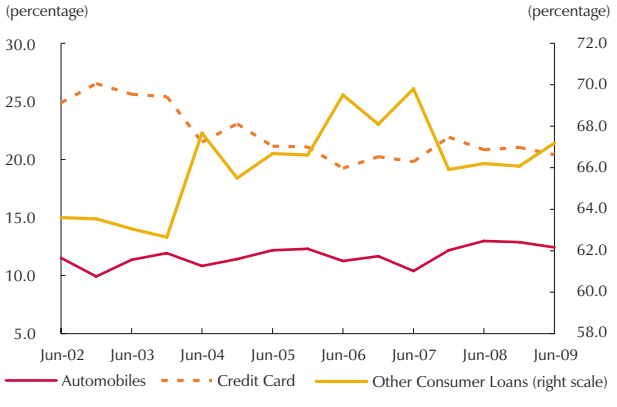
170 million entries registered between March 2002 and June 2009, and includes every active consumer loan.[49]

1) General Features of Consumer Loans

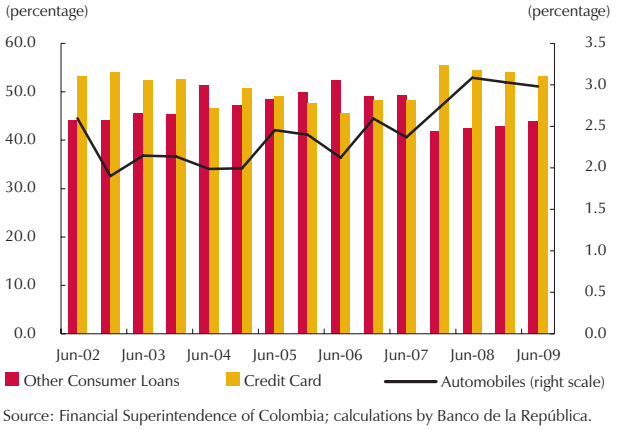
In June 2009, credit cards accounted for 20.4% of the entire consumer loan portfolio, loans for automobiles and other private vehicles, 12.4% and other consumer loans, 67.2% (Graph 91, Panel A). Although there is a 1.1 pp biannual increase in the share of the portfolio pertaining to other consumer loans, the change does not represents a substantial shift in the foregoing percentages. By the end of the first half of 2009, credit card lending amounted to COP$8.2 t, automobiles, COP$5.0 t and other consumer loans, COP$27.1 t, with respective real annual increases of -1.5%, -3.7% and 2.2%.

Graph 91

A. Percentage of the Amount of Consumer Loans, by Type



B. Percentage of the Number of Consumer Loan Transactions, by Type



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

The number of consumer loans at June 2009 was 12.0 m and the number of active accounts declined 1.2% during the first half of the year. Out of all the loans in the portfolio, 53.1% pertain to credit cards, 3.0% to automobile loans and 43.9% to other types of consumer lending. Panel B in Graph 91 shows how the proportions have changed with respect to the number of transactions, with other consumer loans posting moderate growth during the last six months, as was the case with their share of the amount on loans.

Given their different uses and characteristics, the average amounts per loan differ by type. In June 2009, the average amount lent to purchase an automobile was COP$14.0 m, as opposed to COP$1.3 m for credit card lending and COP$5.1 m for other types of consumer loans (Table 18). Real annual growth in the average amount per type of loan came to -4.0%, -3.0% and -4.8% for automobiles, credit cards and other consumer lending, in that order, reflecting a generalized contraction in the consumer loan portfolio.

49 Several institutions did not report data for 2002 and 2003. This creates a discrepancy between the real total consumer loan portfolio and the database. For example, the database shows 10% fewer consumer loans in 2002 and 2003, compared to the total consumer loan portfolio observed during that period. As of 2004, the discrepancy in each quarter is below 7%, except in the third quarter of 2007, when the difference was around 10%.

Table 18
Average Amount of Debt, by Type of Loan
(Millions of Pesos) June Each Year

Date	Automobiles	Credit Card	Other Consumer Loans	Total Consumer Loans
2002	8.25	0.87	2.68	1.86
2003	10.01	0.93	2.63	1.89
2004	11.57	0.98	2.79	2.12
2005	11.87	1.03	3.29	2.39
2006	13.72	1.10	3.43	2.59
2007	12.49	1.17	4.03	2.85
2008	14.00	1.28	5.19	3.33
2009	13.97	1.29	5.13	3.35

Source: Financial Superintendence of Colombia; calculations by Banco de la República.

At June 2009, the number of borrowers (4.95 million) was up 3.4% for the year. However, there was a 0.3% decline in borrowers during the latest half-year period, something that had not occurred since 2003. This is consistent with the reduced momentum in consumer lending and with the more stringent policies on credit adopted by lenders with respect to new consumer loans, as indicated in the *Report on the Credit Situation in Colombia* (RSCC in Spanish).

2) Credit Risk and Loan Portfolio Quality

Graph 92 shows the loan portfolio quality indicator for the different types of consumer lending. As illustrated, all the groups experienced deterioration during the first half of 2009. By the end of that period, the QI for credit card loans was 13.9%, which is 2.3 pp more than a year earlier. For automobile loans, it was 11.8%, which is 3.5 pp more than in June 2008. The group that includes other consumer loans also deteriorated sharply, posting an increase of 3.0 pp in its QI, which came to 12.9% in June. As usual, the QI for credit card loans is higher than the QI for the consumer loan portfolio as a whole (13.0%), because there is no collateral on credit card lending and the policies on assigning new cards tend to be less strict than those for other types of consumer lending (which is why the interest rate on credit card loans is higher).

Graph 92
Loan Portfolio Quality Indicator, by Type of Consumer Loan
(Risky Portfolio /Gross Portfolio)

Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Transition matrices for the entire consumer loan portfolio were calculated for a closer analysis of how credit risk has evolved. The average transition matrices between 2002 and 2009 are shown in Table 19 (Panel A), along with the transition matrix at June 2009 (Panel B). The elements on the diagonal show the persistence of loans in their category, with the

highest at June 2009 being loans rated A (93.3%), D (56.4%) and E (86.2%). However, on that date, the persistence of A and E-rated loans was less than the average observed since 2002. The case of A-rated loans reflects the increased likelihood of migrating from this category to riskier ones, which is consistent with the increase in the loan portfolio quality indicator.

Table 19
Transition Matrices for the Consumer Loan Portfolio (Percentage)

A. Average: 2002-2009

	A	B	C	D	E
A	95.1	2.9	1.2	0.6	0.1
B	47.6	24.8	8.6	18.3	0.8
C	26.5	11.1	14.9	45.7	1.8
D	14.4	5.1	5.4	27.5	47.5
E	6.1	1.4	1.4	3.7	87.3

B. Transition from 2009-I to 2009-II

	A	B	C	D	E
A	93.4	4.1	1.6	0.9	0.1
B	30.8	36.3	13.8	17.8	1.4
C	14.0	12.8	30.8	38.5	3.9
D	3.4	3.4	11.4	56.4	25.4
E	3.7	1.4	3.9	4.8	86.2

Source: Financial Superintendence of Colombia; calculations by Banco de la República.

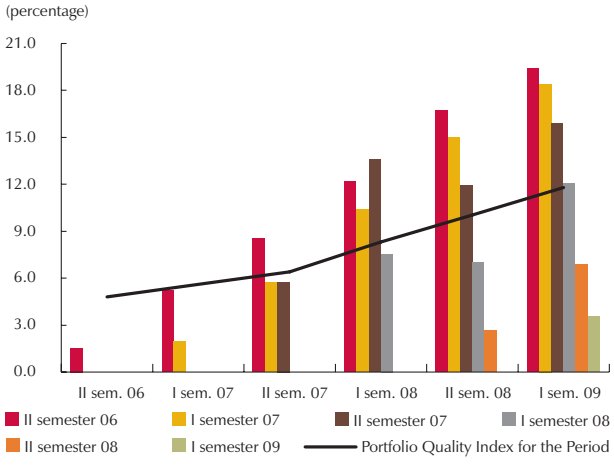
The higher probabilities below the diagonal are associated with improvements in rating, while the numbers situated above the diagonal are associated with the probability of migrating to an inferior category. A comparison between the average matrix and the one for the second quarter of 2009 shows deterioration in migration characteristics. During the first half of 2009, there is more likelihood of migrating to lower categories from A and B with respect to the average for the sample (see the upper triangle) and less probability of migrating to a better category from B, C and D (see the lower triangle).

As was done for the commercial loan portfolio, the evolution of credit risk for the different types of consumer loans was analyzed based on the harvests of borrowers. Over time, this analysis identifies the quality of the debts assumed by the financial system's clients in a particular half-year period (harvest). As a result, it is possible to distinguish the risk profiles of new clients from those of old borrowers, which is crucial to determining whether the current momentum in the portfolio is based on a more flexible or more stringent borrower selection process used by financial institutions to grant new loans.

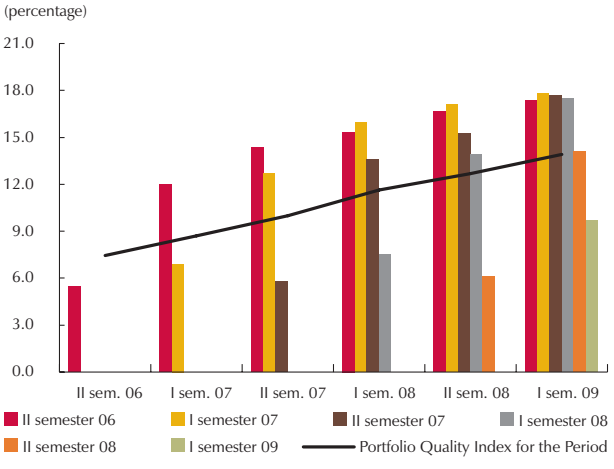
Loan portfolio quality by harvest is shown in Graph 93 for the different types of consumer loans.[50] Deterioration in the initial harvest is evident for all types. The QI for loans that appeared in the first half of 2009 was 3.6%, 9.7% and 8.5% for automobile loans, credit card lending and others, in that order. This amounts to increases of 90 bp, 3.6 pp and 80 bp compared to what was registered six months earlier.

Graph 93
Risky Portfolio/Total Loan Portfolio by Harvests

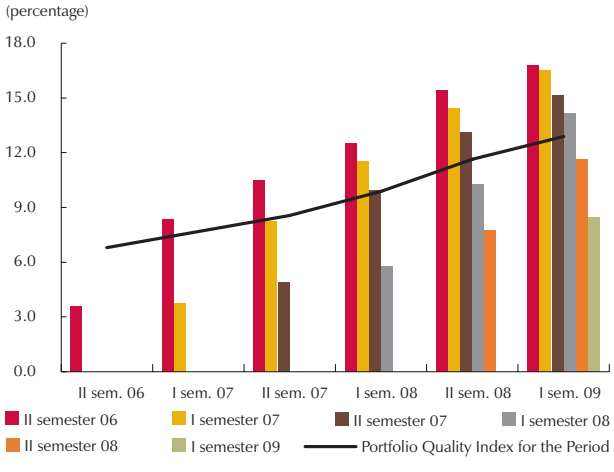
A. Automobiles



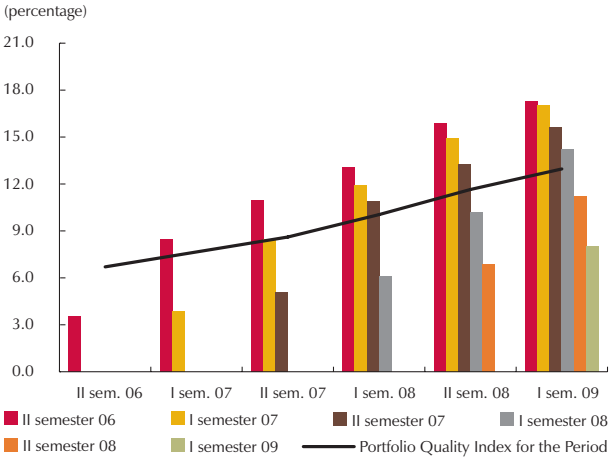
B. Credit Cards



C. Other Consumer Loans



D. Total Consumer Lending

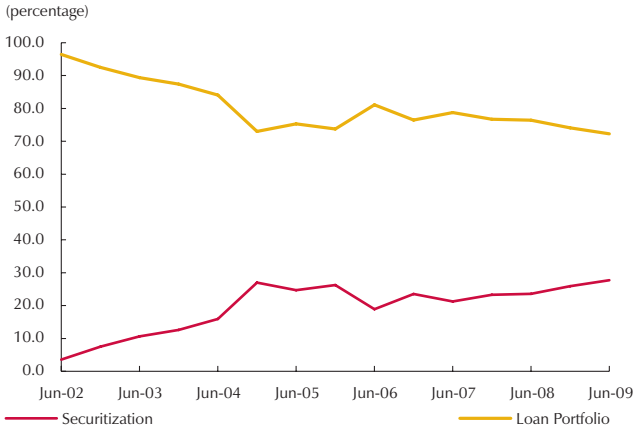


Source: Financial Superintendence of Colombia; calculations by Banco de la República.

50 The harvest graphs are to be read as follows. The horizontal scale shows the assessment of the harvest during the six-month evaluation period. The colors of the bars are related to each harvest. The line indicates total portfolio quality for each type of loan in each period. When analyzing the quality of a harvest, it is important to remember that the riskier loans may account for a larger share of the outstanding balance several semesters after the harvest is issued. However, that bias is common to all the "harvests" and, for that reason, they can be compared to one another.

Given the generalized deterioration in the harvests for the different types of lending, the one for the total consumer loan portfolio first half of 2009 has the most risk at birth within the period analyzed (Panel D, Graph 93). Although the banks have stiffened their requirements for new loans, as reflected in the RSCC, the economic slowdown has had a major influence on the increase in risk levels for the consumer loan portfolio.

Graph 94
Mortgage Loan Portfolio Components, by Portfolio and Securitization



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

c. *Mortgage Loan Portfolio*

1) Credit Risk

The securitized portion of the mortgage loan portfolio continued to increase and was 27.7% during the first half of 2009. This is a high point for the sample and 1.8 pp more than the percentage observed in December 2008. Because banks do not list mortgage securitizations on their balance sheets, a higher share of securitized loans implies, less credit-risk exposure for financial intermediaries (Graph 94).

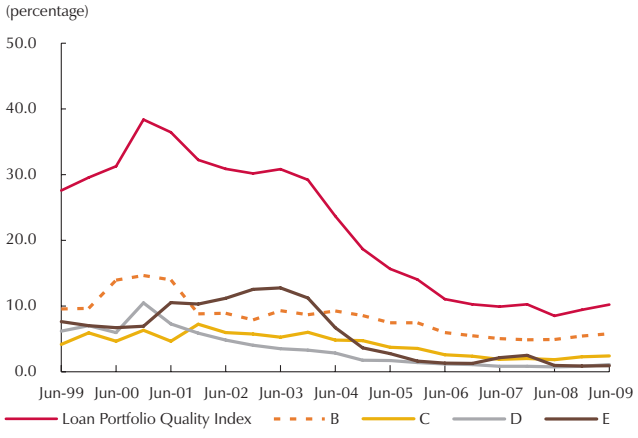
As to mortgage loans, Table 20 shows a real decline of 0.8% in the total outstanding balance between December 2008 and June de 2009, which amounted to COP$12.4 t on that date. This reduction was accompanied by a more even distribution of loans, owing to less variation in the amount.

Table 20
Amount of Principal in the Mortgage Loan Portfolio

Date	Outstanding Balance[a/]	Distribution of Amounts by User[b/]				
		5th Percentile	Lower Quartile	Median	Upper Quartile	95th Percentile
Dec-01	20,548,902	2,133,995	12,004,367	23,067,359	36,257,948	81,730,842
Dec-02	17,337,487	380,105	9,595,607	20,272,021	33,252,463	73,589,234
Dec-03	14,489,643	530,500	8,678,127	18,392,458	30,593,503	65,738,501
Dec-04	10,805,085	88,647	7,286,438	17,068,835	28,270,613	58,311,886
Dec-05	10,116,049	482,102	7,880,119	17,013,326	27,550,318	57,824,079
Dec-06	10,921,170	554,948	8,689,922	17,399,948	27,922,087	62,033,360
Dec-07	12,176,338	514,683	9,068,615	17,875,479	28,511,214	69,017,815
Dec-08	12,450,466	439,062	10,384,154	19,519,538	29,753,765	71,982,523
Jun-09	12,350,253	906,789	9,729,415	18,446,977	28,497,571	69,777,069

a/ Data in millions of June 2009 pesos
b/ Data in June 2009 pesos
Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 95
Share of the Risky Portfolio by Ratings



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

When analyzing the loans with ratings other than A, one sees an increase in all the ratings with respect to their share of the total. As a result, the portfolio quality rating was 10.2% in June 2009, which implies a deterioration of 78 bp with respect to six months earlier. Graph 95 shows a positive trend in all risky portfolio shares of the total mortgage loan portfolio. Specifically, the share of B-rated loans increased 35 bp in the last six months to 5.8%. Given this figure, B-rated loans continue to account for the largest share of the risky portfolio, as has been the case since 2004. According to what was mentioned in Chapter II, the increase in risky portfolio deserves special attention, as it could result in a further materialization of credit risk, particularly if the increase is in lower-rated loans.

The deterioration in the mortgage loan portfolio QI was accompanied by an increased likelihood that a loan rating would deteriorate from one period to another. This is reflected in Table 21, since the upper diagonal of the average transition matrix as of 2007 (Panel A) has lower probabilities than in June 2009 (Panel B). Furthermore, the probability that a loan would cease to be considered risky during the following period was less at the time of analysis.

Table 21
Transition Matrices for the Total Mortgage Loan Portfolio
(Percentage)

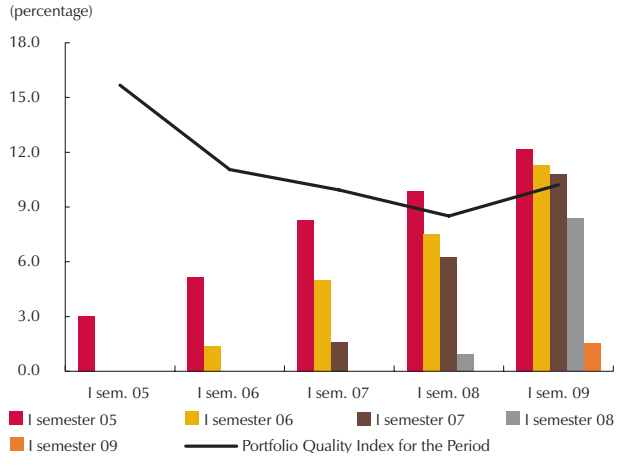
	A. Average: 2007-2009						B. June 2009				
	A	B	C	D	E		A	B	C	D	E
A	95.9	3.8	0.1	0.1	0.0	A	95.5	4.2	0.2	0.1	0.0
B	30.4	50.8	17.9	0.4	0.6	B	27.6	51.0	19.4	1.1	1.0
C	13.9	7.4	61.5	16.4	0.9	C	12.8	7.3	59.5	18.6	1.8
D	8.2	2.3	5.2	55.7	28.7	D	7.2	2.6	4.7	50.9	34.7
E	5.3	1.3	1.7	2.5	89.3	E	4.8	1.6	2.2	3.5	87.9

Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 96, which illustrates the QI for harvests of mortgage loan borrowers at the time those loans originated, shows that new loans made during the first half of 2009 are riskier, on average, than those made during the two previous half-year periods. Accordingly, the QI of the latest harvest is 1.5% and reflects the upward trend in this indicator since early 2008. Nevertheless, it is less than the QI of the harvest for the first half of 2005. The deterioration in the harvests for the first half of 2007 and 2008 also is obvious.

2) Credit Risk Combined with the Consumer Loan Portfolio

Graph 96
Analysis of Mortgage Loan Portfolio Quality by Harvests
(Percentage)



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Table 22
Representativeness of the Combined Sample
(Percentage)

	Number of borrowers		Loan Principle	
	Mortgage	Consumer	Mortgage	Consumer
Dec-07	64.7	6.9	76.5	12.7
Jun-08	67.8	7.0	77.8	12.7
Dec-08	67.3	6.8	78.2	12.2
Jun-09	67.6	6.7	77.3	11.6

Source: Financial Superintendence of Colombia; calculations by Banco de la República

Exposure to borrowers with more than one type of loan is analyzed in this section. To do so, a database on borrowers with mortgage and consumer loans was constructed with half-year data reported since December 2007 (Table 22). As illustrated, most of the borrowers with mortgages also have consumer loans. At June 2009, the borrowers with both types of loans accounted for 67.6% of all mortgage borrowers, and their loans represented 77.3% of the total mortgage loan portfolio. Yet, these same borrowers do not account for the bulk of the consumer loan portfolio. Moreover, the representativeness of the sample has stayed relatively constant.

When analyzing the percentage of the risky loan portfolio for each type of loan in the database, one sees the QI for the portfolio is less compared to the QI for the total. This implies that the risk posed by borrowers with both consumer loans and mortgages is less, on average, than the risk posed by all the borrowers, as whole, in each of these portfolios. However, the indicator reflects deterioration and, in the case of consumer lending, is higher for the loans in the sample (Graph 97).

In short, the quality of the mortgage loan portfolio declined during the first half of 2009 with respect to the indicator observed six months earlier, and there has been an upward trend in the QI since June 2008. Furthermore, the probability of a decline in credit rating —measured with transition matrices— is higher than the average since the first half of 2007. Accordingly, the quality of new loans continues to deteriorate.

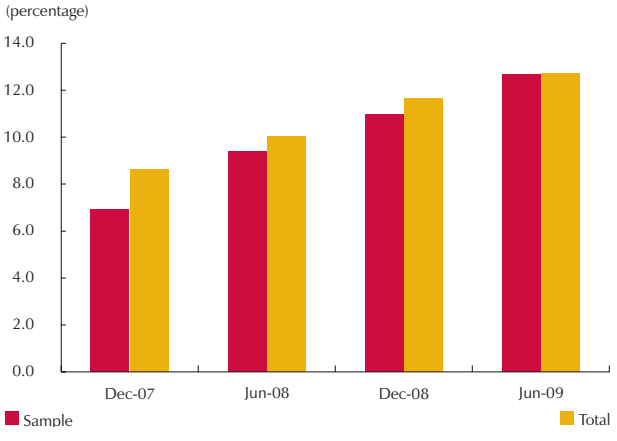
On the other hand, risk exposure for lenders is less in the case of borrowers who have consumer loans and mortgages. The conclusion is that they pose less risk than those with only one type of loan; however, their portfolio quality indicators have deteriorated in the last few semesters.

C. LIQUIDITY RISK

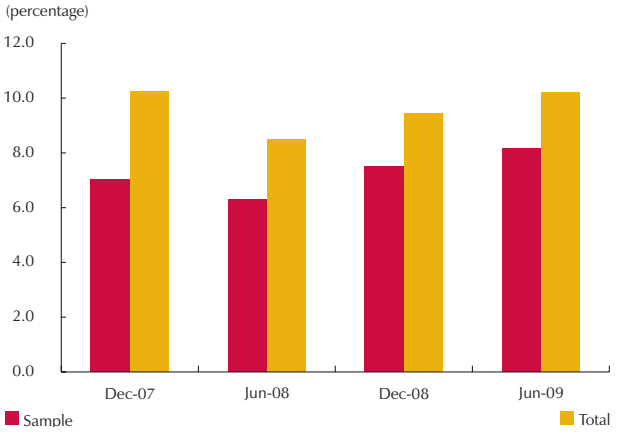
There are two dimensions or notions of liquidity risk that are widely discussed in literature. The first is funding liquidity risk, which is understood as the inability of an institution to cover its current liabilities in due course and with the liquid assets at its disposal. The other is market liquidity risk, which occurs when assets cannot be liquidated quickly and at an adequate price.

Graph 97
QI Comparison between the Sample and the Total

A. Consumer Loan Portfolio



B. Mortgage Loan Portfolio



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Exercises to measure the liquidity risk associated with each of these notions are presented in this section. Stress exercises are included as well to analyze how sensitive the system is to extreme but probable scenarios of low liquidity.

1. Funding Liquidity Risk

The uncovered liability ratio (ULR) is used to measure funding liquidity risk, as is the scaled liquidity risk indicator (LRI), which is being employed for the first time, taking advantage of new data acquired by the Financial Superintendence after the liquidity risk management system went into effect (SARL in Spanish).[51]

1) Uncovered Liability Ratio (ULR)

The uncovered liability ratio measures the liquidity shortage financial institutions could face due to changes in maturity. It is calculated as follows:

$$ULR = \frac{(LL + TrL) - [LA - INV + \lambda\, INV]}{TA - LA}$$

Where *LL* are liquid liabilities[52]; *TrL* is the temporary component of all other liabilities,[53] *INV* are tradable investments available for sale, *LA* are liquid assets[54] and *TA* are total assets.[55]

51 The September 2008 edition of the *Financial Stability Report* contains a section that describes the SARL and the method used by the Financial Superintendence to calculate the LRI.

52 Liquid liabilities include the following accounts: Central Bank of Colombia, other negotiated repo agreements, with time certificates and liability positions in money market operations, and related transactions.

53 This component includes the following accounts: regular assets, real-value savings accounts , special savings accounts, real-value term deposits, documents payable, the centralized account, funds placed in trust and special accounts, banks and correspondents, bank collection services, affiliate establishments, bank current account deposits, term deposits, special deposits, investment instruments in circulation, collections made, simple deposits, banker acceptances in circulation, bank loans and other financial obligations, inactive ordinary accounts and current liabilities for bank services, all calculated using a Hodrick and Prescott filter.

54 Includes the following accounts: liquid assets minus cash and Banco de la República, interbank funds sold, repos and tradable investments available for sale.

55 The reserve requirement is not included in total assets, inasmuch as the liquidity risk measurement presented in this section is confined to funding liquidity risk. The reserve requirement can be used to deal with systemic liquidity shocks, but not as a source of funding in normal situations.

In this equation, redeemable liabilities are the sum of *LL* and *TrL*. The support institutions have (in square brackets) is determined by: i) liquid assets other than tradable investments available for sale (*LA – INV*), and ii) tradable investments available for sale multiplied by a discount (λ). This discounts means the value of *INV* —in terms of liquidity risk— is somewhat less than their market value (λ<1).[56]

The ULR can be interpreted using the following table:

ULF	Motive	Liquidity Risk
Positive	$(TrL + LL) > [\lambda\ INV+(LA – INV)]$	High
Zero	$(TrL + LL) = [\lambda\ INV+(LA – INV)]$	Medium
Negative	$(TrL + LL) < [\lambda\ INV+(LA – INV)]$	Low

Graph 98 illustrates the recent evolution of the ULR, which was -16.1% by the end of the first half of 2009. The fact that it is below zero suggests low funding liquidity risk. Moreover, there is a substantial improvement, inasmuch as the ULR for the system in December 2008 was 7.4 pp higher than at the end of the first half of 2009.

The sustained decline in the ULR since November, when it reached -5.8%, is explained by the increase in investments in government bonds, which raised market risk (see the section on market risk) but improved the situation with respect to funding liquidity risk.

2) Liquidity Risk Indicator (LRI)

A liquidity risk indicator (LRI) with a one week period, which is a short-term liquidity gap, is used in this edition of the *Financial Stability Report.* The LRI was introduced in Colombia by the Superintendent of Financial Institutions when the liquidity risk management system (SARL in Spanish) took effect during the first half of 2009.

For a one-week time horizon, the LRI formula is equal to the sum of liquid assets adjusted for market liquidity (ALM) and the net liquidity requirement estimated for the first time band (RNL_1):

$$LRI_1 = ALM + RNL_1$$

56 λ is calculated as (*1-haircut*). The haircut is the discount Banco de la República applies to the value of credit institutions' portfolios in their repo operations. Accordingly, information on haircuts can be used to calculate the value of the tradable investment portfolio discounted for repo operations.

Graph 98
ULR of Credit Institutions

Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Where $RNL_1 = FNVC_1 + FNVNC_1$, with $FNVC_1$ being the net cash flow of contractual original from assets, liabilities and off-balance sheet positions within the next seven calendar days and $FNVNC_1$ being the estimated net cash flow of non-contractual origin for the next seven days from deposits and liabilities payable on demand. The *FNVC* can be positive or negative, depending on whether cash income exceeds outlays, but the *FNVNC* has a negative sign.

$$FNVNC_1 = -frn_1 * [demand\ deposits]$$

Where frn_1 is the net withdrawal factor for a seven-day horizon, calculated as the maximum proportion of net reduction in the sum of demand deposits the respective institution may have faced from December 31, 1996 to the last day of the month immediately prior to the calculation, taking end-of-month withdrawals into account for this calculation. The *FNVNC* is, therefore, an indicator of a stressed withdrawal scenario.

On the other hand, liquid assets adjusted market liquidity (*ALM*) are calculated according to the following equation, where securities are entered at fair market price:

ALM = quick assets + (*bonds issued by the national government, Banco de la República, Fogafín*)
* (1 – TES*"haircut"*) + *all other securities*) * (1 – 1,2 * *"haircut" TES*) – (*total required daily average reserve*)

When calculating the LRI, an additional 3.7% haircut is applied to the foreign currency component of the institution's liquid assets. Besides including the adjustment for market liquidity risk, the idea is to do the same for exchange risk. The LRI is designed pursuant to Banco de la República's proposal for implementing a liquidity risk indicator.[57]

This indicator is scaled by illiquid assets to allow for a comparison among the different financial institutions; that is,

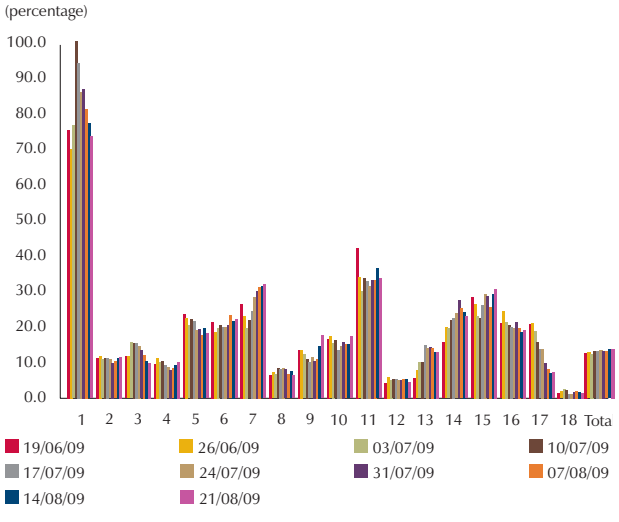
$$\widehat{LRI}_{it} = \frac{LRI_{it}}{TA_{it} - ALM_{it}}$$

Where *TA* are total assets and *ALM* are liquid assets calculated to include market liquidity risk.

57 [57] González, J., Osorio, D. (2006), "Una propuesta para la medición monitoreo y regulación del riesgo de liquidez en Colombia," *Financial Stability Report,* Banco de la República, September.

Because the LRI is a liquidity gap calculated on the basis of liquid assets minus liquid obligations and liabilities, it is interpreted as follows: $\widehat{LRI}_{it} < 0$ implies high risk, and higher $\widehat{LRI}_{it}$ levels are associated with a better liquidity position for the institution being analyzed.

Graph 99
LRI/(TA-LA) Banks



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 99 shows the weekly evolution of the LRI for commercial banks from the start of May to August 21, 2009. Although their liquidity levels varied considerably, in no case was the indicator negative. This suggests low funding risk for the financial institutions in question.

The LRI for the commercial banks as a whole was 14.5% on August 2. This is 1.1 pp higher than at the end of June and 1.7 pp more than at the beginning of May, which indicates an improvement in the funding liquidity position during the last three months.

a. Stress Tests

Stress tests can be used to assess the capacity of institutions to respond to shocks that affect certain variables in extreme but likely scenarios. The following test was conducted assuming an additional deposit-withdrawal, to the one already featured in the LRI. The stressed indicator was calculated for the commercial banks and is defined as:

$$LRI_{i,t\ \ stressed} = \frac{LRI_{i,t} - x\%\left(current\ and\ savings\ accounts\right)}{TA_{i,t} - ALM_{i,t}}$$

Using the latest data for *LRIi,t* (seven days), the indicator was recalculated with this scenario, assuming $x = 4\%$.[58] All the banks taken into account survived the exercise, which suggests the system is able to resist the simulated withdrawal shock (Graph 100).

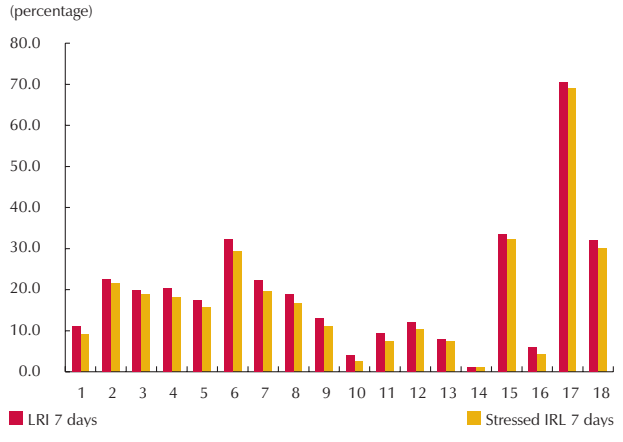
The stress tests done up to now show the system is able to resist the additional imposed shock. Consequently, so far this year, none of the banks had a negative $\widehat{LRI}_{i,t\ stressed}$.

Simulating a similar shock, not during the first week but during the second, the same exercise was conducted with the LRI ratio at 15 days.

58 The simulated withdrawal is equal in size to the simple weekly average of the withdrawal factor with respect to non-contractual liabilities, as presented by the banks in the LRI Report to the Superintendent of Financial Institutions.

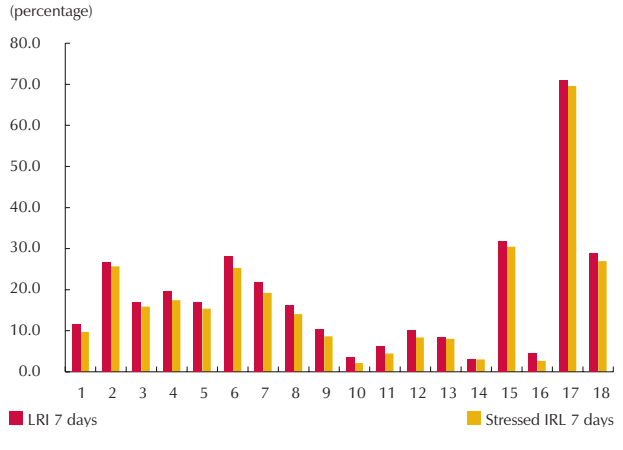
assuming $x = 4\%$. The results suggest the resistance by all the banks to the shock in this wider forecast window, showing positive $\widehat{LRI}_{i,t\ stressed}$ for each of them (Graph 101).

Graph 100
Stress Test for LRI7/(TA-LA)
August 21, 2009



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

Graph 101
Stress Test for LRI15/(TA-LA)
August 21, 2009



Source: Financial Superintendence of Colombia; calculations by Banco de la República.

2. Liquidity-adjusted Value at Risk (VaR-L): A Market Liquidity Risk Indicator[59]

L-VaR can be used to determine the percentage increase in the VaR that would be required to include market liquidity risk. The larger the percentage is, the greater the market liquidity risk and, therefore, the greater the necessary adjustment in VaR.[60] The results of the L-VaR estimated for credit institutions are presented in this section. The exercise was done only for their TES portfolio, with data at February 20, 2009 (Table 23).

The results of the exercises suggest the VaR for credit institutions as a whole should increase by 5.8% as a result of market liquidity risk. This is 2.0 pp less than the percentage calculated in February 2009 and is explained, party by, the growing demand for TES given their valuation during the first half of 2009.

The results, per institution, were more dispersed between February and August 2009, suggesting less uniformity in exposure to market liquidity risk. Hence, it is important to monitor the performance of the institutions that have more risk exposure and to follow-up on any market conditions that might generate a significant reduction in the liquidity of securities.

In addition, a stress test was done to evaluate how the adjustment for liquidity behaves in extreme market conditions. The analysis specifically determines the L-VaR level in a context where financial markets perform as they did during the first quarter of 2006, which is considered a particularly

59 The method used to calculate L-VaR is outlined in González and Osorio (2007), "Liquidity Adjusted Value-at-Risk (L-VaR) in Colombia," Financial Stability Report, Banco de Colombia, March.

60 It is important to emphasize that, due to limited information on the bid-ask spreads for government bonds, the VaR calculated in this exercise differs from the one presented in the section on market risk.

Table 23
Correction Percentage

Institutions	February 20, 2009		August 21, 2009	
	No Volatility	Volatile Scenario [a/]	No Volatility	Volatile Scenario [a/]
1	9.4	29.7	5.7	32.9
2	7.2	58.1	16.6	17.0
3	10.0	22.1	4.7	24.4
4	5.9	30.8	9.6	31.6
5	7.9	60.6	2.0	22.1
6	6.6	53.6	3.9	30.4
7	6.0	32.4	15.9	24.0
8	5.9	31.3	5.8	24.2
9	13.0	31.9	7.6	33.4
10	6.8	41.2	1.8	31.0
11	8.1	52.2	4.5	41.7
12	7.2	31.8	16.8	11.4
13	7.8	35.6	10.2	32.4
14	7.4	21.1	2.8	29.6
15	14.3	38.4	4.0	41.2
16	15.3	19.5	1.9	21.4
Total	**7.8**	**50.7**	**5.8**	**31.1**

a/ Volatility in the second quarter of 2006
Source: Calculations by Banco de la República.

volatile period. The percentage of adjustment in this stressed scenario would improve from 50.7% in February 2009 to 31.1% in August 2009. This shows the current TES portfolio held by credit institutions is less vulnerable to market liquidity risk in an extreme scenario such as the one in 2006.

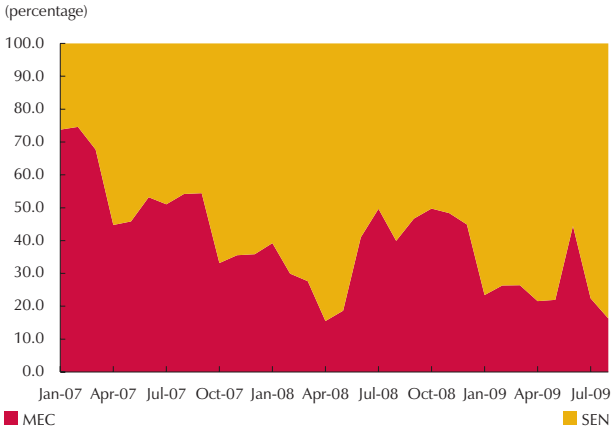
3. Interbank Government Bond Market

Financial institutions now manage much of their liquidity via repos for government bonds, which can be negotiated through two trading systems: the Colombian Electronic Market (MEC in Spanish), which is managed by the Colombian Stock Exchange, and the Electronic Trading System (SEN in Spanish), which is managed by Banco de la República.

Graph 102 shows how the market share for both these systems has changed. As illustrated, MEC lost ground during the period analyzed; it had 73.7% of the market at the start of 2007 and only 28.3% by August 2008.

The network of institutions (nodes) and the transactions among them (links) can be analyzed to determine patterns of the performance of financial institutions behavior in the interbank market for government bonds (TES).

Graph 102
MEC and SEN Share of the Government Bond Market



Source: BVC; calculations by Banco de la República.

How to read the networks:

- If an agent central is and more connected then he is situated at the hub of the network, while the more peripheral ones are located at a greater radius. If the network is complete or nearly so, all the agents are at an equal distance from the center.

- The peripheral agents, if they exist, are shown in a dark grey area.

- The size and color of each node is associated with the extent to which the agent is a net supplier or provider of liquidity on the day in question. The largest, lighter- colored nodes are the major suppliers of liquidity, while the smallest, darker nodes are the agents most in need of liquidity.

- A link between two nodes indicates the existence of transactions between there agents on that specific day. The color of the line represents the sum of the total transactions between agents. The lighter the line is, the larger the total amount of transactions between the agents.

a. SEN Structure

Graph 103 shows observed the structure of SEN market on Fridays from July 31 to August 21, 2009, excluding the transactions involving Banco de la República. Although the structure is not complete, it is very close to being so, as the agents are quite well connected. As the same figure illustrates, in August there is some persistence in the banks positions within the network concerning net supply and net demand for liquidity.

b. MEC Structure

During the first half of this year, an average of 840 agents participated daily in government bond transactions via the MEC, with an average amount of COP$7.6 b. On July 2009, 858 agents participated in this interbank market. This large number og agents increases the complexity of the analisis of the network. Consequently, a sample was developed taking into account only transactions between agents who conducted more than two transactions and had a degree of connection above or equal to three. This sample represents 22.9% of the total amount traded that day and is comprised of 34 institutions, including eight banks, two CFCs and 21 brokerage firms.

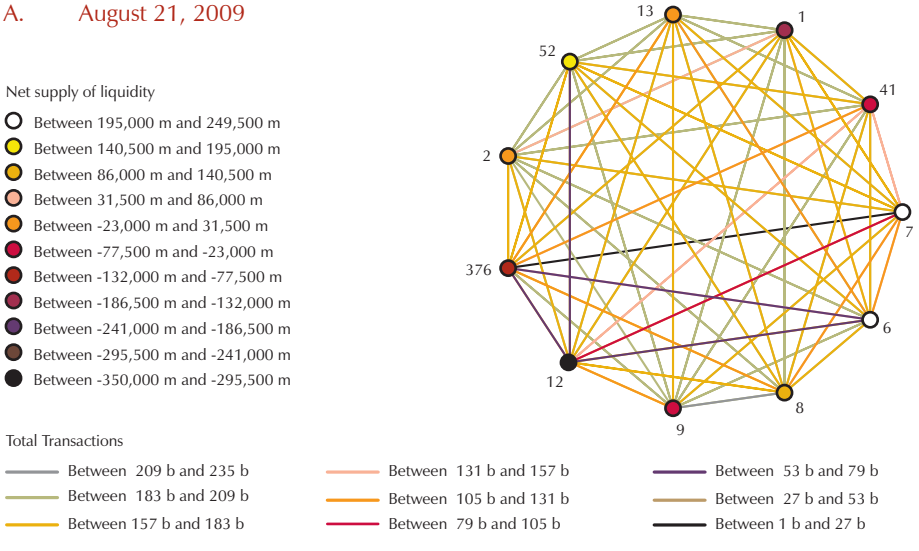
On that day in particular, the banks met 38.8% of their demand for liquidity with liquidity offered by other banks and 54.9% with liquidity offered by brokerage firms. As to the liquidity offered by banks, 61.2% was absorbed by brokerage firms and 32.3% by other banks. Banks were net liquidity suppliers, while the CFCs and brokerage firms were in need of liquidity.

A comparison between the number of actual connections and the number of possible connections between the institutions in the sample shows that only 21.21% were carried out. This is a small number compared to the results for SEN and reflects limited connectivity.

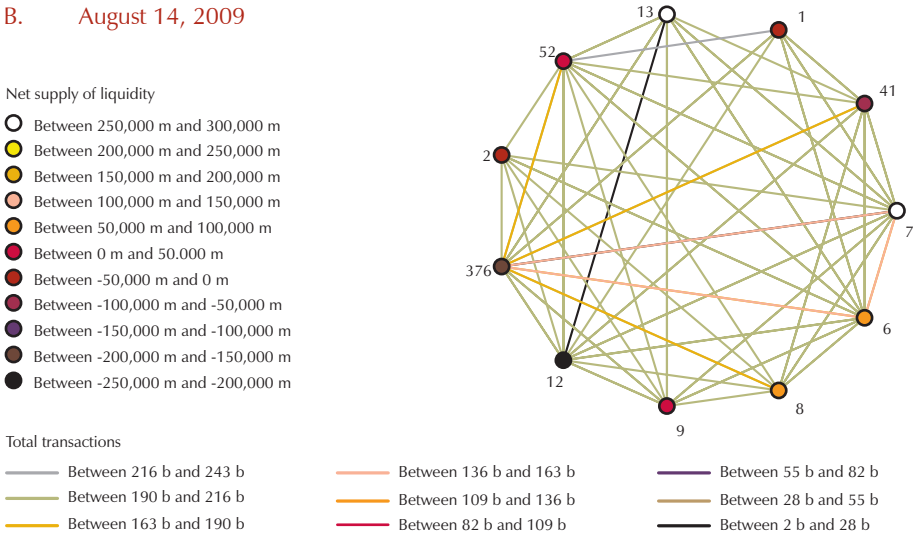
Graph 104 shows the structure of the MEC-managed government bond market on July 31, 2008. It can be interpreted as explained in the section on SEN.

Graph 103
SEN

A. August 21, 2009

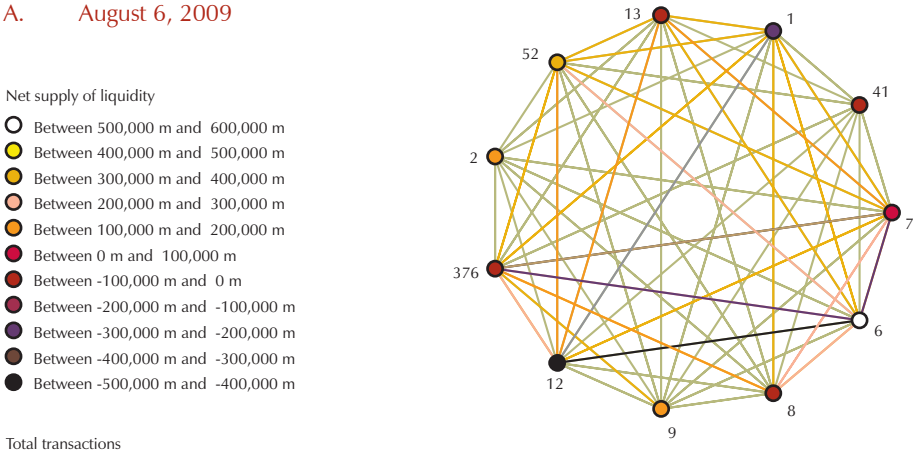


B. August 14, 2009

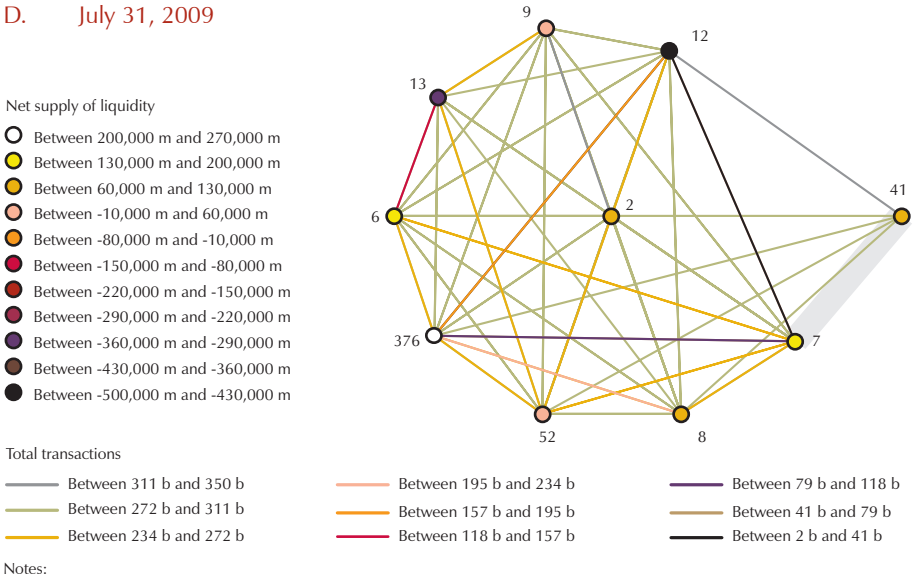


Graph 103 (continuación)
SEN

A. August 6, 2009



D. July 31, 2009



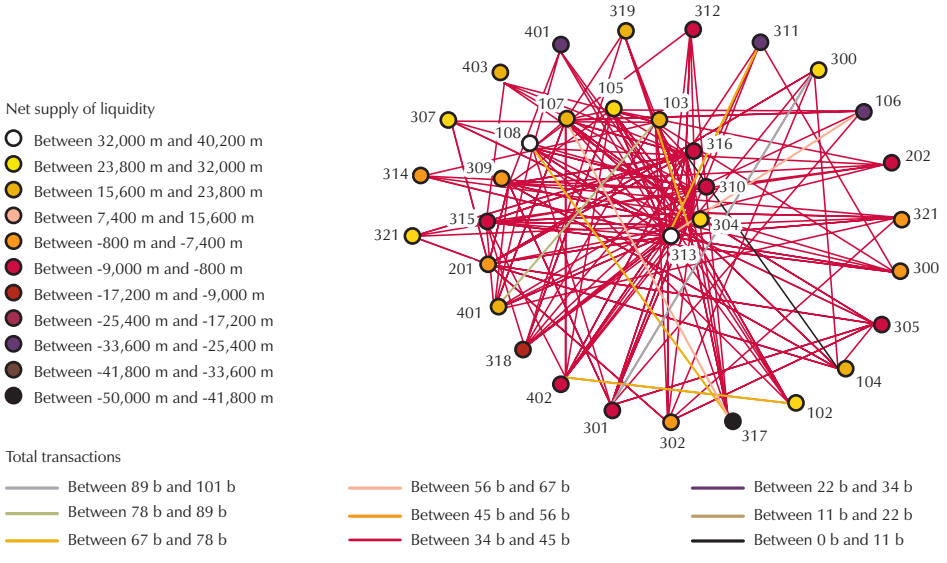
Notes:
Right scale: Extent to which an agent was a net supplier of liquidity on that day. This is shown graphically by the size and color of the node.
Lower scale: Sum of all transactions between the institutions. Shown graphically by the color of the lines.
Dark grey area: Agents peripheral to the network on that day
Source: Banco de la República.

However, the position at the center of the network represents the extent of each agent's connectivity (not the indicator of centrality). Agents with a high degree of connectivity are found in the central portion; those with limited connectivity are situated on the periphery. The agent codes for banks begin with one, those for CFCs begin with two and those for brokerage firms begin with three. Graph 104 clearly shows there were a number of peripheral agents, which means the network is far from complete.

According to the literature, the interbank market's resistance to liquidity shocks depends on its structure. Complete interbank markets are more robust

and allow risk to be distributed among participating agents in the best possible way compared to incomplete markets.

Graph 104
MEC Structure on July 31, 2008



Notes:
Right scale: Extent to which an agent was a net supplier of liquidity on that day. This is shown graphically by the size and color of the node.
Lower scale: Sum of all transactions between the institutions; shown graphically by the color of the lines.
Dark grey area: Agents peripheral to the network on that day
Source: Office of the Superintendent of Financial institutions; calculations by Banco de la República.

D. COMBINED RISK DESCRIPTION

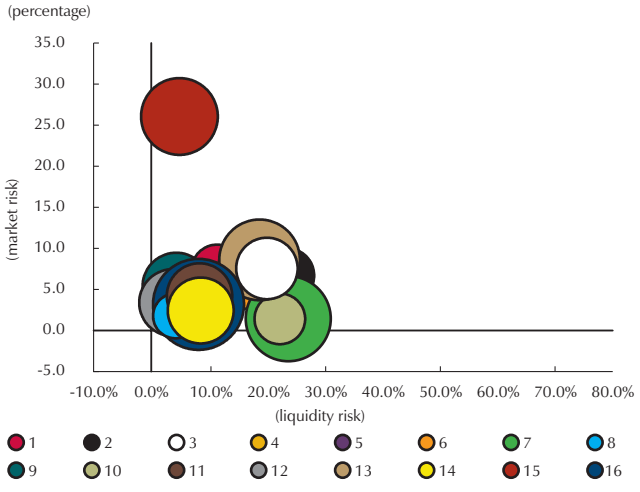
Stressed and non-stressed indicators of the three risks analyzed earlier are presented simultaneously in this section: market risk, credit risk and liquidity risk for December 2008 and June 2009.[61] Graphs 105 to 108 show the DCC-VaR of commercial banks at thirty days on the vertical scale, as a percentage of the exposed balance, while the LRI[62] to measure liquidity risk is shown on the horizontal scale. The size of the bubbles is determined by the default indicator (DI) as a measure of credit risk. Graphs 105 and 108 should be interpreted carefully, as this combined description of risk is not an analysis of a measure of systemic risk, nor does it consider the correlations between the various risks.

When comparing the two periods analyzed, the larger bubbles show an increase in credit risk. An upward shift indicates an expansion in credit risk. An upward shift denotes an increase in market risk, while a shift to the left signals a rise in liquidity risk. Accordingly, in the event of an improvement in

61 The LRI results are for January and June 2009.

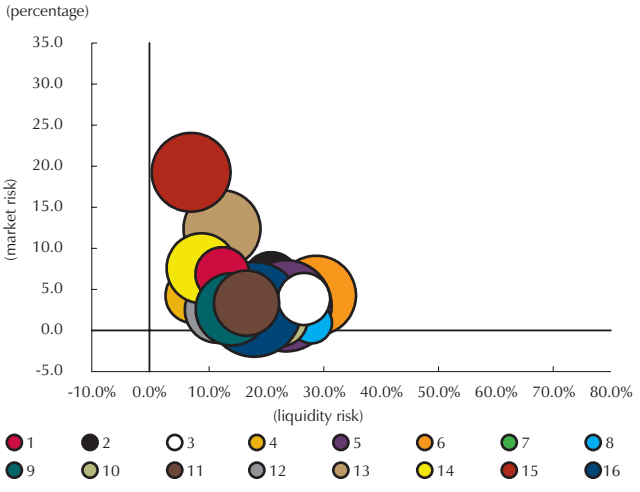
62 The LRI, as a liquidity indicator for the combined risk analysis, is used in this report for the first time. In earlier editions, the ULR was used as the measure of liquidity.

Graph 105
Set of Risks at December 2008 with Non-stressed Ratios



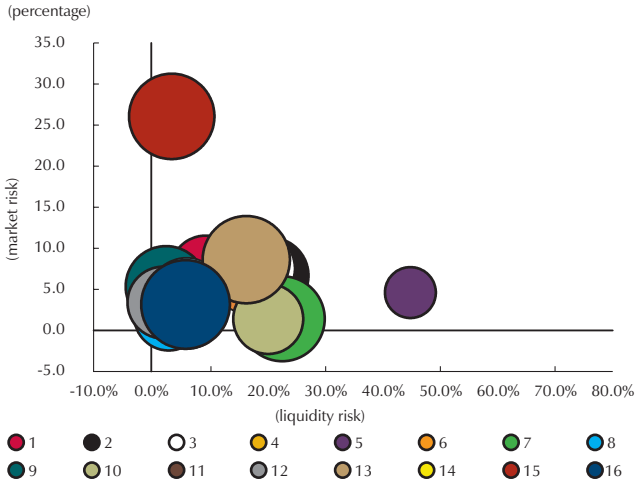
Note 1: The size of the bubbles is determined by the DI
Note 2: This Graph shows the non-stressed ULR and the non-stressed DI.
Source: Banco de la República

Graph 106
Set of risks at June 2009 with Non-stressed Ratios



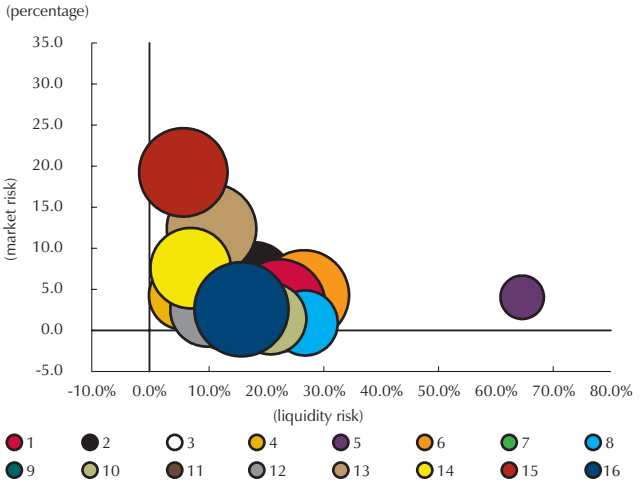
Note 1: The size of the bubbles is determined by the DI
Note 2: This Graph shows the non-stressed ULR and the non-stressed DI.
Source: Banco de la República.

Graph 107
Set of Risks at December 2008 with Stressed Ratios



Note 1: The size of the bubbles is determined by the DI
Note 2: This Graph shows the non-stressed ULR and the non-stressed DI.
Source: Banco de la República

Graph 108
Set of Risks at June 2009 with Stressed Ratios



Note 1: The size of the bubbles is determined by the DI
Note 2: This Graph shows the non-stressed ULR and the non-stressed DI.
Source: Banco de la República.

the three combined risks during the period under analysis, the bubbles would be smaller and shift downward and to the right.

In Graphs 105 and 106, one sees that most of the bubbles shifted to the right by June, evidencing a decline in liquidity risk. Till this date all, fourteen institutions had a better indicator, with the average LRI for the banks having gone from 14.7% in December to 20.5% in June. On the other hand, Graphs 105 and 106 show the size of the bubbles has grown, denoting an increase in the credit risk observed with the DI. In fact, the DI for most of the institutions deteriorated during this period. The situation with respect to market risk is a

different matter: a large portion of the institutions posted declines in the DDC-VaR at thirty days, indicating less exposure to this type of risk.

On the other hand, a look at the stressed measurements (Graphs 107 and 108) shows the impact of the shocks on the LRI and the DI generated lower levels of liquidity and credit risk exposure during June, which means the institutions are not as vulnerable as they were in December. More specifically, the LRI in June 2009 was up 5.8 pp on average, compared to what it was in December 2008, suggesting less exposure to liquidity risk. Likewise, the DI for most of the institutions analyzed was lower in comparison to December.

In short, the analysis of stressed measurements differs from the risk indexes that were observed. The non-stressed credit risk ratios increased between December and June, while the stressed ratios show less of an impact on credit risk, as is reflected in the smaller sized of the bubbles. Liquidity risk appear to have improved and, given the shocks, the institutions in question seem to be less exposed to this type of risk; hence, the bubbles show a shift to the right.

Box 6
MACRO-PRUDENTIAL MEASURES ADOPTED TO DEAL WITH FINANCIAL CRISIS

The world's leading economies have taken steps since the beginning of the latest crisis morder to stabilize the financial system and to mitigate the impact of future crises (Bank of Mexico, 2009a). One of those steps was to restore the operation of interbank markets. For example, the central banks of the United States (Federal Reserve), England (Bank of England) Japan (Bank of Japan) and the European Central Bank (ECB) conducted open market operations (OMO) and made use of the Term Auction Facility (TAF). Additionally, in the case of Australia and Mexico, the array of collateral acceptable to access central bank resources was broadened, and permanent liquidity funds were established.

Currency exchanges were implemented jointly, through swaps, to help institutions access loans in foreign currency. The Federal Reserve was the promoter of this measure. On the other hand, to prevent bank runs, deposit insurance was expanded in some countries that had coverage of this type (i.e. Ireland and Germany) and instituted in others that did not (i.e. Australia and New Zealand). Moreover, steps were taken to restore the solvency of financial intermediaries. These measures included nationalization, with the United Kingdom being a pioneer in that respect, and the purchase of stock and collateral from distressed banks.

In addition, mechanisms were set in place to improve conditions in the debt markets through the purchase of sovereign securities, mostly long-term bonds. A variety of steps were taken to reactivate credit, such as the establishment of schemes to revive the market for asset-backed securities and clauses to prevent banks rescued with public funds from restricting their flow of credit. Finally, countries such as the United States, the United Kingdom and Spain instituted programs to improve the terms of loans for certain borrowers, so as to avoid any further deterioration in loan portfolios.

Some countries amended relevant legislation on the financial sector to implement these measures. The following are the main points of the new laws proposed in the United Kingdom and the United States.

In the British case, financial authorities had signed a three-part agreement in 2006 to maintain financial stability (HM Treasury, 2006). Through the Memorandum of Understanding, the Central Bank of England, the Financial Services Authority (FSA) and the Treasury defined responsibilities for monitoring the financial system, based on four principles: a) each financial authority must have defined responsibilities; b) those responsibilities must be made known to the public; c) inefficiency is to be avoided (e.g. duplication of functions), and d) a regular exchange of information among these institutions is required.

Additionally, the Standing Committee on Financial Stability was set up with members who represent the three aforementioned institutions. Its purpose is to create an instance where policy measures can be discussed and action can be coordinated in the event of situations that might cause vulnerabilities in the financial system. Guidelines for dealing with financial and operational crisis were established as well.

However, the latest crisis revealed a number of shortcomings in the agreement that was signed. Specifically, it highlighted the absence of instruments to take over a bank when it is believed to be on the verge of failing (Davis, 2009). A new law was passed in 2009 (Banking Act, see Parliament of the UK, 2009) to correct the possible shortcomings in that agreement and in regulations.

With the Banking Act The so-called Special Resolution Regime took effect. enabling institutions that receive deposits to be taken over, even if they have not been declared insolvent. The new law also enables the Bank of England to oversee the system of payments between financial institutions. Moreover, it was determined that protecting and reinforcing financial stability is a legal obligation of the Central Bank. To that end, a committee was established to advise the Board of Directors of the Bank of England on strategies for meeting this objective. It also was determined that the FSA may request information from institutions it believes pose a threat to the stability of the financial system.

A financial regulatory reform bill was proposed in the United States during June 2009, with measures related to five aspects (Bank of Mexico, 2009b). To begin with, it seeks strict supervision and regulation of all financial institutions through establishment of the Financial Services Oversight Council (FSOC), which would be headed by the U.S. Treasury Department and comprised of members from the most important regulatory agencies. The bill also is intended to strengthen financial market regulations by giving FSOC the tools it needs do to its work. Establishment of the

Consumer Financial Protection Agency (CFPA) was suggested as well to protect the most vulnerable agents.

Moreover, to correct the shortcomings in current regulations, an attempt is underway to give the government new means to deal effectively with financial crisis. Finally, cooperation between the financial regulators of the different economies is expected to improve, as recommended by the G-20 at their last meeting.

In the same line, the United States Department of the Treasury outlined the principles it believes are essential to strengthen the global financial system. One of the main ones concerns is the need for adequate capital requirements to protect the financial system. With that in mind, the major banks were subject to a stress test to evaluate their capital soundness in the face of adverse scenarios. An increase in the capital requirements for the most important institutions in the financial system was recommended, as well to minimize systemic risk. Moreover, banks must comply with explicit, conservative liquidity requirements. It is important that these measures can be applied in a way that offers no incentive to the creation of non-bank financial institutions that are not regulated (U. S. Department of the Treasury, 2009).

Some of the recent measures proposed in the United Kingdom and the United States are part of the regulations now in force in Colombia. For example, all financial institutions regularly submit accounting information to the Financial Superintendence and that information is available to the public. Furthermore, there is a committee of the country's financial authorities that discusses issues concerning financial stability. However, the new laws suggest the need for additional measures, which could be adopted in Colombia to make sure the country's financial authorities are better prepared to deal with any possible eventuality. For example, more regulatory power could be given to the central bank.

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Box 7
SFI RESULTS AT JUNE 2009

The results for the single financial indicator (SFI) at June 2009 are presented in this section. The last edition of this report also contains SFI results.[1]

The results for SFI are classified into four zones. In Zones I (SFI between 1.5 and 2.0) and II (between 1.0 and 1. 49) are the best-rated institutions, with excellent and acceptable profitability, in that order. Their basic indicators are consistent with a sound financial position. Zone III (SFI between 0.5 and 0.99) is considered risky, since the institutions post slightly positive real returns, but have core indicators with signs of financial frailty. Zone IV (SFI between 0.0 and 0.49) is considered impaired, as these are intermediaries with poor core indicators, and their negative real return has begun to weaken their equity. In this case, financial institutions that remain in Zone IV are not sustainable in the mid-term, unless they are supported by their shareholders or by some outside entity (Table B7.1).

Table B7.1
Classification by Zone

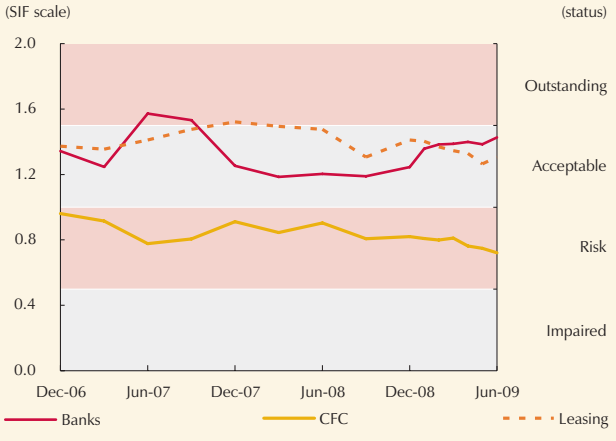
Zone	SFI Value	Status
I	1.50 - 2.00	Outstanding
II	1.00 - 1.49	Acceptable
III	0.50 - 0.99	Risk
IV	0.00 - 0.49	Impaired

Source: Banco de la República.

1. Order by Groups of Financial Intermediaries

Initially, we determined how the financial situation of each of the four groups of credit institutions evolves. (Graph B7.1).

Graph B7.1
Financial Institutions (SFI evolution: 2006-2009)



Source: Banco de la República.

2. Fragile Institutions

Graph B7.2 (panels A, B, C, D and E) shows development of the SFI in fragile institutions; that is, credit institutions currently situated in risk or impaired zones.

3. Conclusions

i) In general, the financial situation of credit institutions (as aggregate groups) is not one of risk, except for the CFC group in Zone III. Their performance stabilized as of September 2008, but relapsed in June, with a SFI of 0.72.

ii) The other groups managed to stay above 1.3, with banks showing an improvement since December 2008.

iii) The two fragile institutions in the bank group show no tendency to deteriorate.

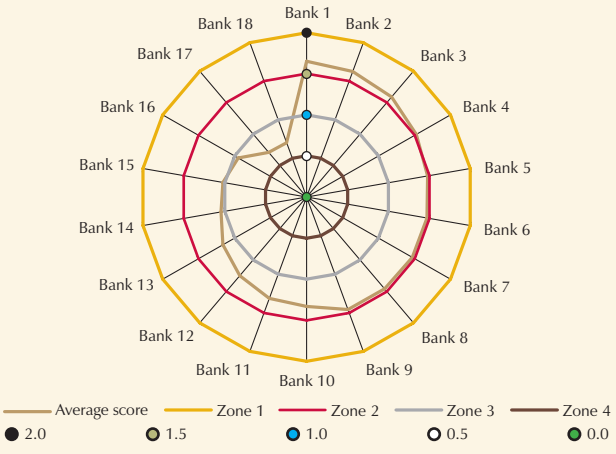
iv) Two institutions in the CFC group are in the impaired zone. Out of all the credit institutions, they are the only ones in that category.

v) The fragile institutions in the "leasing and cooperatives" group show a tendency to become even more so, except for one (institution Ls 1).

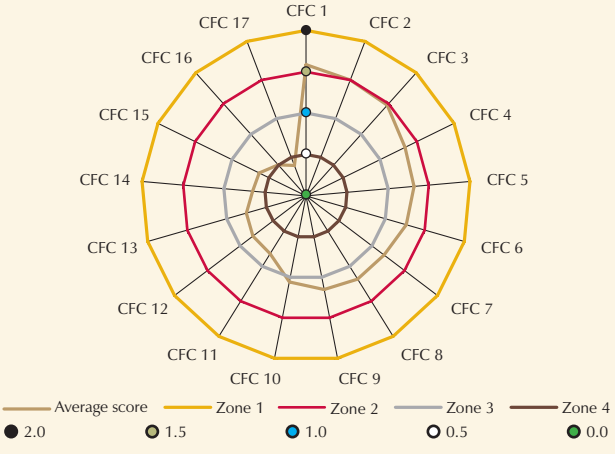
1 Pineda, F. and Piñeros, H., "The SFI as an Early Warning Mechanism: A New Version," in Financial Stability Issues, *Financial Stability Report,* March 2009.

Graph B7.2

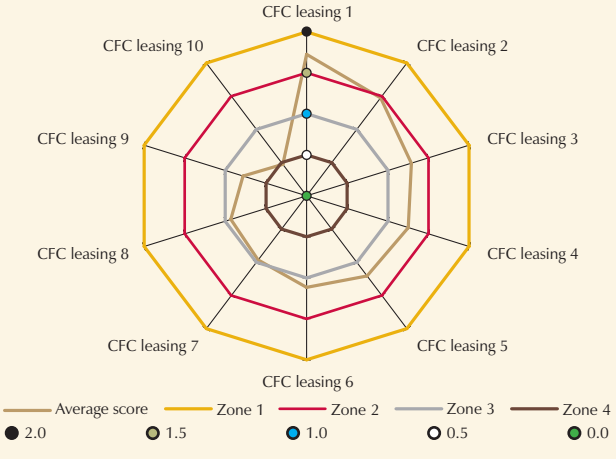
A. The Banking System: Classification at June 2009



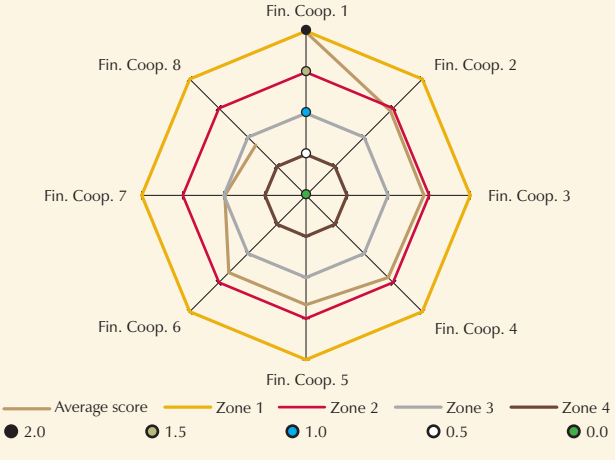
B. CFC: Classification at June 2009



C. CFC *Leasing:* Classification at June 2009



D. Financial Cooperatives: Classification at June 2009



Source: Financial Superintendece, calculations by Banco de la República.

Box 8
A FINANCIAL STABILITY INDEX FOR COLOMBIA

A measure to monitor the financial system over time by generating an indicator of the quality of the system provides a clearer picture of the vulnerabilities it faces. In fact, the development of financial stress indicators helps to make the right decision at the right time with respect to regulation, which ultimately can mitigate the impact of periods marked by crisis or instability. On that basis, and to monitor and encourage financial stability,[1] central banks and regulators have focused a good portion of their research on analyzing and developing potential early warning indicators, stress tests and studies on the actual situation of the financial sector.

This section contains an update of the financial stability index for Colombia (FSI),[22] at the aggregate level and by type of institution. The latter include commercial banks (CB), banks specializing in mortgage loans (BECH),[33] commercial finance companies (CFC), and financial cooperatives (Coop). As a continuous and quantifiable measure, the index is able to determine the stress level of the Colombian financial system over time.

The indicator takes into account the capital, profitability and credit and liquidity risk of financial intermediaries. Accordingly, return on assets (ROA), return on equity (ROE), the overdue loan ratio (OL), the non-performing ratio (NR), the interest rate spread (S), liquid liabilities to liquid assets (LL), interbank funds to liquid assets (IF) and the uncovered liabilities ratio (ULR) were the variables selected to develop the index.

It was constructed by weighing the more relevant financial ratios, using several different approaches suggested in international literature; namely, the variance equal approach,[44] the principal components approach[55] and count data models:[66] zero-inflated Poisson and zero-inflated negative binominal regressions. The indexes constructed with these approaches show highly similar behavior and generally gave considerable weight to the profitability and credit risk ratios (Table B8.1). The results were used to develop an index that considers different aspects of the Colombian financial system in the course of time.

Table B8.1
Weights of the Variables in the Index, according to the Method Used

	Equal Variance	Principal Components	Zero-inflated Binomial Negative
ROA	12.50	17.53	7.65
OF	12.50	17.79	11.75
OP	12.50	18.01	15.69
NP	12.50	15.81	6.17
IS	12.50	12.79	23.03
LL	12.50	6.55	11.95
IF	12.50	7.41	12.03
ULR	12.50	4.12	11.73

Source: Banco de la República

The data generated by the FSI is easy to interpret, as each variable has been standardized. Accordingly, the stress level for the current period can be compared to the historic level with respect to deviation from the mean. Index values above zero indicate periods when financial stress is above average, while negative values

1 Financial stability is understood as a situation in which the financial system efficiently intermediates financial flows, contributing to a better allocation of resources and, consequently, the preservation of macroeconomic stability. Accordingly, financial instability directly affects macroeconomic stability and the ability of Banco de la República to accomplish its constitutional objective.

2 For more information, see D. Estrada and M. Morales (2009), "A Financial Stability Index for Colombia," in" Financial Stability Issues," *Financial Stability Report,* Banco de la República, March 2009.

3 Although this category does not exist at present, it has been included since institutions that specialized in mortgage lending at some point in time continue to perform differently than other financial intermediaries.

4 With this approach, the variables are standardized, so they can be expressed in a single unit then aggregated using identical weights.

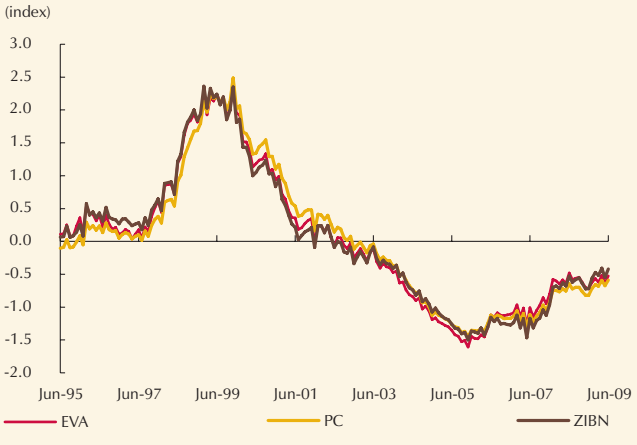
5 Essentially, the idea with this approach is to obtain an index based on the weight of the selected variables; that combination should explain the maximum combined variance of the variables.

6 This approach uses econometric models to model the relationship between the variables indicative of stress and the dependent variable, which is defined, in this case, as the number of banks in stress per period. The weights are found on the basis of the estimated coefficients.

denote times of above-average stability. Moreover, increases in the index during a particular period provide useful information on changes in the level of stress over time.

Graph B8.1 shows the evolution of the FSI during the period from January 1995 to June 2009. The financial stress level captured by the indicator shows how it increased as of 2005 and began to accelerate following the international crisis that started in mid-2007. However, these levels are far below those witnessed at the onset of the Colombian financial crisis at the end of the nineties. In fact, the current levels are below the stress line marked on the scale as zero, which indicates the system is at a stress level below the historic average.

Graph B8.1
Financial Stability Index



Source: calculations by Banco de la República.

On the other hand, it is important to monitor the financial system and each institution within it, from the standpoint of policy and regulations. This is the idea behind a stress index for each type of institution, which results is a more specific view of the condition of the financial system. A global index often fails to detect the stress level of certain types of institutions that may account for only a small portion of the system, but could generate contagion affecting the entire financial system.

Graph B8.2 shows the four indicators[7] for the different types of institutions analyzed. In the last two years, one sees accelerated growth in the CFC and COOP indicators. However, that growth has become more moderate during recent months, suggesting their stress levels increased rapidly, but are beginning to stabilize at levels close to the historic average. However, in the case of the CFC, the stress level during most of 2008 surpassed the historic average. The level of financial stress in the case of BC has been quite stable since last year, while the stress level for BECH has grown moderately, but is still less than the historic average, which shows the levels for these two types of institutions are not alarming.

In general, one sees the indexes for the different types of institutions perform similarly to the indicator for the system as a whole. However, with this breakdown, it also is possible to identify what types of institutions have a higher stress level.

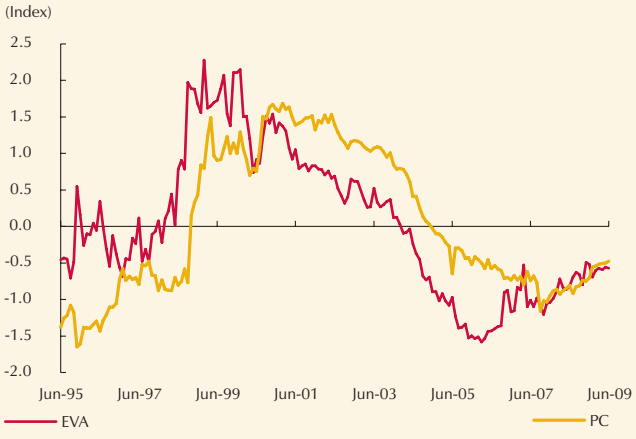
In the end, the index determines the contemporary stress level of the system as a whole and its components, allowing for a good diagnosis of financial stability in Colombia. The results of the update indicate the stress levels for the system and for the different types of institutions comprising the system are not alarming. Nevertheless, they continue to increase for certain types of institutions. This fact should be the subject of analysis, as these levels indicate the extent to which the institutions in question are vulnerable.

7 Equal variance and principal components are the approaches used. Account data models are not employed in this case.

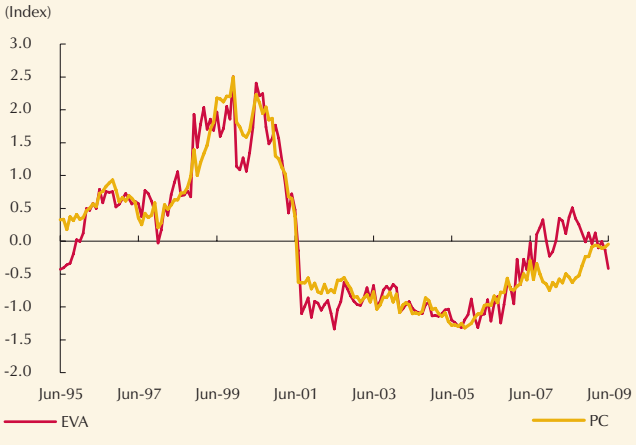
Graph B8.2
Financial Stability Index by Type of Intermediary

A. CB Index

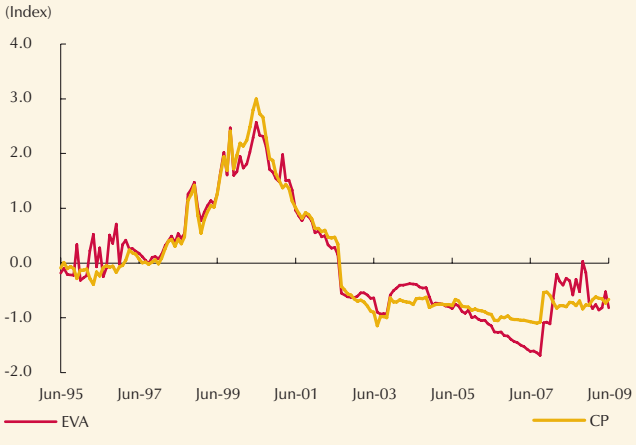
B. BECH Index



C. CFC Index



D. Coop. Index



Source: Banco de la República.

Box 9
REPORT ON THE CREDIT SITUATION IN COLOMBIA[1]

The purpose of this box is to analyze the current situation with respect to credit and possible short-term changes in allocation policies. To do so, we have used the results of a credit survey of financial intermediaries conducted in September 2009. The survey focused on institutions in Colombia that engage in credit and portfolio operations; namely, commercial banks (CB), commercial financial companies (CFC) and finance cooperatives (Coop).

The survey on credit in Colombia for the third quarter of 2009 was conducted at a time when economic growth was negative and conditions on international financial markets were beginning to stabilize.

As perceived by commercial banks, the period in question witnessed less demand for new loans of all types, with the exception of mortgage lending (Graph B9.1). It should be noted that the demand for commercial loans is declining, regardless of the size of the company.

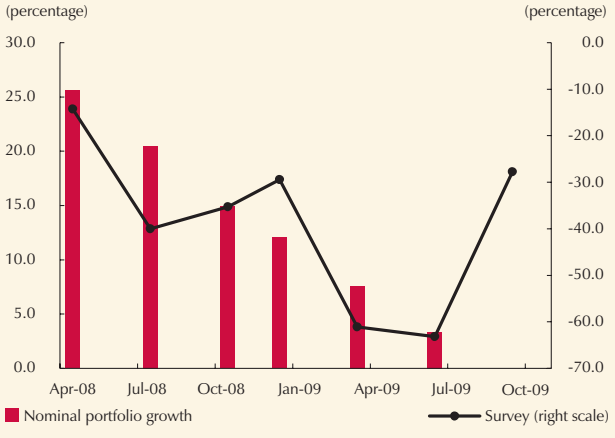
On the other hand, the different types of institutions agree that further economic growth is a primary condition for an increase in credit, as is better information on the creditworthiness of borrowers. They also say the system could absorb more demand, but with more restrictions for certain sectors (agriculture and the external sector) and for the smaller companies.

According to the results of the survey, given a surplus of resources, institutions say they most likely would use them to purchase government bonds. This alternative is followed by lending to domestic firms that produce for the local market, which is different from the previous survey, when lending to domestic firms was the most likely alternative. Moreover, based solely on risk, depositing resources with Banco de la República is the option most favored.

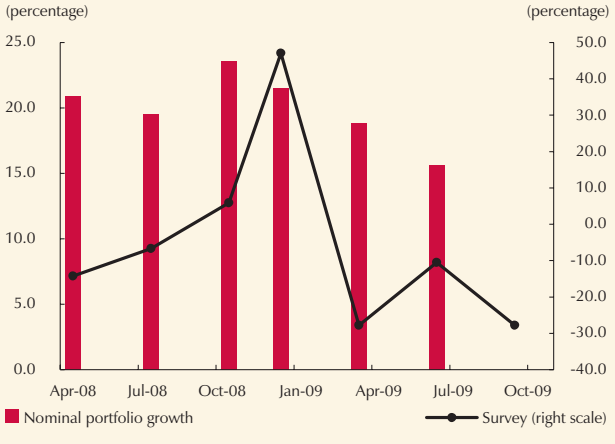
As to policy on allocating new loans, specifically in the case of the commercial loans, a lesser proportion of the banks continued to increase their requirements for new loans. The expectation for the coming months is that most institutions will keep their requirements as they now stand (Graph B9.2, panel A). In terms of consumer lending, approximately half of the institutions surveyed raised their requirements last quarter and a smaller proportion is expected to do so in the future (Graph B9.2, Panel B).

Graph B9.1
Real Annual Loan Portfolio Growth by Type, according to Institutions

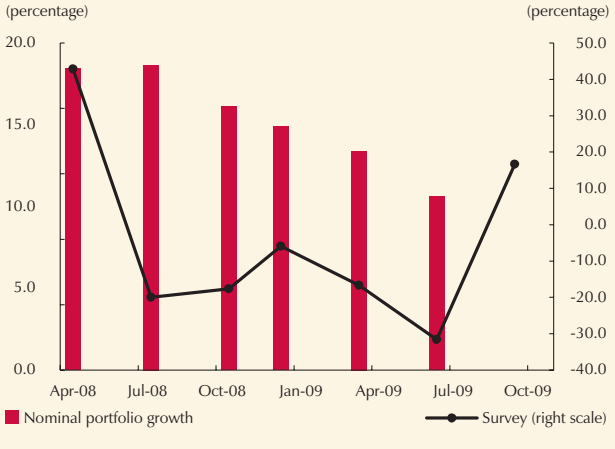
A. Consumer



B. Commercial

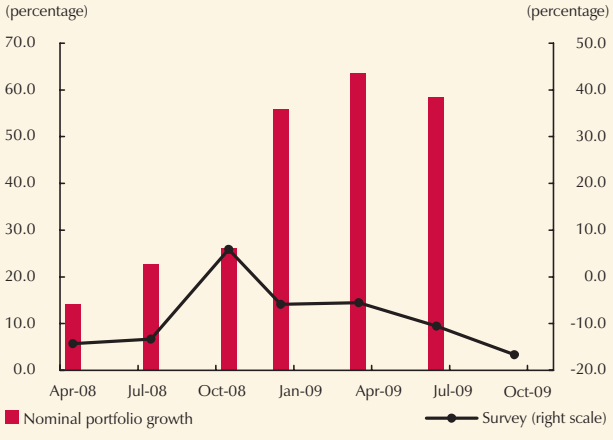


C. Mortgage



Graph B9.1 (continuación)
Real Annual Loan Portfolio Growth by Type, according to Institutions

D. Micro-loans

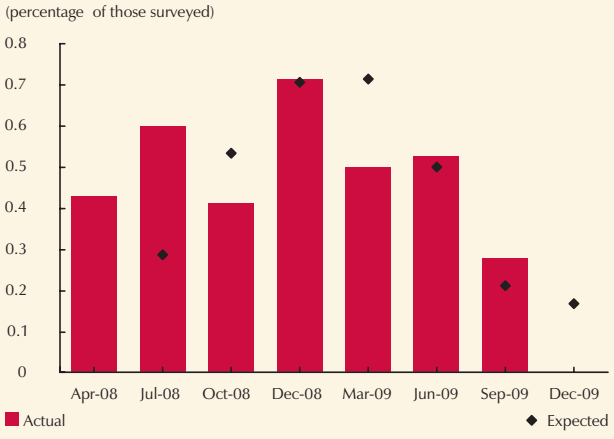


Source: Survey on Credit in Colombia, September 2009; calculations by Banco de la República.

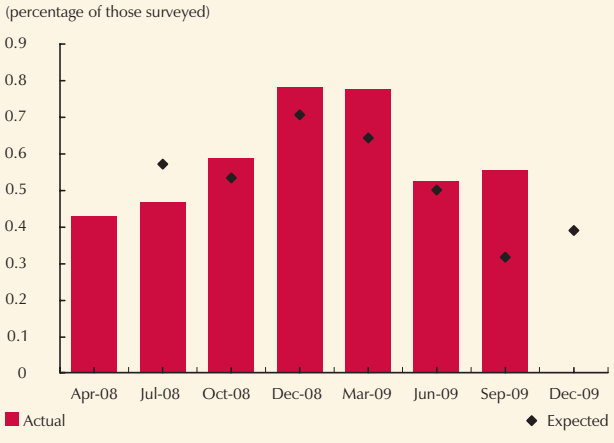
The results of the survey also show that risk considerations, prior knowledge of the client and a good credit history were the most important aspects in the last three months for the approval of new loans. Finally, the institutions generally indicate that the measures adopted by the regulators, such as those on the extent of provisioning and limits to the usury rate, pose the greatest impediments to offering more credit.

Graph B9.2
Increase in Requirements for Allocating New Commercial and Consumer Loans (Banks)

A. Commercial Loan Portfolio: III Quarter 2009



B. Consumer Loan Portfolio: III Quarter 2009



Source: Survey on Credit in Colombia, September 2009; calculations by Banco de la República

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Agustín Saade Ospina
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El mercado de crédito comercial y las restricciones de endeudamiento: un estudio a nivel de empresa para Colombia
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David Pérez Reyna

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A Simulation Model of the Fully-funded Pension Scheme in Colombia
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Ciclos del riesgo de crédito
Credit Risk Cycles
Javier Gutiérrez Rueda
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CAMBIOS EN LOS INCENTIVOS DE LOS BANCOS COMO CONSECUENCIA DE MODIFICACIONES EN LOS ESQUEMAS DE ENCAJE

AGUSTÍN SAADE OSPINA
DAVID PÉREZ REYNA

El uso del encaje como medida de política monetaria cobró relevancia desde 2007 en Colombia. Las modificaciones a los regímenes de encaje que se presentaron desde entonces cambiaron los incentivos de los establecimientos de crédito sobre sus preferencias de captación y sus respuestas de colocación. En este trabajo se plantea un modelo de organización industrial para analizar dichos cambios en los incentivos. Los resultados sugieren que incrementos en el requerimiento de encaje y disminuciones en la remuneración sobre el mismo para un tipo de depósitos generan recomposición hacia los demás, al igual que contracción en la cartera e incrementos en el margen de intermediación. Los resultados cualitativos son robustos ante diferentes parametrizaciones razonables. Este modelo puede ser utilizado como herramienta para medir los efectos de recomposición causados por cambios en los requerimientos de encaje y su estructura de remuneración.

CHANGES IN INCENTIVES FOR BANKS DUE TO MODIFICATIONS IN RESERVE REQUIREMENTS

The use of reserve requirements as a monetary policy measure gained importance in Colombia as of 2007. Successive changes in this scheme altered the incentives for deposit-demand behavior by lending institutions and their allocation of credit. This paper introduces a model for analyzing the changes in those incentives, within an industrial organizational framework. The results suggest an increase in the reserve requirement and a reduction in the interest paid on reserves for a specific type of deposit generate a shift towards other types of deposits, as well as a contraction in credit and a higher interest rate spread. The qualitative results are robust to different sets of parameter values. This model can be used to measure the optimal allocation effects of changes in mandatory reserve requirements.

EL MERCADO DE CRÉDITO COMERCIAL Y LAS RESTRICCIONES DE ENDEUDAMIENTO: UN ESTUDIO A NIVEL DE EMPRESA PARA COLOMBIA

ADRIANA MARÍA CORREDOR WALDRON
DAVID PÉREZ REYNA

En este trabajo se estudian los determinantes de la oferta y demanda de la cartera comercial en Colombia, por medio de un modelo de desequilibrio que permite analizar posibles restricciones de crédito enfrentadas por las empresas. Para esto se usa información a nivel de firma de desembolsos de crédito, al igual que otras variables del balance y del estado de resultados, disponibles desde 1998 hasta 2008. Las estimaciones indican que el nivel de actividad de las empresas tiene una relación positiva con la demanda de crédito, y que el valor del colateral y la percepción de riesgo que se tenga de la firma influyen sobre la oferta. Los resultados sugieren que durante el periodo analizado el mercado de crédito comercial ha estado determinado principalmente por decisiones de demanda.

THE CORPORATE LOAN MARKET AND BORROWING CONSTRAINTS: A FIRM-LEVEL ANALYSIS FOR COLOMBIA

In this paper, the authors examine the determinants of corporate credit supply and demand in Colombia, using a disequilibrium model to analyze the borrowing constraints companies might face. Firm-level data from 1998 to 2008 was used; it includes annual loan disbursements in addition to other balance sheet and income-statement variables. Estimations indicate a positive relationship between the level of corporate activity and the demand for credit; they also suggest that supply is influenced by the value of collateral and the perception of the risk posed by the firm. The results show that corporate loan market was determined largely by demand during the period analyzed.

UN MODELO DE SIMULACIÓN DEL RÉGIMEN DE AHORRO INDIVIDUAL CON SOLIDARIDAD EN COLOMBIA

MAURICIO ARIAS
JUAN CARLOS MENDOZA

Con la reforma de 1993, en Colombia se dio vía libre a un sistema general de pensiones de carácter mixto, compuesto por el régimen solidario de prima media con prestación definida y el régimen de ahorro individual con solidaridad. Mientas que el primero representa el régimen tradicional de carácter público y de beneficio definido, el segundo corresponde al sistema privado de capitalización individual. Este documento presenta un modelo de simulación que permite proyectar la dinámica del régimen de ahorro individual con solidaridad. Con este modelo se construye un marco teórico de referencia que determina forma detallada, el comportamiento de cada una de las variables que intervienen en el funcionamiento de este régimen. El modelo es lo suficientemente simple para ser fácilmente computable, por lo cual se realiza una aplicación numérica que incorpora la información disponible para Colombia. De esta forma, se proyecta la dinámica del régimen durante las próximas cuatro décadas y se evalúa su comportamiento ante la variación de algunos de sus principales determinantes.

A SIMULATION MODEL OF THE FULLY FUNDED PENSION SCHEME IN COLOMBIA

With the reform of 1993, a dual general pension system was established in Colombia. The system consists of the *Régimen Solidario de Prima Media con Prestación Definida* and the *Régimen de Ahorro Individual con Solidaridad*. While the first one represents the traditional and public defined-contribution scheme, the second corresponds to the private fully funded regime with individual capitalization. In this document we present a simulation model to project the system dynamics of the *Régimen de Ahorro Individual con Solidaridad*. This model represents a theoretical framework to determine, in detail way, the behavior of each one of the variables involved in the operation of this regime. The model is simple enough to be effectively computable and we developed a numerical application of it using public information of Colombia. Therefore, we project the dynamics of this regime for the next four decades and we use comparative statics to evaluate its behavior in response to changes in some of its main determinants.

CICLOS DEL RIESGO DE CRÉDITO

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Durante los últimos años el análisis del riesgo de crédito y su dinámica se ha convertido en un tema de alta importancia para la estabilidad del sistema financiero. Es por esto que resulta vital estudiar los comovimientos que se presentan entre este riesgo y el ciclo económico. En este documento se utiliza un modelo multivariado de componentes no observados con el fin de identificar los ciclos que caracterizan el riesgo de crédito y la actividad económica. Los resultados indican que las fluctuaciones del PIB y el indicador de mora se dan en ciclos de alta y baja frecuencias, y que en ambos casos los movimientos de la actividad económica y el riesgo de crédito ocurren en sentido contrario. Este resultado muestra la importancia de incluir variables que reflejen el estado del ciclo económico en la estimación de probabilidad de incumplimiento.

CREDIT RISK CYCLES

In recent years, analysis of credit risk and its dynamics has become a matter of considerable importance to financial system stability, which is why it is crucial to study the existence co-movements between credit risk and the economic cycle. This paper uses a multivariate unobserved components model to identify the cycles that characterize credit risk and economic activity. The results indicate that fluctuations in GDP and the default rate occur in high and low frequency cycles and, in both cases, movement in economic activity and credit risk occurs in the opposite direction. This demonstrates the importance of including variables that reflect the state of the economic cycle when estimating the probability of default.