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DECEMBER 2003

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## SUMMARY AND CONCLUSIONS

The July 2003 Financial Stability Report stated that the pick-up in credit growth resulted from positive behavior by both credit supply and credit demand. These developments intensified over the second half of 2003 and, combined with a more favorable external environment, allowed the financial system to continue growing stronger and the credit business to keep on accelerating.

A description follows of the macroeconomic setting in which these events occurred, the main risks faced by the financial system's major debtors and, lastly, the trends and risks discernible in the system's balance sheet.

### MACROECONOMIC ENVIRONMENT

✕ The real sector of the economy performed well, better than predicted by official projections or private agents' expectations, reducing the credit risk to the financial system from firms and individuals alike. This improved performance was reflected by acceleration in both domestic spending and gross domestic product, especially in the nontradables sectors. Likewise, stronger economic growth brought improvement in labor-market conditions. The findings of expectations surveys show that higher domestic demand, one of the main drivers of this growth, may still be a driving force in 2004.

✕ The international financial environment has continued to be favorable to all emerging economies, including Colombia. It has thus allowed aggregate spending to expand without greater pressure arising from external financing. The effect on domestic financial variables has been positive, helping to keep interest rates low and stable.

✕ The prevailing financial climate and the behavior of demand have played their part in lifting domestic-asset prices. The stockmarket and house have risen in real terms in relation to the consumer price index, improving the quality and quantity of safeguards for the financial system. However, the levels and growth of relative prices for domestic assets are far removed from what they were during the financial bubble of the early 1990s, so that asset prices currently show no sign of posing a threat to the financial system's stability.

✕ On the fiscal front, there has been a slight improvement in the indicators of fiscal deficit and public debt as well as in the financial conditions of debt, which has benefited the financial system's performance. But further efforts need to be made to reduce the fiscal deficit and the nonfinancial public sector's demand for funds. This would preclude a reversal of the region's economic prospects from strongly affecting the public sector's sustainability and thereby the stability of the financial system, which still holds a large part of its assets in public securities.

## THE SYSTEM'S MAJOR DEBTORS AND RISK EXPOSURE

### **Real-sector debt**

✕ In 2002, the real sector's gross debt grew rapidly, largely driven by higher domestic borrowing, and by the price effect that devaluation in the second half of the year had on foreign debt. In September 2003, growth in real-sector debt slackened, partly because of lower private external borrowing in dollars and the price effect of real revaluation.

✕ The nonfinancial private sector increased its overall debt for the first time since 1998, albeit by a low rate, with growth in its domestic debt produced mainly by a shift from external to domestic debt.

### **Private corporate sector**

✕ Credit institutions increased their exposure to the private corporate sector; consistent with growth in overall commercial loans and the country's greater economic activity in January-September 2003. This higher exposure was accompanied by a lower level of concentration, which signifies more resources furnished to previously restricted debtors.

✕ In September 2003, the major private debtors displayed strong loan quality and a trend toward higher borrowing.

✕ The findings of the Securities Superintendency's business sample show a corporate sector that has gained strength since the 1999 crisis. Nontradables firms stand out for their positive performance, produced by a rapid rise in profitability, capital strengthening and lower interest-rate exposure. Profitability for tradables firms has remained stable. Both groups have improved their debt profiles and have become less vulnerable to exchange-rate shocks.

✕ According to expectations surveys, both output and business investment are expected to rise in 2004. As long as the readiness to borrow and lend continues to improve and runs high—currently higher than in recent years—, commercial credit may be expected to go on expanding as it did throughout 2003. High levels of

readiness will depend on both loan quality and the supply of funds by credit institution maintaining their rising trends.

## **Households**

✕ Household debt grew marginally in 2003, but its share of the system's overall assets fell. The expansion in consumer loans offset the fall in mortgage loans, signifying a shift in household debt, in terms of loan type, toward consumer loans and, in terms of type of entity, toward commercial banks.

✕ Loan quality has continued to improve, though a marked difference is discernible between the portfolio of banks specializing in mortgages and the portfolio of other intermediaries. Higher loan quality has coincided with an improvement in households' ability to pay brought about by lower unemployment and persistently high levels of real wages.

✕ Mortgage loans still present high delinquency levels, connected with the large stock of bad loans from the crisis period. Fresh loans can be expected to perform better, given the satisfactory behavior of prices for new housing.

✕ In contrast to the corporate sector, households have not increased their domestic borrowing, despite the pick-up in their ability to pay.

✕ The outlook for mortgage credit is not clear, for in spite of the housing market's positive price performance, Fedesarrollo's consumer survey shows slackened growth in "favorable buying opportunity" during the fourth quarter of 2003. In contrast, "favorable buying opportunity" for durable goods rose all through the year, which may have boosted the performance of consumer performance loans. If this trend is confirmed, the shift in household debt described above may become deeper.

## **Nonfinancial public sector**

✕ The financial system's exposure to public debt increased slightly in September 2003, having declined between 2001 and 2002. The increase is largely attributable to banks specializing in mortgages. Commercial banks remain the entities most directly exposed to nonfinancial public sector debt.

✕ The financial conditions of public debt have improved, as has perception of the government's solvency. This is reflected in a reduction of interest rates on public debt, which has benefited the financial entities' balance sheets through valuation gains on debt holdings. It is also evidenced by lower spreads on external public debt. Note, however, that these developments have occurred across emerging markets and are not exclusive to Colombia.

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<sup>1</sup> Much of the improvement up to 2002 resulted from the application of Law 617 of 2000, Law 550 of 1999 and the tax reform of 2000. This tax reform authorized withdrawals from the Oil Stabilization Fund to repay debt owed by departments and municipalities.

✕ Nonfinancial public sector debt moderated its growth in September 2003, partly because of a reduction in external debt caused by the price effect of lower devaluation. As a result, the debt/GDP ratio remained steady.

✕ The central government's indebtedness, both domestic and foreign, expanded more slowly, but at rates that are still high. The ratio of government debt to GDP showed moderate growth.

✕ It should be noted that, though the general conditions for debt have improved, sustainability indicators have not. The government will therefore need to continue taking measures to adjust public finances.

✕ In September 2003, subnational debt continued to exhibit the falling trend begun in 1997 and improved in quality,<sup>1</sup> reducing the risk it posed to the financial system. However, although the quality of subnational debt has improved consistently since 2000, it is still not as good as debt quality for the rest of the system.

#### RECENT FINANCIAL SYSTEM DEVELOPMENTS

##### **Pension fund managers**

✕ The portfolio administered by pension fund managers continued to increase all through 2003 and is still strongly concentrated in public-debt investments.

✕ The maturity mismatch between the fund managers' portfolio assets and future pension payments still persists, though new long-term assets have been developed, for example through mortgage-debt securitizations. Tax incentives will need to be revised to make investments of this kind attractive to pension fund managers, who are their natural buyers.

##### **Credit institutions**

✕ Credit institutions continued to increase their loan portfolio in 2003, as they had been doing since mid-2002. All types of loans, except home loans, have contributed to consolidating credit recovery.

✕ Similarly, the sector's profitability is now around levels seen before the 1998-1999 crisis, having continued to rise in 2003 thanks largely to a shift in assets toward productive business (loans and investments), as well as higher financial margins, and the satisfactory price performance of public-debt securities.

✕ Moreover, credit establishments are still registering widespread reductions in the different risks intrinsic to their business.

✕ In the case of credit risk, all maturity, risk and provisioning indicators exhibit highly satisfactory behavior, so that the system currently presents a historically low perception of counterparty risk.

- ✕ To maintain this satisfactory environment, controls that ensure appropriate allocation of fresh credits must not be relaxed. This is particularly important in the case of the fastest growing types of credit.
  
- ✕ The credit establishments' market risk arising from price fluctuations in their major asset and liability positions has remained stable as a share of their overall risk. But there has been a shift within market risk, with the interest-rate risk of financial products falling and the rate risk of TES securities rising, as a result of amended regulations adopted in the aftermath of the TES-price crisis of July and August 2002.
  
- ✕ The credit sector's liquidity levels were adequate in November 2003, thanks to adequate growth in placements in the second half of the year and a satisfactory external environment. As long as this situation lasts, credit institutions are not expected to have any liquidity problems in the medium term.
  
- ✕ Given the reduction of a good many credit-sector risks, and the adequate levels of capital throughout 2003, the entities' capital soundness will ensure further expansion in credit business over the short term as long as there is demand.
  
- ✕ To sum up, credit business continued to register increasingly favorable growth in 2003. And, despite the rise so far in disbursements, the available evidence does not point to any reheating of the system that jeopardizes financial stability. This assertion derives from the fact that, in spite of large increases in the system's assets and loans and strong absorption by the economy, neither stocks nor growth rates have yet reached the atypically high levels that can trigger a financial bubble.

Board of Directors, Banco de la República

**FINANCIAL STABILITY REPORT**  
**DECEMBER 2003**

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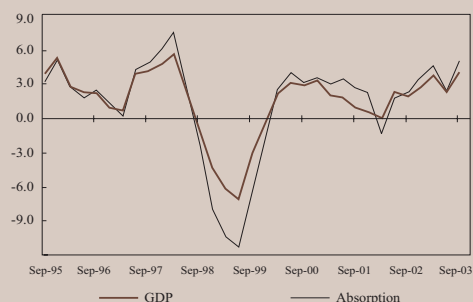
## MACROECONOMIC ENVIRONMENT

### A. DOMESTIC DEMAND AND OUTPUT

The most important macroeconomic development in 2003 was the firming of domestic demand. As shown by Figure 1, domestic demand grew by more than 4% in the first and third quarters relative to the same quarters a year earlier, a buoyancy not seen since 1997. It was driven by strong expansion in private demand, particularly investment and to a lesser extent in household consumption. This spending growth, though large for recent years, was much smaller than during the credit and private-spending boom of the first half of the 1990.

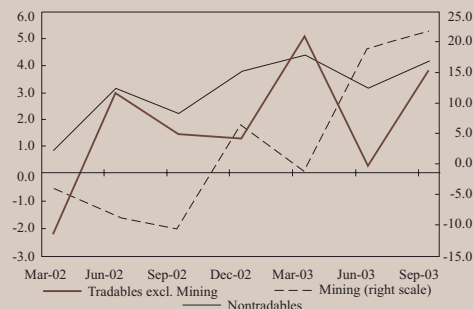
Domestic-demand behavior had its counterpart in an acceleration—albeit less pronounced—of GDP growth, which was driven mainly by rising domestic demand and expanding coal and petrochemical exports. Thus, growth in the past two quarters was centered in mining and the nontradables sectors, the latter having benefited most from the rise in domestic demand (Figure 2). Although growth in the tradables sectors excluding mining and oil has not been as robust as in the nontradables sectors, it speeded up to 3% over the first three quarters of 2003.

**FIGURE 1**  
GROWTH IN GDP AND ABSORPTION  
(PERCENTAGE)



Source: DANE (state statistical agency). Calculations by Banco de la República.

**FIGURE 2**  
GDP GROWTH  
(PERCENTAGE)



Source: DANE. Calculations by Banco de la República.

Lastly, faster GDP growth has had a positive effect on labor-market conditions, improving household income.

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#### B. EXTERNAL FINANCING CONDITIONS AND DOMESTIC FINANCIAL STABILITY

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Growth in domestic demand has been facilitated by favorable external financing conditions and overseas remittances, which have allowed ample financing for higher spending in the balance of payments. In effect, the international financial environment has benefited all emerging countries and Colombia is no exception. This favorable environment is reflected in lower interest rates and narrower spreads on emerging-market debt. Figure 3 shows how spreads on Colombia's public debt fell systematically over 2003.

The peso's nominal exchange rate against the dollar has been affected by the favorable external financing conditions and rising remittances. After strong devaluation in the first quarter of 2003, it

appreciated over the rest of the year. The peso's appreciation has benefited agents with dollar debts, without overly affecting the tradables sectors, probably because other major trading currencies have also appreciated against the dollar.

This international environment and a measured monetary stance on the part of the Banco de la República have allowed domestic financial markets to remain stable, creating a suitable setting for the different financial agents operating in this market to recover. As a reflection of this, interest rates on the economy's major financial instruments remained low and stable in nominal and real terms throughout 2003.

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#### C. ASSET PRICES

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As a result of the above developments in spending, output and external financing, domestic-assets prices rose. Thus, firms and housing, the two biggest private-sector assets, registered price rises higher than inflation measured by the consumer price index (CPI).

In the case of firms, the Colombian Stock Exchange index rose by more than the CPI all through 2003. As regards housing, available information shows that at least in Bogotá there was a 16% increase in value, with an upturn in the relative prices of these assets, which had been declining since the mid-1990s.

Growth in domestic-asset prices, like growth in spending and output, was stronger in 2003 than in recent years but still weaker than it had been in the early 1990s, before the period of financial stress that occurred at the end of the century.



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#### D. FISCAL SITUATION

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On the fiscal front there have been good results, partly attributable to GDP growth and the financial conditions described above. Specifically, nonfinancial public sector deficit has been decreasing, making it very likely that the fiscal targets agreed on with the International Monetary Fund will be met.

Moreover, as discussed below, fiscal, exchange-rate and GDP behavior has caused the debt-to-GDP ratio to considerably slacken its strong growth of recent years.

Nevertheless, it should be noted that deficit results are still far from those that would allow solvency indicators to be kept permanently at desired levels. Hence the very great importance attached to the effect that recently adopted tax measures and those announced for 2004 may have on public debt growth.

## REAL-SECTOR GROSS DEBT

The “real” sector of the economy, comprising the government, firms and households, is the counterparty of the domestic financial system, which is a major source of financing for the real sector. Hence the importance of reviewing variations in the real sector’s debt and income levels, to assess the domestic financial system’s overall exposure to its debtors.

The real sector’s gross debt grew rapidly in 2002, mainly driven by rising domestic debt and by the price effect of higher devaluation on external debt in the second half of the year. But by September 2003 the real sector’s debt growth had slowed, thanks to lower private external indebtedness in dollars and the price effect of declining devaluation.<sup>1</sup>

Table 1 presents the nonfinancial sector’s gross debt from 1998 to September 2003. Real annual growth in its gross debt fell from 11.5% in 2002 to 2.5% in September 2003, even lower than the 4.5% average for 1998-2001. Both the public sector and the private sector played a big part in reducing the overall growth rate, though the decrease in private-debt growth was the larger.

At real annual rates, nonfinancial private sector debt declined by 0.2%, largely because of a 9%

fall in external debt, which in turn resulted from a 4.6% contraction in foreign debt expressed in dollars and from lower devaluation, while private domestic debt expanded by 7.2%.

In contrast, at real annual rates, nonfinancial public sector debt grew by 4.4%, mostly because of a 7.2% expansion in domestic debt, for external debt went up by only 1.7%. Note, however, that growth in external debt was weak essentially because of the price effect of falling devaluation, since external debt in dollars actually increased by an annual rate of 6.6%.

To isolate the exchange rate’s price effect, the nominal annual devaluation consistent with zero real annual devaluation in September 2003 was calculated. On this basis, at real annual rates, real-sector debt would have grown by 3.6%, with nonfinancial public sector debt rising by 5.6% and nonfinancial private sector debt by 0.9% (Table 2). This implies that the slowdown in the real sector’s debt growth was largely helped by exchange-rate movements.

Table 1 also shows the real sector’s debt as a ratio of GDP between 1998 and September 2003. This ratio supplements the analysis of variations in aggregate debt by providing a different aspect of the situation, indicating as it does the level of indebtedness relative to the debtors’ income. For

<sup>1</sup> Nominal annual devaluation was 25% in December 2002 and 2.5% in September 2003, based on the representative market rate at the end of the year.

**TABLE 1**  
**REAL SECTOR GROSS DEBT, 1998-2003**

Year	Nonfinancial public sector			External \$ m	Nonfinancial private sector			External \$ m	Total debt
	Domestic	External	Total		Domestic <sup>1/</sup>	External <sup>2/</sup>	Total		
	Trillions of pesos				Trillions of pesos				
<b>Excluding IFI</b>									
<b>1998</b>	23.9	24.4	48.4	15,853.8	50.6	22.6	73.2	14,665.9	121.6
<b>1999</b>	30.5	32.9	63.5	17,547.1	47.5	27.4	74.9	14,624.5	138.4
<b>2000</b>	42.1	42.0	84.1	18,825.4	42.2	31.3	73.6	14,061.5	157.7
<b>2001</b>	50.6	50.8	101.4	22,172.8	43.5	32.7	76.2	14,273.6	177.7
<b>2002</b>	62.9	62.0	124.9	21,630.8	48.6	38.4	87.0	13,421.5	211.9
<b>Sep-03</b>	67.3	66.4	133.7	22,979.3	53.5	38.2	91.8	13,226.2	225.4
<b>As a percentage of GDP</b>									
<b>1998</b>	17.0	17.4	34.4		36.0	16.1	52.1		86.5
<b>1999</b>	20.1	21.7	41.9		31.3	18.1	49.4		91.3
<b>2000</b>	24.0	24.0	48.1		24.1	17.9	42.1		90.1
<b>2001</b>	26.9	27.0	54.0		23.2	17.4	40.6		94.5
<b>2002</b>	31.0	30.5	61.5		23.9	18.9	42.8		104.3
<b>Sep-03</b>	30.7	30.3	61.1		24.5	17.5	41.9		103.0
<b>Including IFI</b>									
<b>1998</b>	23.9	24.4	48.4	15,853.8	52.0	22.6	74.6	14,665.9	123.0
<b>1999</b>	30.6	32.9	63.5	17,547.1	49.2	27.4	76.6	14,624.5	140.1
<b>2000</b>	42.1	42.0	84.1	18,825.4	43.7	31.3	75.1	14,061.5	159.2
<b>2001</b>	50.6	50.8	101.4	22,172.8	44.7	32.7	77.4	14,273.6	178.8
<b>2002</b>	62.9	62.0	124.9	21,630.8	49.5	38.4	88.0	13,421.5	212.9
<b>Sep-03</b>	67.3	66.4	133.7	22,979.3	53.5	38.2	91.8	13,226.2	225.4
<b>As a percentage of GDP</b>									
<b>1998</b>	17.0	17.4	34.4		37.0	16.1	53.1		87.6
<b>1999</b>	20.2	21.7	41.9		32.5	18.1	50.5		92.4
<b>2000</b>	24.1	24.0	48.1		25.0	17.9	42.9		91.0
<b>2001</b>	26.9	27.0	54.0		23.8	17.4	41.2		95.1
<b>2002</b>	31.0	30.5	61.5		24.4	18.9	43.3		104.8
<b>Sep-03</b>	30.7	30.3	61.1		24.5	17.5	41.9		103.0

Note: IFI, the industrial development institute, is not included in the analysis because it stopped being a financial corporation upon assigning its assets and liabilities to the second-tier bank Bancoldex.

1/ Gross private loan balance – Loans between financial entities + Stock of private bonds on the balance sheets of financial entities + Securitized mortgage loans.

2/ Including financial leasing.

Sources: Banking Superintendency and Securities Superintendency. Calculations by Banco de la República.

though, other things being equal, an increase in overall debt raises the creditors' risk, the increase may be associated with an expansion in economic activity that will generate higher future income with which the obligations can be met.

Accelerated growth of the debt-to-GDP ratio, however, constitutes a source of risk that may affect the domestic financial system in two ways, directly and indirectly. It may affect the system directly because part of the debt will be financed

**TABLE 2**  
**EXCHANGE-RATE EXERCISE (\*)**

Year	Nonfinancial public sector				Nonfinancial private sector				Total debt
	Domestic	External	Total	External	Domestic	External	Total	External	
	Trillions of pesos			\$ m	Trillions of pesos			\$ m	
<b>2001</b>	50.6	50.8	101.4	22,172.8	43.5	32.7	76.2	14,273.6	177.7
<b>2002</b>	62.9	51.8	114.7	21,630.8	48.6	32.1	80.7	13,421.5	195.4
<b>Sep-03</b>	67.3	68.0	135.3	22,979.3	53.5	39.2	92.7	13,226.2	228.0
<b>As a percentage of GDP</b>									
<b>2001</b>	26.9	27.0	54.0		23.2	17.4	40.6		94.5
<b>2002</b>	31.0	25.5	56.5		23.9	15.8	39.7		96.2
<b>Sep-03</b>	30.7	31.1	61.8		24.5	17.9	42.3		104.2

(\*) The exercise consisted of finding a nominal annual devaluation consistent with a zero real annual devaluation, so as to isolate the price effect.  
Sources: Banking Superintendency and Securities Superintendency. Calculations by Banco de la Republica

through the domestic financial system. And it may affect the system indirectly because the ratio's rise increases the financial fragility of debtors, whose ability to pay may be weakened in the face of shocks to their solvency or liquidity.

The debt-to-GDP ratio decreased by 1.3 percentage points to September 2003. This was a major development, for it had been rising since 2000 and had reached a peak in 2002. The decrease was 0.9 percentage points for the private sector and 0.4 points for the nonfinancial public sector. Much of the decline in the private sector's debt-to-GDP ratio came from contraction of its

external debt, which fell by 1.5 percentage points as a ratio of GDP. As stated earlier, this fall resulted from appreciation of the exchange rate.

To sum up, by isolating the price effect of the exchange rate, we see that the private sector's overall debt increased for the first time since 1998, albeit weakly. The increase in private domestic debt was largely produced by a shift from external to domestic debt. Lastly, correcting for devaluation reveals that, though expansion in the nonfinancial public sector's debt was weaker than in previous years, it was still about two percentage points higher than GDP growth.

### III

## THE FINANCIAL SYSTEMS'S DEBTORS

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### A. PRIVATE CORPORATE SECTOR

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#### 1. The private corporate sector and credit establishments

##### a. Exposure

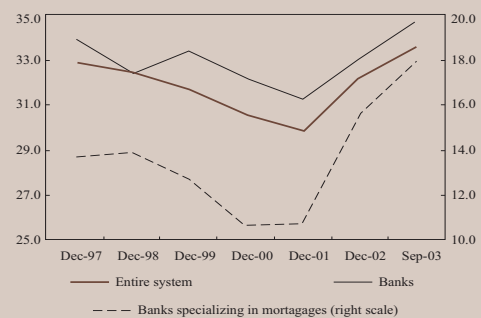
The sum of private commercial loans, commercial leasings, microcredits and private securities on the balance sheets of credit entities is an approximation to the resources extended to the private corporate sector. The information provided below is from the Banking Superintendency and covers only the financial system's credit entities; it does not include second-tier state banks (*Instituciones Oficiales Especiales*).

The credit institutions' exposure to private corporate debt as a share of their assets rose from 2001 to September 2003 (Figure 4). After falling for four years in a row from 1997, exposure as a ratio of assets stood at 34% in September 2003, slightly higher than in December 1997 (33%). During January-September 2003, the exposed amount increased from 28.7 trillion (tr) pesos registered in December 2002 to 31.2 tr pesos in September 2003, an annualized real growth of 4.5%. Although this growth was higher than the 3.97% output growth in September 2003, the exposed amount as a percentage of GDP was even

lower in September 2003 (14%) than in December 1997 (20%). Thus, exposure as a share of assets was much the same in September 2003 as in 1997 (given the reduction in the credit institutions' assets in the intervening years), but as a percentage of the entire economy's output it was much lower in September than in 1997.

Greater exposure to the private corporate sector in January-September 2003 came from strong growth in commercial loans, microcredits and commercial leasings. As shown by Figure 4, the major types of credit establishments have driven the expansion in credit extended to the private corporate sector. In September 2003, commercial banks were still more exposed than banks specializing in mortgages (35% compared with 18%). But the latter and

FIGURE 4  
CREDIT ENTITIES' EXPOSURE TO PRIVATE FIRMS,  
BY TYPE OF ENTITY  
(AS A SHARE OF ASSETS)



Source: Banking Superintendency.

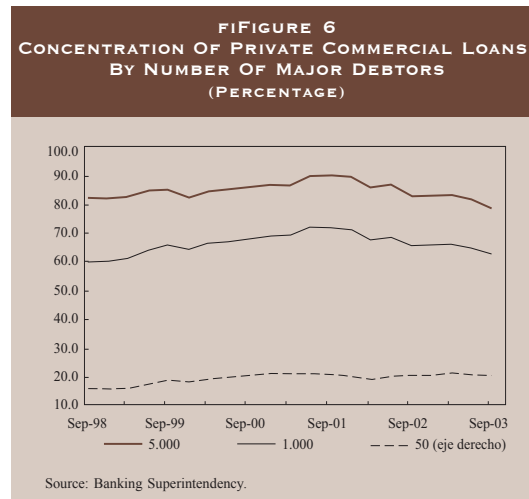
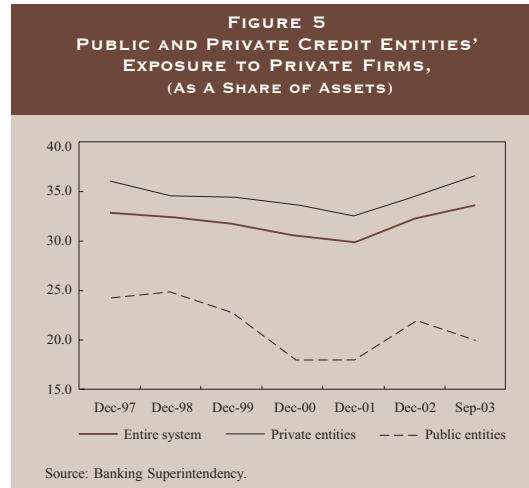
commercial financing (leasing) companies have been characterized since December 2001 by rapid growth in commercial loans.

Dividing credit institutions into private and public ones shows the former to be more exposed to the private corporate sector, with 37% of their assets thus exposed in September 2003, compared with 20% in the case of public entities. It is noteworthy that in January-September 2003 public credit entities, unlike the private ones, reduced their exposure to the private corporate sector (Figure 5).

*b. Major private corporate debtors<sup>2</sup>*

Private credit became less concentrated over the first three quarters of 2003. The 5000 major debtors' share of total private commercial loans fell from 83.0% to 78.6% between December 2002 and September 2003, while the 1000 major debtors' share dropped from 66.1% to 63.0%. In the case of the 50 biggest debtors the reduction was marginal, their share remaining at some 20% (Figure 6). Thus, higher exposure to the private sector has been accompanied by greater access to credit for debtors who previously had limited or no access.

Over the first three quarters of 2003, the groups of 50, 1000 and 5000 major debtors systematically improved the quality of their respective private loan portfolios. As shown by Figure 7, in September 2003, for the 1000 and 5000 major debtors alike, type-A loans made up 86% of the total loans extended to each group, up from 66% in March



2001. The 50 biggest debtors registered an even stronger improvement in loan quality, with type-A loans representing 89.6% of the group's total in September 2003. Similarly, the low share of type-E loans, and their falling trend since 2000 were further evidence of the major debtors' positive performance in terms of loan quality.

The breakdown of the loans to the 5000 major debtors by economic sector reveals no great change in their distribution between 1998 and September 2003 (Figure 8). About 40% of the

<sup>2</sup> The concentration and quality of private commercial loans and their distribution by economic sector were analyzed on the basis of data covering the 50, 1000 and 5000 biggest debtors.

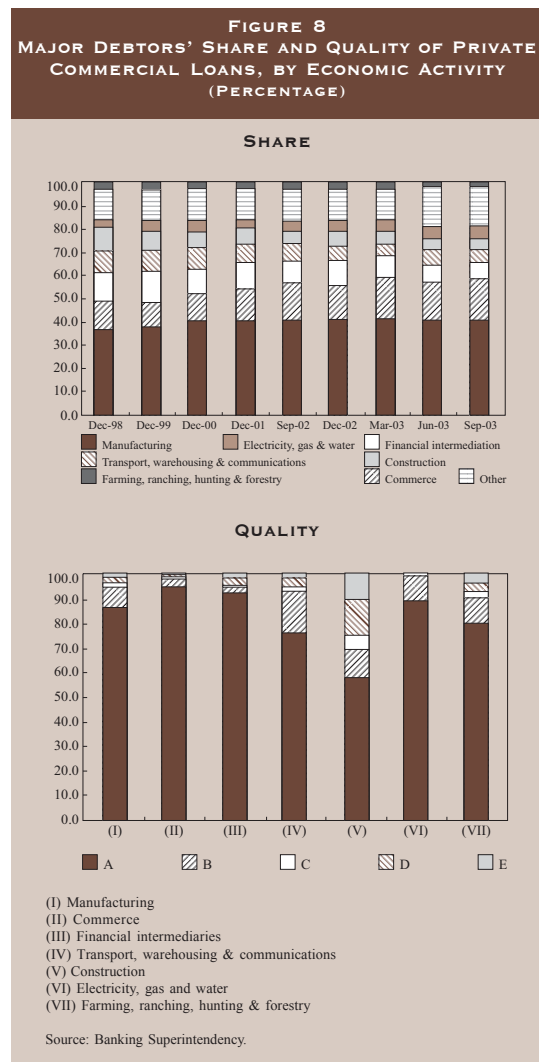
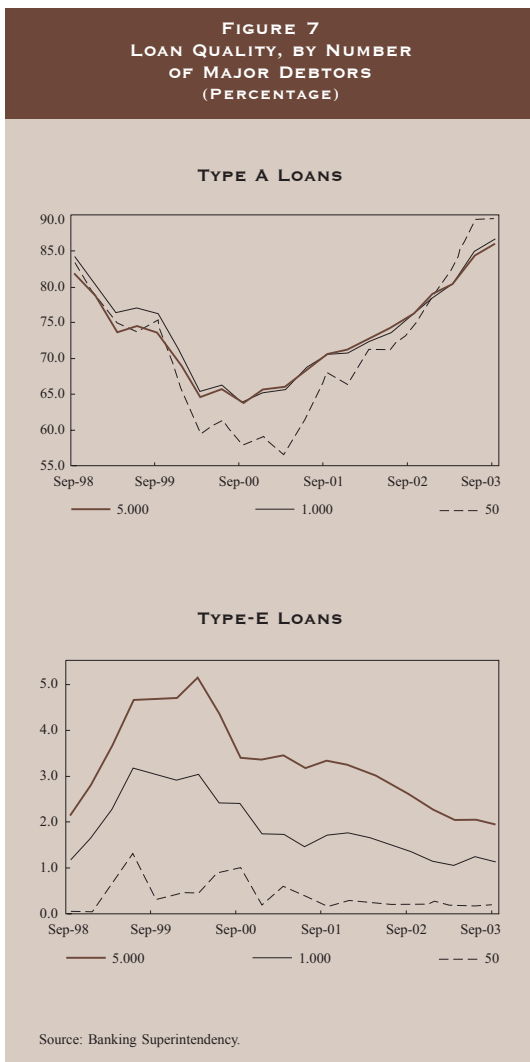
loans to this group continues to be concentrated in the manufacturing sector. While commerce and the sector of electricity, gas and water have marginally incremented their shares, financial intermediation and construction have reduced theirs.

Loan quality has improved in all economic sectors, with major activities such manufacturing and commerce registering high proportions of type-A loans in September 2003 (85% and 94% respectively). Construction is still the sector with the lowest proportion of type-A loans: 57%.

However, analysis of loan quality shows it to have improved across the board, even in construction, given the rising share of type-A loans and the falling share of type-E ones (Figure 9).<sup>3</sup>

To sum up, the credit institutions' exposure to the private corporate sector increased during 2003, which was consistent with the rise in overall

<sup>3</sup> The construction sector's stock of bad debts affects the sector's loan-quality figures, which do not necessarily reflect the behavior of its newer loans.



**FIGURE 9**  
**MAJOR DEBTORS' TYPE-A AND TYPE-E LOANS, BY**  
**ECONOMIC ACTIVITY**  
**(PERCENTAGE)**



commercial loans and the country's greater economic activity. Although exposure grew faster than output (4.5% against 3.9%), in September 2003 exposure as a ratio of assets was only slightly higher than in 1997; but as a percentage of GDP it was lower than in 1997, signifying that relative to the economy as a whole exposure levels were not as high as in 1997. Credit expansion occurred both in commercial banks and in banks specializing in mortgages, with the former being more exposed. In the first three quarters of 2003, exposure to the real sector was acquired by private credit

institutions, while public institutions reduced their credit to the private sector. Higher exposure to the private sector was accompanied by greater access to credit and by improvement in the major debtors' loan quality. The major debtors belong mostly to the sectors of manufacturing and commerce, both of which exhibited satisfactory loan portfolio development and quality. Construction is the only sector still presenting poor levels of loan quality, despite recent improvement.

## 2. Corporate results

Failure on the part of firms to pay their debts to the financial system is made more likely by deteriorating financial statements, and less likely by high profitability and low indebtedness. In the event of unexpected shocks that reduce corporate borrowers' ability to pay, high levels of liquidity will also make nonpayment less likely. To identify the risks that real-sector companies may pose to the financial system, this section reviews the performance and financial health of private companies on the basis of profitability, debt and liquidity indicators. The financial ratios used were chosen not only because they figure in similar studies for other countries, but also because they were based on the main determinants of financial fragility identified for companies in Colombia.

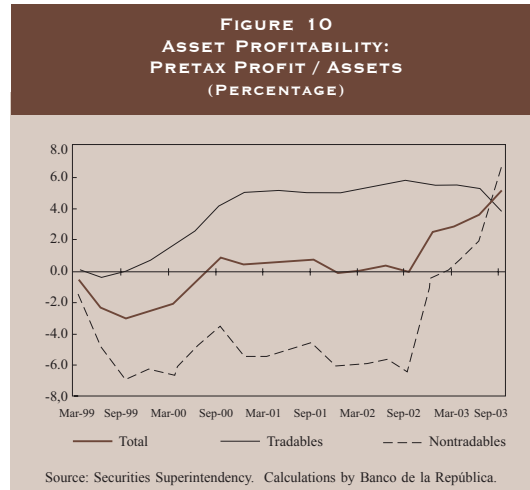
The financial statements analyzed were those of the companies listed on the National Securities Register that reported to the Securities Superintendency up to September 2003. This information should not be regarded as representing the private company average, for most of the firms considered were large in terms of both sales and assets. For this reason, the behavior of specific companies may have largely determined aggregate results. Since 1998, an average of 141 firms have

been reporting their financial statements on a quarterly basis. The September 2003 analysis was conducted on a sample of 121 companies, 74 of them tradables and 47 nontradables.<sup>4</sup>

*a. Profitability indicators<sup>5</sup>*

Profitability indicators in September 2003 show a private corporate sector that has regained strength since the crisis of 1999. Asset profitability rose particularly fast in the past year, faster than in the years before the crisis. Having fallen as low as -2.5% in December 1999, the indicator reveals accelerated recovery in corporate profitability, rising beyond the 3.7% registered in December 1995, to 5.3% in September 2003.<sup>6</sup> Sectorally, the upturn in companies producing nontradable goods lifted their asset profitability from -6.5% in September 2002 to 6.8% a year later (Figure 10). Among nontradables producers, firms providing cellular telephony services and holding companies obtained the highest profits up to the third quarter of the year. In contrast, companies producing tradable goods saw their profitability decline in the past year from the high, stable levels maintained since December 2000, down to a still satisfactory 3.7% in September 2003.

Improvements in average company profitability in the past year stemmed largely from the



nontradables producers' lower financial expenses and their greater efficiency in administrative and sales expenditure. In September 2002, financial expenses for the sample as a whole represented 27% of sales, but a year later they accounted for only 14% of sales, a reduction of 2.8 tr pesos (Table 3).

Similarly, lower administrative and sales spending for the sample as a whole has led to a slight rise in operating profitability, measured as the ratio of operating profit to sales. These were the two factors that contributed most to lifting profitability, measured as the ratio of pretax profit to sales, which climbed from 0% in September 2002 to 12% a year later.

<sup>4</sup> Tradables companies are those engaged in farming, stock raising, hunting, forestry, fishing, mining, quarrying and manufacturing.

<sup>5</sup> To quantify corporate profitability, the return on assets was estimated and the composition of the profit and loss statement was analyzed. Return on assets, defined as the ratio of pretax profit to assets, shows how efficiently a firm generates profits with a given level of resources (both the resources provided by owners, included as capital, and those provided by creditors, included as liabilities). Pretax profit is defined as operating profit plus nonoperating income less nonoperating expenses, and does not therefore include either taxes or adjustments for inflation. Regarding the profit and loss statement, profit margins were constructed as the ratio

of profit to sales, using, first, gross profit, then operating profit and, lastly, pretax profit. The aim was to measure what proportion of income from sales was kept, once the reported income and expenditure items were taken into account. It was a way of identifying the determinants of higher or lower final profit for the year and seeing how they varied. All figures contained in the profit and loss statement were annualized using the following formula:

$$x_{\text{annualized month } i} = x_i + x_{\text{previous Dec.}} - x_{i-12}$$

<sup>6</sup> Asset profitability in December of each year from 1995 to 2002 was 3.7%, 2.4%, 2.2%, 0.0%, -2.5%, 0.5%, 0.0% and 2.5%, respectively.

**TABLE 3**  
**COMPOSITION OF PROFIT AND LOSS STATEMENT, BY SECTOR (\*)**  
**(PERCENTAGE)**

	Trillions of pesos			% of sales		
	Sep-02	Dec-02	Sep-03	Sep-02	Dec-02	Sep-03
<b>Total</b>						
<b>A. Gross profit (1 - 2)</b>	7.7	8.5	9.3	32.7	34.7	34.7
1. Sales	23.5	24.5	26.9	100.0	100.0	100.0
2. Sales Costs	15.8	16.0	17.5	67.3	65.3	65.3
<b>B. Operating profit (A - 3 - 4)</b>	1.4	2.5	2.9	5.9	10.3	10.7
3. Administrative expenses	2.9	2.7	2.9	12.4	11.1	10.9
4. Sales expenses	3.4	3.3	3.5	14.4	13.3	13.2
<b>C. Pretax profit (B + 5 - 6)</b>	0.0	1.4	3.2	(0.1)	5.6	11.7
5. Nonoperating income	5.0	4.8	4.1	21.1	19.7	15.3
Financial income	3.9	3.5	2.2	16.6	14.3	8.0
6. Nonoperating expenditure	6.4	6.0	3.8	27.2	24.4	14.3
Financial expenditure	5.5	4.9	2.6	23.4	19.8	9.7
<b>D. Final profit</b>						
<b>(C + Adjustments for inflation - Taxes)</b>	(0.2)	1.2	3.2	(0.8)	4.8	12.0
<b>Nontradables</b>						
<b>A. Gross profit (1 - 2)</b>	4.0	4.4	4.8	31.7	34.2	36.0
1. Sales	12.6	12.8	13.4	100.0	100.0	100.0
2. Sales Costs	8.6	8.4	8.6	68.3	65.8	64.0
<b>B. Operating profit (A - 3 - 4)</b>	(0.1)	0.7	1.1	(0.4)	5.7	8.1
3. Administrative expenses	2.0	1.8	1.8	16.1	13.9	13.3
4. Sales expenses	2.0	1.9	1.9	16.1	14.6	14.5
<b>C. Pretax profit (B + 5 - 6)</b>	(1.5)	(0.1)	2.0	(12.0)	(1.1)	15.3
5. Nonoperating income	3.4	3.1	2.9	26.9	24.4	21.7
Financial income	3.0	2.5	1.8	24.0	19.4	13.5
6. Nonoperating expenditure	4.9	4.0	2.0	38.5	31.2	14.6
Financial expenditure	4.4	3.5	1.6	34.5	27.8	12.2
<b>D. Final profit</b>						
<b>(C + Adjustments for inflation - Taxes)</b>	(1.4)	0.0	2.3	(10.8)	0.1	16.8
<b>Tradables</b>						
<b>A. Gross profit (1 - 2)</b>	3.7	4.1	4.5	33.9	35.3	33.5
1. Sales	10.9	11.7	13.5	100.0	100.0	100.0
2. Sales Costs	7.2	7.6	9.0	66.1	64.7	66.5
<b>B. Operating profit (A - 3 - 4)</b>	1.5	1.8	1.8	13.4	15.4	13.2
3. Administrative expenses	0.9	0.9	1.1	8.2	8.0	8.4
4. Sales expenses	1.3	1.4	1.6	12.4	11.9	11.8
<b>C. Pretax profit (B + 5 - 6)</b>	1.5	1.5	1.1	13.7	12.9	8.2
5. Nonoperating income	1.6	1.7	1.2	14.3	14.5	9.0
Financial income	0.9	1.0	0.3	8.0	8.7	2.5
6. Nonoperating expenditure	1.5	2.0	1.9	14.0	17.0	14.0
Financial expenditure	1.1	1.3	1.0	10.5	11.1	7.3
<b>D. Utilidad final</b>						
<b>(C + Adjustments for inflation - Taxes)</b>	1.2	1.2	1.0	10.8	10.0	7.3

(\*) The figures of the profit and loss statement were annualized using the following formula:  $X_{\text{annualized month } i} = X_i + X_{\text{previous Dec.}} - X_{i-12}$   
Source: Securities Superintendency. Calculations by Banco de la República.

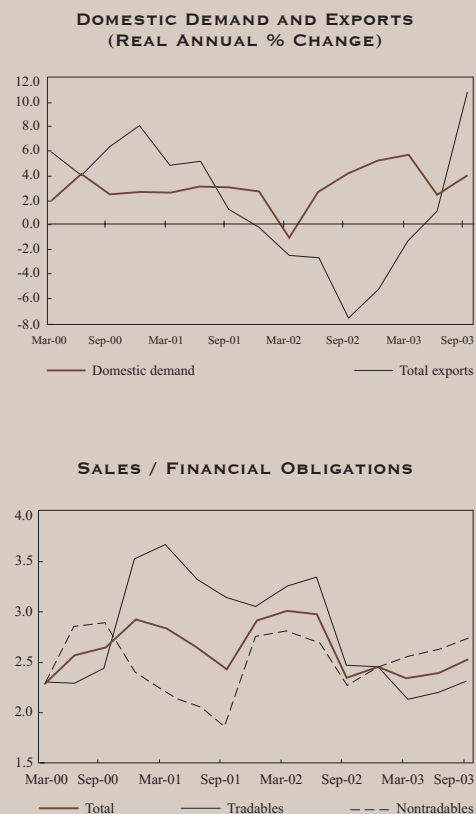
Though nontradables producers improved their asset profitability, real growth in their sales over the past year was -1%, compared with 17% for tradables producers. The sales behavior of the sample's nontradables producers was not consistent with the strong buoyancy registered in domestic demand and nontradables GDP in the past 12 months (Figure 11, upper half).<sup>7</sup> The fact is that the sales of nontradables firms reporting to the Securities Superintendency represent a low percentage of the total sales of the country's nontradables producers.<sup>8</sup> The sample's tradables producers for their part exhibited a sales growth consistent with rising exports, which registered a brisk 11% annual growth in September 2003.<sup>9</sup>

Using the sales-to-debt ratio as a standard gives a better picture of changes in both groups' profitability. While nontradables producers reduced their indebtedness in the past year, the tradables producers increased theirs (as discussed in greater detail below in the section on debt indicators). Consequently, although tradables producers increased their sales strongly, nontradables firms registered a higher efficiency of sales per unit of leveraged funding in the first three quarters of 2003 (Figure 11, lower half).

The two sectors continued to exhibit two efficiency differences in the third quarter of 2003. The first

was that nontradables producers were on average less efficient administratively, as evidenced by their lower operating margin (Figure 12, lower half) and their higher administrative and sales expenses as a ratio of sales: 28% against 20% for tradables firms (Table 3). The second difference had to do with the net impact of financial payments, which was positive for nontradables firms (owing to less use of leveraged funding) and negative for the tradables firms. As stated earlier, this factor was responsible for the biggest difference between the sectors, raising the profitability of nontradables producers and reducing that of tradables firms (whose asset

**FIGURE 11**  
DOMESTIC DEMAND AND EXPORTS; AND  
RATIO OF SALES TO FINANCIAL OBLIGATIONS  
(PERCENTAGE)



Sources: Securities Superintendency and DANE. Calculations by Banco de la República.

<sup>7</sup> This was because almost half the sales of the sample's nontradables producers consisted of diverse items of popular consumption, a sector that included three retail chains with poor sales growth in the 12 months to September 2003. Excluding these three gives a 16% real growth in the sales of the other nontradables producers over the same period.

<sup>8</sup> In December 2002, this was 18% of sales for 9094 firms reporting their balance sheets to the Superintendency of Companies and the Securities Superintendency.

<sup>9</sup> This strong growth came from large exports of coal and oil in 2003.

profitability ran lower than the nontradables firms' for the first time since September 1998).

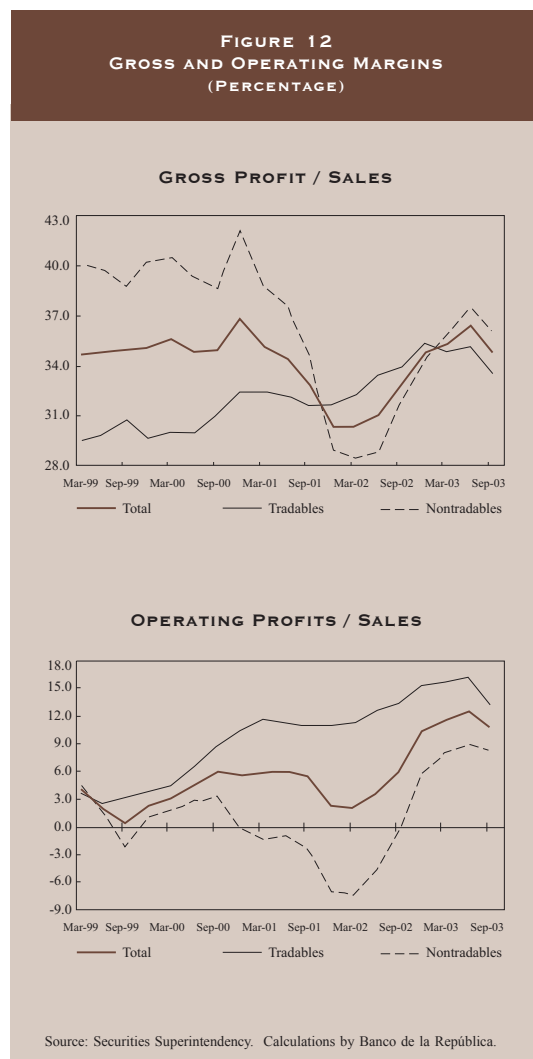
b. Liquidity indicators<sup>10</sup>

Liquidity conditions did not change in the past year. While the immediate liquidity of available assets did not vary greatly in level or differ much between sectors,<sup>11</sup> the current ratio showed tradables producers enjoying a higher level of liquidity since March 2002 (Figure 13). This difference between the sectors resulted from shorter durations of assets on the tradables firms' balance sheets (through an

increase of short-term debtors) and higher long-term financing in their liabilities. Thus, there was no change in the sample companies' liquidity conditions in the six months to September 2003, since immediate liquidity remained at its usual levels in both sectors, while the less-immediate indicator still showed tradables firms to be the more liquid.

c. Debt indicators<sup>12</sup>

The debt ratio<sup>13</sup> for the sample average declined from 20% in September 2002 to 18% a year later, with the two sectors differing in their debt behavior. Nontradables firms reduced their financial obligations strongly over that period—by 700 billion (bn) pesos, from 5.6 tr pesos to 4.9 tr pesos—, in a context of rapid asset growth (20% real growth), characterized by lower external financing and higher capitalization (35% real rise in capital against a 2% real drop in liabilities). In contrast, tradables firms increased their financial obligations by 1.16 tr pe-



<sup>10</sup> Companies can temporarily deal with liquidity risk by keeping a higher volume of easily realizable assets as a proportion of short-term obligations or available resources. This shock-absorber, which reflects a company's liquidity, is measured by the cash-to-asset ratio and the current ratio (current assets/current liabilities). The cash-to-asset ratio better reflects a company's degree of immediate liquidity, while the current ratio compares less-immediate liquidity with short-term liabilities (where less-immediate liquidity includes efficiency changes arising from inventory management, temporary investments and short-term debtors).

<sup>11</sup> The atypical situation observed in June 2002 resulted entirely from excess cash held by a beverage company.

<sup>12</sup> The degree of leverage is measured by the debt ratio represented by financial obligations as a proportion of assets. This indicator does not capture the effect of the cash flow required to meet interest payments, which may create financial pressures from a higher perceived risk of failure to pay the debt. To capture this effect, the interest burden was calculated as the ratio of financial expenditure to the sum of operating and financial income. It is important to analyze both ratios at the same time to determine whether the financial pressures on a company arise from high interest rates or temporarily low profitability, or from a high stock of debt (in which case it will be more difficult to have access to the financial system for refinancing the amount owed).

tos over the same period, from 4.6 tr pesos to 5.8 tr pesos. Despite the greater amount of foreign resources raised by these firms, their balance-sheet growth was weaker, with low real growth in assets and capital (9% in both cases) over the past year. The above differences between the two sectors resulted in the nontradables firms' debt ratio running below the tradables firms' for the first time in several years (Figure 14).

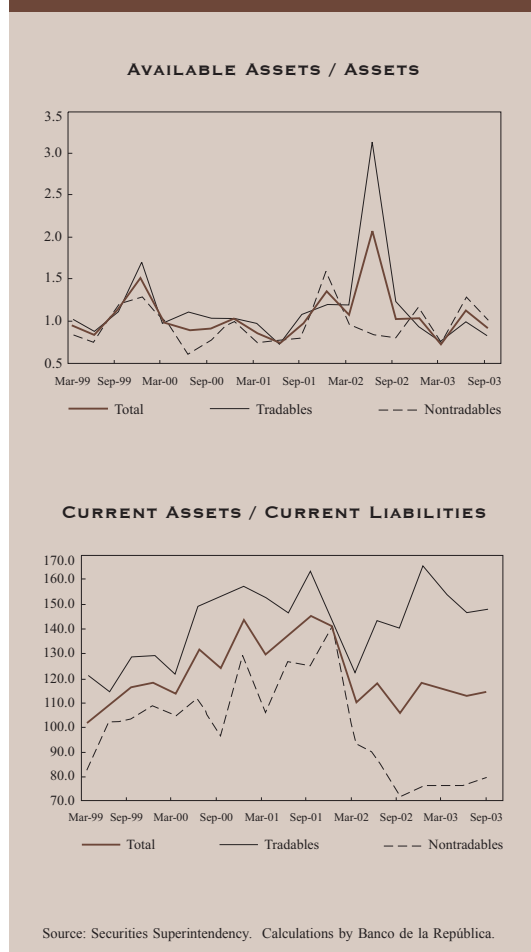
The sample companies' financial obligations rose slightly in the twelve months to September 2003 thanks to higher foreign-currency indebtedness. Debts denominated in pesos decreased from 4.72 tri pesos in September 2002 to 4.62 tr pesos in September 2003. Table 4 shows how the tradables producers' higher indebtedness became concentrated in external financial obligations.<sup>14</sup> The nontradables producers, for their part, reduced both their peso and foreign-currency obligations, steadily decreasing the share of foreign-currency obligations and thereby their exposure to exchange-rate variations.

Credit extended to the sample companies by local credit institutions grew by only 1%, from 3.77 tri pesos in September 2002 to 3.81 tr pesos a year later, with the biggest portion (2.77 tr pesos) of this debt held by domestic banks. This poor growth is attributable to the sample's lack of homogeneity. Estimates based on a homogenous sample of 116 firms show that the financial system's exposure grew by 6% between September 2002 and

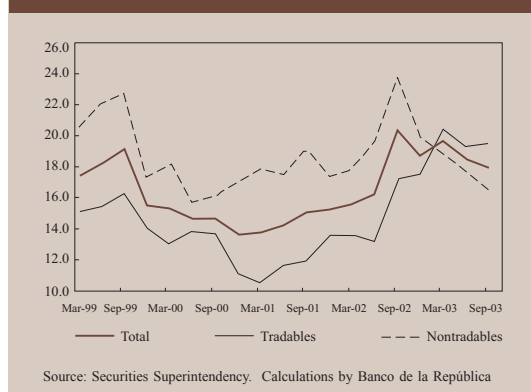
<sup>13</sup> Measured as the ratio of financial obligations to assets. Including the effect of suppliers in the ratio's numerator does not alter the situation described.

<sup>14</sup> These increased by 1.08 tr pesos in the 12 months to September 2003 (largely driven by the beverages sector), and their share of the tradables producers' overall obligations expanded from 47% to 57%.

**FIGURE 13  
LIQUIDITY RATIOS  
(PERCENTAGE)**



**FIGURE 14  
DEBT RATIO  
FINANCIAL OBLIGATIONS / ASSETS  
(PERCENTAGE)**



**TABLE 4**  
**FINANCIAL OBLIGATIONS, AMOUNT AND % SHARE**  
**BY TYPE OF FIRM AND ORIGIN (\*)**

	Amount (trillions of pesos)				(percentage share)	
	External	Internal			External	Internal
		Total	To credit entities	To other entities		
<b>Total</b>						
Sep-02	5.54	4.72	3.77	0.95	54.0	46.0
Mar-03	6.15	4.66	3.82	0.84	57.0	43.0
Sep-03	6.10	4.62	3.81	0.82	57.0	43.0
<b>Nontradables</b>						
Sep-02	3.35	2.28	1.73	0.54	60.0	40.0
Mar-03	3.10	2.14	1.66	0.48	59.0	41.0
Sep-03	2.83	2.10	1.64	0.46	57.0	43.0
<b>Tradables</b>						
Sep-02	2.19	2.45	2.04	0.41	47.0	53.0
Mar-03	3.05	2.52	2.16	0.36	55.0	45.0
Sep-03	3.28	2.52	2.16	0.36	57.0	43.0

(\*) External financial obligations are obligations incurred with overseas banks or other overseas financial entities. Internal or peso financial obligations are obligations incurred with the Colombian financial system (banks, banks specializing in mortgages, financial corporations, commercial financing companies). Negotiated loan and securities repurchase agreements, government obligations, and others.  
Source: Securities Superintendency. Calculations by Banco de la República.

September 2003 (from 3.47 tr pesos to 3.69 tr pesos), though this growth was still weaker than the 9% rise in overall commercial loans. By type of entity, credit from financial corporations, commercial financing companies and banks specializing in mortgages registered the poorest growths in the past year and the lowest levels in September 2003, standing at 627 bn pesos, 402 bn pesos and 12 bn pesos respectively. By economic sector, the biggest falls in credit from domestic credit entities over the 12 months occurred in the sectors of food, holding companies and articles of popular consumption, while the strongest growths were exhibited by chemicals, other services, and paper and pulp (Table 5).

After the peso's sharp devaluation in the third quarter of 2002, financial pressure in the sample firms dropped back to acceptable levels.<sup>15</sup> The left

panel of Figure 15 shows that by September 2003 financial pressure in both the tradables sector (6%) and the nontradables sector (10%) was down to much the same levels as in June 2002. As stated in the previous Report, the increase in financial pressure from the strong devaluation in September 2002 was concentrated in the communications sector. Isolating the communications sector's effect from the indicator (Figure 15, right panel) reveals financial pressure for the remaining firms improving marginally on a declining trend in the 12 months to September 2003. Thus, the sample firms managed to reduce their financial pressure over that period to levels observed before the exchange-rate shock.

<sup>15</sup> Financial pressure was measured by the interest-burden ratio: financial expenditure / (sales + financial income). The ratio's steep fall in the third quarter of 2003 resulted from the way in which figures from the profit and loss statement, specifically financial expenditure, were annualized.

This adjustment occurred both in prices (given the low levels of interest rates and devaluation) and in quantities.

As evidenced by debt ratios for the sample as a whole, the companies reduced their leverage and financial pressure between September

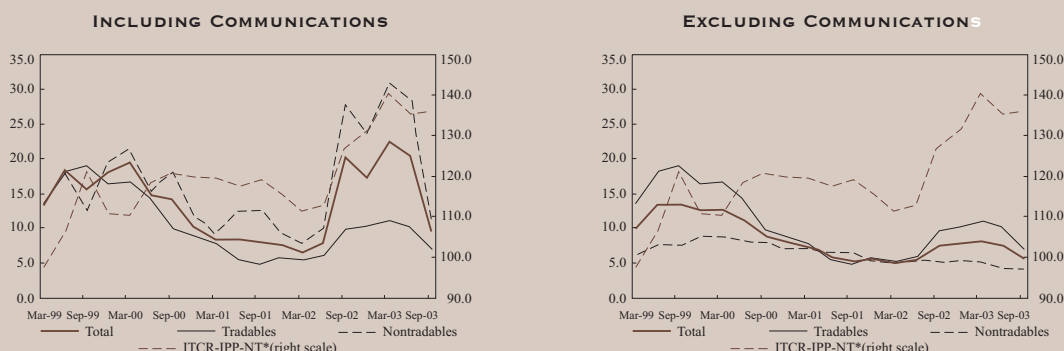
2002 and September 2003. Only the beverage sector registered a rise in financial obligations, specifically in obligations denominated in foreign currency. The risk to domestic credit institutions from the sample companies did not increase significantly and, in fact, decreased in real terms.

**TABLE 5**  
FINANCIAL OBLIGATIONS,  
AMOUNT AND % SHARE  
BY ECONOMIC SECTOR AND ORIGIN (\*)

	Commercial banks		Financial corps.		Commercial financing corps.		Banks specializing in mortgages		Total financial system	
	Sep-02	Sep-03	Sep-02	Sep-03	Sep-02	Sep-03	Sep-02	Sep-03	Sep-02	Sep-03
Food	324	211	115	81	13	3	0	0	452	296
Beverages	427	481	25	57	0	0	67	0	519	538
Textiles & clothing	123	117	47	39	10	8	0	0	180	165
Paper & pulp	82	130	34	35	0	3	0	3	116	170
Chemicals	193	319	42	41	4	1	0	0	240	361
Cement	157	150	50	61	4	11	0	8	211	231
Art. of popular consumption	489	453	15	10	0	0	0	0	504	463
Communications	118	97	76	90	5	3	0	0	199	191
Holding companies	227	182	71	38	344	348	16	0	657	568
Other services	121	182	22	31	0	0	0	0	143	214
Other industries	394	442	138	142	17	25	1	1	550	611
<b>Overall total</b>	<b>2,654</b>	<b>2,766</b>	<b>636</b>	<b>627</b>	<b>398</b>	<b>402</b>	<b>84</b>	<b>12</b>	<b>3,771</b>	<b>3,806</b>

Source: Securities Superintendency. Calculations by Banco de la República.

**FIGURE 15**  
FINANCIAL-PRESSURE INDICATOR:  
FINANCIAL EXPENDITURE / (SALES + FINANCIAL INCOME)  
(PERCENTAGE)



(\*) Real exchange-rate index based on the producer price index of nontraditional exports.  
Source: Securities Superintendency. Calculations by Banco de la República.

**Box 1**  
**PRIVATE FIRMS' 2002 BALANCE SHEET**

To supplement this Report's periodic review of companies listed on the National Securities Register, this box briefly describes the performance of a broad sample of companies subject to oversight by the Superintendency of Companies. After a screening of data covering on average the period from 1995 to 2002, balance sheets for 8408 firms were retained.<sup>1</sup> The firms were classified by sector as producers of tradable or nontradable goods, and by size.<sup>2</sup>

Profitability indicators show private companies recovering in 2002 from the 1999 crisis. Asset profitability, which had been negative in 1998 (-0.7%) and 1999 (-1.3%) and almost nil in 2000 (0.1%), stood at 2.4% in 2002, slightly higher than the 2.3% registered in 1996, before the crisis. Both tradables and nontradables producers exhibited improvements in asset profitability, the latter at a systematically lower level but reporting actual profits in their balance sheets by 2002 (Figure B1-1, left panel). By size, the most profitable companies were those with the highest sales, displaying rising trends in profitability, as did small firms. In contrast, asset profitability for medium-sized firms fell steadily in 2001 and 2002, having been the highest of all in 1999 and 2000 (Figure B1-1, right panel).

**FIGURE B1 1**  
**ASSET PROFITABILITY**  
(PERCENTAGE)



Sources: Superintendency of Companies, and Securities Superintendency. Calculations by Banco de la República.

<sup>1</sup> Firms with accounting problems on their balance sheets or zero sales were excluded.

<sup>2</sup> Companies engaged in farming, stock raising, hunting, forestry, fishing, mining, quarrying, and manufacturing were classified as tradables. And according to the size of their sales they were classified into three groups, with Group A comprising the 10% of firms with the highest sales, and Group C the 60% of firms with the lowest sales.

For the sample as a whole higher profitability stemmed from greater production efficiency.<sup>3</sup> In 2002, sales grew faster than costs, lifting the gross margin from 28% to 30%. While administrative and sales expenditures remained steady as ratios of sales, nonoperating income and expenditure once again negatively affected corporate profits. Despite low interest rates in 2002, the firms' financial income and expenditure increased because of the peso's strong devaluation in the second half of the year.

The breakdown of sales by sector shows them growing in both the nontradables and tradables sectors, boosted in the case of nontradables by the upturn in domestic demand, and in the case of tradables by the peso value of sales after devaluation. Although nontradables firms generated the greater efficiency in production and administrative processes, they were the most affected by the exchange-rate shock. This was because nontradables sales, unlike tradables sales, do not respond positively to devaluation, which does however negatively affect the nontradables' foreign-currency indebtedness (balance-sheet effect). Consequently, greater profit sensitivity to exchange-rate shocks reduced the nontradables' profit recovery in 2002. (Tables B1-1 and B1-2).

Higher income generation from 2000 on reduced the sample firms' liquidity risk by raising their level of available cash as a proportion of assets. The current ratio, an indicator of less-immediate liquidity, remained stable over 2000-2002 (Figure B1-2). The current-asset items showing the strongest growth in 2002 were debtors and inventories, reflecting the rise in sales referred to above (Table B1-2).

TABLE B1 1  
COMPOSITION OF PROFIT AND LOSS STATEMENT

	1995 1997 1999 2001 2002					1995 1997 1999 2001 2002				
	Trillions of pesos					As share of sales				
<b>A. Gross profit (1 - 2)</b>	16.9	25.3	29.9	36.9	44.3	28.1	29.1	30.3	27.8	29.7
1. Sales	60.1	86.8	98.7	132.8	149.4	100.0	100.0	100.0	100.0	100.0
2. Cost of sales	43.2	61.5	68.8	95.8	105.0	71.9	70.9	69.7	72.2	70.3
<b>B. Operating profit (A - 3 - 4)</b>	3.1	4.6	3.9	6.7	10.3	5.2	5.3	4.0	5.0	6.9
3. Administrative expenses	7.5	11.1	13.6	14.9	17.4	12.6	12.8	13.8	11.2	11.7
4. Sales expenses	6.3	9.6	12.4	15.3	16.6	10.4	11.0	12.6	11.6	11.1
<b>C. Pretax profit (B+5-6)</b>	2.4	1.6	(2.4)	3.7	6.0	3.9	1.9	(2.4)	2.8	4.0
5. Nonoperating income	4.5	7.2	10.7	8.2	16.7	7.5	8.3	10.9	6.2	11.2
6. Nonoperating expenditure	5.2	10.2	17.0	11.2	21.0	8.7	11.7	17.2	8.4	14.0
<b>D. Final profit (C + adjustments for inflation - taxes)</b>	2.5	2.5	(2.7)	1.6	3.3	4.2	2.9	(2.7)	1.2	2.2

Sources: Superintendency of Companies, and Securities Superintendency. Calculations by Banco de la República.

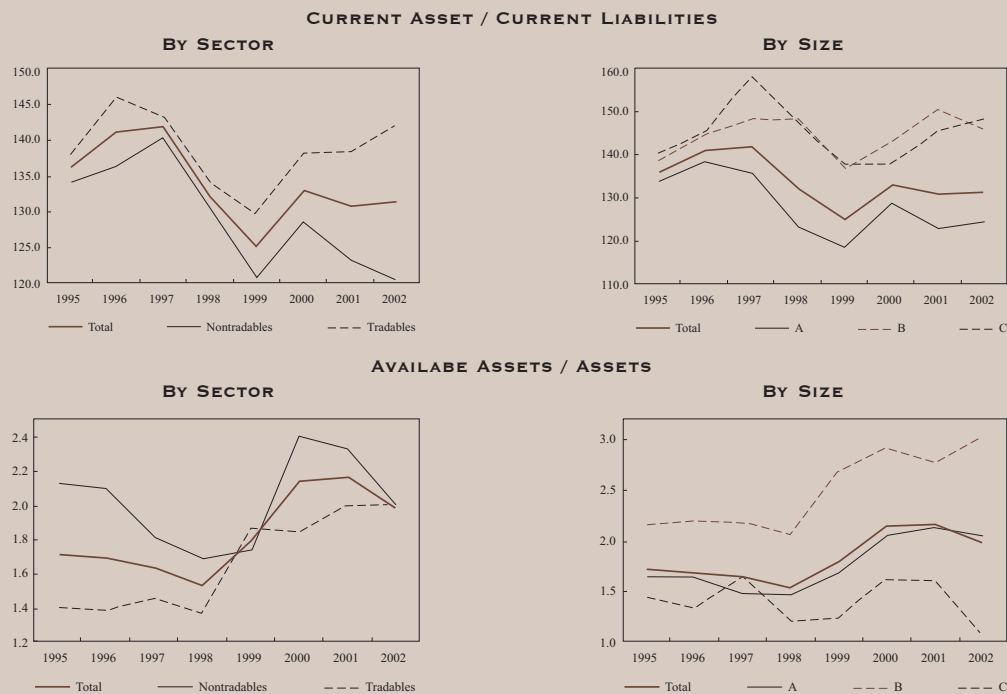
<sup>3</sup> Analyzing the composition of profit and loss statements provides approximations to the firms' production efficiency (through gross profit), administrative and sales efficiency (through operating profit), and general business efficiency before tax (through pretax profit).

**TABLE B1 2**  
**COMPOSITION OF THE BALANCE SHEET, 2001-2002**  
 (TRILLIONS OF PESOS)

Assets			Liabilities		
	2001	2002		2001	2002
	Short Term			Short Term	
<b>Current Assets</b>	<b>63.7</b>	<b>72.3</b>	<b>Current Liabilities</b>	<b>48.7</b>	<b>55.0</b>
Available asset	4.3	4.9	Financial obligations	15.3	17.6
Investments	7.6	7.2	Suppliers	13.2	15.1
Debtors	31.6	37.8	Accounts payable	11.1	11.6
Inventory	18.8	20.9	Taxes	2.6	3.5
Deferred	1.3	1.5	Workforce obligations	1.3	1.4
	Long Term			Long Term	
<b>Noncurrent assets</b>	<b>135.6</b>	<b>173.9</b>	<b>Total liabilities</b>	<b>81.1</b>	<b>90.8</b>
Investments	33.2	37.9	Financial obligations	19.5	21.9
Debtors	5.3	5.6	Accounts payable	4.0	4.0
Property, plant & equipment	39.6	42.3	Workforce obligations	0.2	0.2
Intangibles	10.1	12.2	Other liabilities	5.8	5.9
Deferred	9.4	9.8	Bonds & commercial paper	2.9	3.8
Other assets	0.5	0.5	Noncurrent liabilities	32.5	35.8
Valuation gains	37.6	65.8			
<b>Total Assets</b>	<b>199.2</b>	<b>246.2</b>	<b>Net Worth</b>	<b>118.1</b>	<b>155.4</b>

Sources: Superintendency of Companies, and Securities Superintendency. Calculations by Banco de la República.

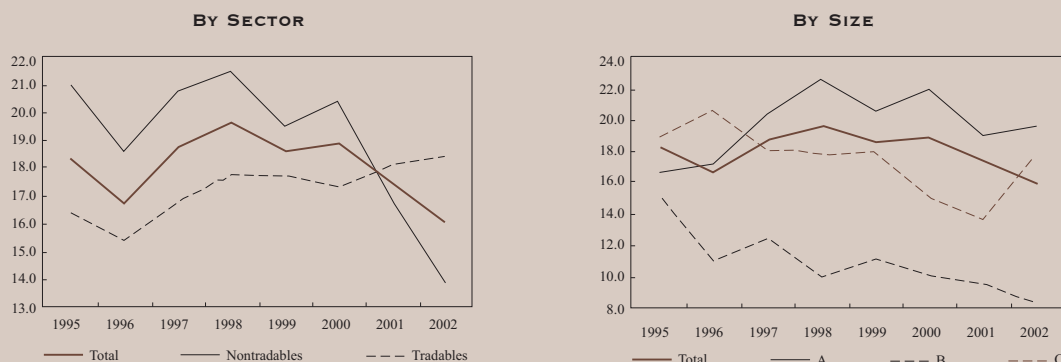
**FIGURE B1-2**  
**LIQUIDITY RATIOS**  
 (PERCENTAGE)



Sources: Superintendency of Companies, and Securities Superintendency. Calculations by Banco de la República.

Private corporate indebtedness, measured by the ratio of financial obligations to assets, decreased in 2002 to 16%. Lower leverage in 2002 stemmed from slower growth not only in the firms' financial obligations (14%) but also in their total liabilities, which rose by 12%, less than the growth in assets (24%) and hence in equity (32%). However, the capitalizations carried out in 2002 were by the group of nontradables producers, whose financial-leverage levels were lower and balance-sheet growth faster than the tradables firms' since 2001. While nontradables producers increased their assets by 34% in 2002, tradables producers did so by only 10%.<sup>4</sup> High balance-sheet growth as a proportion of GDP was a sign of the real sector's expansion in 2002 (Figure B1-3).

**FIGURE B1-3**  
**DEBT RATIO: FINANCIAL OBLIGATIONS / ASSETS**  
**(PERCENTAGE)**



Sources: Superintendency of Companies, and Securities Superintendency. Calculations by Banco de la República.

By size, the firms with higher sales were the most heavily indebted and registered debt-ratio increases. Growth was notably strong in the financial obligations of B-sized firms, which like the A group had reduced their financial leverage in 2001. The smallest firms, for their part, exhibited a declining trend in debt ratio from 1995 on, with the decrease in 2002 resulting from a fall in their financial obligations.

The composition of financial obligations in 2002 was similar to what it had been in 2001, with an increment in foreign-currency obligations and a drop in obligations issued by credit institutions. The strong rise (26%) in obligations incurred with overseas institutions proves much weaker if the effect of devaluation is excluded, given that these obligations increased by only 1% in dollars. Financial obligations to domestic credit institutions made up about half of the total and grew by 8% between 2001 and 2002 (from 17.4 tr pesos to 18.8 tr pesos). This growth was smaller than the 12% expansion in the financial system's total commercial loans over the same period, which may be attributable to higher funding obtained by companies not included in the sample. The institutions most exposed to the sample firms were commercial banks, followed by financial corporations, commercial leasing companies, and banks specializing in mortgages. (Table B1-3).

<sup>4</sup> Tradables firms showed a slight rise in indebtedness [debt ratio?], though a different result is obtained by excluding from the sample a beverage company that substantially increased its financial obligations and its leverage through long-term bonds.

**TABLE B1 3**  
**COMPOSITION OF FINANCIAL OBLIGATIONS**

	2001	2002	2001	2002	2001-2002
	Trillions of pesos		Share		Crecimiento
<b>Domestic credit institutions</b>	17.44	18.82	50.2	47.7	7.9
Commercial banks	13.76	14.93	39.6	37.8	8.5
Banks specializing in mortgages	0.39	0.34	1.1	0.9	(11.0)
Financial corporations	2.59	2.51	7.5	6.3	(3.4)
Commercial financing companies	0.70	1.04	2.0	2.6	48.2
<b>Overseas Institutions</b>	12.00	15.13	34.5	38.3	26.1
<b>Other (*)</b>	5.33	5.54	15.3	14.0	4.0
<b>Total financial obligations</b>	34.77	39.49	100.0	100.0	13.6

(\*) Includes, among others, government obligations, and negotiated loan and investment repurchase agreements.  
Sources: Superintendency of Companies, and Securities Superintendency. Calculations by Banco de la República.

To sum up, in 2002 private firms' indicators presented a more promising outlook, suggesting that they have already emerged from the 1999 crisis. The upturn in sales pointed to greater production efficiency, raising profitability to around 1996 levels. The nontradables producers profitability was still low because of the exchange-rate shocks of 2002. But, with price stability prevailing in 2003 as suggested by the balance sheets to September 2003 of firms reporting to the Securities Superintendency, nontradables producers are expected to exhibit even stronger recovery than in 2002. Since the crisis, private firms have decreased their indebtedness and increased their cash holdings in their balance sheets, reducing the liquidity risk that had harmed them so much in 1999. A major development in 2002 was domestic financing of private firms, particularly nontradables producers (capitalization of this group in 2002 considerably increased the size of their balance sheet, with sales growth picking up as domestic demand recovered). Consequently, foreign debt balances (whether with the domestic financial system, overseas institutions, suppliers or other liability items) did not rise substantially and played a secondary part in private corporate financing for the sample as a whole and for nontradables producers in particular.<sup>5</sup>

<sup>5</sup> Tradables firms did raise financing largely through financial obligations, but, given their low balance-sheet growth, their debt [debt-ratio?] growth was low (12%).

### 3. Business expectations

In deciding when, how much and in what sector to invest, account is taken of the behavior of relevant macroeconomic variables, such as actual and expected production levels, credit availability in the economy, and the stability and levels of interest and exchange rates.

Growth forecasts for 2004 have been revised upward on the basis of the economy's satisfactory behavior in the third quarter of 2003. Respondents of the Banco de la República's October 2003 expectations survey forecast, on average, an economic growth of 2.55% for 2003 and 3.08% for 2004, as shown in Figure 16. Six months before they had predicted a 2.7% growth for 2004.

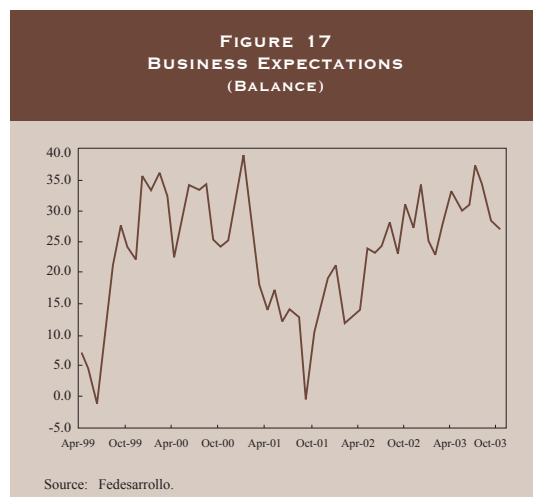
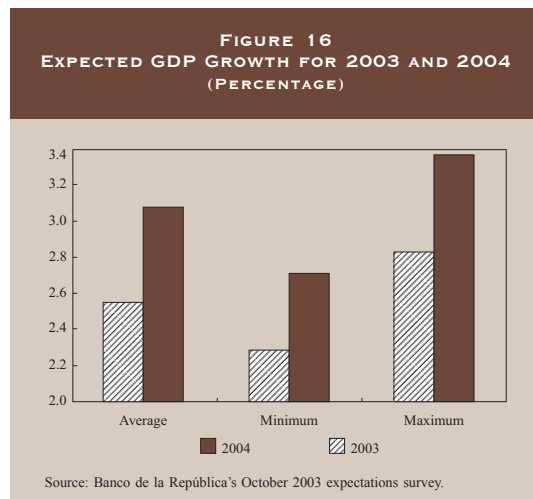
The productive sector's expectations have risen continually since September 2001, with short periods of reversal. The October 2003 business opinion survey by Fedesarrollo (a private research institution) shows expectations about the economy peaking in July 2003 and remaining high despite falls in September and October (Figure 17). This positive outlook is consistent with a better perception of economic activity, higher levels of orders and lower inventories than the survey reported in April 2003.

The National Association of Industrialists' (ANDI's) joint industrial opinion survey of

September 2003 reveals that the recent improvement in manufacturing has lifted the prospects of business investment. In September, over 56% of respondents described their situation as good and 36% thought it would improve in the immediate future; six months earlier the figures had been 50% and 38% respectively. The favorable behavior of industry is also evidenced by higher output, sales, orders and capacity utilization, reflected in rising future investment decisions. Some 72% of respondents in September, compared with 55% in March, considered carrying out investment projects in 2004, chiefly to modernize technology and replace equipment. According to ANDI, the main obstacle to the realization of investment projects was funding, particularly obtaining long-term resources, with 22% of the respondents with investment plans for 2004 reporting financing problems. Lastly, an unfavorable finding of the October survey was the business community's view of the fiscal situation and tax increases in 2004.

Given the recovery in economic expectations, which has led a good many respondents to revise their investment plans, the demand for funds to finance such plans is expected to rise in the coming months, causing the financial system's loan portfolio to continue its recent expansion.

Regarding the availability of resources, the Banco de la República's October 2003 expectations survey shows that the general perception about credit availability and liquidity has begun to decline in recent months. As illustrated by Figure 18, the percentage of respondents considering current levels of credit availability and liquidity to be high increased up until July 2003 and, though the trend then reversed, the levels are still high.



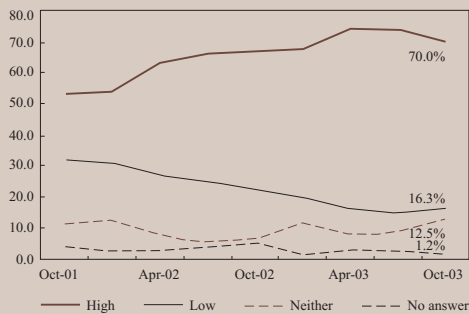
Some 81% of the Bank's respondents expected liquidity in the following six months to be equal or higher than current levels, and 84% felt the same about credit availability. This perception of stability in the supply of funds for financing production activity is expected to raise business confidence in planning future investments.

Another factor that has boosted business confidence is interest-rate and exchange-rate stability. The deposit rate (DTF) remained very stable around historically low levels throughout

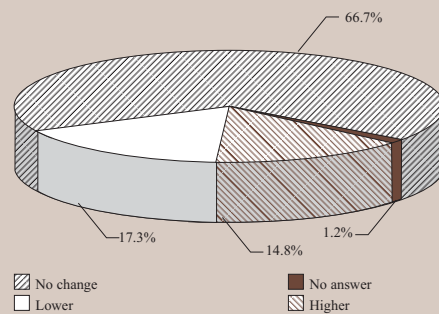
2003, despite expectations of higher rates revealed by the Bank's expectations surveys. From October 2002 to October 2003 the actual deposit rate ran lower than the expected rate (Figure 19). The October 2003 survey reports respondents expecting the DTF rate to rise slightly and hover around 8.1% by September 2004. Similarly, 2003 was characterized by exchange-rate stability after the strong devaluation in the second half of 2002. Nominal devaluation is expected to average 7.2% between September 2003 and 2004, within a range of 5.7% - 8.7%.

**FIGURE 18**  
**PERCEPTION OF CURRENT AND FUTURE LIQUIDITY AND CREDIT**  
**(PERCENTAGE)**

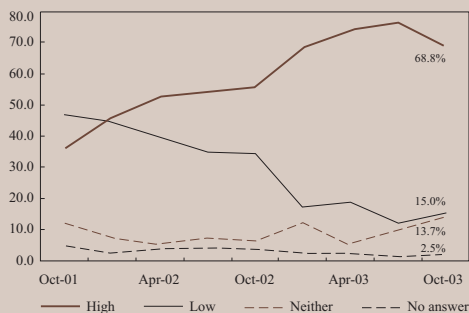
**PERCEPCIÓN PERCEPTION OF CURRENT LIQUIDITY**  
**IN THE ECONOMY**



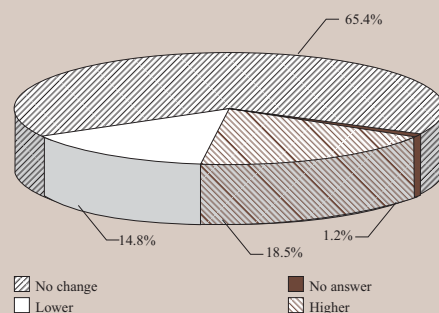
**PERCEPTION OF LIQUIDITY**  
**IN THE NEXT 6 MONTHS**



**PERCEPTION OF CURRENT CREDIT AVAILABILITY**



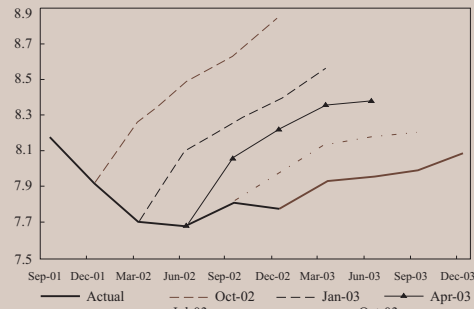
**PERCEPTION OF CREDIT AVAILABILITY**  
**IN THE NEXT 6 MONTHS**



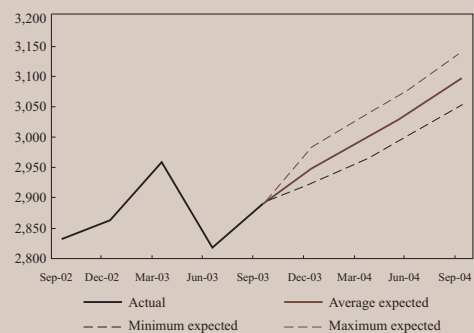
Source: Banco de la República's October 2003 expectations survey.

**FIGURE 19**  
**ACTUAL AND EXPECTED INTEREST**  
**AND EXCHANGE RATES**  
**(PERCENTAGE)**

**ACTUAL V. EXPECTED DEPOSIT RATE (DTF)**



**ACTUAL & EXPECTED NOMINAL**  
**EXCHANGE RATE**



Source: Banco de la República's October 2003 expectations survey.

#### 4. Conclusions

✘ Credit institutions have increased their exposure to the corporate private sector, which is consistent with the growth observed in the overall commercial-loan portfolio and the country's stronger economic activity in 2003. In September 2003, exposure relative to assets was slightly higher than in 1997, but exposure relative to the economy's output was still a good deal lower than in 1997.

✘ By type of institution, commercial banks are still the most exposed, though banks specializing in

mortgages and leasing firms have been characterized by rapid growth in their commercial-loan portfolios. Private credit institutions have increased their exposure the most, while public ones have reduced their commercial credit to private firms.

✘ Greater exposure has been accompanied by greater access to credit for the private sector, both for new debtors and for old debtors previously restricted by amount.

✘ In September 2003, the major private debtors registered high levels of loan quality and a trend toward greater improvement.

✘ Major private debtors belong mainly to the sectors of manufacturing and commerce, both with satisfactory loan-quality developments and levels. Only the construction sector continues to exhibit poor levels of loan quality, despite its recent positive performance.

✘ Our review of the sample companies reporting to the Securities Superintendency reveals a corporate sector that has regained strength since the 1999 crisis. The firms' greater ability to pay is reflected in higher profitability and lower indebtedness. While their higher level of profits is consistent with the behavior of the private corporate sector described above, the sample's indebtedness has shown weaker development than the commercial-loan portfolio (even when a homogeneous sample of 116 firms was used).

✘ Nontradables producers stand out for their positive performance, with rapidly rising profitability, capital strengthening, and lower exposure to exchange-rate and interest-rate shocks. Tradables producers have registered

stable profitability and a substantial rise in sales over the past year consistent with rising exports, at the same time as increasing their foreign-currency obligations. An important development in both groups has been a progressively healthier debt profile. In 2004, profitability for the sample companies as a group may grow more slowly, insofar as corporate results are affected by changes to the income and capital tax regime.

⊗ As long as the readiness to borrow and lend continues to improve and runs high—currently higher than in recent years—, commercial credit may be expected to go on expanding as it did throughout 2003. High levels of readiness will depend on both loan quality and the supply of funds by credit institution maintaining their rising trends.

⊗ According to expectations surveys, output and business investment alike are expected to rise in 2004. Thus, demand for resources, positive perceptions about liquidity and credit over six months, recent exchange-rate stability and historically low interest rates all make it quite

feasible for commercial loans to keep on growing as they have been, at least during the next six months.

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## B. HOUSEHOLDS

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### 1. Household debt and overall system exposure

Household debt incurred with the financial system is approximated by the sum of mortgage loans, consumer loans, and the mortgage securities held by financial institutions. Table 6 shows household debt registering a small real expansion. This expansion occurred in the context of a 16% real increase in consumer loans and the launching of two new securitizations, which offset the fall in mortgage loans (14% between November 2002 and November 2003).

Thus a shift is discernible in household debt toward a greater balance between mortgage and consumer

TABLE 6  
BREAKDOWN OF HOUSEHOLD DEBT

Type	November 2002		November 2003		Real growth (%)
	Trillions of pesos (*)	Percentage (*)	Trillions of pesos	Percentage	
<b>Mortgage loans</b>	11.4	55.6	9.8	47.3	(14.3)
<b>Consumer loans</b>	8.3	40.2	9.6	46.3	15.9
Credit cards	1.9	9.1	2.1	10.1	11.7
Other	6.4	31.1	7.5	36.2	17.2
<b>Mortgage securities</b>	0.9	4.2	1.3	6.4	52.9
<b>Total</b>	20.6	100.0	20.7	100.0	0.7

(\*) Trillions of September 2003 pesos.  
Source: Banking Superintendency. Calculations by Banco de la República.

loans, with each of these two portfolios representing something less than half of the total. Mortgage securities as a share of total household debt rose from 4% in November 2002 to 6% a year later.

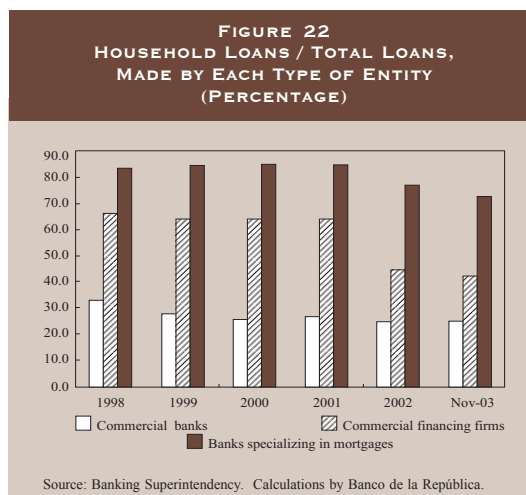
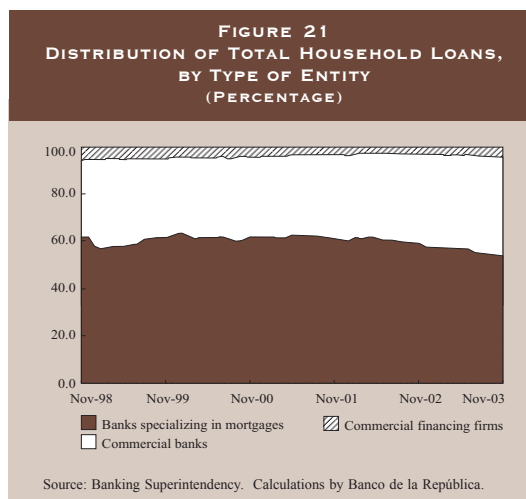
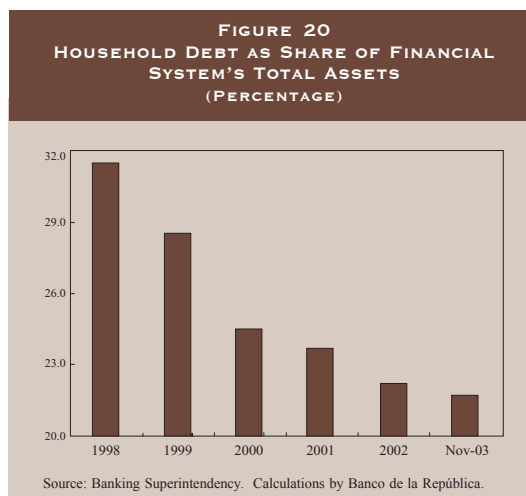
The financial sector's exposure, measured as the share of household debt in the sector's total assets, is still the lowest for the past five years, having fallen further, to a new low of 21.7% in November 2003 (Figure 20).

## 2. Exposure by type of lender

In 2003, the system's household portfolio continued to exhibit a slight shift in composition by type of creditor. Though banks specializing in mortgage loans still account for most of household debt, their share has tended to shrink noticeably, by four percentage points in January-November 2003, down to 53.1% (Figure 21). Commercial banks for their part increased their share of the household portfolio by three percentage points over the same period, to 42.3%. The share of the other types of institutions is small (about 4.5% of the whole) but shows a slightly rising trend, with much of the rise attributable to the cooperatives sector, which doubled its share in that period, to 1.1% in November.

Figure 22 shows household loans made by each type of institution as a proportion of its total loans. Banks specializing in mortgages are the most exposed to household loans, though their exposure has been clearly decreasing since mid-2000 and fell by four percentage points over January-November 2003, to 72.4% in November.<sup>16</sup>

<sup>16</sup> The cooperatives' exposure increased by 11% in the first 11 months of 2003, peaking at 85.2% in October. However, their share of the financial sector's overall portfolio is very small.



Commercial financing (leasing) companies, too, reduced the share of household loans in their total loan portfolio by four percentage points, down to 41.4%, while the exposure of commercial banks remained relatively stable in 2003, at 25%.

### 3. Debt quality

The quality of household debt has been improving for the past two years, with types A and B loans making up 85% of the household portfolio in November 2003, their highest level since December 1998. Similarly, the share of types D and E loans has fallen back to 12%, the level registered at the end of 1999 (Figure 23). The improvement in household-debt quality has occurred despite the securitization in the past two years of some of the better-rated mortgage loans. Last year's improvement, unlike the improvement presented up to the end of 2002, brought not only a higher share of type A loans but also a lower share of type E loans, which decreased by one percentage point between January and November 2003.

However, loan quality is clearly not uniform across the different types of intermediary. In

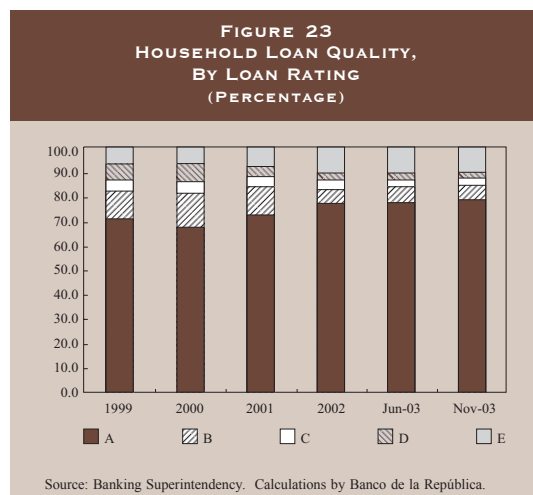
particular, banks specializing in mortgages have performed less well than other institutions in this respect, with types A and B loans remaining at around 77% of their total household portfolio, while types D and E make up some 20%. In contrast, for all other types of intermediary, the less risky loans (types A and B) represent over 90% of their total, and types D and E together account for less than 5%.

### 4. Ability to pay and outlook

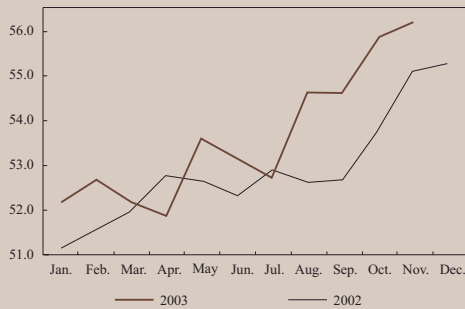
The risk posed by household debt involves not only the level of debt but also debtors' ability to pay. We need to look at indicators of household income and wealth in reviewing households' ability to pay.

A first approximation to household income is obtained by analyzing labor-market developments. Employment rates were higher in every month of 2003 relative to the same month in 2002, except in April and marginally July. Between August and November 2003, the employment rate was at record highs since the continuous household survey was introduced (in 2000), running one to two points higher than a year earlier, to reach 56.2% in November (Figure 24).

Similarly but inversely, unemployment rates were lower in 2003 than in 2002, except in March. By November 2003 unemployment had fallen to 14.13%, 1.4 percentage points lower than 12 months earlier and the lowest rate since the continuous survey was instituted (Figure 25). Thus, job creation expanded substantially between November 2002 and November 2003, with 360,000 new positions created in the 13 major urban areas, producing a positive effect

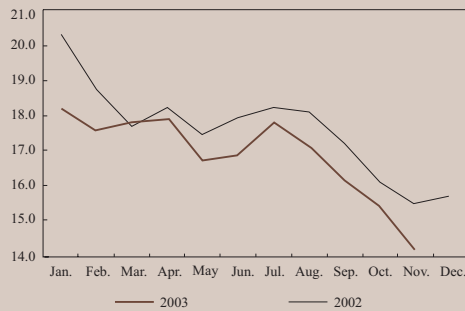


**FIGURE 24**  
EMPLOYMENT RATE  
(PERCENTAGE)



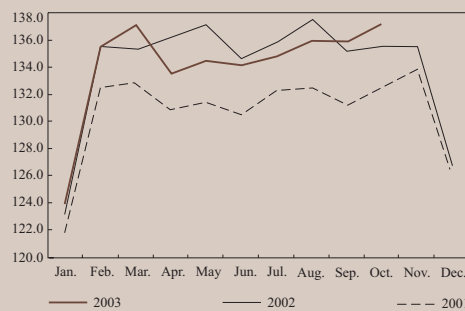
Source: DANE's continuing household survey.

**FIGURE 25**  
UNEMPLOYMENT RATE  
(PERCENTAGE)



Source: DANE's continuing household survey.

**FIGURE 26**  
REAL MANUFACTURING  
WAGE INDEX



Source: DANE. Calculations by Banco de la República.

on households' ability to pay. These results should be viewed with caution, however, for unemployment is still high and the capacity to pay is also determined by the level of wages.

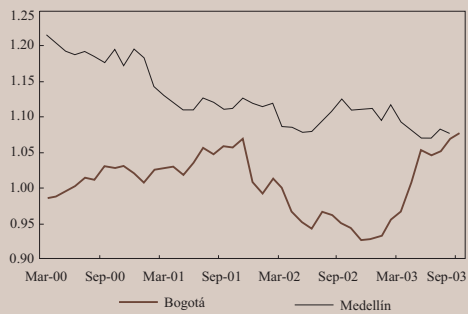
The real manufacturing wage index declined slightly in 2003 relative to 2002, except in September and particularly in October; it rose by an annualized rate of 1.3% in October (Figure 26). Nevertheless, real wages in 2003 were still high compared with their levels in the mid-1990s. An improvement is thus discernible in households' ability to pay, given the higher number of jobs in the economy and the past two months' slight rise in wage levels.

House prices need to be taken into account also, for residential property is the chief collateral for household debt and constitutes, besides, an approximation to the stock of household wealth. The real house price index for Bogotá rose by 15% over the first nine months of 2003 and by September was back up at end-2001 levels. In contrast, the index for Medellín continued on its declining trend started in mid-1999 and registered a 4% annualized fall in August. (Figure 27).

## 5. Consumer confidence

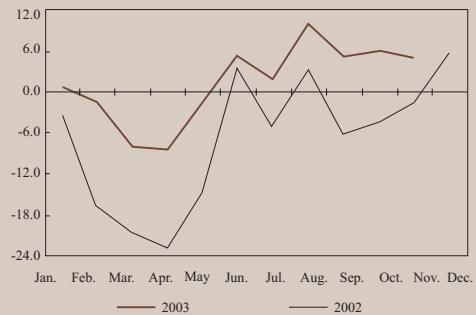
Fedesarrollo's consumer-confidence index ran consistently higher in 2003 than in 2002 and with less volatility (Figure 28). Consumers' outlook on the economy was reflected by a higher percentage of households feeling it was a good time to buy a house. The homebuying perception index behaved erratically until March 2003, when it started a steep climb, rising by nine percentage points until September. But it fell again in October and November, moderating expectations about the future

**FIGURE 27  
REAL HOUSE PRICE INDEX**



Source: National Planning Department.

**FIGURE 28  
CONSUMER-CONFIDENCE INDEX  
(PERCENTAGE)**

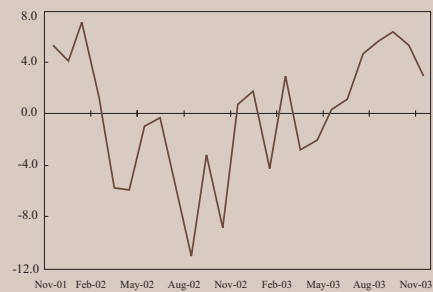


Source: Fedesarrollo.

performance of housing demand and hence of mortgage loans (Figure 29).

Households' perception about buying durable assets exhibited a less uneven trend. In the case of both cars and other big purchases (furniture or electrical goods), the percentage of households thinking it was a good time to buy, less the percentage thinking it was a bad time, rose all through 2003, to stand 15 points higher in November than in January (Figure 30).

**FIGURE 29  
HOME-BUYING PERCEPTION  
INDEX (\*)**



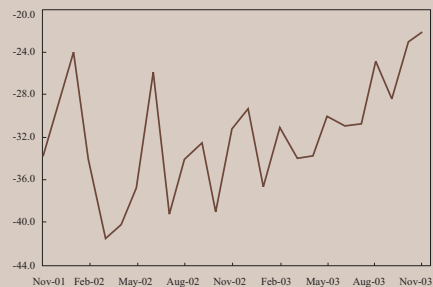
(\*) Percentage of households feeling it is a good time to buy a house, less the percentage feeling it is a bad time.  
Source: Fedesarrollo. Calculations by Banco de la República.

## 6. Conclusions

✘ Household debt rose moderately in real terms in 2003. But, since the financial sector's assets grew faster, the sector's exposure to households fell marginally. The main reason for slow growth in household debt was contraction of mortgage loans, which continued to offset the expansion in consumer loans.

✘ Household debt thus exhibits a shift in types of loans, towards a higher share of consumer loans, and also a shift in types of intermediaries, mainly towards commercial banks.

**FIGURE 30  
DURABLE-GOODS BUYING  
PERCEPTION INDEX (\*)**



(\*) Percentage of households feeling it is a good time to buy a car or other big items (electrical appliances or furniture), less the percentage feeling it is a bad time.  
Source: Fedesarrollo. Calculations by Banco de la República.

✕ The quality of household debt has improved slightly in the past six months, across all sectors, though a marked difference persists in portfolio quality between banks specializing in mortgages and all other intermediaries.

✕ Households' ability to pay appears to have improved somewhat. The labor market shows a rise in employment levels, and higher real wages than in the mid-1990s.

✕ House prices seem to have picked up, particularly in Bogotá, suggesting a slight reactivation of this market. But a lower perception of home-buying on the part households may moderate the recovery.

✕ Households' perception durables-buying appears to have picked up, which may be reflected in stronger expansion of consumer loans.

✕ If these trends are confirmed, the shift in household debt described above will be deeper.

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## C. NONFINANCIAL PUBLIC SECTOR

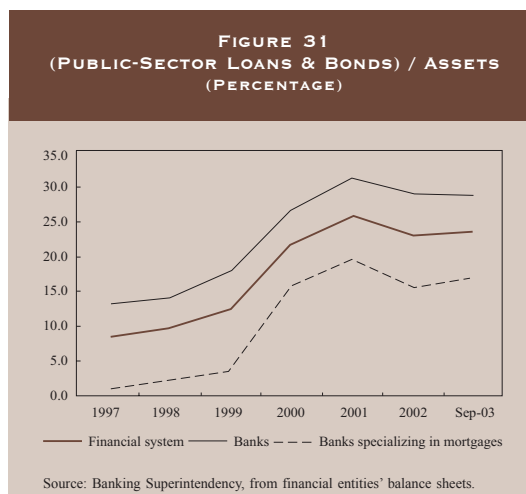
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### 1. The financial system's exposure to public debt<sup>17</sup>

#### a. Overall exposure

The financial system's exposure to public debt is defined as the sum of public loans and public

<sup>17</sup> The Banking Superintendency is the source of the figures in this section on gross public debt and public securities reported on the balance sheets of financial entities. The figures include the payment agreement between the Nation and the Banco Agrario. They do not include second-tier state banks (*Instituciones Oficiales Especiales*).



securities in relation to the system's assets. This definition is used here to review and analyze the system's exposure to the public sector by taking into account the considerable increase in the its holdings of public securities in recent years. The conclusions presented here should not, however, be viewed in isolation, for they need to be contrasted with the public sector's solvency and liquidity.

The financial system's exposure to the public sector rose sharply between 1996 and 2001, then fell from 25.7% in December 2001 to 23% in December 2002. By September 2003, exposure had edged up to 23.6% (Figure 31), largely from growth in public securities, given that public loans had decreased and the system's assets had increased.<sup>18</sup> It is important to point out that the system's exposure as defined here presents a degree of seasonality. In effect, its annual growth in September 2003 was 9.5% and

<sup>18</sup> In real annual terms, public securities grew by 20% in September 2003, while public loans decreased by 14.3% and assets edged up by 0.1%. Public bonds represented 17.8% of the system's total assets of 92.8 tr pesos in September 2003, and public loans another 5.8%.

may therefore be considerably higher in the fourth quarter.

*b. Exposure by type of entity*

Analyzing exposure by type of entity shows commercial banks still exhibiting the greatest direct exposure to public debt despite a slight decline in September 2003 to 28.8%, a significantly higher level than for the rest of the financial entities. Banks specializing in mortgages increased their exposure considerably between 1996 and 2001 then reduced it in 2002, but by September 2003 it was up again, at 17.1%.

Commercial banks, besides being the most exposed to public debt, have the greatest share of overall public debt held by financial institutions. Their share started to rise in December 2000, going up to 77.7% in 2002 and by September 2003 had edged up to 77.9%. Banks specializing in mortgages raised their share of total public debt from 16.2% in December 2002 to 17% in September 2003, while the rest of the system, having systematically decreased their share since 1996, held 5.1% of public debt in September.

Bonds continued to be the major component of public debt on the balance sheets of financial institutions, accounting for 75.4% of the system's total in September 2003 (up from 71% in December 2002), with the remaining 24.6% represented by loans.<sup>19</sup> Among the different institutions, banks specializing in mortgages showed the greatest concentration of bonds, which made up 92% of the public debt on their balance sheets in September 2003, followed by commercial banks with a 72.1% concentration.

<sup>19</sup> In this case public loans include the payment agreement between the Nation and the Banco Agrario.

## **2. Aggregate debt of the nonfinancial public sector**

The nonfinancial public sector's debt-to-GDP ratio stabilized in September 2003. In effect, the sector's gross debt as a ratio of GDP, having increased consistently from 1997, rose sharply between 2001 and 2002, from 54% to 61.5%, but broke its rising trend in September 2003 by edging down to 61.1%. Moreover, at real annual rates, growth in nonfinancial public sector debt slackened to 4.4%,<sup>20</sup> as a result of a 1.7% rise in the sector's external debt valued in pesos and a 7.2% increase in its domestic debt. It should be noted that a seasonal factor was involved in the sector's slackened indebtedness. As described above, this slackening was largely caused by movements in the real exchange rate.

Domestic and external debt individually as a share of total nonfinancial public sector debt changed little between December 2002 and September 2003: at 50.3% and 49.7%, respectively, they remained very even (Table 7).

Issuing securities continued to be the chief means of public borrowing. Domestically, bonds continued to gain share as an instrument of public debt, as evidenced by the rise in public institutions' holdings of public bonds between December 2002 and September 2003.

## **3. Central-government debt**

The central government's indebtedness was marginally higher in September 2003 relative to 2002, thanks mainly to the share of external debt.

<sup>20</sup> In December 2002, real annual growth in this debt was 15.1%.

TABLE 7  
GROSS NONFINANCIAL PUBLIC SECTOR DEBT <sup>1/</sup>

	Domestic			External			Total				
	(Billions of pesos)	(Percentage of GDP) <sup>2/</sup>	(% Share)	(Nominal annual growth) <sup>3/</sup>							
<b>Dec-95</b>	9,928.6	12,017.8	21,946.4	11.8	14.2	26.0	45.2	54.8	-	-	-
<b>Dec-96</b>	12,679.4	12,926.6	25,606.0	12.6	12.8	25.4	49.3	50.7	27.7	7.6	16.7
<b>Dec-97</b>	18,774.3	17,608.6	36,382.9	15.4	14.5	29.9	51.4	48.6	48.1	36.2	42.1
<b>Dec-98</b>	23,906.5	24,448.4	48,394.8	17.0	17.4	34.4	49.2	50.8	27.3	38.8	33.0
<b>Dec-99</b>	30,531.1	32,879.2	63,483.6	20.2	21.7	41.9	48.0	52.0	27.7	34.5	31.2
<b>Dec-00</b>	42,061.3	41,965.2	84,098.2	24.1	24.0	48.1	50.1	50.0	37.8	27.6	32.5
<b>Dec-01</b>	50,620.4	50,801.8	101,430.4	26.9	27.0	54.0	49.9	50.2	20.3	21.1	20.6
<b>Dec-02</b>	62,900.7	61,967.6	124,869.7	31.0	30.5	61.5	50.4	49.6	24.3	22.0	23.1
<b>Sep-03</b>	67,275.8	66,396.1	133,671.9	30.7	30.3	61.1	50.3	49.7	14.8	8.9	11.8

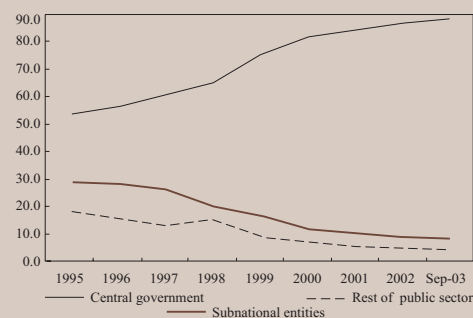
<sup>1/</sup> Excluding IFI (industrial development institute).  
<sup>2/</sup> For quarterly data, the GDP of the past 12 months is used.  
<sup>3/</sup> Growth for September 2003 is estimated relative to September 2002.  
Source: Banco de la República, Economic Studies Division.

The central government's domestic debt made up 88% of overall domestic public debt, and its external debt 86% of overall external public debt.<sup>21</sup>

*a. Central-government domestic debt*

Though central-government debt has slackened its pace of growth, it is still growing fast. In September 2003, the government's domestic debt showed a 10% real annual growth, less than the 24% average for the years between 1995 and 2002 (Figure 32).

FIGURE 32  
NONFINANCIAL PUBLIC SECTOR GROSS DOMESTIC DEBT, BY BORROWER, 1995-2003 (PERCENTAGE)



Source: Banco de la República, Economic Studies Division.

The government's preferred instrument of domestic debt continues to be bonds, which represent about 94% of the total, with notes making up another 5% approximately, and loans from the financial system the remaining

1%. In previous years, too, bonds have accounted for most of the government's domestic debt, with an average share of over 90%.

As shown by Figure 33, domestic public debt securities consist mostly of TES-B bonds, which averaged 81% between December 1995 and September 2003.

<sup>21</sup> In December 2002, the central government's domestic debt made up 87% of the nonfinancial public sector's overall domestic debt, while its external debt made up 83% of this sector's overall external debt.

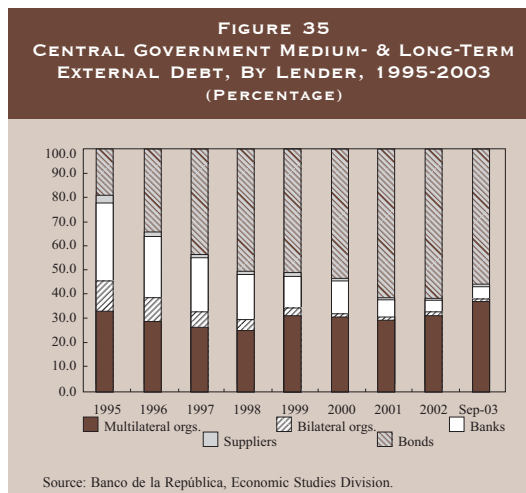
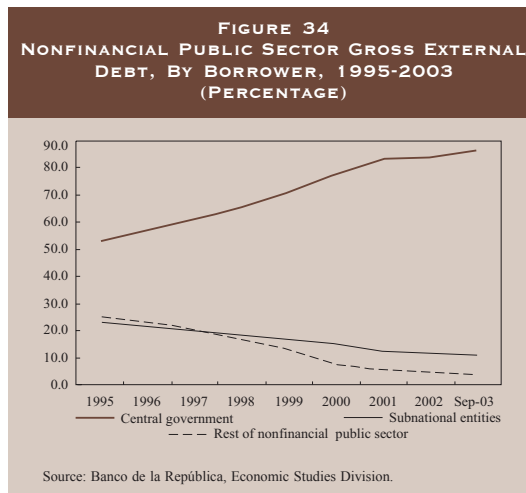
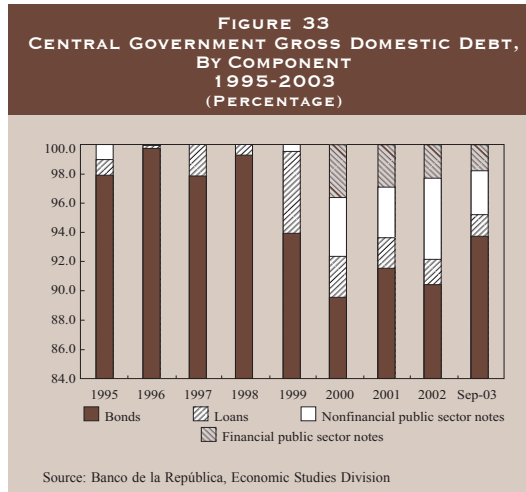
*b. Central-government external debt*

In September 2003, the government's external installment debt valued in pesos showed a 5.5% real annual growth, compared with the 20% average for the years between 1995 and 2002. This slower pace is partly attributable to the price effect of lower devaluation,<sup>22</sup> given that the government's external debt in dollars increased by 10.6% (Figure 34).

The two previous Reports showed bonds becoming gradually less important as an instrument of external public debt. This trend continued over the first nine months of 2003, with bonds representing 56.2% of the government's external debt in September, down from 61.8% in December 2002. This loss of share has translated into higher government debt incurred with multilateral organizations (37% of the total), given that the respective shares of commercial banks and suppliers have remained relatively stable in recent years.

As may be observed from Table 8, both the amounts and the average grace periods of fresh loans obtained in the first three quarters of 2003 were twice as high as in 2002, while the average nominal interest rate was sharply reduced from 7.8% in December 2002 to 6.0% in September 2003. The average repayment period remained practically unchanged. These developments stemmed in good measure from the favorable conditions of loans obtained from multilateral banks, which amounted to over half the total of fresh loans. The rest of the fresh loans came from suppliers and commercial banks.

<sup>22</sup> As stated earlier, nominal annual devaluation was 25% at the end of 2002 and only 2.17% to September 2003.



**TABLE 8**  
FINANCIAL CONDITIONS  
OF FRESH LOANS

Year	Loan amount (\$ millions)	Average period		Average interest rate (nominal)
		Grace (years)	Repayment (years)	
1991	2,507	6.0	12.8	7.5
1992	847	4.2	14.7	7.8
1993	1,526	3.4	12.2	6.9
1994	1,715	4.0	10.9	7.3
1995	1,715	2.7	9.1	6.8
1996	3,489	1.5	8.5	7.8
1997	2,331	1.3	10.6	8.0
1998	3,104	1.2	7.1	8.2
1999	3,861	2.4	8.9	10.0
2000	3,192	1.1	9.5	11.8
2001	6,441	2.1	9.4	9.5
2002	2,042	1.5	7.8	7.8
Sep-03	4,079	3.2	7.7	6.0

Source: Banco de la República, Economic Studies Division.

As mentioned earlier, according to the Emerging Markets Bond Index, the spread on Colombian debt narrowed by some 200 basis points between the beginning of the year and September, leading to a better international perception of Colombia.

*c. The central government's debt-to-revenues ratio*

The central government's debt-to-revenues ratio<sup>23</sup> rose in 2003, to 353.8% in September (Table 9). In real annual terms, the rise was 3.5%, resulting largely from a 7.7% increase in the central government's debt and a 4% increase in its revenues.

In short, though conditions for government debt have been favorable, and debt growth has

<sup>23</sup> The central government's total revenues include current and noncurrent revenues. Given that revenues are a flow, while debt is a stock, the revenue figure for September 2003 is the annualized figure.

**TABLE 9**  
CENTRAL GOVERNMENT  
DEBT V. REVENUES

Year	Debt	Revenues	Debt / Revenues
	(Billions of pesos)		
1995	11,559.8	9,599.9	120.4
1996	14,452.3	12,140.3	119.0
1997	21,778.2	15,237.5	142.9
1998	31,232.0	16,880.2	185.0
1999	45,487.2	20,164.6	225.6
2000	66,157.1	23,196.7	285.2
2001	84,412.5	28,941.8	291.7
2002	106,054.3	31,459.1	337.1
Sep-03	116,313.0	32,879.4	353.8

Source: Banco de la República, Economic Studies Division.

slackened—thanks in part to exchange-rate movements—, other sustainability indicators continue to exhibit poor behavior. This implies that the government will need to take further fiscal-adjustment measures.

**4. Subnational debt**

*a. Debt amounts and quality<sup>24</sup>*

Subnational debt owed to financial institutions continued on the declining trend started in 1997, falling from 3.5 tr pesos in December 2002 to 3.05 tr pesos in September 2003<sup>25</sup>. This signified a substantial real decrease of 13.1% in the outstanding balance and a reduction of subnational debt as a share of

<sup>24</sup> Subnational debt was approximated as the sum of the debt of the departments and their municipalities. The data is taken from the lending operations reported by financial entities to the Banking Superintendency.

<sup>25</sup> Estimates of subnational debt include only the debts of departments and municipalities. Their enterprises and social security agencies, among others, are not included. Indebtedness refers only to debt incurred with the domestic financial system; it does not include bonds issued by the subnational entities.

the financial system's total assets (Figure 36).<sup>26</sup>

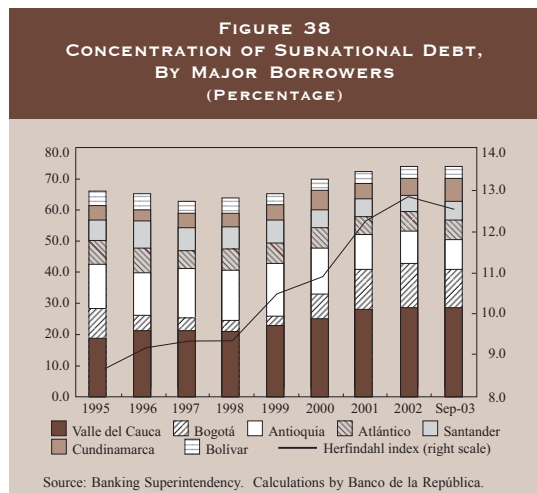
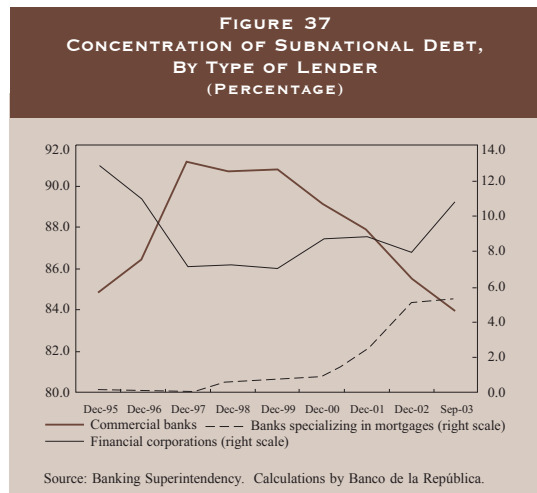
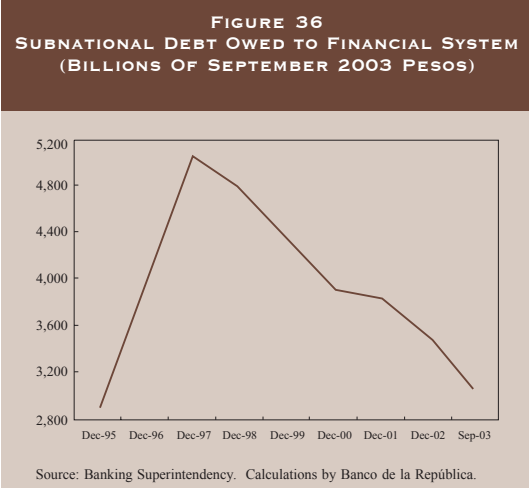
Commercial banks are still the main lenders to departments and municipalities, accounting for 84% of subnational debt in September 2003 (Figure 37), though they have been gradually reducing their share since the end of 1999 and continued to do so to September 2003. Financial corporations are the second biggest lenders, having increased their share to 11% between the end of 2002 and September 2003. Banks specializing in mortgages hold the smallest share of subnational debt and kept it stable at around 5% in 2003.

While the concentration of subnational debt by creditor remained constant in 2003, its concentration by debtor decreased marginally (Figure 38). Debt concentration in financial entities remained stable relative to December 2002 at around 9%; it has been running below 10% since 1995. In terms of debtors, however, the first nine months of 2003 saw subnational debt reverse its trend of becoming concentrated among a few subnational entities. The reversal is evidenced by a decline in the Herfindahl index, from 12.8% in December 2002 to 12.5% in September 2003.

Among the seven major debtors,<sup>27</sup> Valle del Cauca, Bogotá and Antioquia still stand out for the size of their indebtedness, though they reduced their debts between December 2002 and September 2003, to 876 bn pesos, 374 bn pesos and 293 bn pesos

<sup>26</sup> From 3.7% at the end of 2002 to 3.3% in the third quarter of 2003.

<sup>27</sup> Valle del Cauca, Bogotá, Antioquia, Atlántico, Santander, Cundinamarca and Bolívar.



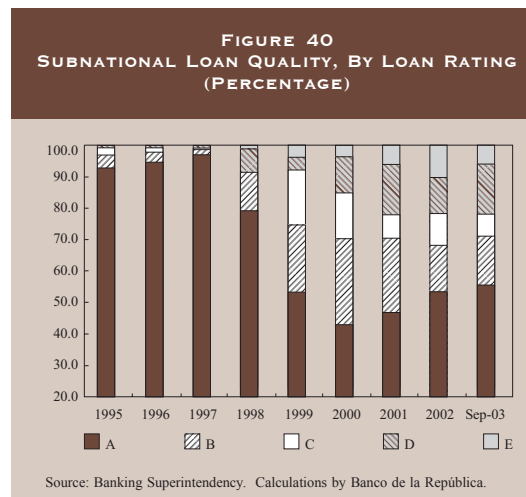
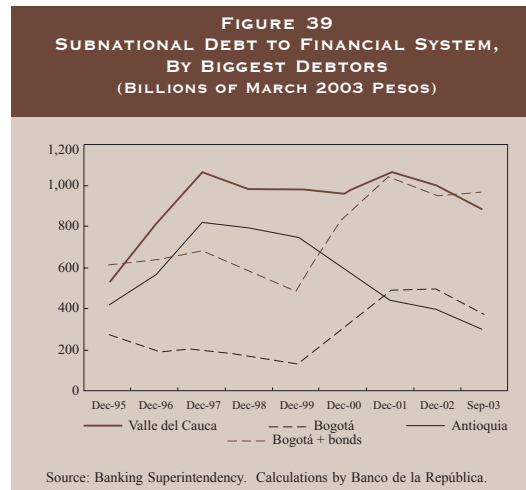
respectively (Figure 39). In real terms, the reduction was 12% for Valle del Cauca, 24% for Bogotá and 25% for Antioquia. But, in the case of Bogotá, the inclusion of public-debt securities issued by the city would wipe out that reduction, turning it into a 2.3% real growth.

The seven subnational entities owing the most to the financial system slightly reduced their group share of total subnational debt: by 0.6 percentage points relative to December 2002, to 74.2% in September 2003 (Figure 38). This reduction resulted largely from declines in Bogotá's and Antioquia's respective shares over the same period, while Valle del Cauca continued to be the most indebted, with 29% of the total.

The quality of subnational debt improved further in 2003, continuing the process referred to in previous Reports (Figure 40). The improvement came mostly from consistent growth in type-A loans and a decrease in type-E loans.<sup>28</sup>

Among the financial system's major subnational debtors, the departments of Valle del Cauca and Bolívar continue to exhibit the worst portfolio ratios (Figure 41). For, though their type-A loans have increased, the levels are still low. Improvement in Valle del Cauca's loan quality came from both an increase in type-A loans and a decrease in type-E loans relative, to the total; however, the department's type-D loans rose sharply, from 22% in 2002 to 35% in September 2003. Bolívar improved its loan quality by raising its type-A loans to 33% of the whole, and keeping the combined share of types D and E constant.

<sup>28</sup> The share of type-A loans in subnational debt rose by 2.4 percentage points to 55.7%, while the share of type-E loans fell to 5.8%.



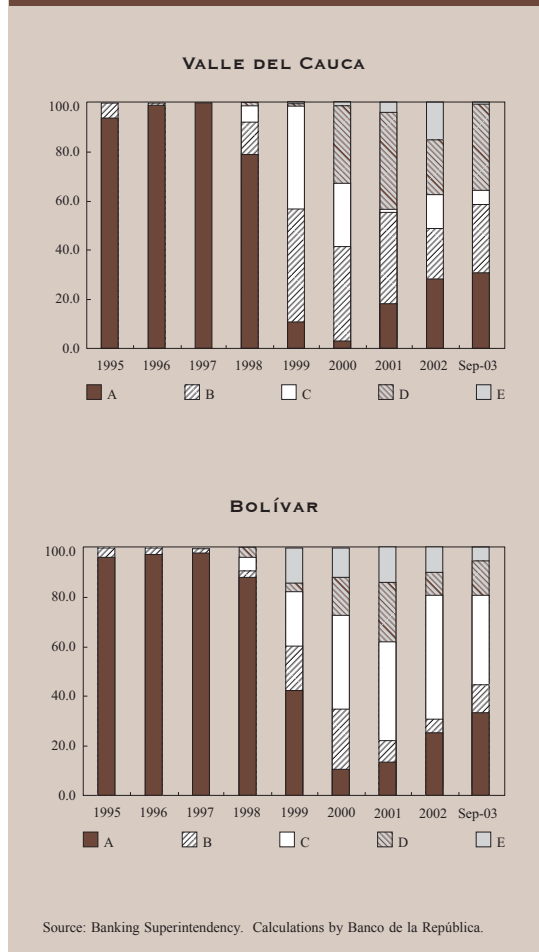
*b. Subnational debtors' ability to pay*<sup>29</sup>

The three most indebted subnational debtors reduced their debt-to-revenues ratios,<sup>30</sup> while among the other four major debtors only Bolívar

<sup>29</sup> For lack of more recent data, the revenues of subnational entities in September 2003 were assumed to have remained at their December 2002 levels.

<sup>30</sup> A subnational entity's overall revenues are the sum of the executed budget revenues of the department, its capital city and other municipalities. The revenues are made up of tax revenues, nontax revenues and capital income. The source of this information is the Office of the Comptroller General.

**FIGURE 41**  
**SUBNTIONAL LOAN QUALITY:**  
**BOLIVAR & VALLE DEL CAUCA**  
**(PERCENTAGE)**



**FIGURE 42**  
**DEBT/INCOME RATIOS FOR MAJOR**  
**SUBNATIONAL DEBTORS**  
**(PERCENTAGE)**



managed to lower its ratio—to 20%. The biggest reduction was achieved by Valle del Cauca, albeit to a still high ratio of 60%. Bogotá and Antioquia decreased their debt-to-revenues ratios to 11% and 14% respectively (Figure 42).

### 5. Conclusions

✘ The financial system’s exposure to public debt<sup>31</sup> rose slightly in 2003, after falling between 2001 and 2002. This growth was mainly driven by banks specializing in mortgages, since the exposure of

commercial banks remained constant. Commercial banks, however, are still the entities with the greatest direct exposure to nonfinancial public sector debt.

✘ Growth in nonfinancial public sector debt slackened in September 2003, thanks in part to a reduction of external debt from the price effect of lower devaluation, given that the debt in dollars grew. As a result, the sector’s debt-to-GDP ratio stabilized.

<sup>31</sup> Measured as the ratio between loans to the public sector and the financial system’s assets.

✕ Similarly, the central government, the biggest public-sector debtor, registered slower debt growth, both domestic and external, albeit at rates that were still high. The government's debt-to-GDP ratio rose at a moderately faster pace.

✕ Bonds continued to lose share as an instrument of central- government external borrowing, resulting in a shift from external bonds toward indebtedness to multilateral organizations, in September 2003.

✕ Moreover, the financial conditions of public debt have improved. So has perception of the government's solvency, leading to lower spreads

on public debt, as in the case of many other emerging economies. It is important to point out that, though the general conditions for debt have improved, sustainability indicators have not. Hence the need for the government to continue taking steps to adjust the country's public finances. Lastly, debt monitoring should be undertaken after the tax reform's positive effects become discernible.

✕ In September 2003, subnational debt continued on a declining trend that began in 1997. The quality of subnational debt has improved consistently since 2000, though it is still below the rest of the system's debt quality. Debt concentration by lender and borrower were marginal and constant in September 2003.

## IV

### FINANCIAL SYSTEM

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#### A. PENSION FUND MANAGERS

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##### 1. Portfolio growth

The value of funds administered by the Administradoras de Fondos de Pensiones (pension fund managers)<sup>32</sup> continued to grow steadily in 2003, thanks in part to a slight rise in membership growth and in the proportion of active members, relative to March 2003.<sup>33</sup> In October 2003, the value of the investment portfolio of pension and severance-pay funds amounted to 25.4 tr pesos (or 11.5% of GDP), of which 19.6 tr pesos represented mandatory pension funds (Figure 43). The fund managers' portfolio accounted for 27% of the financial system's assets in October 2003.

##### 2. Pension fund managers' portfolio composition

###### a. Classification by type of asset and counterparty

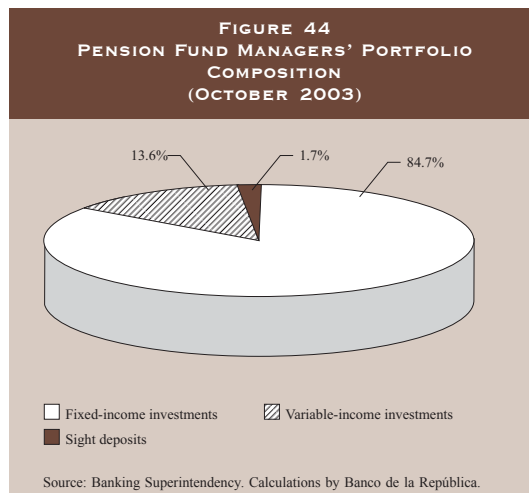
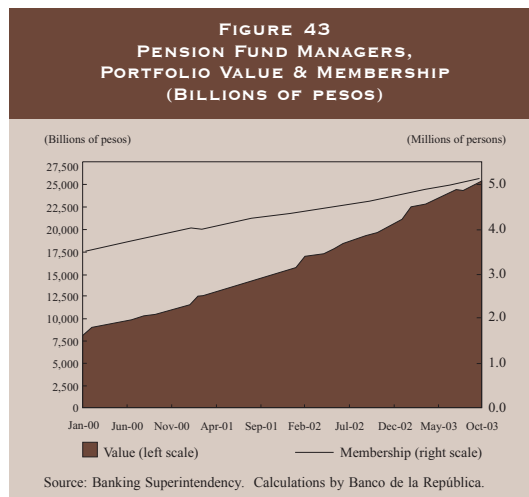
The composition of the fund managers' portfolio has changed slightly since the previous Report,

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<sup>32</sup> The administered funds comprise mandatory and voluntary pension contributions, and severance pay.

<sup>33</sup> In October 2003, the active members, that is, those making regular contributions to the pension fund managers, made up 48.4% of the total membership.

through a slim reduction in the share of fixed-income investments (Figure 44). This may be explained by the fact that the pension fund managers are required not only to safeguard the



portfolio's value but also to ensure a yield for their members. Hence the slight shift from fixed-income to variable-income investments, mostly made in overseas entities such as mutual funds. With economic recovery in Colombia and the United States all through 2003, variable-income investments have presented a better profile.

Nevertheless, about 85% of the portfolio is still made up of fixed-income investments, with public-debt securities accounting for 54% of these—a marginally lower than in March 2003 (Figure 45). Securities created by mortgage-loan securitizations constitute a small portion of the pension fund managers' portfolio, representing just 1% of fixed-income investments. In October 2003, pension fund managers held 7% of total mortgage-loan securities, a surprisingly low share considering that the long duration of the pension funds' liabilities makes them natural buyers of such securities. Regulatory problems in the management of mortgage-backed securities account for this low share, because their tax incentives have little attraction for fund managers, and there are also flaws in their valuation for the pension-fund portfolios. For further information, see the article

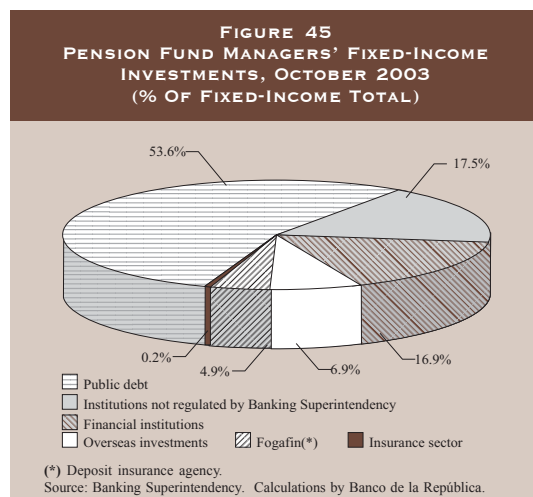
on "Colombia's Secondary Mortgage Market," included under Particular Aspects of Financial Stability, at the end of this Report.

In October 2003, government securities showed a slight shift toward external public debt, relative to March. The fund managers' holdings of external public debt amounted to 5.12 tr pesos in October, representing some 16% of the external-debt bonds issued by the Nation.<sup>34</sup>

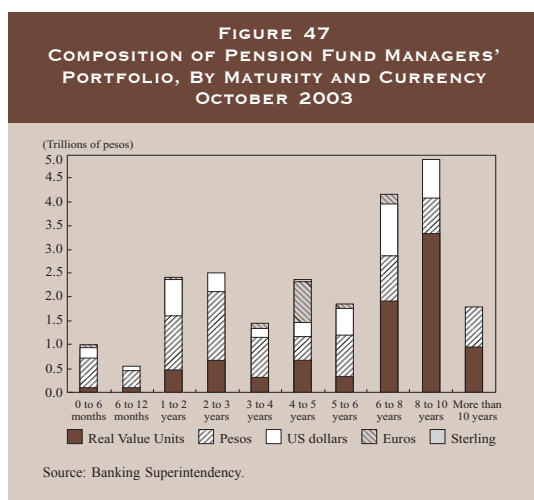
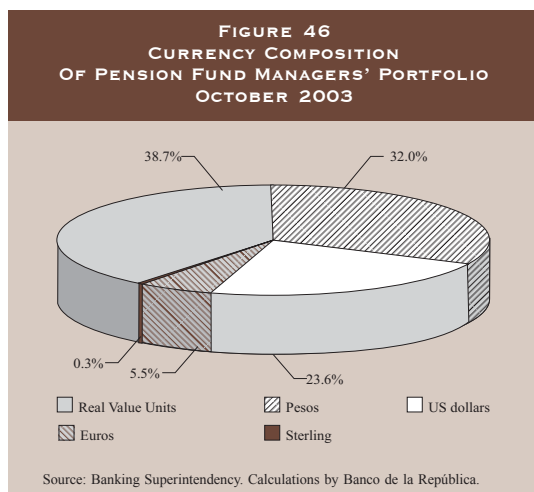
As stated in earlier chapters, the spread on Colombia's external debt improved throughout 2003; and TES securities performed well, registering a rate drop between March and October. These developments, combined with a positive economic outlook, have improved the risk profile of a good part of the pension fund managers' portfolio.

*b. Breakdown by currency and maturity*

Breakdown of the pension fund managers' portfolio by currency and/or unit of account shows that currency shares have remained unchanged since December 2002. Investments linked to inflation or the Real Value Unit still predominate, followed by investments denominated in pesos (Figure 46). It is important to point out that, though investments in Real Value Units or linked to inflation make up the biggest percentage of the portfolio (38.7%), this is not a large share, considering that the fund managers' liabilities are indexed to inflation. So there is still room for growth for financial instruments denominated in Real Value Units or linked to inflation. The portfolio's biggest exchange-rate exposure continues to be the US dollar.



<sup>34</sup> In September 2003, the central government's external public debt bonds amounted to \$11,095 million, equivalent to 32 trillion pesos.



Analysis of the portfolio's assets by maturity shows them to be slightly more concentrated in maturities of under 10 years than they were in March 2003, with 92% of assets maturing in less than 10 years (Figure 47). This contrasts with the fact that 43% of fund members are between 25 and 34 years of age, revealing a clear mismatch between the maturities and durations of the fund managers' assets and the expirations of their liabilities.

The lack of longer-term financial instruments has precluded achieving a perfect match between the fund managers' assets and their liabilities. Lower

inflation with low, stable interest rates should stimulate greater development of such instruments. They are needed to provide a better hedge for institutions that have long-term liabilities or wish to expand their debt maturity.

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## B. CREDIT ESTABLISHMENTS

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This section focuses on credit establishments as a group, to describe movements in their main variables during 2003, particularly between May and November.

Accordingly, the following paragraphs will review the financial sector's chief stocks. They will also analyze the sector's profitability and measure its exposure to the major risks intrinsic to its business.

### 1. Variations in assets, liabilities and off-balance-sheet operations<sup>35</sup>

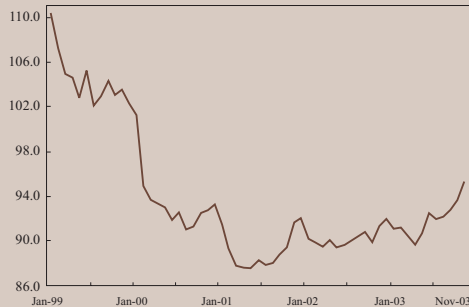
#### a. Asset positions

The credit institutions' total assets continued on a rising path over the second half of 2003, growing by a 4.5% real annual rate to stand at 95.8 tr pesos in November (Figure 48).

The loan portfolio, the biggest asset component, contributed strongly to asset growth, rising on average by 4.1% between May and November at real annual rates (Figure 49). But, despite their growth, both assets and loans are still far from their pre-1999 levels, suggesting that there is no sign of a financial bubble developing.

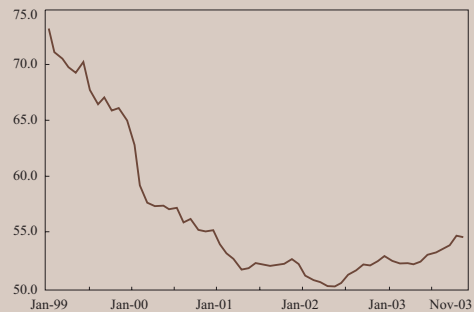
<sup>35</sup> IFI, the industrial development institute, was liquidated in June 2003 and was not therefore included in calculations of the financial system's stocks, to make the series comparable in the long term and avoid distortions in calculations of annual variations in the second half of 2003.

**FIGURE 48**  
**CREDIT INSTITUTIONS' TOTAL ASSETS**  
**(TRILLIONS OF SEPTEMBER 2003 PESOS)**



Source: Banking Superintendency. Calculations by Banco de la República.

**FIGURE 49**  
**GROSS LOAN PORTFOLIO**  
**INCLUDING SECURITIZATIONS**  
**(TRILLIONS OF SEPTEMBER 2003 PESOS)**



Source: Banking Superintendency. Calculations by Banco de la República.

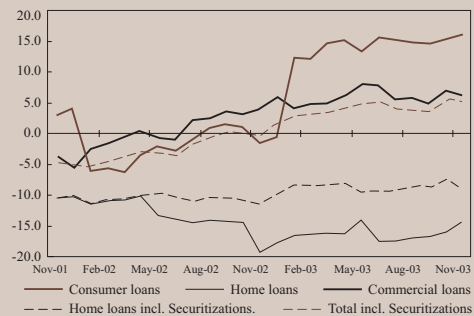
This is consistent with an upturn in the country's economic activity and absorption, confirming and reinforcing satisfactory credit behavior since the end of 2002, which brought 12 consecutive months of positive real annual growth.

A more detailed analysis of the credit portfolio shows that all types of loans except mortgage loans contributed to its growth. In effect, over the second half of 2003 to November, consumer loans expanded by real annual rates hovering around 15.0%, while growth in commercial loans averaged 6.5%. The recently defined category of microcredits also registered interesting results, though its growth slackened in the last quarter, falling from an average annual rate of almost 200% in the first half of 2003 to a 46.1% average between August and November. Mortgage loans continued to decrease by real rates of about 9%, though marginal improvements were observed in October and November (Figure 50).

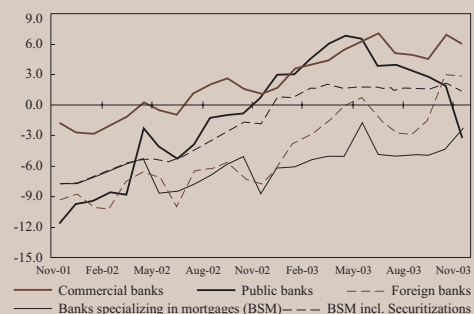
Credit behavior by type of entity displayed stronger movements in the second half of 2003 to November, notably a reactivation of credit in foreign entities and a credit downturn in public-sector

**FIGURE 50**  
**GROSS LOAN PORTFOLIO**  
**(REAL ANNUAL PERCENTAGE CHANGE)**

**BY TYPE OF LOAN**



**BY TYPE OF ENTITY**



Source: Banking Superintendency. Calculations by Banco de la República.

banks (Figure 50). Banks specializing in mortgages registered positive growth in placements (including securitized loans), by venturing beyond mortgage lending, into businesses such as commercial and, especially, consumer lending.

The credit institutions' total investments maintained the upward momentum described in the previous Report, rising to 27.9 tr pesos by November 2003, with a 7% average real growth over the year. This investment behavior, together with the credit growth discussed above, has meant that the two main asset components considered individually as a share of assets remained relatively constant over the second half of 2003 (Figure 51).

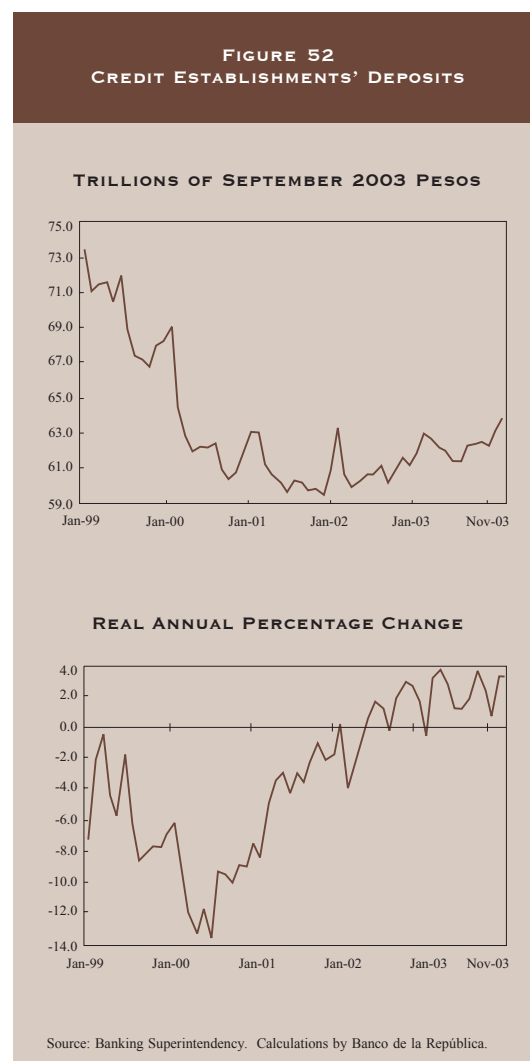
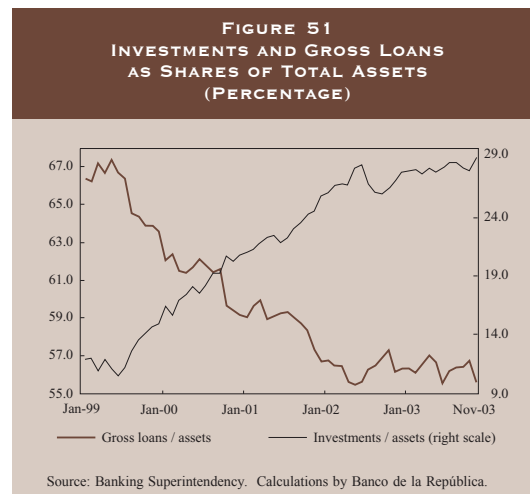
*b. Liability positions*

Deposits expanded at a faster pace in the second half of 2003, rising to 64.2 tr pesos by November. Their real growth between May and November was almost 4%. As long as deposits continue to grow, there will be less likelihood of funds for lending becoming scarce in the medium term (Figure 52).

*c. Derivatives*

The volume of derivatives continued on the rise in 2003, despite a relatively small decline in the first quarter. Annual growth in the total volume of forwards, futures, swaps and options averaged around 24% over the year, confirming their strong momentum in Colombia's financial system.

Breakdown of derivatives by type of underlying (Figure 53) shows currency operations still accounting for most derivatives: about 71%.



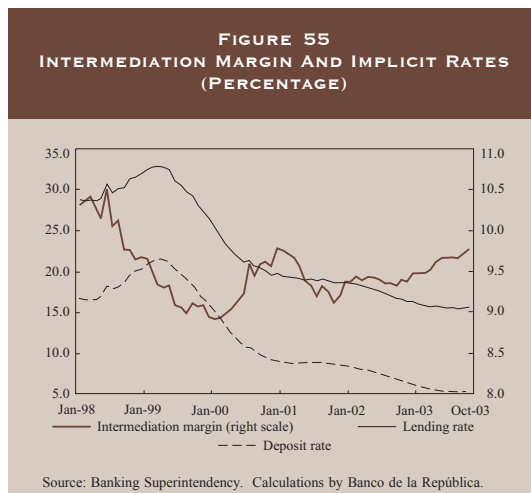
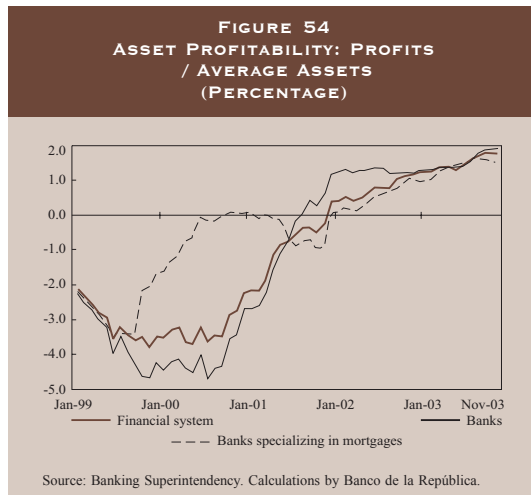
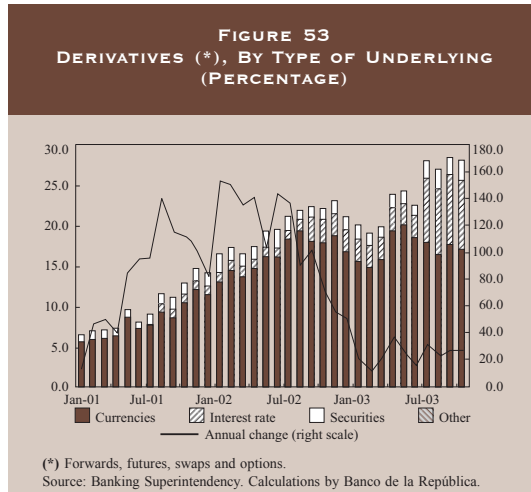
Trading in currency derivatives is mostly carried out by commercial banks.

A striking development has been the sharp rise in interest-rate derivatives that began in July 2003, the volume of trading surging from 2.8 tr pesos in June to 8.6 tr pesos in October, almost exclusively owing to swaps by a number of financial corporations.

## 2. Profitability

The credit institutions' asset profitability continued to improve over 2003. For the group as a whole, the ratio of annualized profit to average assets (Figure 54) rose from 1.28% in May to 1.76% in November, as a result of higher profits reported by both commercial banks and banks specializing in mortgages. The increase in profitability was obtained by shifting away from unproductive assets toward productive business (credits and investments). Banks specializing in mortgages still have room for enlarging the shift, at least in the short term, which could further improve profitability.

The margin of financial intermediation is another relevant indicator for analyzing the profitability of lending and borrowing. Figure 55 shows how the margin between the lending rate (defined as the ratio of lending income to productive loans), and the deposit rate (built as the ratio of financial expenditure to deposits and payables) increased by 11 basis points between May and October 2003. Intermediation work has thus become a more profitable, which might further encourage the supply of fresh loans in future.



Box 2  
INTERMEDIATION MARGINS

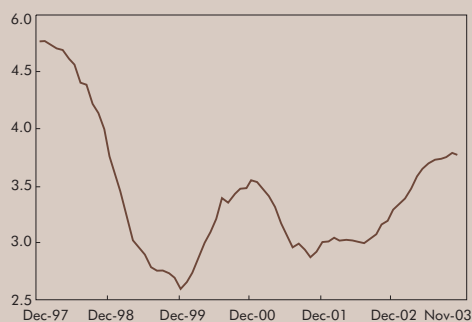
There are many ways of measuring financial-intermediation margins,<sup>1</sup> which often causes confusion in comparing different studies, particularly in attempting any kind of international comparison.

Thus, Colombia's current intermediation margin of 9.7%, shown in Figure 55, might appear disproportionately high against the 6.4% average for lower middle income countries reported in a World Bank study in 1999.<sup>2</sup> But this difference is almost entirely attributable to methodological differences in estimating the margins, rather than to particular features of Colombia's financial system.

To compare financial margins internationally, therefore, a homogeneous methodology needs to be applied across countries. According to the definition used in the World Bank study, the margin is the difference between interest income and expenditure, as a ratio of assets. On this basis, rather than the definition given above, Colombia's current margin is 3.8%. This is clearly lower than the 6.4% average registered in the first half of the 1990s (the study period) by the financial systems of countries with similar incomes to Colombia's, and lower also than the 6.0% margin prevailing in Colombia at the time (Figure B2-1).

Hence, though this country's intermediation margin (measured by either of those methods) increased slightly last year, it is not atypically high compared with its historical behavior or with the margins of countries having similar characteristics to Colombia's.

FIGURE B2-1  
(INTEREST INCOME - INTEREST EXPENDITURE) / ASSETS  
(PERCENTAGE)



Source: Banking Superintendency. Calculations by Banco de la República.

<sup>1</sup> For a review of the different ways of calculating financial-intermediation margins, see Janna, M. et al. (2001). "Medición y evolución de los márgenes de intermediación financiera para el caso colombiano, 1996-2001", in *Borradores de Economía* No. 182, Banco de la República.

<sup>2</sup> Demirgüç-Kunt, A.; Huizinga, H. (1999). "Determinants of Commercial Banks Interest Margins and Profitability: Some International Evidence," in *The World Economic Review*, Vol. 12, No. 2.

### 3. Risk exposure

#### a. Credit risk

The credit institutions' loan portfolio continued to improve in quality between May and November 2003. Credit risk declined in commercial banks and, later in the year, in banks specializing in mortgages, as evidenced by lower ratios of overdue loans / gross loans and/or risky loans / gross loans (Figures 56 and 57). In November these ratios stood at 7.2% and 17.5% for credit institutions as a group, confirming that loan deterioration continued to be less than in recent years.

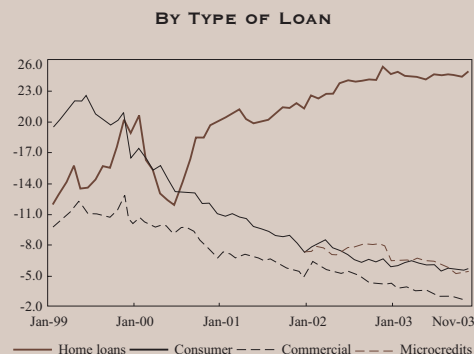
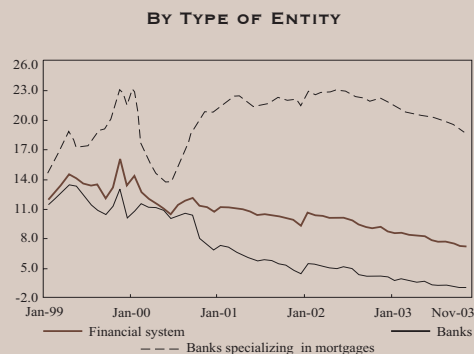
In effect, a good part of the deteriorated loans stocks reported on the credit institutions' balance sheets resulted from decisions made before the financial crisis. This means that the risk ratios reviewed here may to some extent overestimate potential credit risk as currently perceived, considering that the risk profile of more recent disbursements is lower than that of the loan stock disbursed more than three or four years ago.

Portfolio quality by type of loan showed the same trends as in the previous 12 months. In effect, consumer and commercial loans and microcredits continued to improve their ratios, while home loans still registered very high risk levels that barely abated in the favorable economic environment of 2003.<sup>36</sup>

The quality improvements described above, together with better portfolio coverage in 2003 (through higher provisioning as a ratio of overdue

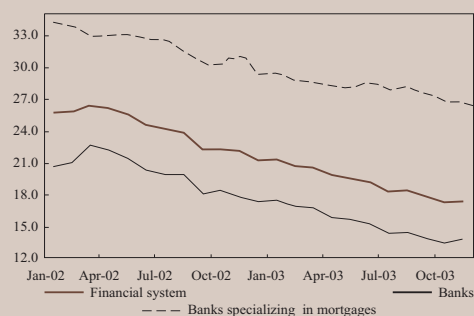
<sup>36</sup> It is worth noting however that the quality of the mortgage-loan portfolio including the securitized balances did improve marginally over this period.

**FIGURE 56**  
**OVERDUE LOANS / GROSS LOANS**  
**(PERCENTAGE)**



Source: Banking Superintendency. Calculations by Banco de la República.

**FIGURE 57**  
**RISKY LOANS / GROSS LOANS**  
**(PERCENTAGE)**



Source: Banking Superintendency. Calculations by Banco de la República.

or risky loans) (Figure 58), confirm that credit risk is at really favorable levels for credit institutions.

However, two issues referred to in the previous Report require further attention:

The first is the mortgage portfolio's resistance to quality improvement. Efforts must be directed to ensuring that fresh home loans do not become subject to the risk presented by the portfolio's current stock. The aim is to make it possible for mortgage lending to recover.

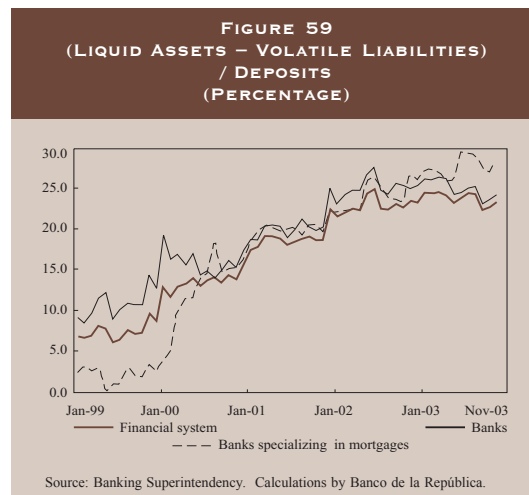
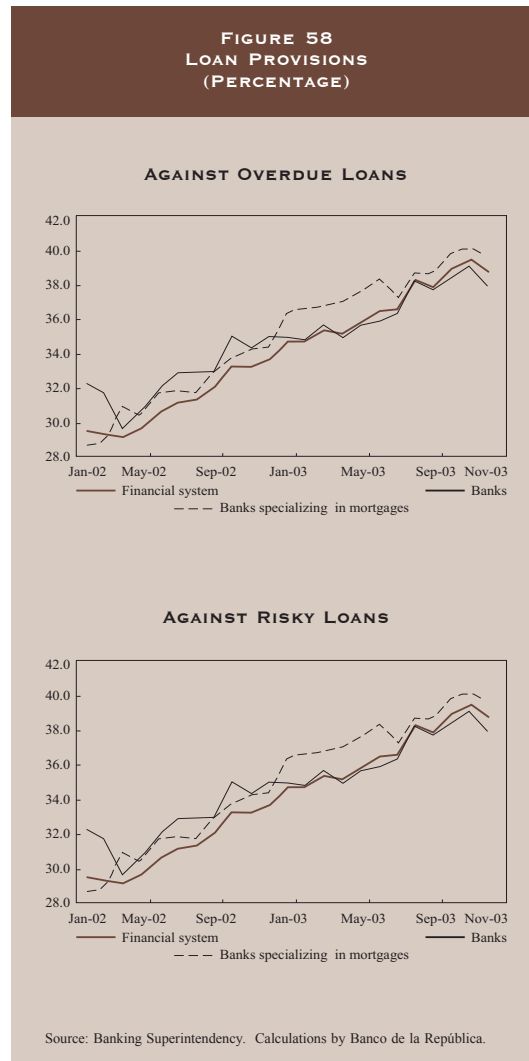
The second issue concerns the need for additional monitoring of fresh loan allocations, particularly in times of surging credit, to ensure that loan quality does not deteriorate and reverse the positive trend the sector has been displaying since 2002.<sup>37</sup>

*b. Liquidity risk*

To get an idea of the major intermediaries' short-term liquidity position, the difference between liquid assets and volatile liabilities was calculated as a ratio of overall deposits. The higher the ratio, the greater an entity's liquid assets as a counterweight to movements in its liabilities.

On this basis, both commercial banks and banks specializing in mortgages continue to present satisfactory liquidity levels relative to the recent past (Figure 59), which makes it unlikely that any liquidity problems will arise in the short term. Note, however, that the liquidity ratio edged down in the second half of 2003, perhaps reflecting small

<sup>37</sup> There is no evidence so far of deterioration in the quality of fresh-loan allocations, which means that lending growth in 2003 does not seem to have been out of line with the quality criteria applied in screening borrowers.



pressures generated by the past few months' recovery in credit growth.

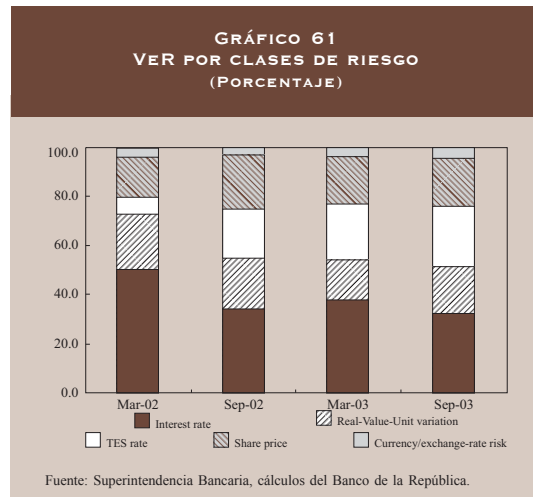
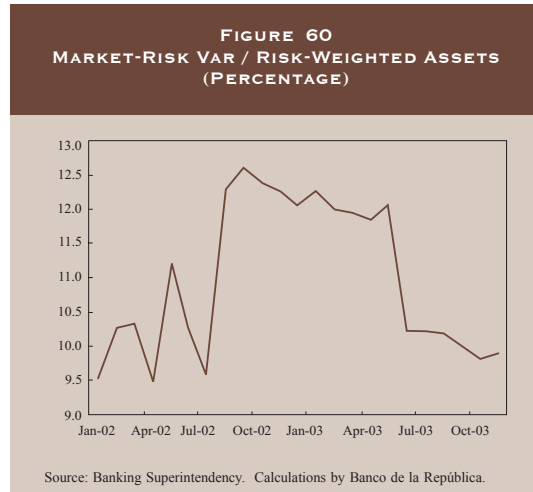
*c. Market risk*

Price movements (interest rates, exchange rates, share prices, etc) are liable to affect the valuation of assets tied to them. Thus, variations in the different financial prices may come to affect the values of the financial system's balance-sheet components (market risk).

Since January 2002, the Banking Superintendency has been estimating the system's exposure to market risk by applying a value-at-risk measure (VAR) to the credit entities' overall portfolio. This measure quantifies potential losses from rate and price fluctuations in the different positions held by the credit institutions.

The ratio of market-risk VAR to total risk-weighted assets is a reflection of how exposed the institutions' activity is to market risk. Figure 60 shows that VAR has been oscillating around 11% of risk-weighted assets since January 2002, without deviating too far from this figure.

Figure 61 illustrates the composition of market-risk VAR, broken down into different types of risk. The monetary and credit market's interest-rate risk as a share of VAR has been falling, while the market risk from TES holdings shot up permanently in 2002 because of the TES securities' price crisis in



July and August 2002. As regards Real-Value-Unit risk and exchange-rate risk, their shares of overall potential loss from market variations may be said to have remained practically unchanged in 2002 and 2003.

**Box 3**  
**CURRENT SITUATION OF THE SECONDARY MARKET**  
**IN TES-B SECURITIES**

In the second half of 2002, the Colombian economy witnessed a short period of significant valuation losses in TES-B portfolios. It thus became obvious that this market should be monitored, given the risk exposure these assets presented to different agents in the economy and in particular to the financial sector. For this reason, in recent issues of this Report the bondholders' TES-B portfolios have been analyzed for concentration and risk exposure and have also been the object of a quantification exercise. The valuation methodology used here for September 3, 2003 was as described in the December 2002 Report.<sup>1</sup>

Table B3-1 presents the distribution of TES-B balances, at market value, between the financial sector and the rest of the economy. On September 3, 2003 the financial system's TES-B holdings amounted to 10.8 tr pesos (or 20.8% of the total in the market), up by 1.5 tr pesos from the 9.3 tr pesos held in March. This was a reversal of the decline reported in the previous Report.<sup>2</sup> Fixed-rate peso bonds made up the bulk (60.9%) of the financial system's total TES-B balance in September, followed by bonds in Real Value Units (27.27%), and variable-rate bonds (11.8%).<sup>3</sup> Relative to March, variable-rate bonds increased their share

**TABLE B3-1**  
**TES-B BALANCES AT MARKET VALUE (\*)**  
**(MILLIONS OF PESOS)**

	Pesos	Variable Rate	Real Value Units	Total
<b>Balances at September 3, 2003</b>				
Financial sector	6,586,283	1,271,145	2,946,224	10,803,651
Commercial banks	6,137,451	1,199,190	2,845,208	10,181,849
Commercial financing companies	22,754	1,605	7,987	32,346
Superior-grade financial coops.	3,050	0	0	3,050
Financial corporations	423,028	70,350	93,029	586,407
Rest of the economy	20,412,438	11,071,065	9,520,965	41,004,468
<b>Total</b>	<b>26,998,721</b>	<b>12,342,210</b>	<b>12,467,188</b>	<b>51,808,119</b>
<b>Balances at March 19, 2003</b>				
Financial sector	5,518,232	696,887	2,748,249	9,330,949
Commercial banks	4,551,709	592,556	2,545,908	8,013,993
Commercial financing companies	43,544	0	5,723	53,859
Superior-grade financial coops.	2,801	0	0	2,801
Savings and loans corporations	484,744	32,995	98,525	616,263
Financial corporations	435,434	71,336	98,093	644,033
Rest of the economy	17,138,446	11,418,834	9,725,645	40,605,042
<b>Total</b>	<b>22,656,678</b>	<b>12,115,721</b>	<b>12,473,895</b>	<b>49,935,991</b>

(\*) TES-B bonds denominated in dollars were not included in the valuation exercise. Because of the sample's limited size, it was not possible to construct a sport curve.  
Source: Banco de la República.

<sup>1</sup> December 2002 *Financial Stability Report*, p. 68, footnote 4. The only change to the methodology has been the replacement of the zero-coupon spot-curve estimation technique of Fisher, Nychka and Zevros (1994) by that of Nelson and Siegel.

<sup>2</sup> *Ibidem*, p. 56.

<sup>3</sup> In March 2003, the respective shares were 59.1%, 29.4% and 7.4%. TES-B bonds denominated in dollars were not included in the valuation exercise. Because of the sample's limited size, it was not possible to construct a sport curve.

by 4.4 percentage points and fixed-rate bonds by 1.8 points, whereas bonds in Real Value Units decreased theirs by 2.13 percentage points. The decrease in the share of TES-B bonds denominated in Real Value Units may be explained by lower inflation expectations, with agents apparently perceiving a degree of price stability and hence reducing their holdings of indexed securities.

Given the financial sectors large shares of TES-B securities of different denominations (Table B3-1), it is relevant to look at the sensitivity of bond balances to interest-rate changes and thereby assess the financial risk to agents. Table B3-2 presents weighted durations by portfolio. As may be observed, the duration of the financial sector's fixed-term peso securities was longer than the weighted average duration of the rest of the economy's total debt. The figures imply greater sensitivity of the financial sector to changes in the nominal interest rate, given that fixed-income securities made up 60.7% of its overall portfolio. The weighted average duration of TES bonds denominated in Real Value Units was longer than the financial system's duration and the same for variable-rate TES bonds'.

Using durations it is possible to calculate changes in the value of the TES-B portfolio resulting from a 1% parallel change in the different interest rates along the spot curve. For the financial sector, the effect of such an interest-rate movement in September 2003 would have been greatest on variable-rate peso bonds (3.93%), followed by bonds in Real Value Units (3.77%) and, lastly, fixed-rate bonds (1.97%). For

**TABLE B3-2**  
**WEIGHTED DURATIONS, BY PORTFOLIO**  
**(YEARS)**

	Pesos	Variable Rate	Real Value Units	Total
<b>Balances at September 3, 2003</b>				
Financial sector	2.0	3.9	3.8	2.7
Commercial banks	2.0	4.0	3.8	2.7
Commercial financing companies	2.0	4.3	3.0	2.3
Superior-grade financial coops.	0.9			0.9
Financial corporations	2.0	3.6	3.2	2.4
Rest of the economy	1.8	3.9	4.1	2.9
<b>Total</b>	1.8	3.9	4.0	2.9
<b>Balances at March 19, 2003</b>				
Financial sector	2.0	3.3	4.3	2.8
Commercial banks	1.9	3.3	4.4	1.7
Commercial financing companies	1.3	0.0	3.4	2.3
Superior-grade financial coops.	2.3	0.0	0.0	2.4
Savings and loans corporations	2.1	2.9	3.8	2.7
Financial corporations	2.5	3.6	3.6	1.2
Rest of the economy	1.8	3.8	4.2	2.9
<b>Total</b>	1.8	3.7	4.3	2.9

Source: Banco de la República.

the rest of the economy, the effects on the value of the TES-B portfolio would have been, respectively, 3.93%, 4.08% and 1.80%, not much different from the financial sector's portfolio.

The weighted durations of fixed-rate peso bonds and of bonds denominated in Real Value Units continued on the downward path displayed earlier in the year relative to 2002. In particular, the duration of bonds in Real Value Units dropped by more in the financial sector (0.56 percentage points) than in the rest of the economy (0.26 percentage points). The duration of fixed-rate bonds increased by 0.64 percentage points [in the financial sector].

The last exercise carried out for this Report was to calculate a possible scenario of results. To this end, a quantification exercise was carried on both sectors' TES-B portfolios at market value, assuming that between March 19 and September 3 no changes occurred either in the stock of these securities or in their distribution, so as to isolate the effect of the change in interest rates. Table B3-3 summarizes the results of the exercise, presenting the TES-B valuation gains resulting from a change in the spot curve between those dates. The table shows that, with the rate change that occurred between March and September 2003, the economy would have recorded gains of 1.3 tr pesos, a considerable figure, particularly compared with the losses calculated in the previous Report (25 bn pesos for the economy as a whole). The financial sector's share of the gains amounted to 274 bn pesos.

The favorable figures obtained from the exercise may be explained by three major developments. First, the public's improved outlook on inflation, essentially based on positive readings of inflation data in the second half of the year, eliminated negative pressure on the market and strongly boosted TES demand. Second, the situation concerning the Referendum and tax reform had no significant effect on agents' behavior, so that, contrary to what might have been expected, demand was not negatively affected by that situation. Third, the dollar's revaluation in 2003 led agents to shift from dollar assets to TES in their portfolios, thereby raising not only demand but also confidence in the market. These three factors account in large measure for the valuation gains reported.

**TABLE B3-3**  
**TES-B VALUATION GAINS FROM A CHANGE IN THE SPOT CURVE**  
**BETWEEN MARCH 19 AND SEPTEMBER 3, 2003**  
**(MILLIONS OF PESOS)**

	Pesos	Variable Rate	Real Value Units	Total
<b>Financial sector</b>	208,648	38,284	27,212	274,145
Commercial banks	193,670	36,358	26,693	256,721
Commercial financing companies	656	56	34	746
Superior-grade financial coops.	16	0	0	16
Financial corporations	14,306	1,870	485	16,661
<b>Rest of the economy</b>	560,924	334,155	101,368	996,446
<b>Total</b>	769,572	372,439	128,580	1,270,591

Source: Banco de la República.

#### 4. Capital soundness

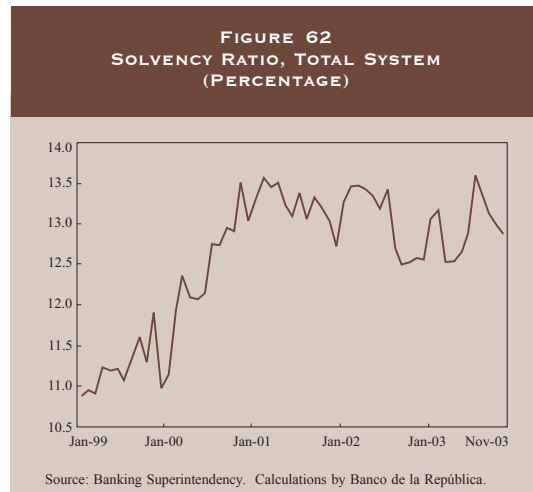
Credit institutions continued to register solvency levels of around 13% over the second half of 2003 up to November (Figure 62). The sector's capital soundness may therefore be said to allow it to face new risks<sup>38</sup> without failing to meet the 9% solvency requirement.

#### 5. Conclusions

✕ In the second half of 2003, credit institutions continued the satisfactory lending behavior they had been displaying since mid-2002. All types of loans, except mortgage loans, contributed to strengthening the recovery in lending. The breakdown by type institution shows an upturn in credit extended by foreign banks and a deceleration in lending by public-sector banks.

✕ The overall rise was consistent with higher absorption in the economy during 2003. In the public sector, the trend toward greater borrowing was not new. In the corporate private sector, however, a renewed trend was observed toward fresh borrowings from the financial system, driven by a stronger desire to increase spending, but especially by a shift in corporate liabilities.

✕ Credit institutions as a group continued to register levels of capital and asset profitability prevailing in periods of relative financial stability. Profitability continued to rise throughout 2003, thanks largely to an asset shift toward productive



business (loans and investments), higher financial margins, and positive price movements in the institutions' holdings of public-debt securities.

✕ The system's higher profitability and adequate short-term liquidity, together with price stability during the year, meant that the lending reported here occurred in a context of reasonably low interest rates.

✕ Moreover, credit establishments continued to show clear signs of widespread reductions in the various risks their business is subject to. Besides which, the capital soundness provided by adequate capital levels will ensure continued expansion of credit business over the short term.

✕ Much of the improvement in the perception of counterparty risk is connected with the fact that the credit institutions' private-sector debtors have improved their major indicators. The corporate sector exhibited higher profitability levels and lower overall debt ratios. Households, for their part, registered both better income levels and better asset-price indicators, despite which they do not seem to be set on increasing either their borrowing or spending by as much as other debtors.

<sup>38</sup> Starting from January 2004, the capital requirement for market risks will be weighed on 100% of total VAR, rather than 80%. This means that, other things being equal, the system as a whole will have to increase its technical capital by about 2% to keep its solvency levels unchanged.

✕ The previous Report described how the financial system had seen the quality of its public-sector assets benefit from interest-rate behavior despite the lack of any radical improvement in fiscal-sustainability indicators. This situation still prevails, for interest rates on public debt have continued to fall and sustainability indicators, though decelerating, have shown no trend break.

✕ The relative improvement in public-debt sustainability has stemmed from exchange-rate movements, which in turn are associated with confidence in the soundness of public debt. For this reason, it is important to reiterate that the country's public finances need to be adjusted so as to reinforce market confidence and preclude a loss of value of domestic assets that would worsen the sustainability of public debt.

✕ As long as there is no change in either the favorable external environment or the healthy deposit growth observed last year, there will no liquidity problems in the medium term from a shortage of

financing sources for the system's assets. But, should matters develop otherwise, it will be even more necessary to adjust the public sector, so as to preclude it from competing with the financial system for liquid resources, and thereby avoid possible liquidity pressures.

✕ A persisting readiness is thus discernible both in the financial system to continue lending, and among agents (particularly firms) to continue borrowing, so that credit growth should continue to rise at least in the short and medium term.

✕ To sum up, the credit business continued to expand faster in 2003. Despite the increase in disbursements, there is no evidence so far to suggest that the system may be heating up in any way that would endanger financial stability. This assertion derives from the fact that, though there has been a substantial increase in the system's assets and loan portfolio and in absorption by the economy, neither stocks nor growth rates have yet reached atypically high levels likely to trigger a financial bubble.



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PARTICULAR ASPECTS  
OF FINANCIAL STABILITY

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# COLOMBIA'S SECONDARY MORTGAGE MARKET

BY CAMILO ZEA G.\*

Mortgage banks have suffered shocks in recent years as no other segment of the financial system has. This has prompted them to gradually revise their funding schemes for mortgage lending. In particular, they have begun to reduce their reliance on short-term funding, in favor of long-term resources with the same rate of return as assets. The result has been a partial, though heterogeneous, reduction of exposure to interest-rate movements across mortgage banks.

Accordingly, a new section is included in these Reports to review and analyze the transition in the banks' system of mortgage funding. Specifically, the market is described in terms of loan securitizations and mortgage-backed bond offers, regulated by Decree 1719 of 2001 and Securities Superintendency Resolutions 775/2001 and 223/2002.

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## I. MORTGAGE-LOAN SECURITIZATION

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Between January and November 2003, the securitization firm of Titularizadora Colombiana carried out two mortgage-loan securitization processes for a total of 780,000 m pesos, with portfolios bought from the banks of Granahorrar, Davivienda, Colmena and Bancafé. With the second issue, the Titularizadora's total purchase

of loans from the primary market rose to 1.8 tr pesos, or 13.7% of the country's total mortgage loans.<sup>1</sup>

In the last securitization (November 20, 2003), securities worth 328,000 m pesos were sold on the market, backed by mortgage loans purchased from Granahorrar, Davivienda and Bancafé, of which 33% were for low-cost housing and the remaining 67% for other property.

The senior/subordinated structure<sup>2</sup> of the securities issued by the Titularizadora is divided into three tranches, of which Tranche A is rated AAA by Duff and Phelps of Colombia, while Tranches B and C are subordinated and respectively rated A and CCC. Tranche C has to be bought by the banks selling the loans, to discourage the moral hazard implicit in their selection of loans to be securitized,

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\* The author is on the staff of the Banco de la República's Financial Stability Department. He thanks Andrés Restrepo of Titularizadora Colombiana and Andrés Aristizábal of Banco Colpatria for their help in providing and analyzing data. Any mistakes are the author's, who is solely accountable for the opinions contained here, which do not necessarily reflect the views of the Banco de la República or its Board of Directors.

<sup>1</sup> The country's total mortgage-loan portfolio comprises the portfolios of banks, cooperatives, the National Savings Fund and the State Financial Institutions Guarantee Fund (Fogafin).

<sup>2</sup> In this type of securitization structure, the subordinated part offers a safety cushion that absorbs a substantial percentage of credit and prepayment risks, so that the major tranche of the issue consists of very low risk securities.

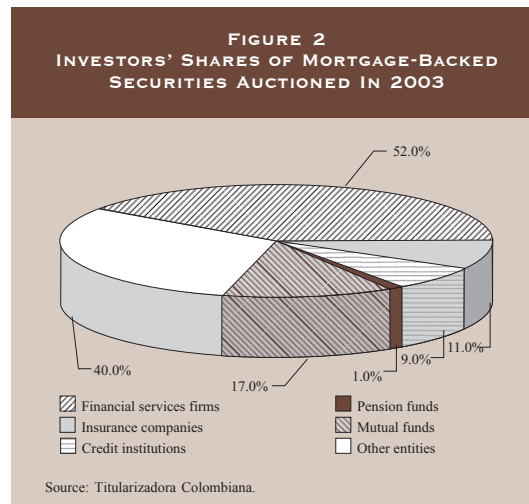
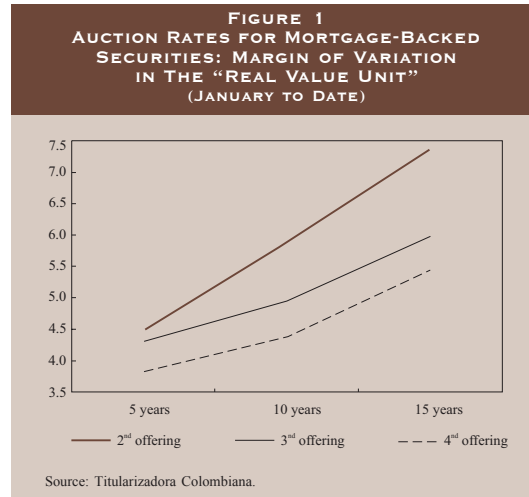
given the asymmetric nature of information about debtors between the banks and the securitizing conduit. This scheme also checks moral hazard in the administration of securitized loans.

The securities resulting from these securitization processes have been issued with maturities of 5, 10 or 15 years, at falling rates of return across all maturities relative to the preceding offerings. The rate fall is evident not only at the lower level of the maturity structure of each offering, but also in the slope of each offering (Figure 1).<sup>3</sup> This steady fall in the Titularizadora's offering rates suggests a gradual increase in institutional investors' confidence in this type of paper, which has whetted the market's appetite for absorbing them. Similarly, the liquidity of these securities has increased considerably, thanks to various factors, such as the system of liquidity provided by the Mortgage-Loan Stabilization Reserve Fund and the securitized portfolio's satisfactory credit-risk behavior.

In terms of distribution of awards in the two auctions carried out in 2003, 70% of each offering was placed by means of firm underwriting among the financial institutions originators of the securitized loans, such originators being obliged in any case to purchase the C Tranche, as stated above. The remaining 30% of each offering went to institutional investors, with financial-services firms accounting for the largest share (52%), followed by mutual funds (17%) and insurance companies (11%) (Figure 2).

The pension fund managers' low share (1.0%) may seem surprising at first, for they are long-term savers and these securities naturally fit their coverage

<sup>3</sup> Thus, for example, the cost of placing 15-year securities fell by 193 basis points between the second and fourth offerings.



needs. But a detailed analysis of their environment shows that a tax-regime distortion is responsible for their tentative participation.

In effect, the funds administered by these institutions are exempt by law from any taxes normally imposed on funds managed by other financial intermediaries and collective portfolios. Moreover, mortgage-backed securities and bonds issued before December 2005 are exempt from income tax, under Decree 1719 of 2001 and Securities Superintendency Resolutions 775/2001 and 223/2002.

For pension fund managers, which as stated above pay no tax on the purchase or sale of securities, it is more profitable to hold, for example, TES-B government securities denominated in Real Value Units than mortgage-backed paper, since in both cases they are exempt from paying tax, but the mortgage-backed paper has a lower return because of its implicit legal exemption.

In future, pension fund managers are expected to increase holdings of mortgage-backed paper on their balance sheets once tax-exempt issues come to be offered after January 2006. Unfortunately, the coexistence of tax-exempt and non-exempt securities will create the possibility of regulatory arbitrage. The regulatory authorities should therefore analyze this possibility so as to frame suitable policies to counteract it.

Lastly, though mortgage banks have purchased a little over 70% of the total securities issued, worth about 1.3 tr pesos, this amount has been falling not only through prepayments and scheduled payments of the securitized loans, but also through the sale of the securities in the secondary market. As a result, the mortgage banks' holdings of mortgage-backed securities now stand at 1.1 tr pesos. This falling trend is significant in that it reduces the mortgage banks' exposure to the interest-rate risk incurred in buying securities backed by their own loans or other banks' loans. Although it is natural for portfolio-selling mortgage banks to buy part of the securities issued, so as to give the securitization process an initial impetus, it is not the best arrangement, because buyers of the securities' should in fact be other institutional investors such as pension funds or insurance companies. The banks' purchasing share in future securities offerings is likely to decrease, making way for other buyers, particularly after the tax

exemption lapses in January 2006. As suggested above, the secondary mortgage market needs to initiate a process of transformation as of now, in line with other markets of this type in the world.

#### **A. Securitized loans' credit risk and prepayment**

In general, the securitizations carried out so far have been mainly characterized by improvement in the quality of the securitized loans, and high levels of prepayment by mortgagors. A review of the behavior of the securitized loans underlying the securities issued in 2002 shows their delinquency rates to have proved considerably lower than was expected in the structuring process (Figure 3).

This is explained not only by an upturn in economic activity and satisfactory inflation behavior, but also by the efforts of most mortgage intermediaries to improve their collection systems and the careful monitoring of outstanding loans, thanks to better supervision and risk-measuring mechanisms.<sup>4</sup> This curbing of credit risk partly accounts for the fall in auction rates for mortgage-backed securities.

High rates of prepayment by mortgagors have caused investors in mortgage-backed securities to see prepayments of principal exceeding repayments scheduled in the mortgage-security contracts. For instance, in the case of the securities issued in May 2002 (the first offering), which mature in May 2007, actual monthly repayment

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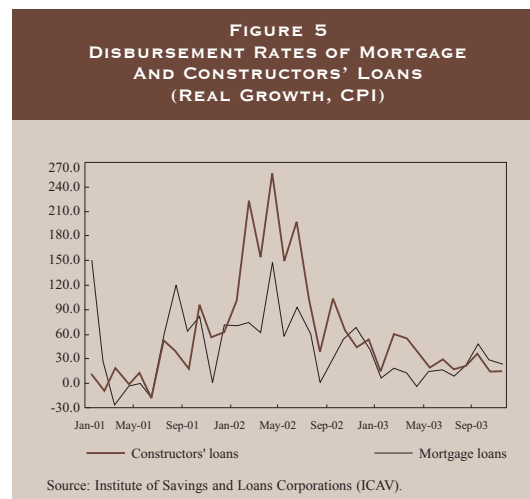
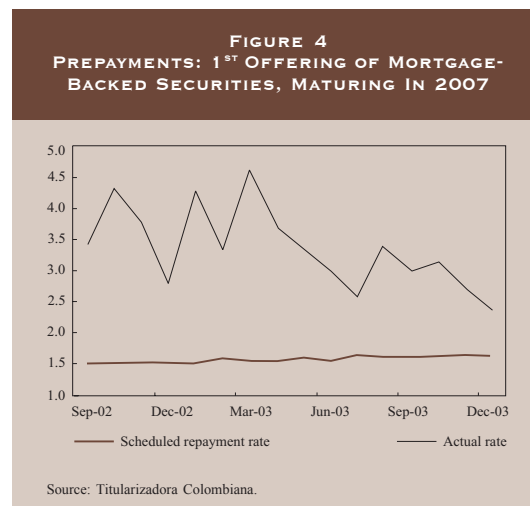
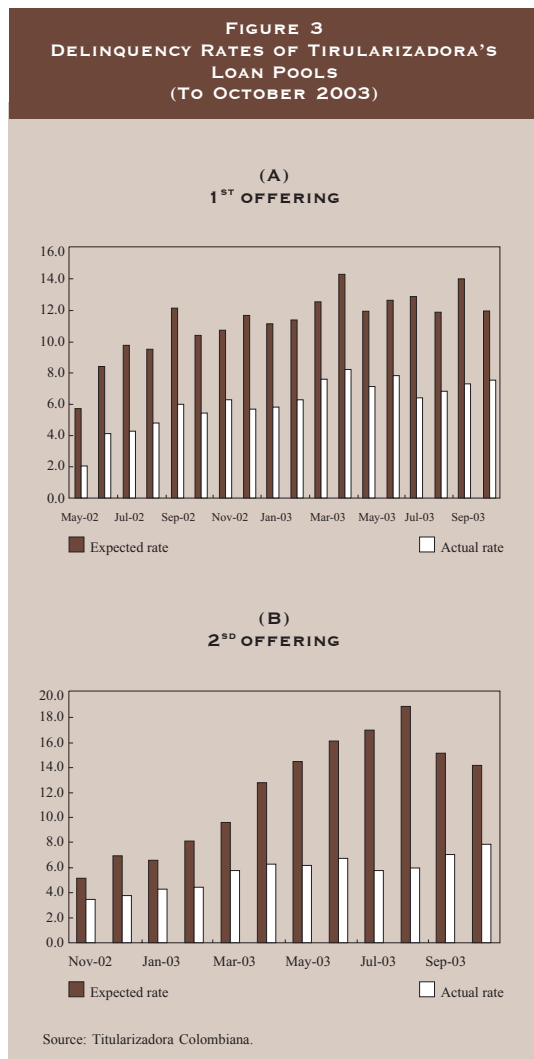
<sup>4</sup> Tougher provisioning schemes, new capital requirements for market risks (VAR) and the SARC credit-risk model, put in place by the Banking Superintendency in the past two years, have been responsible in good measure for positive developments in those indicators.

rates have fluctuated between 3% and 4%, compared with the scheduled rate of 1.5% (Figure 4).

This prepayment behavior is widespread across the system and not just limited to securitized loans, as evidenced by the steady fall in mortgage-loan balances despite strong growth in construction and high levels of loan disbursements. Construction GDP registered real annual growths of 16%, 5.4% and 11.31% respectively in the first three quarters of 2003.

Mortgage-loan disbursements grew, on average, by 17% a month from January to November, and disbursements to constructors by 29% (Figure 5), though in both cases the number of disbursements fell in 2003 (Figure 6).

Nevertheless, construction loans have fallen steeply since January 2000, except for a short pick-up between September 2002 and May 2003, while mortgage loans have declined at a gradually increasing pace (Figures 7 and 8).



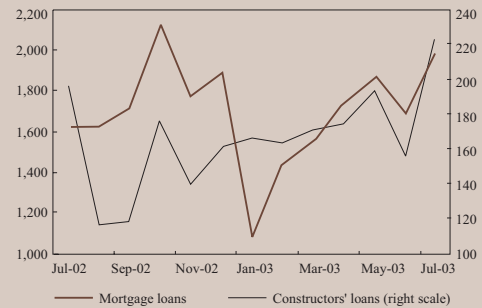
The foregoing suggests that loan turnover is occurring faster than expected, which is consistent with the high rates of prepayment of securitized loans.

Various factors account for the high prepayment levels observed. In the first place, the construction shortage of 1999-2002 caused many households to delay their decision to buy property, in favor of making other investments. With the reactivation of construction in mid-2002, financing for homebuying covered only a small percentage of the purchase price, making it possible for loans to be repaid faster. In the second place, the introduction of building-development savings accounts, which provide a tax incentive of up to 30% off taxable income in respect of mortgage repayments, has given a stimulus to prepayments. This exemption subsidizes prepayments of principal, generating an effective mortgage financing rate lower than the contract rate.

Lastly, another factor that has hampered a better approximation of expected prepayments has been the industry's inexperience in managing the models designed for the purpose. Given that the value of a mortgage security depends crucially on future prepayments (besides, of course, credit and market risks), sophisticated statistical methods are indispensable for forecasting them. In countries with developed secondary mortgage markets, considerable investment is made in such models. Hence, as Colombia's secondary mortgage market matures, the industry and the securitizing conduits are expected to make greater efforts to finance research for improving the predictive power of available models, in line with international experience.

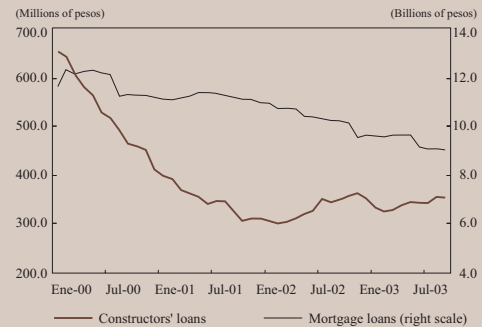
It may be inferred that high levels of prepayment have prevented the mortgage securities' auction

**FIGURE 6**  
NUMBER OF MORTGAGE AND CONSTRUCTORS'S LOANS DISBURSED



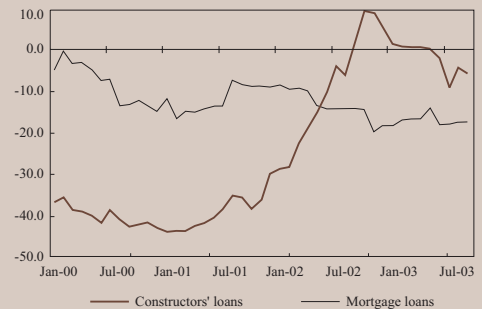
Source: ICAV.

**FIGURE 7**  
AMOUNT OF MORTGAGE AND CONSTRUCTORS'S LOANS



Source: Banking Superintendency.

**FIGURE 8**  
REAL GROWTH (CPI) IN MORTGAGE AND CONSTRUCTORS'S LOANS (PERCENTAGE)



Source: Banking Superintendency.

rates from dropping even lower, given the increase in prepayment premiums.

### B. Liquidity of mortgage-backed securities

Though the secondary market for mortgage-backed securities is still in its infancy, the volume of trading in these securities was higher in 2003 than in 2002. The monthly average transacted through the Colombian Electronic Market, the trading system, was about 200,000 m pesos in 2003, compared with 100,000 m pesos in the last months of 2002. (Figure 9). This substantial rise in the mortgage securities’ liquidity partly accounts for the fall in their auctions rates.

Moreover, as mentioned above, the Mortgage-Loan Stabilization Reserve Fund, created by Mortgage Law 546 of 1999, has recently structured a temporary securities transfer operation to increase the liquidity of the mortgage-backed securities, through swaps of these for TES-B paper for short spaces of time (up to a week). The purpose of such operations would be to give mortgage-security holders the possibility of

undertaking Repo transactions with the Banco de la República. Though the mechanism has not yet been put in place, it is ready to be, so that the next offerings of mortgage-backed securities will include this possibility in their pricing.

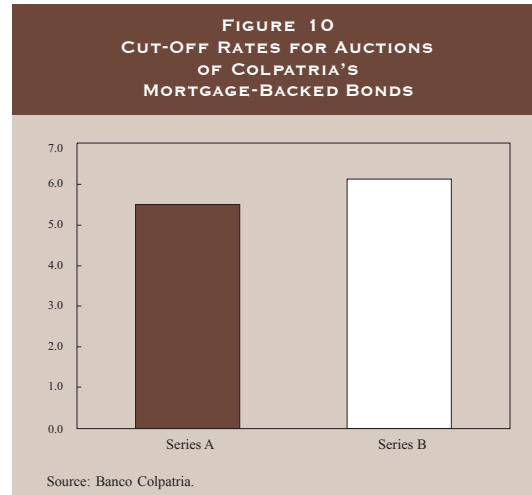
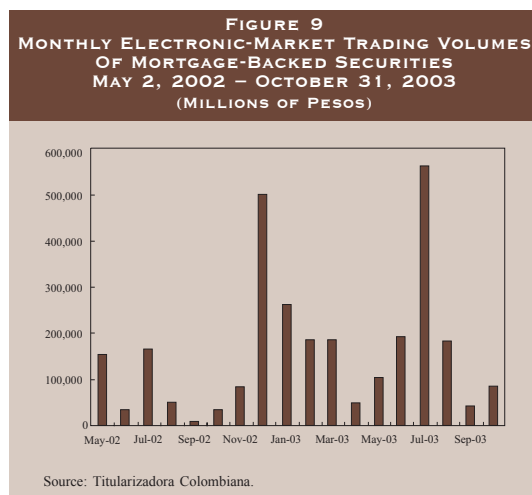
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## II. MORTGAGE-BACKED BONDS

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Mortgage-backed bonds have been little used compared with the other mortgage-loan securities, for only one offering—worth 140,000 m pesos—has been made. These bonds, issued by Banco Colpatría, were divided into two series: the “A” series having a five-year maturity and the “B” series an eight-year maturity. Both series are rated AAA by Duff & Phelps.

As in the case of the Titularizadora’s mortgage-loan securities, the cut-off auction rates for both series have been moderate (Figure 10) and the buyers have come from various sectors. Here too, the pension fund managers’ share of purchases is low because of the tax distortion described above with regard to the mortgage-backed securities.



Over 60% of the offering was absorbed by stockbroking firms (Figure 11).

### A. Credit risk of mortgage bonds' underlying loans

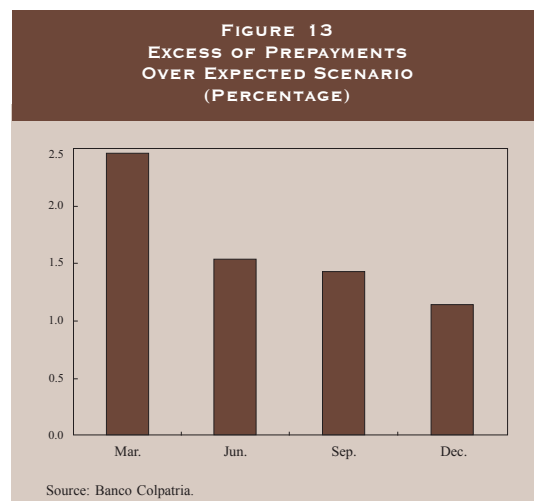
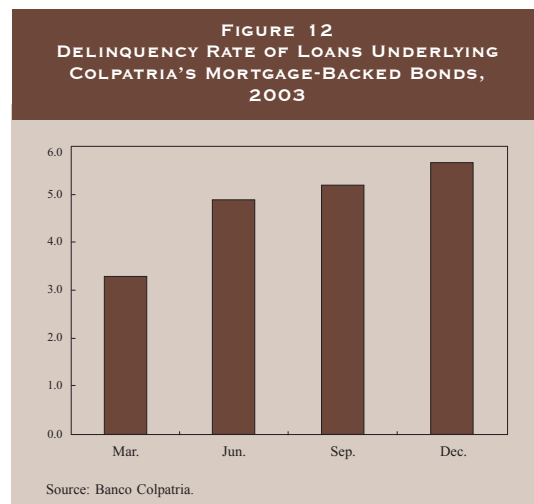
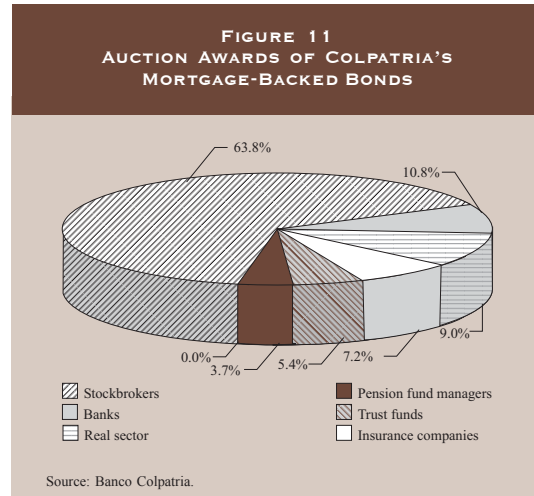
As in the case of the mortgage-backed securities, the credit-risk behavior of bonds' underlying loans has been favorable, and prepayments have exceeded initial expectations. Figure 12 shows changes in the delinquency indicator of the loans backing Colpatría's mortgage bonds. Though the indicator rose from the first quarter of 2003 to the second, it then remained steady at around 5%, lower than expected in the scenarios envisaged before the offering.

Figure 13 presents changes in the excess of actual prepayments over the expected scenario. Despite its declining trend, the excess averaged around 1.5% in 2003.

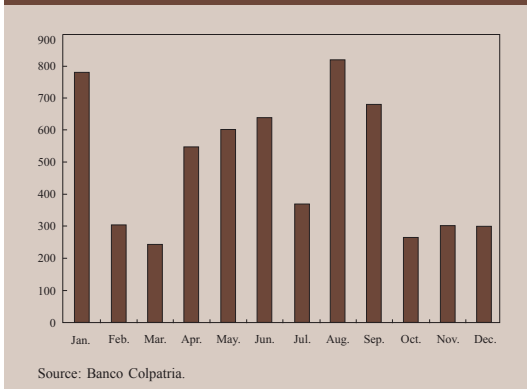
The factors responsible for such behavior in prepayments and credit risk seem to have been the same as described above for mortgage-backed securities and will not therefore be discussed again here.

### B. Liquidity of mortgage-backed bonds

The mortgage bonds' liquidity has been relatively low because only the one offering was made. Figure 14 presents the average monthly volumes of the series-A bonds traded on the Colombian Electronic Market. Though these volumes are low, a large proportion of trading may have been done over the counter rather than on the Electronic Market.



**FIGURE 14**  
**AVERAGE VOLUMES OF SERIES-A BONDS TRADED**  
**ON THE ELECTRONIC MARKET, 2003**  
**(MILLIONS OF PESOS)**




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### III. CONCLUSIONS

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This annex to the December 2003 Financial Stability Report provides information on the secondary mortgage market and briefly reviews market developments over recent months.

Last year saw a large increase in mortgage-backed securities issued by the securitization firm of Titularizadora Colombiana, whose third and fourth offerings (in July and November) amounted to 780,000 m pesos. These offerings raised the total of mortgage loans bought in the primary market to 1.8 tr pesos, or 13.7% of the country's overall mortgage portfolio.

In 2003, monthly trading volumes of the Titularizadora's securities on the Colombian Electronic Market averaged 200,000 m pesos, twice the monthly average in 2002. This greater liquidity together with the underlying loans' satisfactory credit-risk behavior had a positive impact on the placement auctions' cut-off rates. Thus, for example, the placement rate for 15-year

securities fell by 193 basis points between the second and fourth offerings.

Yet, repayments have appreciably exceeded expected levels (partly also because of flaws in forecasting models), knocking the profitability of the subordinated tranches of the offerings. The possible causes behind this adverse prepayment behavior include pent-up demand in the years when construction was at a stop, which resulted in savings that later financed a large part of building projects, leaving a small remnant, easily repayable in the climate of uncertainty still generated by the new system of indexation to the Real Value Unit. Moreover, the so-called "construction-development savings accounts" have become a subsidy mechanism for prepayments of principal.

Developments in mortgaged-backed bonds have been similar to those exhibited by the Titularizadora's loan securitizations. The credit risk posed by their underlying loans has been lower than expected, while prepayment of such loans have exceeded expected levels.

The mortgage bonds' liquidity has been relatively low because there was only one offering, though it is likely that a good many of the bonds are traded over the counter.

Lastly, the liquidity of both the Titularizadora's mortgage-loan securities and Colpatria's mortgage-backed bonds has been increased to some extent by the possibility offered by the Mortgage-Loan Stabilization Reserve Fund of making temporary security transfers through swaps of mortgage-backed paper for government securities.

Colombia's secondary mortgage market has a promising future. Investors' appetite has increased

gradually. And, once the tax exemption for mortgaged-backed securities and bonds lapses in 2006, these are expected to attract strong demand from their natural buyers, ie pension fund managers. Similarly, improvements in measuring house

prices, a tightening of laws on liquidating mortgage assets because of default, and sophisticated models for forecasting credit-risk and prepayment are all factors that will help to promote mortgage funding through the capital market.

# BANKING EFFICIENCY IN COLOMBIA: A REVIEW OF THE LITERATURE

BY MICHEL JANNA G.\*

Research on banking performance and efficiency has advanced greatly in the past three decades. The large number of studies on the subject<sup>1</sup> worldwide is largely justified by the importance of a properly functioning financial system to the economy in general. Specifically, the financial system's role in channeling resources to productive sectors where liquidity is relatively scarce, its function as the engine of the payments system, and also the part it plays in promoting long-term growth are major factors motivating research into the efficiency of its productive structure.

In Colombia, too, banks have been the subject of research studies, though as yet to a lesser extent than in developed countries. Between 1983 and 2003 barely a dozen studies were carried out on the financial system's cost structure. The present review will focus on a number of studies that have contributed to public debate on banking efficiency in Colombia.

In speaking of banking efficiency, a distinction has to be made between two concepts: output efficiency and input efficiency.

Output efficiency has to do with the likelihood that the banking firm is producing either optimal output levels (scale efficiency), or an optimal combination of several outputs (scope efficiency), or both. The level of inefficiency is measured by comparing the costs of the current output level with those of an optimal output level.

Input efficiency has to do with the firm's capacity for using its inputs efficiently to produce a given quantity of output. Inefficiency in the use of inputs refers to: (1) the likelihood of using more inputs than necessary for producing a given level of output (technical inefficiency), and (2) the likelihood of using a wrong mix of inputs in such production (allocative inefficiency). These two types of efficiency in the use of inputs are called X-efficiency. X-efficiency is most commonly measured by determining a function that describes the industry's best possible practice. This is equivalent to estimating an efficiency frontier (a minimum cost function, for example) for comparing how far each firm deviates from such "ideal behavior."

The Colombian studies fit into two large groups on both a chronological and a topical basis. The first group consists of papers published between 1983 and 1996 on measuring economies of scale in Colombia's financial sector. They include, notably, studies by Bernal and Herrera (1983), Suescún (1987) and Ferrufino (1991). A study by

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\* The author is on the staff of the Banco de la República's Financial Stability Department. He is solely accountable for the opinions contained here, which do not necessarily reflect the views of the Banco de la República or its Board of Directors.

<sup>1</sup> For a list of studies on bank efficiency in various countries, see Berger and Humphrey (1997).

Suescún and Misas (1996) marks the transition between the studies on scale efficiency and those on input efficiency (also called economic efficiency or X-efficiency).

Since then (from 1996 to 2003), research on Colombian banks has focused almost exclusively on seeking measures of economic efficiency. This may have been because the country's financial liberalization in the 1990s substantially reduced the entry barriers that created distortions in the sector in terms of sunk costs and lack of competition. It thus became more interesting to study the banks' output structure in terms of their ability to use inputs in the best possible way (cost-wise), rather than simply reviewing the industry's position against its average cost curve (output scale).

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#### I. SCALE EFFICIENCY (ECONOMIES OF SCALE AND SCOPE)

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The literature on economies of scale in Colombian banks began with a study by Bernal and Herrera (1983). The study sought to estimate a Cobb-

Douglas type of cost function for the banking industry, to quantify the elasticity of costs to changes in the level of output. The study shows the existence of economies of scale in 1981 (Table 1).

Because of the assumption made in constructing the cost function, the average cost curve estimated is not U-shaped but a decreasing monotonous function. According to this finding, the economies of scale would never be exhausted and there would be no optimal scale of production, since costs could always be saved by marginally increasing the level of output. So it is not possible to calculate a level of scale inefficiency, because each bank's current level of production cannot be compared with an optimal level.

Suescún (1987) and Ferrufino (1991) updated and improved on the estimations of Bernal and Herrera (1983) by using more flexible functional forms to model operating costs and by considering bank outputs other than the loan portfolio (Table 1). Their findings are similar for commercial banks, but they too failed to obtain average cost curves with minimums for these banks, so that it was impossible to determine an optimal output level.

TABLE 1  
ECONOMIES OF SCALE 1/

Study	Period studied	Output	ES	AES 2/
Bernal y Herrera (1983)	1981	Loan portfolio	0,93	
Suescún (1987)	1983 y 1986	No. of active & passive accts.	0,71	0,83
Ferrufino (1991)	1986-1988	No. of active accounts	0,61	0,82
		No. of active & passive accts.	0,67	
Suescún y Misas (1996)	1989-1995	Loan portfolio	0,78	1,06
Castro (2001)	1994-1999	Loan portfolio	0,76	
		Investments	0,18	

1/ For commercial banks only.

2/ Amplified economies of scale (AES): Economies of scale that take into account output expansion.

**TABLE 2**  
**CHARACTERIZATION OF COLOMBIAN BANKS' PRODUCTIVE ACTIVITY**

Study	Inputs	Outputs
Suescún Misas (1996)	Physical capital, labor	Loan stock
Castro (2001)	Physical capital, deposits, labor	Loan & investment stocks
Badel (2002)	Financial capital, labor	Loan & investment stocks
Janna (2003)	Physical capital, deposits, labor	Loan & investment stocks
Estrada y Osorio (2003)	Physical capital, deposits, labor	Loan & investment stocks, deposits with other intermediaries

The only study to overcome the constraint described above is by Suescún and Misas (1996), who used a translog specification of the banks' cost function and modeled the banking system as a group of firms using physical capital and labor to produce stocks of loans (Table 2). The cost function also included the number of bank branches and a temporal trend to quantify [the effect of] technological change on costs.

The study measured scale inefficiency by comparing for each firm the difference between the unit costs of producing its observed loan quantity and the corresponding minimum average cost when the firm operates with its number of branches and the sector's average factor prices. The findings revealed that scale inefficiency was low, since operating at a socially optimal output level meant only a 3.2% saving of operating costs. Suescún and Misas (1996) also corroborated the existence of simple economies of scale but not economies of scale involving the opening of new office (Table 1).

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## II. ECONOMIC EFFICIENCY (ALLOCATIVE EFFICIENCY AND TECHNICAL EFFICIENCY)

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The first measurement of X-inefficiency in Colombian banks was also made by Suescún and

Misas (1996). Applying the thick-frontier approach,<sup>2</sup> they used a six-monthly sample of 22 banks between 1989 and 1995 and found that X-inefficiency accounted for about 27% of commercial banks' total operating costs (Table 3).

It is important to point out, however, that the study did not include financial costs within the banks' cost structure. Hence, the study's measure of inefficiency ignored the greater part (about 66.2%) of total costs, tending to underestimate the degree of economic inefficiency.

Castro (2001) adopted an intermediation approach to characterize the productive activity of banks. According to this approach, banking consists of using deposits, physical capital and labor (three inputs) and producing stocks of loans and/or investments (two outputs). Thus, this approach takes into account financial costs as well as operating costs in estimating the cost function, thereby obtaining a more accurate measure of input efficiency.

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<sup>2</sup> The "thick frontier" approach divides all financial entities into different groups according to their historical performance in terms of administrative spending on assets, which makes it possible to separate "efficient" banks from "inefficient" ones. Once this is done, a cost frontier is estimated for each group. Cost differences between groups are considered inefficiencies, while each group's regression residuals are regarded as random noise.

TABLE 3  
ECONOMIC EFFICIENCY

Study	Period studied	Methodology 1/	Average X-efficiency
Suescún Misas (1996)	1989-1995	TFA	73%
Castro (2001)	1994-1999	DFA	49%
Badel (2002) 2/	1998-2000	DFA	73%
Janna (2003)	1992-2002	SFA	34%
Estrada y Osorio (2003)	1989-2003	SFA	28%

1/ TFA: thick frontier approach; DFA: distribution free approach; SFA: stochastic frontier approach.

2/ The estimated cost frontier includes Costa Rican, Colombian and Mexican banks. The figure here is the average for Colombian banks.

The estimation methodology used unbalanced panel data from 30 banks, covering the period from January 1994 to December 1999. Castro found that the Colombian banking sector's relative cost efficiency averaged 55.2%, which suggests that, in the absence of X-inefficiency, the banks could reduce their costs by about 44% in producing the same quantities of loans and investments.

Badel (2002), for his part, sought to broaden the studies on X-efficiency in Colombian banks through comparisons with other banking systems in Latin America. To this end, he estimated a cost function common to Colombian, Mexican and Costa Rican banks, using information from 54 banks for 1998-2000. Modifying the intermediation approach used by Castro (2001), Badel did not regard physical capital as a relevant input for producing stocks of loans and investments. Instead, he established financial capital as a fixed input, considering it an alternative source of financing for such outputs.

Badel's findings revealed that average efficiency was fairly homogeneous across the countries, though there was high dispersion within each country. On average, the most efficient banks over the period under study were those of Costa Rica, with 77%, followed by Colombian banks (73%)

and Mexican banks (66%). However, Colombian banks were found to be more efficient than Mexican or Costa Rican ones in the last year of the period studied (2000).

Because of the methodology used, the studies by Suescún and Misas (1996), Castro (2001) and Badel (2002) could only measure inefficiency relative to the most efficient bank or group of banks. That is to say, their constructions assumed that the firm with the lowest cost per output represented the best possible practice in the industry, ignoring that the "most efficient" firm might also be wasting resources relative to an optimal cost frontier.

More recently, Janna (2003) and Estrada and Osorio (2004) have tried to overcome that constraint, so as to obtain estimators of absolute inefficiency rather than inefficiency relative to the best-practice bank.

Using a characterization of banking similar to Castro's (2001), and on information from 28 credit institutions for 1992-2002, Janna (2003) estimated a stochastic cost frontier for Colombia's banking system. He found that the system currently presents an efficiency indicator of around 43% (an average of 34% for the period studied), which suggests a lot of room for reducing costs (Table 3)

Estrada and Osorio (2004), for their part, have used information for 1989-2003 from different financial intermediaries to construct a cost frontier for the entire financial system. Applying a cost frontier estimation similar to Janna's (2003), they have found that the inefficiency indicator for the average bank is 28%, the lowest estimated so far by any of the studies.

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### III. TIME VARIATIONS IN ECONOMIC EFFICIENCY

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Castro (2001), Badel (2002) and Janna (2003) have all tried to measure to what extent banking efficiency has changed over time. Their findings are mostly similar and favor the conclusion that great advances were made in cost saving in the 1990s.

Castro sought to quantify the impact of various mergers and acquisitions on the efficiency of the entities involved, in 1996-1999. His findings revealed that, on average, such reorganizations had a negative effect in terms of efficiency, though detailed analysis of each case provided mixed results. For example, privatization and acquisition by foreign agents subsequently improved bank efficiency, whereas nationalization had a negative effect. Between 1994 and 1999, average efficiency for the banking sector as a whole (including reorganized and other banks) improved by 10.3%.

Badel (2002), for his part, constructed time-varying indicators of efficiency to observe changes in the banking efficiency of each of the countries studied. He found that Colombian banks registered some improvement. In effect, though they were less efficient than Mexican or Costa Rican banks in the

first half of 1998, by the second half of 2002 their indicator was the best of the three countries'.

Lastly, Janna (2003) sought to quantify Colombian banks' efficiency improvements between 1992 and 2002, so as to identify the major factors that had caused them. His findings revealed that the banks' average efficiency improved by 63% (or 17 percentage points) in those ten years but not uniformly over the period, for their progress was interrupted by the financial crisis of 1998-1999.

Janna also showed that efficiency progress between 1992 and 1998 stemmed largely from changes in general market conditions that affected the whole banking system (deregulation, economic cycle, market deconcentration), whereas improvements after 2000 resulted from each bank's control variables. He concludes therefore that this shift in efficiency-driving variables bears out the view that the crisis had a "disciplining effect" on the banks' cost management. For it detached progress in efficiency from improvements in environmental conditions and gave relevance to a number of variables under greater control by each bank.

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### IV. DETERMINANTS OF ECONOMIC EFFICIENCY

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Castro (2001) and Badel (2002) aimed to explain efficiency levels on the basis of each bank's particular variables (type of ownership, type of output, and other features of the entity). In Castro's study, the simultaneous inclusion of all relevant variables in one regression provided no statistically significant coefficient. But regressions carried out with fewer

**TABLE 4**  
**DETERMINANTS OF COLOMBIAN BANKS' X-EFFICIENCY**

Variables	Studies		
	Castro (2001)	Badel (2002)	Janna (2003)
<b>Ownership</b>	Foreign Public	Not significant Negative	Positive Not significant
<b>Company features</b>	Size Offices Return on assets Return on equity Solvency	Negative Positive Positive	Positive Negative Positive
<b>Type of output</b>	Credit deterioration Output quality % of commercial loans	Negative Positive	Negative Negative Positive
<b>Environment / market conditions</b>	Regulatory burden Economic cycle Concentration		Negative Negative Negative

variables provided some significant relationships (Table 4). In Badel's study, all the variables used were significant in a single regression.

Janna (2003) not only tried to explain banks' X-efficiency in terms of each bank's particular variables, as had Castro and Badel, but he also included some variables that described general market (environmental) conditions and had the same behavior for all banks. The inclusion of these industry-wide variables provided interesting results, revealing that regulatory burden, economic cycle and market concentration all had a negative effect on efficiency (Table 4).

#### V. OTHER TYPES OF EFFICIENCY

Benefit efficiency is another way of characterizing the behavior of a firm. As in the case of cost efficiency (economic efficiency), the idea of this

measure is to gauge a bank's position against an optimal frontier of benefits (a function describing the greatest quantity of benefits that a financial entity can achieve subject to its industry characteristics).

In a market with perfect competition, cost efficiency and benefit inefficiency should be equal. But, in the presence of any type of market power, firms may exhibit optimal benefit levels without operating at minimum cost. Hence, comparing indicators of benefit efficiency and cost efficiency may cast light on the structure of the banking market.

The only measurement of benefit efficiency for Colombia's financial sector is to be found in Estrada and Osorio (2004). Specifically, the benefit efficiency of commercial banks is estimated at around 50%; that is to say, if these banks operated optimally they could, on average, double their benefits. Comparing these authors' benefit-efficiency measurement with their cost-efficiency

estimation reveals benefit efficiency to be greater than cost efficiency. Similarly, no high relation is found to exist between individual intermediaries' cost-efficiency and benefit-efficiency measures. Estrada and Osorio believe that these findings reflect the existence of some market power in the Colombian banking sector.

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## VI. CONCLUSIONS

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The studies on economies of scale and scope in Colombia's banking sector were mostly carried out in the 1980s and early 1990s, and their findings in general favored the idea there were economies of scale in banks in those years. But the lack of studies for the second half of the 1990s and the years since 2000 precludes the conclusion that economies of scale persist today.

There are few studies about input efficiency, and their findings are rather more heterogeneous than those of studies on economies of scale. In effect, measures of cost efficiency in banking are quite sensitive to the functional forms of costs, the variables chosen as inputs and outputs, the sample used, and estimation methodologies.<sup>3</sup>

Although efficiency estimators fell within a relatively broad range (between 28% and 73%), there is still potential for the costs of Colombian banks to be more efficiently managed. This potential is actually greater than in developed countries, where banks are closer to their efficient frontier.<sup>4</sup> Colombian banks have, in fact, begun in recent years to exploit this capacity for improving their cost management, as evidenced by the studies that have measured temporal variations in cost efficiency.

Lastly, there is some evidence that the efficiency of Colombian banks is influenced both by factors peculiar to each entity (type of ownership, levels of financial capital, type of business, size of branch network), and by environmental factors jointly affecting the whole sector (regulatory burden, economic cycle, market concentration, financial crises). For this reason, regulators and bank managers alike hold the main tools for continued improvement in Colombian banking efficiency.

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<sup>3</sup> Berger and Mester (1997).

<sup>4</sup> Berger and Humphrey (1997) report that studies on the United States estimate the country's economic-efficiency level to range between 61% and 95%.

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