



FINANCIAL STABILITY REPORT

September 2014

Banco de la República
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EXECUTIVE SUMMARY

During the first semester of the year, a weak global demand, a fall of export prices in some countries and a low investment dynamic led to reduced growth forecasts for most Latin American and the Caribbean economies. In contrast, the Colombian economy shows signs of soundness, and growth in 2014 is expected to be at or above 2013 levels, which has been reflected in variable-yield securities valuations. As for the public debt market, a flattening of the yield curve was noted, partly in response to an increase in *Banco de la República's* (the Central Bank of Colombia) benchmark rate.

Regarding credit institutions' asset accounts, the gross loan portfolio growth remained stable and the investments one decreased. Consequently, the assets share of the latter was reduced. On the liability side, composition showed no substantial changes, with savings accounts, fixed term certificates of deposits (CDT in Spanish) and current accounts being the deposits with the greater participation. In terms of profitability, returns on assets and equity on assets stabilized as a result of a better dynamic recorded by profits, after both indicators had shown a decreasing trend since June 2013.

At the end of the first half of 2014, the non-banking financial institutions investment portfolio mainly consisted of government bonds. This portfolio's balance increased compared with that observed in December 2013, mainly driven by the performance of the portfolios managed by pension and severance fund managers and trust companies. These went from recording losses to having profits, leading to an increase of the non-banking financial institutions' profitability indicators.

Between June 2013 and December 2014, credit institutions' exposure to their debtors increased, mostly due to higher household debt. This was accompanied by higher financial burden levels, so the proportion of income that households had to use for debt servicing was higher than that observed during 2013. Expectations and purchase intent indicators remain at high and positive levels, and the financial burden is at its highest so far this century.

On the other hand, private corporate sector's debt as a proportion of the GDP increased. Loans with domestic financial institutions were its main source of funding, followed by loans with foreign institutions and bonds. For the studied sample of the private corporate sector, financial indicators to December 2013 show a good liquidity situation, a greater assets growth and lower levels of credit risk. However, this was accompanied by lower profitability, increased debt and financial burden rises.

The exposure to market risk declined for credit institutions, while it increased for non-banking financial institutions due to higher public debt balances in their portfolios and an increase in their duration. This increase in duration makes value to be more sensitive to rate changes. Thus, by assuming an increase of 400 basis points on the TES zero coupon curve, it is found that losses for non-banking financial institutions caused by the shock would increase compared to six months earlier, and would decrease for credit institutions. Meanwhile, calculation of the maximum probable loss in the financial system's portfolio recorded a reduction during the semester because of lower market volatility.

In terms of credit risk, the loan portfolio default indicator increased and the quality one decreased. When assessing the system's soundness given an adverse macroeconomic shock, it was found that loan portfolio deterioration affects the profitability and solvency ratio levels, Although the latter reaches to a value above the regulatory minimum. Otherwise, credit institutions have shown a lower liquidity level, mainly explained by banks performance. Nevertheless, this indicator continues reaching higher levels to those required by regulation, even in hypothetical low liquidity levels scenarios.

When performing a joint risk analysis, it can be concluded that the situation of the financial system is one of soundness. On the one hand, the prospective analysis of possible fragility situations in the banking system, suggests that the probability of experiencing an exceptional risk scenario is low. Likewise, the systemic risk indicator confirms that the financial system does not have high levels of contemporary stress. Finally, the financial stability index results indicate deterioration in the financial system's situation as a result of lower liquidity levels; nevertheless, the aggregate index remains at favorable levels regarding the historical average.

José Darío Uribe Escobar
Governor

FINANCIAL STABILITY REPORT

Written by:
Financial Stability Department
Monetary and International Investment Division

Under the mandate given by the Constitution of Colombia, and according to regulations by Law 31 of 1992, *Banco de la República* (the Central Bank of Colombia) is responsible for ensuring price stability. Proper completion of this task crucially depends on maintaining the financial stability.

Financial stability is understood as a situation in which the financial system efficiently intermediates financial flows, contributing to a better allocation of resources and, hence, to the maintenance of macroeconomic stability. Therefore, financial instability directly affects macroeconomic stability and *Banco de la República's* capacity to fulfill its constitutional mandate, which highlights the need to promote the monitoring and maintenance of the financial stability.

The tasks that *Banco de la República* carries out in order to promote financial stability are the following: first, the Bank is responsible for ensuring the proper functioning of the Colombian economy payment system; second, it provides liquidity to the financial system through its monetary operations and making use of its constitutional feature of lender of last resort; third, the Bank contributes, together with the Financial Superintendence of Colombia, and within its credit authority functions, in the design of financial regulatory mechanisms to reduce the incidence of episodes of instability; and finally, *Banco de la República* exercises a careful monitoring on the economic trends that may threaten financial stability.

The Financial Stability Report is in the framework of this last task, serving two purposes: first, to describe the recent performance of the financial system and its main debtors, in order to visualize future trends around this behavior and, second, to identify the major risks faced by credit institutions. With these goals, it is purported to inform the general public about the trends and risks related to the financial system as a whole.

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I. MACROECONOMIC ENVIRONMENT

In the first quarter of the year, the international context was characterized by an uneven recovery in the major economies; however, preliminary data on economic performance for the second quarter in the United States suggest a more outstanding dynamics. However, risks still remain: low inflation levels in the euro zone, geopolitical conflicts in the Middle East and Eastern Europe, and a less favorable perspective for emerging economies. In the case of Latin America and the Caribbean, given the performance in the first half of the year, a decrease in economic growth forecasts is highlighted, while for Colombia an increase is expected. Based on the above, the International Monetary Fund revised down global growth projections for 2014, while for 2015 it kept them unchanged.

A. INTERNATIONAL ENVIRONMENT¹

During the second quarter of 2014, global economic activity was characterized by a moderate recovery, and growth forecasts for the current year were revised downwards. According to the International Monetary Fund (IMF), world output growth by the end of this year will be of 3.4%, down by 0.3 percentage points (pp) to the projection of April 2014. Meanwhile, for 2015, a stronger expansion in some developed economies is expected, which kept the Fund's projection at 4% (Table 1)². For advanced economies, as well as the emerging and developing ones, a growth in the gross domestic product (GDP) for 2014 of 1.8% and 4.6% is projected, while forecasts for 2015 are at 2.4% and 5.2%,

1 Economic growth data presented in this section is in real terms.

2 Update as of June 2014 of FMI's Economic Outlook Report from April 2014.

Table 1
Economic growth
(annual percentage variation)

	2013	Current projections		Differences with April 2014 projections	
		2014	2015	2014	2015
World GDP	3.2	3.4	4.0	(0.3)	0.0
Advanced economies	1.3	1.8	2.4	(0.4)	0.1
United States	1.9	1.7	3.0	(1.1)	0.1
Eurozone	(0.4)	1.1	1.5	0.0	0.1
Japan	1.5	1.6	1.1	0.3	0.1
United Kingdom	1.7	3.2	2.7	0.4	0.2
Canada	2.0	2.2	2.4	(0.1)	0.0
Emerging and developing economies	4.7	4.6	5.2	(0.2)	(0.1)
Asian emerging and developing countries	6.6	6.4	6.7	(0.2)	(0.1)
China	7.7	7.4	7.1	(0.2)	(0.2)
India	5.0	5.4	6.4	0.0	0.0
Commonwealth of Independent States	2.2	0.9	2.1	(1.0)	(1.1)
Russia	1.3	0.2	1.0	(1.1)	(1.3)
Latin America and the Caribbean	2.6	2.0	2.6	(0.5)	(0.3)
Brazil	2.5	1.3	2.0	(0.6)	(0.6)
Mexico	1.1	2.4	3.5	(0.6)	0.0
Colombia	4.3	5.0 ^{a/}	4.5	0.7	0.2

a/ Banco de la República's projection.

Source: International monetary Fund – IMF (April 2014 World Economic Outlook Update, presented in July 2014).

in that order³. In the case of Colombia, a higher growth than the previously established is projected, being at 5% for 2014 and 4.5% in 2015⁴.

Although during the year's first quarter positive behaviors were evident in the economies of Japan, Spain and the United Kingdom, in the United States case the harsh winter affected its recovery dynamics, being reflected in the contraction of its GDP. Similarly in Russia, activity slowed down due to tensions arising from the conflict with Ukraine, while other emerging countries were affected by a lower external demand, mainly from the United States and China.

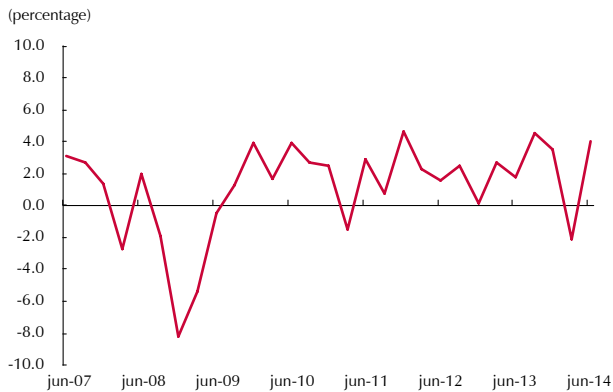
2. United States

In the year's second quarter, the United States economy had an activity recovery, with a 4.2% annualized quarter (a.q.) increase, a figure higher than

3 In the April 2014 Economic Outlook Report, economic growth projections for advanced economies, as well as for the developing and emerging ones, were of 2.2% and 4.8%, while for 2015 they were at 2.3% and 5.3%.

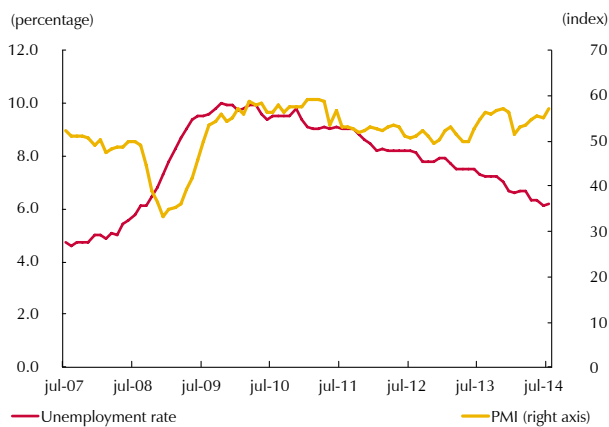
4 The projection for 2014 corresponds to the most probable value of Banco de la República's forecast range, which is between 4.2% and 5.8%, while the 2015 one comes from the Economic Outlook Report of April 2014.

Graph 1
Quarterly GDP growth in the United States



Source: Bloomberg.

Graph 2
U.S. unemployment rate and manufacturing purchasing manager's index (PMI)



Source: Bloomberg.

the expected by the market (2.9% a.q.), and to the contraction in the first quarter (2.1% a.q.) (Graph 1). This is mainly due to higher government and households spending, greater investment and a rise in exports compared to what was observed between January and March. Similarly, the momentum of the economy is reflected in the consumer confidence index, calculated by the Conference Board: as of July of this year, it was at 90.9, a figure higher than the registered a year ago (81.01) and the first six months of 2014 average (81.9). It should be noted that this indicator is the highest since October 2007 (95.2), suggesting that U.S. consumer confidence continues to establish itself.

Moreover, the manufacturing index⁵ (purchasing manager's index - PMI) registered a value of 57.1 in July of this year⁶. It is worth noting that this index largely reflects the behavior and dynamics of the economy, which has also reflected in the unemployment rate, which has steadily declined since October 2009, from 10.0% to 6.2% in July of this year (Graph 2).

Finally, in terms of monetary policy, in January 2014 the Federal Reserve of the United States (Fed) began to gradually reduce the monetary stimulus, as announced at its meeting in December 2013. Therefore, monthly purchases of financial assets by the Fed went from US\$ 85 billion in December to US\$ 35 billion in July⁷. So far this year, dismantling

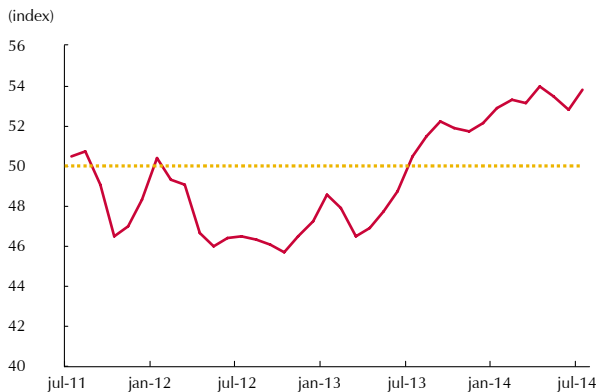
this program has not generated a significant volatility in the financial markets, unlike what happened in the second half of 2013, when the start of discussions about the issue raised fears about some emerging countries economic and financial stability.

5 The purchasing manager's index (PMI) used for the US economy, is the one developed by the Institute of Supply Management (ISM). This is a macroeconomic indicator that tries to reflect a country's economic situation focusing on the manufacturing sector's activity. It is divided into five subcategories, namely: new orders, production level, employment level, suppliers' delivery term and finished goods inventory. The interpretation of the index indicates an expansion in economic activity to values above 50, while values below this reference threshold indicate a contraction.

6 It is important to mention that the data recorded in July 2014 is the highest since April 2011, where the PMI reached a value of 58.9.

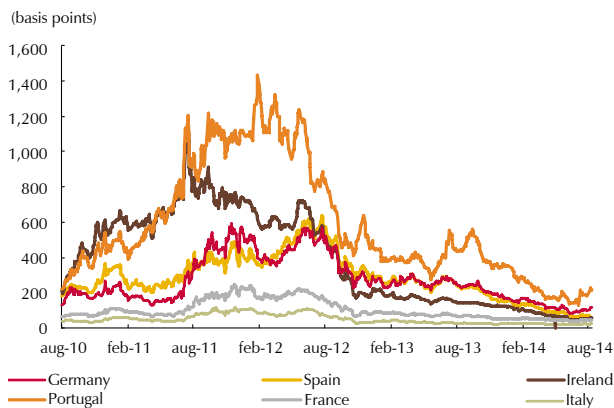
7 It is expected that the Fed's financial assets purchase programme ends in October 2014.

Graph 3
Markit's composite PMI



Source: Bloomberg.

Graph 4
Five years credit default swaps (CDS) in some European countries



Source: Bloomberg.

3. Eurozone

The eurozone economy stagnated in the year's second quarter, with a GDP growth of 0.0% annualized quarterly, as opposed to the 0.1% on market expectations. This contrasts with the positive growth rates for four consecutive quarters, and brings back concern on the region's stable recovery. Despite this, the unemployment rate in July was at 11.5%, representing the lowest level in nearly two years. Similarly, the Markit⁸ composite purchasing manager's index reached 53.8 in July 2014, presenting a recover after the drops registered in May and June of the same year. It should be pointed that the index has remained above the reference threshold (50) since July 2013, which could suggest a recovery trend in the zone (Graph 3).

With regard to the financial markets, a relative stability in credit default swaps (CDS)⁹ from countries like Spain, Germany, Ireland, France and Italy should be highlighted, which continue to decline since the second half of 2012; at the end of July 2013, the group's average was at 198.93, while a year later, it was at 76.45¹⁰ (Graph 4).

However, economic risks within the eurozone still remain. On the one hand, moderate growth is largely due to low inflation rates—which was of 0.4% in July 2014—, continuing financial fragmentation¹¹,

8 The composite purchasing manager's index (PMI) used for the eurozone is carried out by Markit, and is based on information on a representative sample of approximately 5,000 companies in the manufacturing and services sector in the eurozone. The composite PMI is a weighted average of the manufacturing and services PMI where, in both cases, the information received is not on opinion but existing to date figures (new orders, production level, among others). Interpretation of the PMI composite index indicates an expansion in economic activity to values above 50, while below values indicate a contraction.

9 A CDS is a financial contract between an entity and a bond holder. Under that contract, the bond holder pays a premium to the entity, measured in basis points, in return for the latter to pay for the bond's nominal value if the issuer does not comply with its obligations. The valuation of a CDS has direct relation with the investors' risk aversion level.

10 It is noteworthy that although Portugal shows a downward trend on its risk premiums, an increase was recently observed. This is basically associated with the intervention by the Portuguese Central Bank to Banco Espírito Santo over default on bonuses.

11 It is important to highlight that, despite the financial fragmentation in the region, since November 2014, the common banking supervision by the European Central Bank will start to be implemented. Before the entry into operation of this mechanism, an assessment of the bank balance sheets and stress test will be made, in order to identify and meet the potential recapitalization needs of some institutions, so that monitoring is performed on a banking system in good financial soundness.

deteriorating public and private balance sheets and high unemployment in some economies. On previous occasions, the IMF has warned of the risk of lower inflation rates that have been occurring since mid-2011, since longer term inflationary expectations could be declining and the price level would be lower than the expected, thus increasing the debt's real burden, premature real interest rates increases would happen and the inflation probability would increase if adverse shocks on the economic activity take place.

Additionally, according to the European Central Bank (ECB), geopolitical risks may affect the region a rise in energy prices were to materialize, because Ukraine is the channel through which the eurozone receives gas from Russia. Also, the less favorable outlook on emerging economies, could lead to a lower demand for goods produced in the eurozone. Finally, if these risks were to materialize, the ECB also warns of a possible insufficiency of structural reforms to address them in some region's countries.

4. China

Economic activity in China, after having shown signs of weakening in the first quarter of the year, regained its dynamics in the second quarter, growing at a year over year (y/y) rate of 7.5%. The recorded figure was slightly higher than market expectations (7.4% y/y), which is mainly due to the fiscal stimulus provided by the government.

Despite this, as of July of this year, data which reflects the state of the economy as a whole are heterogeneous. The manufacturing purchasing manager's index (PMI)¹² presented a value of 51.7, being the index's highest figure since May 2011 (52). This increase is mainly due to an improvement in three of the five contemplated subcategories¹³. As for credit growth, measured by the total social financing¹⁴, a slowdown took place, which recorded the lowest level since October 2008 with a notional amount of US\$ 42.9 trillion, compared to an expected US\$ 309.7. On the other hand, the drop observed since 2011 in housing prices and the steady growth in the construction sector, generate concern for a housing collapse. Given the above, it is expected that the government offers more support to keep its annual growth target of 7.5%.

12 The manufacturing PMI employed for China is developed by Markit; its components and interpretation are the same as the previously described.

13 The subcategories that grew the most were new orders and production level. In turn, the inventory of finished goods grew to a lesser extent, while employment level remained constant.

14 The total social financing is a more comprehensive measure for calculating credit in the economy, since it includes bank loans, bonds and loans granted by unregulated banking (shadow banking).

5. Latin America and the Caribbean

Regarding the economies of Latin America and the Caribbean, a slowdown in most countries economic activity for the year's second quarter occurred, given the low global demand and the slight investment expansion. Based on the above, the IMF reduced growth projections for the region to 2.0%¹⁵ (Table 2). It is worth noting that, except for Colombia, Peru and Ecuador, the other South American countries showed a decrease in the projections for their economies, being the most relevant those of Argentina, Venezuela and Brazil (with a negative change of 2.3 (pp), 2.2 pp and 1.0 pp, in that order). Meanwhile in Central America, the biggest change was recorded for Mexico (moving its projection from 3.0% to 2.4%), although the rest of the economies show relatively stability. Finally, for the Caribbean, the rise for the Dominican Republic is remarked, increasing from 3.6% to 4.5%.

Moreover, by the year's second quarter most countries show a rise in their inflation levels. The most relevant cases are registered in Venezuela (61.3% y/y) and Argentina (28.4% y/y). For its part, the aggregated inflation projection for 2014 is of 6.7%, a slightly higher figure than the previous forecast (6.5%), although lower than the figure at the end of 2013 (6.8%).

For 2013 the region's current account deficit was 2.7% of GDP, a figure higher than the previous forecast (2.4%). This increase is due to higher deficits presented in Panama, El Salvador, Mexico, Costa Rica and Uruguay. For 2014, no changes in the current account's balance aggregate are projected; nevertheless, a significant reduction for Honduras (moving from 8.8% in 2013 to 7.4% in 2014), and a deepening of the deficit for Ecuador (increasing from 1.5% to 2.4%) is observed.

As the normalization of the monetary policy in the United States advanced, during the year's first quarter, a mixed behavior in the region's currencies was observed: Brazil and Mexico had appreciations, while the rest of countries showed depreciations. In contrary, during the second quarter of 2014, appreciation was the trend. Despite this, central banks in the region adopted macroprudential measures¹⁶ to better manage capital flows and accumulation of international reserves.

Furthermore, the better dynamics of the US economy increases the probability of rises in its policy rate, which could lead to a further depreciation in the region's currencies. Similarly, a possible increase in interest rates in the

15 The Economic Outlook Report from October 2013 projected a 3.0% growth for the region by the end of 2014.

16 These measures include regulatory and intervention changes in the foreign exchange market: an increase in the amount of purchased dollars in the foreign exchange market (Colombia), a reduction in the reserves requirement on deposits in local currency (Peru), among others.

Table 2
Indicators for some Latin American and the Caribbean countries

	Economic growth (annual percentage variation)			Inflation rate (annual percentage variation)			Current account balance (GDP percentage)		
	2013	2014 ^{c/}	2015 ^{c/}	2013	2014 ^{c/}	2015 ^{c/}	2013	2014 ^{c/}	2015 ^{c/}
Latin America and the Caribbean	2,6	2,0	2,6	6,8	6,7	6,5	(2,7)	(2,7)	(2,8)
South America									
Argentina ^{b/}	4.3	0.5	1.0	10.6	-	-	(0.9)	(0.5)	(0.5)
Brazil	2.5	1.3	2.0	6.2	5.9	5.5	(3.6)	(3.6)	(3.7)
Chile	4.2	3.6	4.1	1.8	3.5	2.9	(3.4)	(3.3)	(2.8)
Colombia ^{a/}	4.3	5.0	4.5	3.0	3.0	2.9	(3.3)	(4.0)	(3.2)
Ecuador	4.2	4.2	3.5	2.7	2.8	2.6	(1.5)	(2.4)	(3.1)
Peru	5.0	5.5	5.8	2.8	2.5	2.1	(4.9)	(4.8)	(4.4)
Uruguay	4.2	2.8	3.0	8.6	8.3	8.0	(5.9)	(5.5)	(5.2)
Venezuela	1.0	(0.5)	(1.0)	40.7	50.7	38.0	2.7	2.4	1.8
Central America									
Costa Rica	3.5	3.8	4.1	5.2	2.9	4.5	(5.0)	(5.1)	(5.1)
El Salvador	1.6	1.6	1.7	0.8	1.8	2.6	(6.7)	(6.3)	(5.9)
Guatemala	3.5	3.5	3.5	4.3	4.0	4.1	(3.0)	(2.6)	(2.3)
Honduras	2.6	3.0	3.1	5.2	5.5	6.5	(8.8)	(7.4)	(6.0)
Mexico	1.1	2.4	3.5	3.8	4.0	3.5	(1.8)	(1.9)	(2.0)
Nicaragua	4.2	4.0	4.0	7.4	7.0	7.0	(13.2)	(12.7)	(12.2)
Panama	8.0	7.2	6.9	4.0	3.8	3.6	(11.9)	(11.5)	(11.2)
The Caribbean									
Dominican Republic	4.1	4.5	4.1	4.8	3.9	4.2	(4.2)	(4.5)	(5.2)
Guyana	4.8	4.3	4.0	3.5	3.9	4.3	(17.9)	(18.3)	(19.9)
Surinam	4.7	4.0	4.0	1.9	1.7	3.1	(4.7)	(4.5)	(6.7)

a / The projections presented for 2014 are estimates of *Banco de la República's* technical team, while the 2015 ones correspond to IMF calculations.

b / Inflation figures are official.

c / Figures presented for the years are projected.

Source: IMF (World Economic Outlook, April-July 2014).

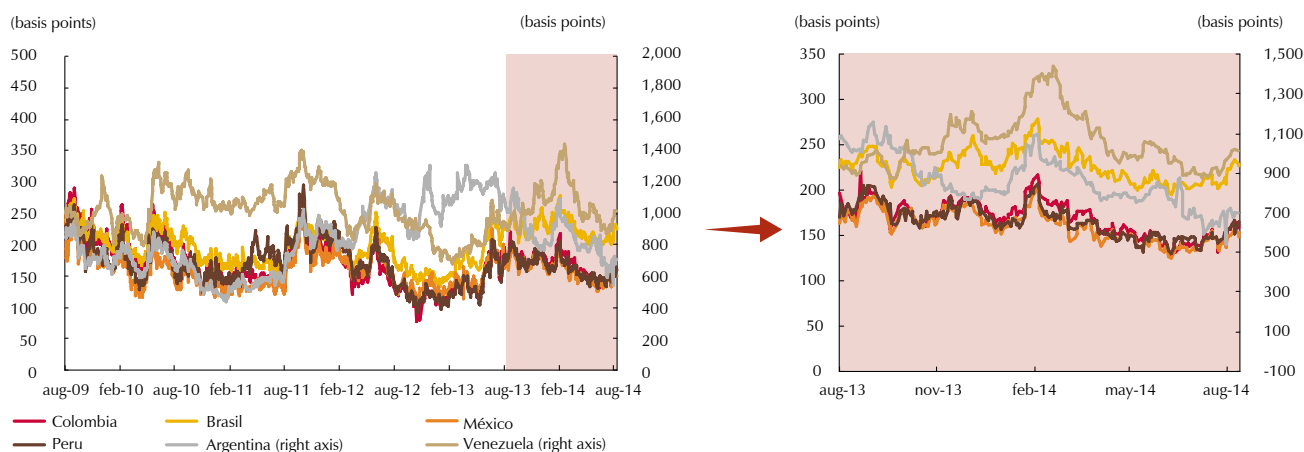
developed economies would generate more demand for their financial assets, a reason why foreign capital flows in the region could decline. At the same time, this would give rise to higher costs of external funding for Latin America and the Caribbean.

Meanwhile, the region's countries sovereign risk has remained stable (Graph 5). The EMBI+¹⁷ has lower levels that the evidenced a year ago, where Venezuela, Argentina and Brazil remain the countries with the highest levels due to fiscal, economic growth and external demand difficulties.

17 The Emerging Markets Bond Index Plus (EMBI+) is computed by JP Morgan to analyze the weighted behavior of sovereign debt bonds for 16 emerging countries.

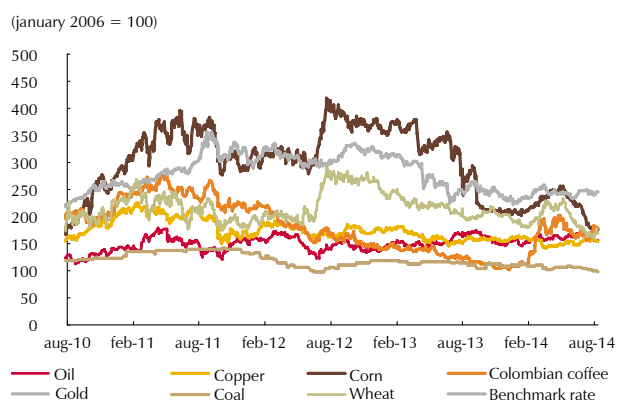
Finally, commodities prices so far in 2014, presented a mixed performance, where a decrease in the price of corn and wheat is remarked, as well as a relative stability in the prices of coal, copper, gold and oil. For its part, the one that has shown a higher price throughout the year has been Colombian coffee at the New York Stock Exchange, with an index that has passed from 107.20 at the beginning of the year, to 179.02 on 12 August of the present year¹⁸ (Graph 6). Regarding the terms of trade index so far this year, a drop for the region's countries sample is observed, except for Mexico and Colombia¹⁹. For the latter, it is important to mention that the index remains at historically high levels, and that for 2014 a behavior similar to the one of 2013 is expected.

Graph 5
EMBI+ for some Latin American countries



Source: Bloomberg.

Graph 6
Price of Commodities



Source: Bloomberg.

The performance of the world economy during the year's second quarter was mixed. On the one hand, economic activity in the United States had a performance above that expected by the market and a strengthening in the country's economic recovery begins to be noticed. In turn, in the global economy, risks associated with the dynamics of the Chinese economy and other emerging countries persist, as well as deflation fear in the eurozone. Yet, the latest information from second the quarter growth for China was better than expected, which could suggest that, along with the momentum of the US

18 The performance of Colombian coffee on the New York Stock Exchange showed the highest increase during the year's first quarter, which is explained in particular by the weather conditions affecting crops in Brazil, and the roya disease which negatively impacted production in Central America.

19 For Colombia's, the one used is calculated based on the producer price index. It is defined as the ratio between the exported goods price index and the imported goods price index.

economy, for the second half of the year, a recovery in the external demand favoring some emerging economies will take place.

With respect to global financial stability, it should be emphasized that according to the IMF some risks on economic performance remain. Geopolitical risks have worsened since April; conflicts in the Middle East could materialize a rise in oil prices in international markets, while conflicts in Ukraine will boost an increase in energy prices for the eurozone. Markets are tuned to a much stronger and earlier than expected rise in the US benchmark rate as the normalization of its monetary policy continues. Lastly, as for the emerging economies, mainly those most exposed to external vulnerabilities, a possible worsening in financial conditions due to a change in capital flows is underlined.

B. DOMESTIC FINANCIAL MARKETS

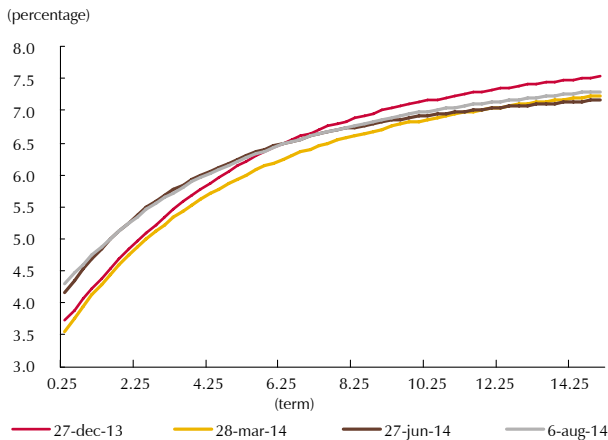
The behavior of the financial markets in Colombia during the first semester of 2014 was determined by both domestic and external factors. Domestically, the increase in the benchmark rate by *Banco de la República* influenced the money market and public debt evolution. On the external context, the announcement and subsequent implementation of the fixed income indexes rebalance by JP Morgan, the decreased risk perception —given the better growth prospects in the United States and China— and the announcement of the reduction in the benchmark interest rate by the European Central Bank, also influenced the domestic public debt market and generated valuations in the equity markets. Additionally, it is noted that during the first half of the year, the effects of the gradual dismantling of the Fed’s monetary stimulus program (tapering), were lower than those observed in the second half of 2013.

The zero coupon rates of TES denominated in Colombian pesos exhibited increases in the short and medium curve terms, and decreases in the long one between December 2013 and June 2014²⁰, while so far in the second half of 2014 they have presented a relatively stable behavior (Graph 7). When comparing Colombia’s spot curve²¹ of 28 March with the 6 August 2014, depreciations for all terms are observed; between 0 and 2 years, average rate increases were of 62 basis points (bp), between 2 and 5 years they were of 37 bp, and for the longer term ones they were of 14 bp.

20 When comparing Colombian spot curves of 27 December 2013 and 27 June 2014, it is noted that for terms between 0 and 2 years, the average rate increase was of 45 basis points, for periods between 2 and 5 years was of 26 basis points, while for terms between 5 and 15 years the rates average decrease was of 20 basis points.

21 The spot curve represents public debt securities yields of similar characteristics in terms of risk and liquidity, at different maturity times.

Graph 7
Colombia's spot curve



Source: Electronic Negotiation System (SEN for its Spanish acronym) and Colombian Electronic Market (MEC for its Spanish acronym); Banco de la República calculations.

The increases in the rates of short-term TES between March and August so far, are mainly due to the increase in the benchmark rate by *Banco de la República*²², and higher inflation expectations for December 2014²³. Following above, a flattening of the TES B curve yield was recorded, given the higher reaction at the curve's shorter term sections. However, it should be noted that, from the increase in *Banco de la República*'s intervention rate policy in April this year, both long-term and short term rates registered increases²⁴ (Graph 8).

The zero coupon rates behavior in Latin America was different to that observed in Colombia; in general, reductions in rates of ten year securities were recorded (Graph 9). Brazil and Mexico were the countries that showed the greatest reductions, while Chile and Peru did too, but to a lesser measure²⁵. This reflects to a lower risk perception, both international and domestic, and capital inflows given the wide international liquidity conditions and some economies better growth perspectives (US and China). It is likely that the difference between the behavior of Colombia's rates and the countries of the region ones is due, in part, to the different economic and monetary policy cycles that are being carried out. While in Colombia, devaluations are associated with events like a contractionary monetary policy, central banks of other countries except Brazil, have announced reductions in their benchmark rates in response to the growth moderation in their economies²⁶.

When analyzing the liquidity of the securities traded on the Electronic Negotiation System (SEN in Spanish)²⁷, it is noticed that the TES bid ask spread

22 *Banco de la República* increased its benchmark rate by 25 basis points in each of its monetary policy meetings from April to July, from 3.25% to 4.25%.

23 According to the Inflation expectations survey published by the *Banco de la República*, inflation expectation for December 2014 increased from 3.03% in April, to 3.36% in June.

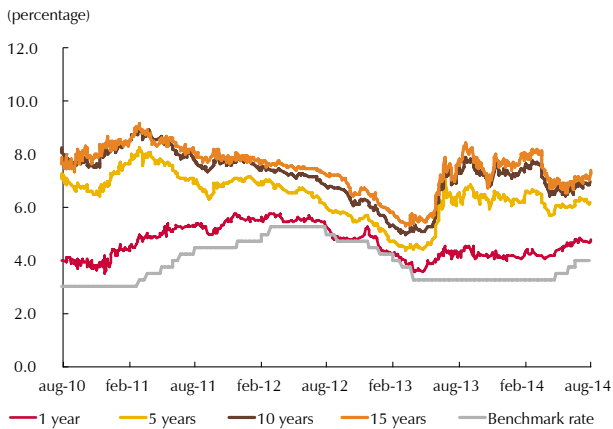
24 Since April (first announcement of a increase in the benchmark rate by *Banco de la República*) until August, the magnitude of changes in the zero coupon rates of TES of 1, 5, 10 and 15 years, has been 49 basis points, 30 bp, 42 bp and 54 bp respectively.

25 So far this year, the ten year securities rates have decreased by 174 bp in Brazil (the largest decrease in rates in the region, mainly due to the increased demand for securities by foreign investors given the higher profitability expectations due to currency appreciation), 93 bp in Mexico, 68 bp in Chile and 49 bp in Peru.

26 So far this year, the Central Bank of Chile has reduced its benchmark rate by 100 bp, the Central Bank of Mexico has done it by 50 bp, and the Central Bank of Peru by 25 bp. Meanwhile, the Central Bank of Brazil has increased its rate by 100 bp.

27 The Electronic Negotiation System (SEN for its Spanish acronym) is the centralized information system for transactions managed by *Banco de la República*, through which registered entities

Graph 8
Zero coupon rate of TES and Banco de la República's benchmark rate



Sources: Banco de la República.

Graph 9
Ten year zero coupon for some Latin American countries



Source: Electronic Negotiation System (SEN for its Spanish acronym) and Colombian Electronic Market (MEC for its Spanish acronym); Banco de la República calculations.

(bas)²⁸ showed a less volatile behavior in the first half of 2014, compared with the same period last year. On average, between January and June 2014, the bas was at 0.24%, while in the same period in 2013 it was at 0.32%²⁹. So far in 2014, two high volatility episodes have occurred, mainly associated with the announcement and the beginning of the indexes rebalancing by JP Morgan, on where more weight in the domestic Colombian fixed income was established³⁰ (Graph 10). It is worth mentioning that so far this year market liquidity seems again to be at values close to those reported before the announcement the dismantling of the Fed's asset purchase program; until early August, the bas has registered an average level of 0.24%, compared to the 0.20% observed in the second half of 2012.

So far in 2014, both the interbank market interest rate (TIB in Spanish) as the overnight banking reference indicator (IBR in Spanish) were, on average, below the reference rate (-3.8 and -4.7 basis points respectively), as the

may carry out, on remote workstations, operations to zero or more days, repurchase agreements (repo) transactions, simultaneous operations, temporary securities transfer operations (TTV in Spanish) with domestic or external public debt securities that are registered or held on a centralized securities depository. In addition, by this system, legally authorized financial institutions can make and record money lending transactions in the interbank market.

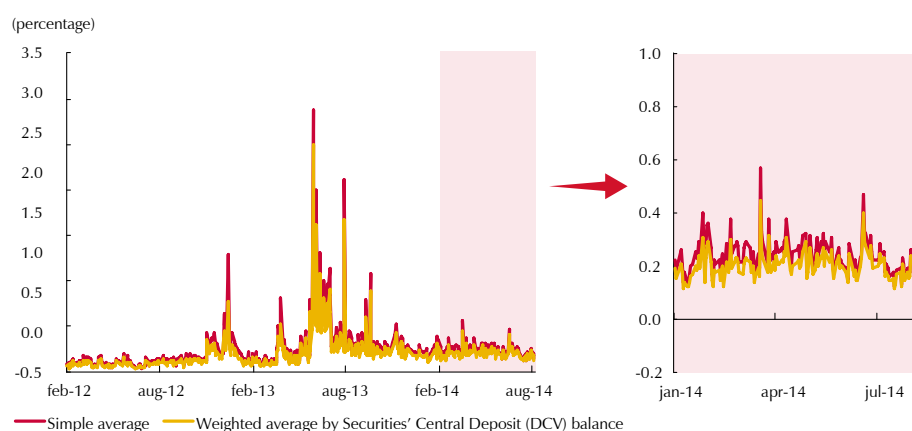
28 The liquidity level is measured by the bid ask spread (bas). This spread shows the difference between the maximum price a buyer is willing to pay for an asset, and the minimum price at which a seller is willing to offer it. The greater the difference, the more illiquid the asset is. The construction of the average bas can be found in Gonzalez and Osorio (2007). "El valor en riesgo ajustado por liquidez en Colombia", Financial Stability Report, Banco de la República, March 2007, p. 120-126.

29 The bid ask spread is presented in relation to the securities' price.

30 On 19 March 2014, JP Morgan announced the increase in Colombia's contribution in the GBI-EM Global Diversified (from 3.2% to 8%), GBI-EM Global (from 1.81% to 5.6%) and GBIEM Global Diversified 15% IG indexes (from 3.07% to 8.26%). These shares began to be gradually adjusted since May 30 until September 2014. Agents anticipate that in the next five months, indexes rebalancing will imply an additional potential demand of TES in Colombian pesos close to \$ 19 trillion by investment funds that follow the JP Morgan index.

Electronic Negotiation System's (SEN) simultaneous operations market rate consistently did (-33 bp)³¹ (Graph 11). In the most recent semester, this behavior could have been explained by conditions of ample liquidity in the money market, generated by tax payments and drafts made the Treasury, in addition to the greater maturity of public debt securities, which exceeded the value of the placements. It should also be noted that money market rates have been rising in line with increases in the policy rate since April this year.

Graph 10
Bid ask spreads simple and weighted average (as price percentage)



Source: Securities' Central Deposit (DCV in Spanish) and Electronic Negotiation System (SEN); Banco de la República calculations.

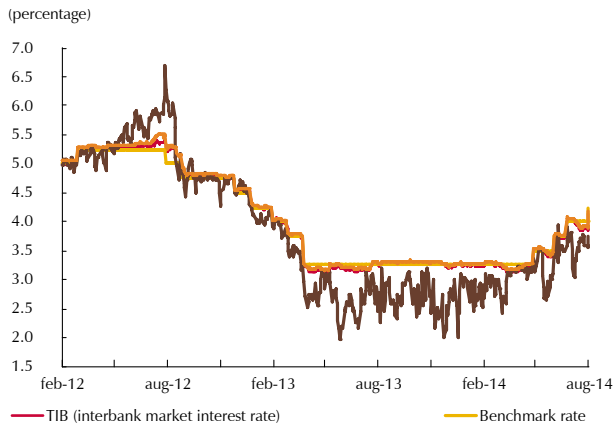
Regarding private debt market's performance in the first half of 2014, a lower balance is observed compared with that recorded in the same period of 2013, while private securities issuances decreased by 19%; during the first semester of 2013 debt worth \$ 5.01 trillion was issued, while so far in 2014 issued debt is up to \$ 4.06 trillion (Graph 12). Issuances of securities tied to the banking reference indicator (IBR) were the ones with the highest growth (121.5%), reaching a 41% share so far this year, compared with the 15% registered in the first half of 2013³². In turn, issuances tied to the DTF (the 90 day fixed term certificates of deposits benchmark rate) were the ones which most decreased (-87.17%), with a share of 0.6% compared to the 3.5% from a year earlier. Finally, it is emphasized that most securities were issued with terms of between 5 and 10 years (32%)³³, and that the financial system issued 51.4% of them.

31 So far in 2014, the simultaneous operations rate was just above the benchmark rate four times, corresponding to the 6, 8 and 9 May and 10 June. The maximum difference occurred on June 10, when the simultaneous operations rate was 18 basis points above the benchmark rate.

32 Securities issuances tied to the IBR have been gaining a share in the total, partly because the rate reflects, in a better measure, the economy's liquidity conditions and the monetary policy posture with respect to other rates (such as the DTF).

33 During the first half of 2014, 24.1% corresponded to placements with a less than 2 years duration, 28.8% were in 2 to 5 years terms, 32% in 5 to 10 years, and 15.2% in 10 to 20 years terms.

Graph 11
Money market rates

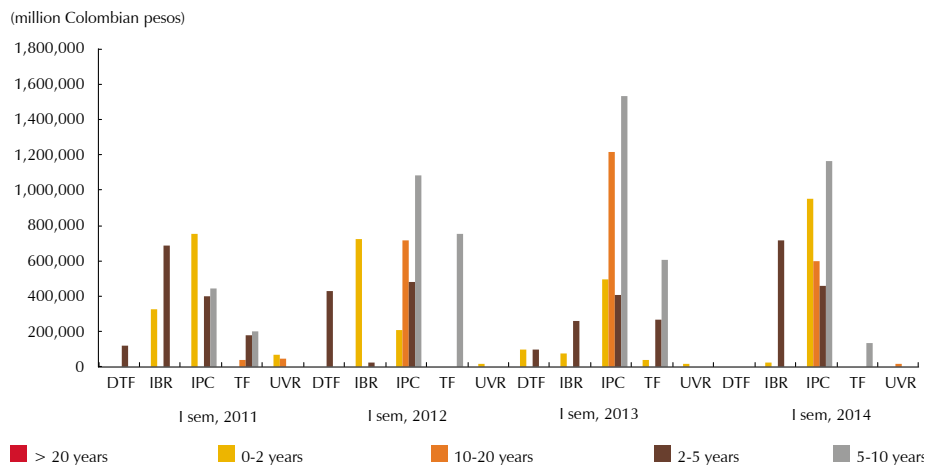


Source: Banco de la República

During the second quarter of 2014, the equity market in Colombia, like that of other countries in the region, recorded a significant recovery following the devaluations occurred during 2013. This behavior was closely linked with improvements in the economic conditions in the global scope, the greater appetite for risky assets by foreign investors, and the behavior in the international price of some commodities³⁴ (Graph 13). In early August 2014, the Colcap capitalization index³⁵ accumulated a 5% appreciation, being higher than the reported by the Mexican Stock Exchange (4.3%), but lower than in Brazil (11.1%), Peru (6.6%) and Chile (5.7%). Finally, during the year's first half, Colcap's average trading volumen was at slightly above 2013 levels,

while conditional volatility had values similar to the ones observed in the previous year, albeit with a declining trend in the most recent months (Graph 14).

Graph 12
Amount of private debt placements by maturity and currency for each year's first semester

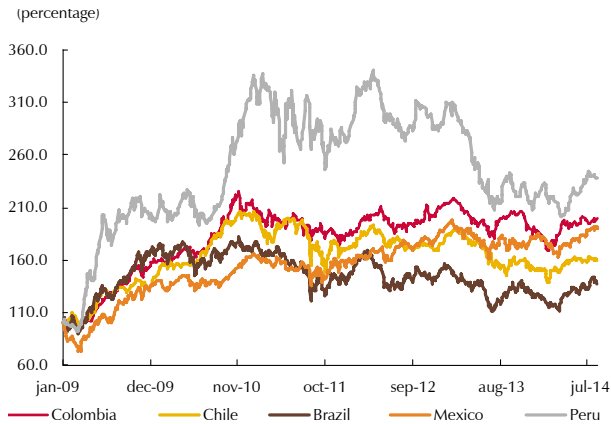


Note: DTF: Fixed term certificates of deposits; IBR: banking reference indicator; IPC: Consumer Price Index; TF: Fixed rate, and UVR: Real Value Unit.
Source: Colombian Securities Exchange (BVC in Spanish).

34 During the second quarter of 2014, oil Price rose by 6 basis points, copper by 5 and gold by 4 bp.

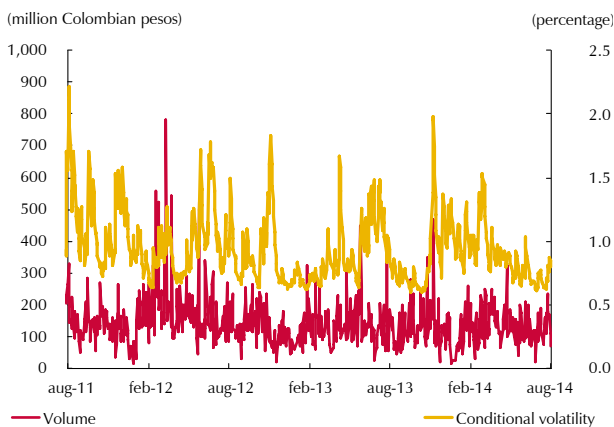
35 The COLCAP is a capitalization index that reflects changes in the prices of the 20 most liquid shares in the Colombia Securities Exchange (BVC), where the contribution of each stock in the index is determined by the corresponding adjusted market capitalization value (company's floating stock multiplied by the last price). As of 1 November 2013, it replaced the Colombian Securities Exchange General Index (IGBC) as the leading indicator of the Colombian stock market's behavior.

Graph 13
Stock indexes for some Latin American countries



Source: Bloomberg, Banco de la República calculations.

Graph 14
Trading volumes and conditional volatility (Colcap)



Source: Colombian Securities Exchange, Banco de la República calculations.

In summary, during the first semester of 2014, the global economic activity moderately recovered, nonetheless, growth forecasts were revised downwards by the existence of geopolitical risks and a less favorable outlook for emerging economies. With respect to global financial stability, it should be emphasized that risks remain according to the IMF, mainly by the uncertainty regarding the normalization of monetary policy process in the United States. So far this year, the international context impacted local financial markets in a significant way and, in general, the economies in the region, mainly via appreciations in the equity markets and lower volatility in the government bonds market.

After the start of the contractive cycle of the Colombian monetary policy, public debt securities market rates have been rising, contrary to what was observed in the other countries of the region. Financial markets in Colombia generally showed adequate liquidity levels and lower volatility degrees. With this panorama, future effects on the Colombian financial system will largely depend on changes in global liquidity and, as mentioned, on the monetary posture in the developed economies.

II. FINANCIAL SYSTEM

The financial system's total assets increased with respect to the second half of 2013, and by June 2014 remain to be mainly compound by loan portfolio and investments. Also, a better performance in terms of profitability was observed, due to the level of profits earned by non-banking financial institutions.

The growth of the gross loan portfolio remained relatively stable, while investments showed a slowdown, so that their participation in the credit institutions' assets declined. On the liabilities side, a negative growth of bonds and a smaller expansion of current and savings accounts is observed.

The profitability, leverage and equity to subscribed capital indicators for the each non-banking institution proprietary position show a more favorable financial status, except for the stock brokerage firms. Moreover, the value of the assets managed by each of these entities increased and still has a similar composition to the one observed six months ago.

A. PRESENT STATUS OF THE FINANCIAL SYSTEM

The Colombian financial system mainly consists of two groups of entities: credit institutions and non-banking financial institutions. The first group consists of banks, commercial financing companies, financial corporations and financial cooperatives; the second, pension and severance fund managers, trust companies, insurance companies and stock brokerage firms and investment management companies. Credit institutions perform two key functions within the system: i) they manage much of the public's savings, and ii) are the main source of financing for real sector firms and households. For their part, non-banking financial institutions are economic agents whose main role is in the provision of financial advisory and portfolio management, so they are considered important investment and savings vehicles for the general public. Next, an analysis of these entities overall situation is presented in an aggregate fashion, differentiating between their proprietary and third party positions, with figures as of June 2014³⁶.

36 This section does not analyze the financial system's aggregate liabilities, due to the large difference between the credits institutions and non-banking financial institutions business activities: while the first receive resources as a liability to conduct their operations, the latter manage their clients' resources, which are not constituted as a debt, but as autonomous equity.

1. Asset accounts

Between December 2013 and June 2014, the analyzed financial entities' total asset increased, reaching a level of \$ 980.8 trillion and registering an annual real growth of 10.8%. The group of entities with greatest share within this category, are credit institutions (45.7%) and trust companies (30.8%), followed by pension and severance fund managers (17.2%), insurance companies (4.8%) and the stock brokerage firms and investment management companies (1.6% overall). When performing the same analysis by distinguishing between the proprietary and third party positions, it is found that, in the case of the first, its asset registered a level of \$ 503.9 trillion (51.4% of the financial system's assets), of which credit institutions contribute with 88.9%; while for the third party position, the asset level was lower (\$ 476.9 trillion, equivalent to 48.6% of the financial system's assets), and is mostly concentrated in trust companies (62.9%) and pension and severance fund managers (34.6%) (Table 3).

Table 3
Balance and asset share of the main groups of entities that comprise the Colombian financial system as of June 2014

Type of entity	Proprietary position		Third party position		Position total	
	Asset (trillion Colombian pesos)	Share (percentage)	Asset (trillion Colombian pesos)	Share (percentage)	Asset (trillion Colombian pesos)	Share (percentage)
Credit institutions ^{a/}	447.83	88.88	0.00	0.00	447.83	45.66
Pension and severance fund managers	3.64	0.72	164.89	34.57	168.53	17.18
Trust companies	2.19	0.43	299.89	62.88	302.07	30.80
Insurance companies	46.72	9.27	0.19	0.04	46.92	4.78
Stock brokerage firms	3.49	0.69	11.58	2.43	15.07	1.54
Financial system's total ^{b/}	503.89	100.00	476.92	100.00	980.80	100.00

a / As of June 2014, banks assets represent 90.9% of credit institutions' total assets.

b / Figures for the financial system's total include the ones registered by investment management companies. In June 2014, investment management companies' total assets was at \$ 388,4 millions, equivalent to 0.04% of the financial system's assets.

Source: Financial Superintendence of Colombia (Superintendencia Financiera de Colombia); Banco de la República calculations.

Regarding the system's entities assets composition, it is noted that as of June 2014, 46.3% is constituted in investments, 31.2% is placed in loan portfolio, and the remaining 22.5% is in other assets. By group of entities, given the functions of each one, it is observed that non-banking financial institutions have most of their assets in investments, while the credit institutions have them in loan portfolio. According to the above, proprietary position total asset accounts are concentrated in lending (60%), while the third party ones are in investments (70%) (Table 4).

2. Earnings and profitability

In June 2014 the financial system's annualized income amounted to \$ 27.5 trillion, a figure higher than the observed six months earlier (\$ 6.0 trillion), registering an annual real growth of 38.0%. Regarding the entities' third party position, it is remarked that during the analysis period, earnings experienced

Table 4
Asset composition by groups of entities in June 2014

Type of entity	Proprietary position (percentage)			Third party position (percentage)			Position total (percentage)		
	Investments	Loan portfolio	Other assets	Investments	Loan portfolio	Other assets	Investments	Loan portfolio	Other assets
Credit institutions	17.93	67.56	14.51	0.00	0.00	0.00	17.93	67.56	14.51
Pension and severance fund managers	65.51	0.00	34.49	94.40	0.00	5.60	93.78	0.00	6.22
Trust companies	50.28	0.00	49.72	56.94	0.96	42.09	56.90	0.96	42.15
Insurance companies	73.05	0.26	26.69	79.21	0.00	20.79	73.08	0.26	26.66
Stock brokerage firms	51.08	0.00	48.92	67.24	0.00	32.76	63.50	0.00	36.50
Financial system's total ^{a/}	23.76	60.07	16.17	70.17	0.61	29.23	46.32	31.16	22.52

a / Figures for the financial system's total include the ones registered by investment management companies. Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

an increase of \$ 20.8 trillion, reaching a level of \$ 17.8 trillion in June 2014. This dynamic took place because of the good results obtained by pension and severance fund managers and trust companies³⁷. To a lesser extent, entities' proprietary position earnings also showed improvement, increasing from \$ 8.9 trillion to \$ 9.7 trillion due to the positive dynamics presented by credit institutions and insurance companies (Table 5).

Table 5
Financial system's annualized earnings by group of entities

Type of entity	Proprietary position			Third party position			Position total		
	Earnings (trillion Colombian pesos)	June 2014 share	Annual real growth	Earnings (trillion Colombian pesos)	June 2014 share	Annual real growth	Earnings (trillion Colombian pesos)	June 2014 share	Annual real growth
Credit institutions ^{a/}	7.80	80.16	2.41	0.00	0.00	0.00	7.80	28.37	2.41
Pension and severance fund managers	0.50	5.12	17.76	12.87	72.47	71.05	13.37	48.64	68.21
Trust companies	0.33	3.43	(18.63)	4.30	24.20	52.85	4.63	16.85	43.76
Insurance companies	1.03	10.64	15.79	0.01	0.05	n. a. ^{b/}	1.04	3.79	16.79
Stock brokerage firms	0.06	0.66	(6.40)	0.58	3.28	326.23	0.65	2.36	215.14
Financial system's total ^{c/}	9.73	100.00	3.39	17.76	100.00	69.58	27.48	100.00	38.26

n.a.: not applicable^{b/}

a / By June 2014, banks annualized earnings represent 87.9% of the credit institutions' annualized assets total.

b / Insurance companies' third party position annual real growth is not presented because in June 2013 they were the only entities that recorded losses.

c / Figures for the financial system's total include the ones recorded by investment management companies. In June 2014, investment management companies annualized earnings were at - \$3.9 millions.

Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

37 Between December 2013 and June 2014, the pension and severance fund managers and trust companies third party position moved from recording losses of \$0.7 trillion and \$ 2.9 trillion respectively, to exhibit profits of \$12.9 trillion and \$4.3 trillion in that order.

When analyzing the profitability of the entities that make up the financial system with the calculation of the return on assets (ROA)³⁸ and return on equity (ROE)³⁹ indicator, it is noticed that, compared to December 2013, profitability increased. The ROA increased from 0.6% to 2.8%, and the ROE did so from 1.3% to 5.6%, driven by the pension and severance fund managers and trust companies good performance⁴⁰. In accordance with the above, profitability of both, the proprietary position and the third party position of entities, showed an improvement, especially for the latter, whose indicators increased from 0.7% to 3.7% in the case of ROA, and -0.8% to 4.3% for the ROE (Table 6). It is worth mentioning that, for the credit institutions group, these indicators remained stable over the past six months.

In summary, it can be seen that during the first half of 2014 the financial system's total assets increased, and since June 2014 remains being mostly constituted by loan portfolio and investments portfolio. Similarly, it is observed that, in terms of profitability, the financial system showed a better performance, explained for the level of earnings received by non-banking financial institutions.

Here is a more detailed analysis of the financial institutions' soundness. The first section studies the credit institutions' balance sheet positions, earnings, profitability, solvency and intermediation margins, and the second emphasises into the non-banking financial institutions proprietary and third party positions.

Table 6
Financial system's profitability indicators by group of entities

Type of entity	Proprietary position (percentage)		Third party position (percentage)		Position Total (percentage)	
	ROA	ROE	ROA	ROE	ROA	ROE
Credit institutions ^{a/}	1.74	11.83	n. a.	n. a.	1.74	11.83
Pension and severance fund managers ^{b/}	13.67	18.56	7.80	7.83	7.93	8.00
Trust companies	15.23	18.88	1.43	1.81	1.53	1.94
Insurance companies	2.21	10.46	4.16	4.53	2.22	10.35
Stock brokerage firms	1.84	7.71	5.04	5.07	4.30	5.25
Financial system's total	1.93	11.99	3.72	4.29	2.80	5.55

n.a.: not applicable ^{c/}

a / By June 2014, banks ROA and ROE were at 1.7% and 12.0% respectively.

b / Because of these entities type of business, their assets and equity balance is very similar.

c / Figures for the financial system's total include the registered by investment management companies. In June 2014, the investment management companies ROA and ROE were at -1.0%

Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

38 Corresponds to the annualized earnings (for the last twelve months) as a proportion of the assets balance for the closing month.

39 It is defined as the ratio between annualized earnings (for the last twelve months) and the equity's balance for the closing month.

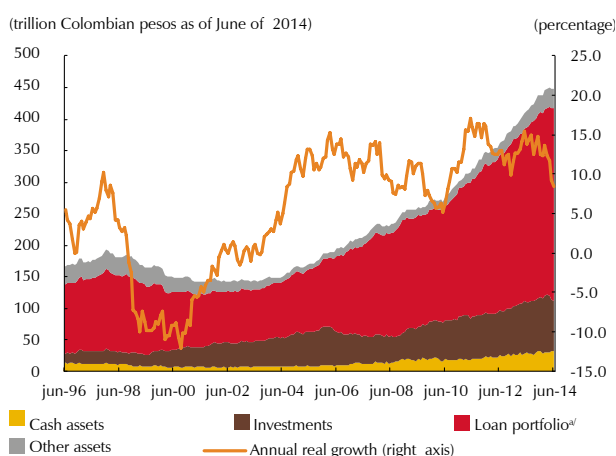
40 Between December 2013 and June 2014, the pension and severance fund managers ROA increased from -0.2% to 7.9%, and the ROE did from -0.2% to 8.0%; while for trust companies the ROA increased from -0.9% to 1.5%, and the ROE from -1.2% to 1.9%. It is important to note that the total position's indicators for pension and severance fund managers are very similar to those of the third party position, since by June 2014 earnings of the latter equal to 96.3% of the total earnings.

B. CREDIT INSTITUTIONS

1. Balance sheet's position

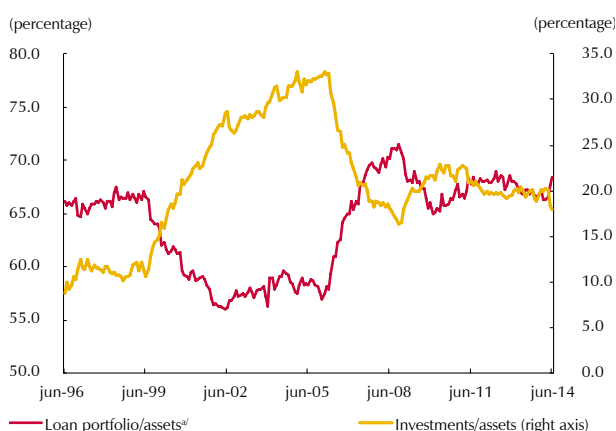
During the first semester of 2014 credit institutions assets grew at a slower rate than they had been doing. The gross loan portfolio growth remained relatively stable due to the different modalities' heterogeneous behavior, while investments showed a slowdown, so that their participation in the credit institutions' assets declined. On the liabilities side, a decrease of bonds and a smaller expansion of current and savings accounts is observed, while less than a year fixed term certificates of deposits (CDT) showed an increase in their growth rate.

Graph 15
Credit institutions' assets



a/ Includes financial leasing and securitizations
Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Graph 16
Investments and gross loan portfolio percentage share in credit institutions' total assets



a/ Loan portfolio includes financial leasing and securitizations
Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

a. Asset accounts

In June 2014 credit institutions assets amounted to \$447.8 trillion, of which 68.4% belong to the loan portfolio, 17.9% to investments, 7% to cash assets and the remaining 6.7% to other assets⁴¹. With respect to December 2013, the share of the gross loan portfolio in the total assets increased by 1.6 pp, the investments ones decreased by 1.7 p p and the other components one remained stable (Graphs 15 and 16).

The assets annual real growth as of June 2014 showed a decrease of 4.1 pp from the observed a semester ago, registering a rate of 8.4%. This category has been showing a downward dynamic since May 2013, and currently exhibits the lowest recorded expansion since mid-2010 (Graph 15). This is explained by the slowdown in investment and the loan portfolio's stable growth.

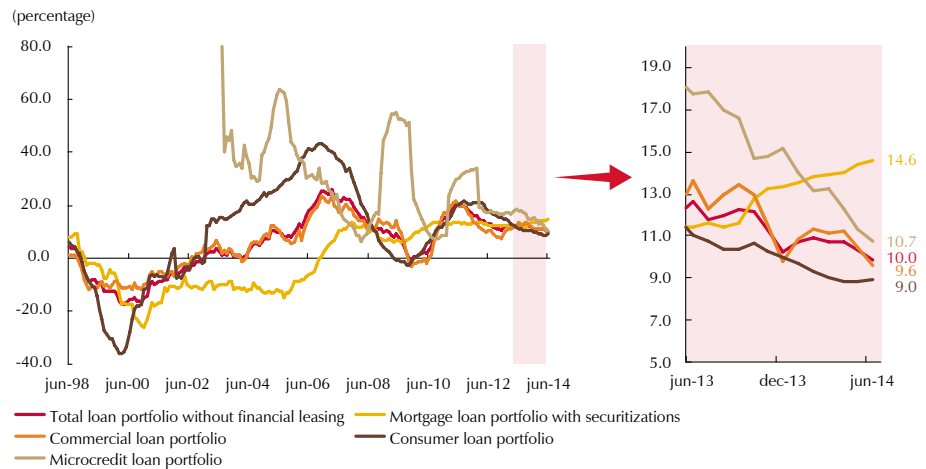
At the end of the first half of 2014, the gross loan portfolio balance was at \$280.4 trillion, growing at a 10% rate, a figure similar to that of six months earlier (10.4%), although lower than the one from a year ago (12.7%). By taking the financial leasing into account, it is seen that the total loan portfolio expanded at an annual real rate of 10.3% in June 2014 (a level similar to that seen six months ago:

41 This category includes banker acceptances, cash and derivatives instruments operations, as well as the other assets account.

10.5%), and recorded a balance of \$ 306.3 trillion at the end of the analyzed period.

By type of credit, it is highlighted that in the last six months loan portfolios exhibited a heterogeneous behavior. Consumer loan portfolios and microcredits slowed down, reporting in June 2014 an annual real growth of 9.0% and 10.7% respectively, when in December last year they were at levels of 10.0% and 15.1%. Meanwhile, the commercial loan portfolio showed a stable dynamic (9.6%), while the mortgage loan portfolio with securitizations recorded an increase of 1.24 pp in its rate of expansion, growing at 14.6% by the end of the first half of 2014⁴². It is important to emphasize that since a year ago the microcredit loan portfolio is showing a downward trend on its expansion rate (in June 2013 it was growing by 17.7%), and the mortgage loan portfolio with securitizations has been accelerating at a bigger rate (11.5% in June 2013) (Graph 17)⁴³.

Graph 17
Total loan portfolio without financial leasing



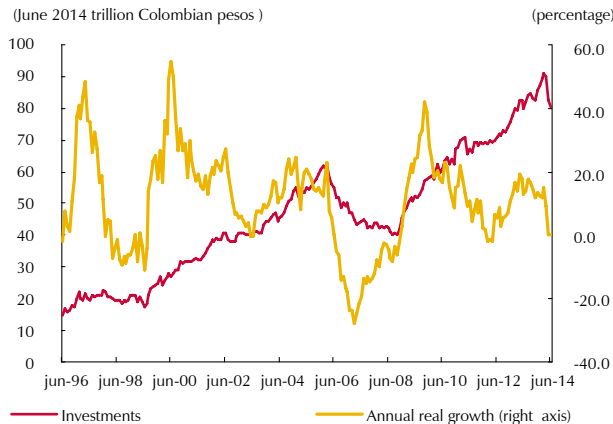
Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Moreover, credit institutions investments amounted to \$80.3 trillion in June 2014 and recorded an annual real growth rate of 0.4% (Graph 18). It is emphasized that, with respect to December 2013, this item showed a significant slowdown, by reducing its rate of growth by 12.9 pp, consistent with the drop on its assets contribution. The slower growth of investments is explained in particular by the negotiable investments in domestic public

42 The mortgage loan portfolio without securitizations showed a stable annual real growth during the first semester of 2014 (25.1% in June 2014 versus 25.7% in December 2013).

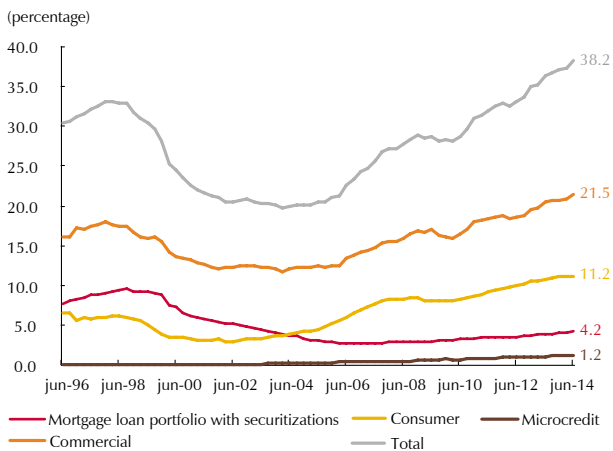
43 By taking leasing into account, loan portfolios showed the same behavior. In June 2014, the commercial loan portfolio grew by 9.4%, consumer by 8.8%, mortgage loan portfolio with securitizations 18.4% and microcredit by 10.7%.

Graph 18
Credit institutions' investments



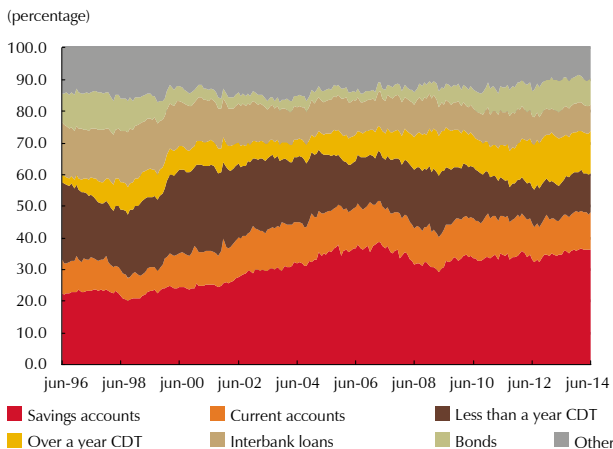
Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Graph 19
Financial deepening (gross loan portfolio/GDP)



Note: for calculating the June 2014 indicator, the second quarter's GDP annual real growth projection was 4.3%.
Sources: Superintendencia Financiera de Colombia and DANE (National Administrative Department of Statistics); Banco de la República calculations.

Graph 20
Credit institutions' liabilities composition



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

debt securities negative growth that, on average had a share of 19.6% of the investments total between December 2013 and June 2014. During that same period, this category annual real growth changes from a 10.1% to -33.2%, and its balance decreased from \$19.5 trillion to \$12.3 trillion⁴⁴.

Since the total loan portfolio's growth remains higher than the GDP, the financial deepening indicator⁴⁵ continues to show an upward trend. Between December 2013 and June 2014, this measure increased from 37% to 38.2%, mainly driven by the commercial loan portfolio modality, which during the same period increased GDP share by 86 basis points (bp) (Graph 19). When considering the financial leasing into the analysis, an increase of 1.3 pp in the deepening during the same period is noticed, reaching 41.7%⁴⁶.

b. Liability accounts

Credit institutions liabilities reached a level of \$381.9 trillion in June 2014, and is especially composed by deposits⁴⁷, which accounted for 83.8%, followed by bank loans⁴⁸, contributing with 8.5%, and by other components⁴⁹, with 7.8%. When comparing these contributions with the ones registered six months before, no substantial changes are noted (Graph 20).

44 This decrease could be explained on the TES maturities occurred in May 2014.

45 Financial deepening is a measure of the credit institutions' share within the economic activity, and it is calculated as the ratio between the gross loan portfolio (including securitizations) and the GDP.

46 Financial deepening by modality, including leasing, was at 24.1% for the commercial loan portfolio, 11.3% for consumer, 5.2% for mortgage loan and 1.2% for microcredit.

47 Deposits are the sum of deposits accounts and payables, and bonds.

48 The value of loans from banks and other financial institutions in the country or abroad in the form of direct loans is registered.

49 In this category, the following accounts are included: interbank funds, banker acceptances, accounts payable, estimated liabilities, provisions and other liabilities.

Between December 2013 and June 2014, liabilities showed a slowdown in their expansion rate, going from growing 12.3% to 7.2%. This reduction is explained by the lower activity recorded by deposits.

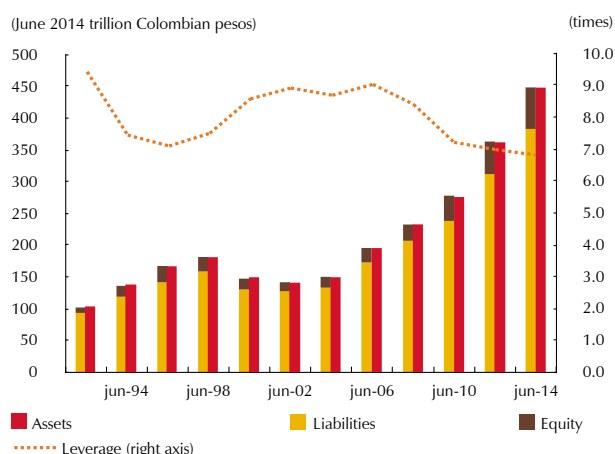
At the end of the first half of 2014, deposits amounted to \$320 trillion, presenting an annual real growth rate of 8%, a figure lower by 4.6 pp than the observed six months earlier. The smaller dynamics of this liabilities component occurred, mainly, because the real annual growth rate of deposits in savings accounts, which balance corresponds to 36.3% of the total liabilities decreased by 3.7 pp (11.7 % as of June 2014). Likewise, deposits in current accounts, contributing with 11.9%, showed a decrease on their expansion rate, reaching 9.0% in June 2014, when six months before it was of 15.9%.

For their part, less than a year fixed term certificates of deposits (CDT), which contribute with 12.1% of the liability accounts, grew at a rate of 19% in annual real, while the over a year CDT, representing 13.3%, did not register significant variations in annual terms. It is noteworthy to mention that the less than a

year CDT continued to grow at a faster rate than the longer term CDT, and even the latter began to record negative rates since January 2014. The bonds, which represent 8.1%, showed negative annual real growth rates since February 2014, presenting a growth rate of -8.5% in June of the same year.

Finally, the credit entities' balance sheet evolution shows that the share of equity in the total assets has continued to increase, in accordance to the behavior that has been occurring since June 2004 (Graph 21). In June 2014, equity represented 14.7% of the total assets, while in the same month of 2012 it reached a level of 14.4%. Yet, this has not led to significant changes in the total leverage ratio (total assets/equity), which was at 6.8 times in June 2014, when two years before it was at 7.0 times⁵⁰.

Graph 21
Credit institutions' balance



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

2. Earnings, profitability and equity soundness⁵¹

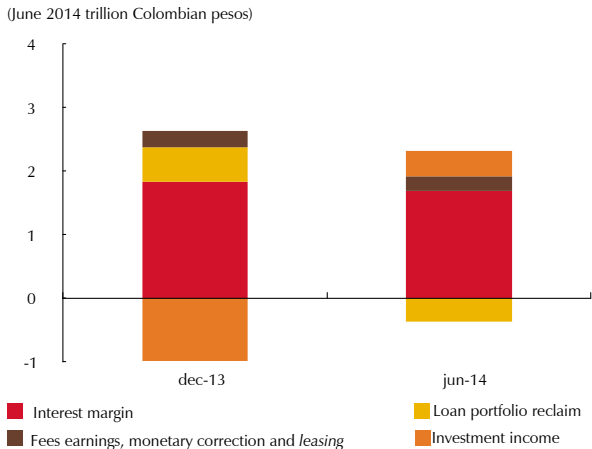
In June 2014, credit institutions' annualized income amounted to \$7.8 trillion, representing an annual real growth of 2.4%, a figure higher by 2.3 pp than

⁵⁰ These ratios analysis is performed every two years, since in semester and annual terms it does not present major variations.

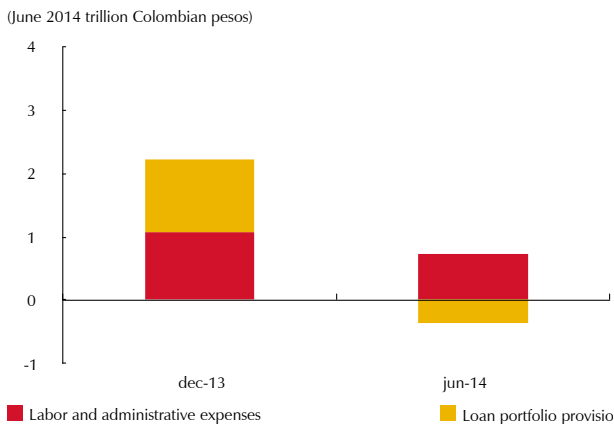
⁵¹ Income statement accounts featured in this section are annualized, which means that accumulated flows for the last twelve months are considered for each one of them.

Graph 22
Changes in credit institutions' income components

A. Earnings



B. Expenses and provisions



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

that observed in December 2013⁵². This result is it mainly due to the recovery of investment income, which rose to grow at a rate of -21.1% annual real in December 2013, to 9.4% in June 2014. On the expenses side, annualized earnings benefited from the behavior shown by administrative and labor expenses, interest expenses and loan portfolio provisions. On the one hand, administrative and labor expenses grew at a rate of 4.6% annual real in June 2014, while in December last year they did by 6.9%. Also, interest expenses fell by 9.1%, when six months ago they did at a rate of -3.3%; while loan portfolio provisions decreased at a rate of 3.2% annual real in June 2014, when in December 2013 they were declining at rates of 11.3% (Graph 22).

For their part, financial earnings are mainly composed of interest income, which in June 2014 accounted for 66%, followed by fees earnings, monetary correction and leasing (16.8%), investment income (10.7%) and other income (6.1%). By comparing these figures with respect to December 2013, a stable behavior is observed by all items, except for investment income, which increased their share by 1.5 percentage points. In relation to expenses, the administrative and labor ones, interest expenses and loan portfolio provisions, are the most representative components, contributing with 36.4%, 25.5% and 23.9% by June 2014 respectively, being these percentages similar to those observed six months earlier.

Financial institutions' profitability, measured by the return on assets (ROA)⁵³ and equity (ROE)⁵⁴ indicator, was showing a downward trend since the second half of 2013, but as of February 2014 it stabilized around 1.7% in the case of ROA and 12% for ROE. This behavior is explained by the better dynamics exhibited by earnings. It is important to point out

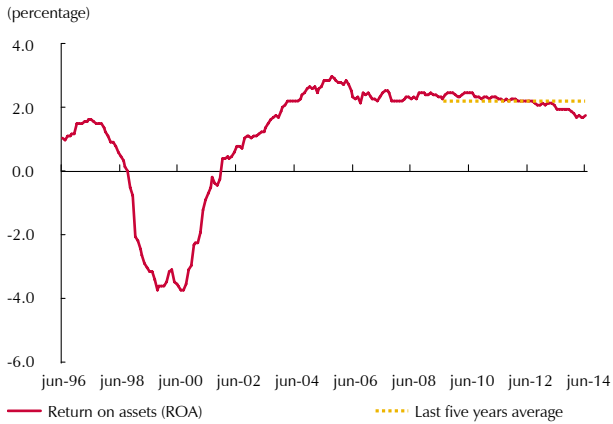
52 It should be noted that during the first half of 2014, annualized income grew at negative rates (-5.4% on average), with the exception of June 2014, in which it presented a recovery.

53 This corresponds to the annualized earnings as a proportion of the credit entities' average assets for the last twelve months.

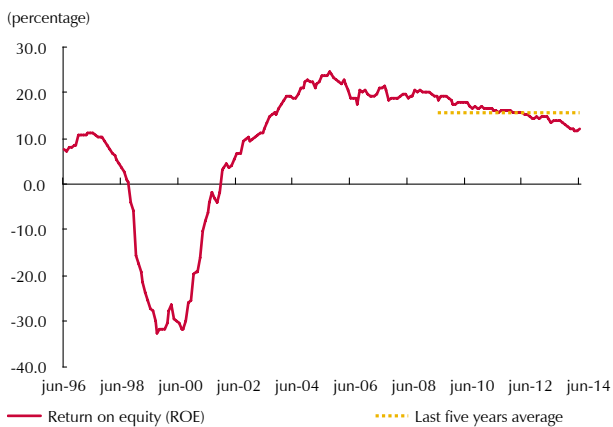
54 It is defined as the ratio between annualized earnings and the average equity of the credit system's entities for the last twelve months.

Graph 23
Profitability indicators

A. Return on assets (ROA)



B. Return on equity (ROE)



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

that, despite the indicators improvement, their values remain below the last five years average (Graph 23).

In June 2014, credit institutions solvency ratio reached a level of 15.5%, a slightly higher figure than that recorded six months before (15.2%) (Graph 24). The increase in soundness in the first half of 2014, is mainly due to a market risk decrease, and slowdown in the weighted assets by credit risk level. On the other hand, the basic solvency level was at 10.9% in June 2014. It is relevant mentioning that basic and total solvency levels are above the regulatory minimum levels (9% and 4.5% respectively)⁵⁵.

When analyzing entities with subsidiaries abroad, it is necessary to build a consolidated solvency indicator, in order to include the analysis of the differences between leverage levels for both the parent company and its subsidiaries⁵⁶. This measure is constructed taking into account the financial entities that belong to the conglomerate total technical equity, and their corresponding risk-weighted assets. According to the information reported in March 2014⁵⁷, the consolidated solvency ratio for the system, which is constructed as a weighted average on each institutions' equity share, is below the constructed indicator from each institutions' individual solvency by 3.1 percentage points, reaching 12.8%. When comparing this

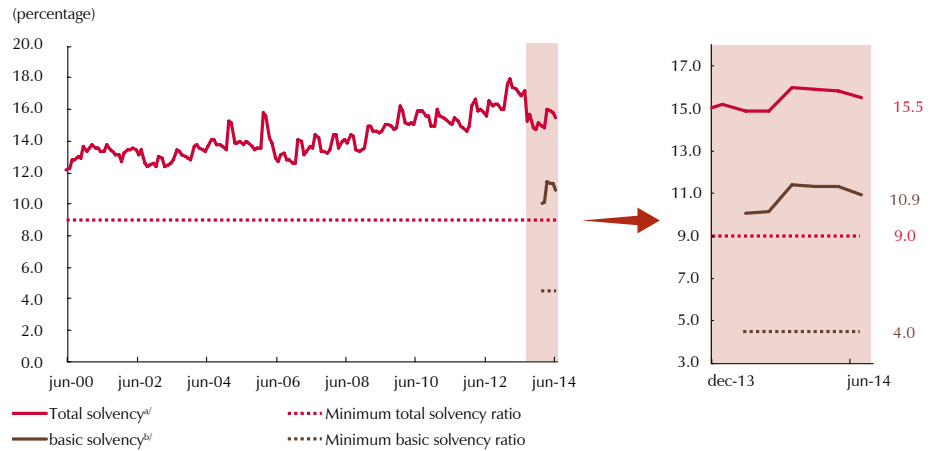
figure with respect to December 2013, it is noticed that the consolidated solvency increased by 69 basis points (Graph 25).

55 Decree 1771 of 2012 introduced a regulatory minimum of 4.5% for basic solvency, which is calculated the same as the total, but uses the deductions net common equity tier 1. For more details on the accounts that comprise common equity tier 1, refer to paragraph 2.2.2 of Chapter XIII of Superintendencia Financiera de Colombia's Accounting and Financial Basic Circular.

56 According to the regulation from Superintendencia Financiera de Colombia, credit institutions having branches, and which own more than 50% of them, are required to submit the group's consolidated solvency. Moreover, if the credit institution has a share of less than 50%, it must subtracts from its technical equity the subsidiary's one.

57 Consolidated solvency information is presented as of March 2014 due to data availability.

Graph 24
Credit institutions' solvency ratio

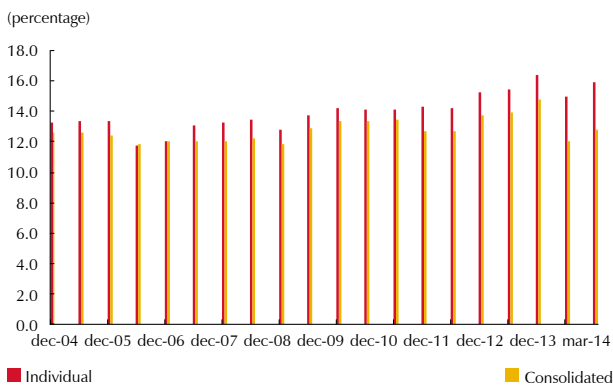


a / Starting from August 2013 technical equity calculation was changed, therefore the total solvency levels before and after this date are not comparable.

b / Superintendencia Financiera de Colombia began calculating Tier 1 solvency for credit institutions starting from January 2014.

Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Graph 25
Weighted solvency



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

3. Intermediation margins

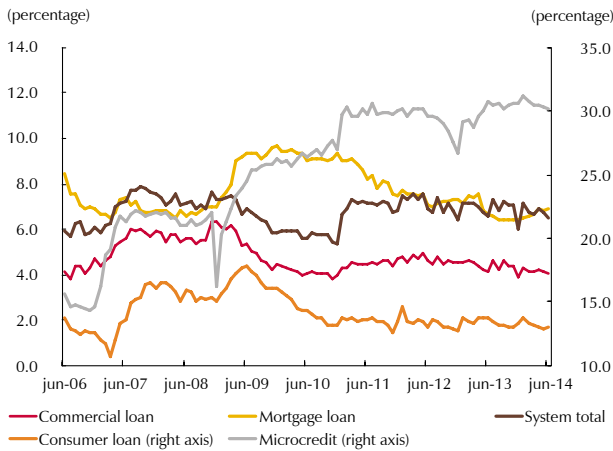
The ex-ante⁵⁸ intermediation margin for the credit institutions showed an increase during the first half of 2014, reaching a value of 6.5% in June of the same year, being 56 basis points higher than the observed six months earlier. Regarding margin components, during that period, deposit rates decreased from 4.4% to 4.3%, while placement rates increased from 10.3% to 10.9%. When analyzed by type of credit, an increase in the ex-ante margin for the mortgage loan⁵⁹ and commercial loan portfolios is observed, while the microcredit and consumer loan

portfolios one declined. In particular, the margin's largest increase was seen in the mortgage loan portfolio, passing from 6.4% to 6.9%, while the biggest reduction occurred in the microcredit loan portfolio, whose margin was at 30.2%, 50 basis points below its December 2013 level (Graph 26).

58 The ex-ante margin corresponds to the difference between lending rates at which intermediaries place credits for each of their modalities and the deposits rate. Lending rates are weighted averages by the amount of disbursements for each of the loan portfolio modalities. On the other hand, deposits rates are weighted averages over the amount of collected fixed term certificates of deposits (CDT).

59 For the mortgage loan portfolio's ex-ante margin calculation, the lending rate for housing purchase loans for other than non-social housing (VIS in Spanish) is used.

Graph 26
Ex-ante intermediation margin using the CDT's deposits rate



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Graph 27
Ex-post intermediation margin



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Furthermore, the ex-post⁶⁰ intermediation margin decreased during the first semester of 2014, reaching a value of 6.9% in June of that year, being 18 basis points lower than the registered in December 2013 (Graph 27). This is because the implicit lending rate decreased at greater levels than the implicit deposits rate. The first showed a decrease of 45 basis points between December 2013 and June 2014, registering a level of 10.7%. For its part, the implicit deposits rate moved from 4% to 3.8%. It should be noted that this margin remains below the average of the past five years.

In conclusion, for the first half of 2014, it is noted that gross loan portfolio growth rate remained stable, which is because the slowdown in the consumer and microcredit loan portfolios was offset by a higher growth in the mortgage loan portfolio and a stable behavior in the commercial one. Meanwhile, investments growth significantly decreased.

Regarding credit institutions' liability accounts during the first six months of 2014, a smaller dynamism on deposits is observed. This is mainly explained by the bonds dynamics, which began registering negative growth rates. Additionally, a restructuring of the fixed term certificates of deposits (CDT) towards shorter maturities is noted. Finally, earnings showed a better dynamics, which was reflected in the profitability indicators (ROA and ROE), which stabilized after having a downward trend.

C. NON-BANKING FINANCIAL INSTITUTIONS

The analysis of non-banking financial institutions is crucial for the purpose of this Report, because they are entities that can affect financial stability. On the one hand, they are economic agents that constitute savings and investment vehicles for households and the general public due to portfolio management. On the other, they are highly linked institutions with other financial agents, either as counterparts in their market operations, or because they belong to a

⁶⁰ This margin is computed as the difference between lending rates and implicit deposit rates, on where the first are interest income plus monetary correction (understood as the readjustments for changes in the real value unit, UVR in Spanish) as a percentage of the productive loan portfolio, and the second, the interest expenses plus monetary correction as a percentage of cost-bearing liabilities.

financial group. Consequently, they are entities that could become systemic agents in certain contingencies. Non-banking financial institutions that are analyzed in this section correspond to proprietary and third-party positions of pension and severance funds management companies, trust companies, stock brokerage firms and investment management companies. Finally, insurance companies are analyzed.

With the purpose to give an order of magnitude to the size of each of the sectors that comprise the non-banking financial institutions, Table 7 shows the value of these entities assets, their share in the financial system's total assets, and in the gross domestic product (GDP). As of June 2014, the non-banking financial institutions' assets had an annual real growth of 13.0%, reaching \$532.2, a figure equivalent to 72.5% of the GDP and 54.3% of the financial system's assets. This increase is explained, mainly, by the growth of funds managed by trust companies (14.8%), and of mandatory pension funds (11.7%).

Table 7
Non-banking financial institutions' assets

	Jun-13			Dec-13			Jun-14		
	Trillion Colombian pesos	Financial system's percentage	Percentage of GDP	Trillion Colombian pesos	Financial system's percentage	Percentage of GDP	Trillion Colombian pesos	Percentage of GDP	Porcentaje del PIB ^{a/}
Pension and severance fund managers	154.4	17.5	20.5	160.5	17.1	21.3	170.2	17.4	23.2
Proprietary position	3.6	0.4	0.5	3.5	0.4	0.5	3.6	0.4	0.5
Mandatory pensions	128.8	14.6	17.1	136.0	14.5	18.0	143.9	14.7	19.6
Voluntary pensions	14.2	1.6	1.9	14.2	1.5	1.9	14.1	1.4	1.9
Severance	7.9	0.9	1.0	6.9	0.7	0.9	8.5	0.9	1.2
Insurance companies	42.9	4.9	5.7	45.2	4.8	6.0	46.3	4.7	6.3
General insurance	13.6	1.5	1.8	13.6	1.5	1.8	13.8	1.4	1.9
Life insurance	27.4	3.1	3.6	29.8	3.2	4.0	30.7	3.1	4.2
Trust companies	262.0	29.6	34.7	280.5	29.9	37.2	300.6	30.7	40.9
Proprietary position	2.1	0.2	0.3	2.2	0.2	0.3	2.2	0.2	0.3
Third party	259.9	29.4	34.4	278.3	29.7	36.9	298.5	30.5	40.6
Stock brokerage firms	11.8	1.3	1.6	12.5	1.3	1.7	15.1	1.5	2.1
Proprietary position	3.0	0.3	0.4	2.5	0.3	0.3	3.5	0.4	0.5
Third party	8.7	1.0	1.2	10.0	1.1	1.3	11.6	1.2	1.6
Non-banking financial institutions total	471.1	53.3	62.4	498.7	53.2	66.2	532.2	54.3	72.5
Financial system total^{b/}	884.1	100.0	117.1	937.5	100.00	124.46	980.0	100.0	133.45

a/ Projected GDP for June 2014

b/ Includes the credit institutions' total gross loan portfolio

Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Additionally, it is important to mention that non-banking financial institutions maintained a stable share within the financial system's total assets, accounting for 54.3% in June 2014. Moreover, it is worth noting that the most important portfolios because of their size on each of the sectors that are studied are life insurance companies' portfolios, and the ones managed by pension and severance fund managers, trust companies and stock brokerage firms, a reason why in the following subsections these funds will be analyzed in detail.

1. Pension and severance fund managers

i. Proprietary position

The pension and severance fund managers proprietary position asset amounted to \$3.6 trillion in June 2014, which had no significant changes compared to the observed in December last year, representing 0.4% of the financial system's asset. Investments represent the most important item of this account, registering \$2.4 trillion, equivalent to 65.5% of its total assets. Moreover, when measuring the ratio between assets and liabilities, in order to verify if their obligations are backed by their asset positions, it is found that between December 2013 and June 2014 this ratio decreased, from 4.2 to 3.8 times.

Regarding the pension and severance fund managers income composition, it is noticed that the operating income is the main item, with a share of 98.3%. The latter, in turn, is composed in 82.7% by revenues from commissions and fees.

On the other hand, when analyzing the profitability of these entities through the ROA and ROE indicators, an increase is observed, passing from 10.7% and 14.1% in December 2013, to 13.7% and 18.6 six months later. The increase in the ROA and ROE is explained on the greater annualized earnings annual real growth (17.8%) by June 2014, a figure that is higher than the performance recorded for assets (2.0%) and equity (-1.9%) during that period.

Additionally, it is important to monitor these entities' asset loss⁶¹, given that if it comes below 0.5 times, the entity's dissolution will be caused⁶². This indicator increased from 13.0 to 13.5 times during the first half of 2014, following a 1.7% negative dynamics in subscribed capital.

61 This is the ratio between equity and subscribed capital.

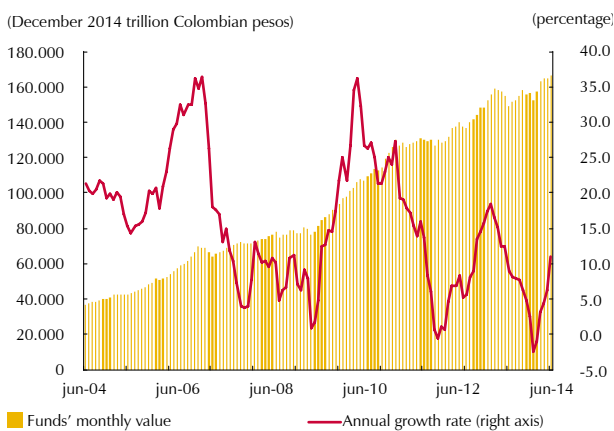
62 Corporations, as well as pension funds managers, trust companies and stock brokerage firms, are subject to article 457 of the Colombian Commercial Code, as for any company of this kind will dissolve when losses that reduce net equity below 50% of the subscribed capital occur. Additionally, these companies must submit a statement of net equity to paid capital, equal to or greater than 1, if they wish to belong to the open market operations underwriters (ACO) with which *Banco de la República* performs expansion and contraction operations, temporarily or permanently.

In summary, the indicators presented suggest a favorable financial situation for pension and severance fund managers, due to increased profitability indicators and the high level of the ratio between equity and subscribed capital. However, their assets and liabilities ratio slightly decreased.

ii. *Third party funds*

During the first semester of 2014, the annual real growth rate of funds managed by pension and severance fund managers reported a greater dynamic. In June 2014, this value was at 11.1%, when six months before it was of 2.5%. This behavior is due to the increase in individual contributions to pension saving and investment portfolio appreciations in response to the financial markets dynamics.

Graph 28
Pension funds' value and real growth



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Also, the managed funds registered a value of \$166.0 trillion in June 2014 (Table 28), an amount that represents 17.0% of the financial system's assets, being the mandatory pension funds the ones having the greater share.

By separating the funds managed by the pension and severance fund managers by type, it is found that the mandatory pension ones registered an annual real growth of 12.2% in their portfolio, reaching a level of \$143.8 trillion by June 2014. For their part, severance funds showed an annual real growth rate of 8.7%, reaching levels of \$8.5 trillion in June 2014. Meanwhile, voluntary pension funds exhibited an increase in real terms of 1.8%, thus registering a value of \$13.7⁶³ trillion in June 2014.

When analyzing the mandatory pension funds⁶⁴ profitability over the past five years, it is observed that during the first half of 2014, a decrease in this indicator was recorded, moving from 11.7% in December 2013, to 10.3% six months later (Graph 29). It is important to mention that the profitability of the conservative and programmed retirement funds has been, on average, 2.0 percentage points above the minimum yield⁶⁵ to be met since the

63 This figure does not include voluntary pension funds managed by trust and insurance companies.

64 The calculation presented in Graph 29 shows the moderate fund's yield (87% of the mandatory pension funds' total on average since the start of multifunds scheme); and is calculated as the internal return rate for the mobile window for the previous five years to the date of the survey.

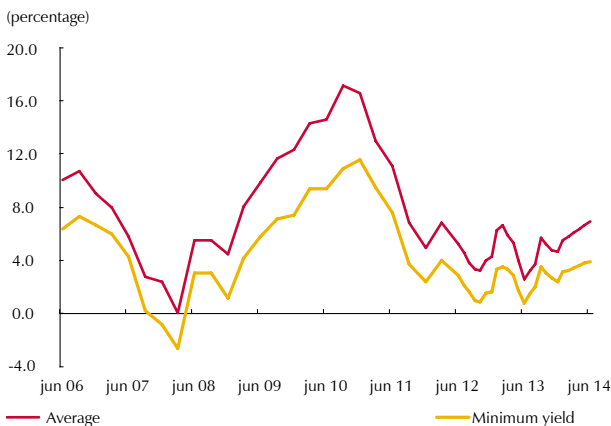
65 The calculation of the minimum yield has been performed for all funds with information since August of 2011.

Graph 29
Last 5 years mandatory pension funds' average profitability^{a/}



a/ Starting from January 2012, moderate fund's profitability information is used.
Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Graph 30
Severance funds' biannual profitability and minimum yield



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

implementation of this requirement in August 2013. In addition, the minimum yield for moderate and high risk funds is 3.0 and 5.3 percentage points below the yield observed for these funds. It is worth mentioning that this requirement is not in effect for the latter⁶⁶.

Moreover, the severance funds' biannual profitability, showed an increase during the first half of 2014, reaching a level of 6.9% in June 2014, compared with 4.6% registered six months ago (Graph 30).

Regarding the mandatory pension funds composition within the multifunds scheme, no significant changes occurred during the first half of 2014. The moderate fund continues to hold most resources, representing 85.5% of the mandatory pension funds as of June 2014. In turn, the conservative, high risk and programmed retirement funds had a contribution of 6.8%, 1.0% and 6.7% in the same month respectively. This can be explained by two reasons: the first is that members have a preference for the moderate fund, and the second is that many of these had opted not to choose any type of fund⁶⁷.

By analyzing the composition of investments for each type of portfolio within the multifunds scheme, it shows that, in general, during the first half of 2014, there was an increase in the share of securities

whose issuers are from abroad, and of those on fixed income whose issuers are monitored by Superintendencia Bancaria de Colombia. On the side of public debt securities share, this remained the same or slightly decreased. It is important to mention that exposure to different securities is below the regulatory maximum for all funds.

When breaking down by type of fund, it is observed that the conservative and moderate ones recored the largest reductions in the government bonds share, with a decrease of 3.5% and 1.5% respectively during the first half

66 The requirement for compliance with a minimum yield, came into effect since 31 August 2013 for the conservative and programmed retirement funds, and will begin to be applied in August 2014 for the moderate and high risk funds respectively. See box "Reforms to the individual savings with solidarity pension regime" from the September 2010 Financial Stability Report.

67 This is because, according to the regulation, people who did not choose a type of fund, is placed in the moderate one by default.

of 2014. It is important to highlight that the moderate fund, along with the programmed retirement one, due to their low risk nature, are still concentrated in such securities, registering proportions of 48.9% and 53.6% in June 2014 in that order.

On the other hand, for all funds, a slight increase in the share of fixed income securities whose issuers are monitored by Superintendencia Financiera de Colombia was observed. In particular, the greatest increase was presented by the conservative fund, whose share in such securities increased by 2.2 percentage points, reaching 23.8% in June 2014.

Meanwhile, like six months ago, the high risk fund continues to present a diversified portfolio between public debt securities, domestic variable yield and external debt. In June 2014, these had a share of 27.1%, 34.9% and 31.5% in this fund respectively (Graph 31). It is important to highlight that this fund showed a considerable decrease in the unhedged foreign currency portfolio share, which decreased by 5.2 percentage points, reaching 11.2%.

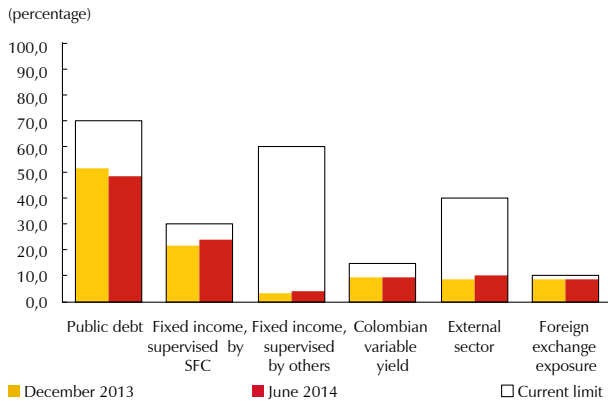
Finally, for all types of funds it is observed that the portfolio percentage of securities whose issuers are from abroad has presented an average increase of 1 percentage points versus December 2013⁶⁸. In June 2014, this proportion was of 10.5% for the conservative fund, 31.5% for the high risk, 18.6% for the moderate fund and 9.3% for the programmed retirement fund (Graph 31).

In summary, by June 2014, a further growth in the value of funds managed by the pension and severance fund managers is observed when compared with that observed in December 2013. As for the profitability of these entities, there was a decrease in the one of the mandatory pension funds, compared to the observed six months ago. Nonetheless, it should be remarked that this indicator is above the minimum yield in all funds in the multifunds scheme. Finally, when analyzing the mandatory pension funds' composition, an increase in the share of securities whose issuers are monitored by Superintendencia Financiera de Colombia and those from abroad was observed, accompanied by a slight decrease in the public debt securities share.

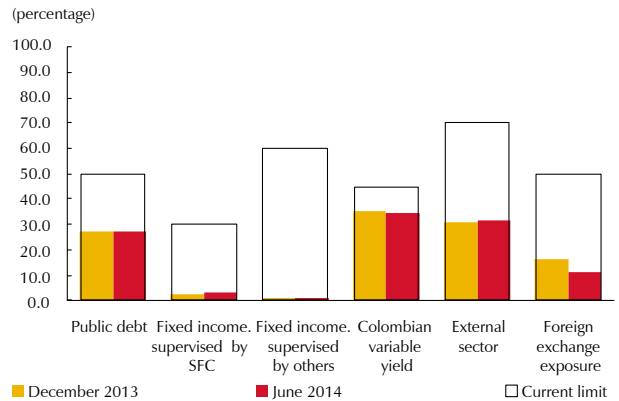
68 In these securities, those issued or guaranteed by governments and foreign central Banks, or by both, are included; debt securities whose issuer, guarantor, acceptor or originator of a securitization are foreign commercial banks or investment banks or entities different than banks; equity in funds representing commodities indexes, of stocks (including ETFs), shares in representative commodity prices funds and mutual funds or international investment ones (mutual funds), or collective investment schemes which have regulatory and supervisory standards equivalent to the ones of these, which have as main their main objective to invest in stocks or are balanced, understanding for the latter those who do not have as their main objective to invest in stocks or debt securities and stocks issued by foreign entities or negotiable certificates of deposits representing them (ADRs and GDRs).

Graph 31
Mandatory pension funds' portfolio composition against the existing legal limits

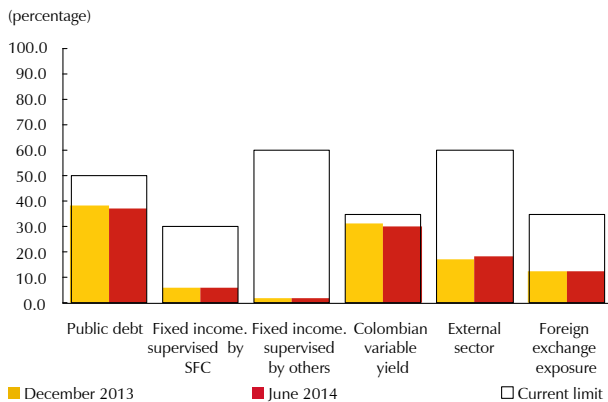
A. Conservative fund



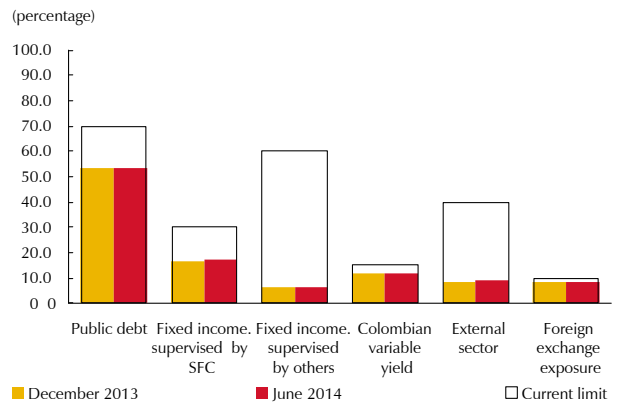
B. Higher risk fund



C. Moderate fund



D. Programmed retirement fund



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

2. Trust companies

i. Proprietary position

Trust companies' proprietary position assets amount to \$2.19 trillion in June 2014, a higher value than that from six months before (\$ 2.16 trillion). Investments and cash assets represent the most important items of this account, by registering \$1.1 and \$0.4 trillion respectively, which, together, equals to 68.7% of their total assets. However, their investments only correspond to 0.1% of the financial system's investments. Moreover, when measuring the assets over liabilities ratio, it is found that, between December 2013 and June of this year, this ratio decreased from 5.7 to 5.2 times.

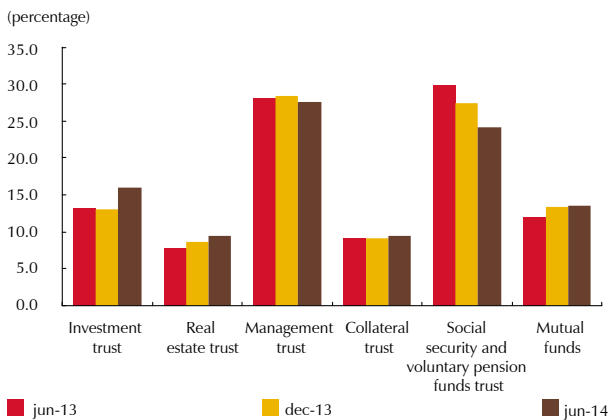
Regarding trust companies' income composition, it is noticed that operating income is the main item, with a share of 96.4%. The latter, in turn, is composed

by 75.5%, 10.4% and 6.2% on revenues from commissions and fees, the various item⁶⁹, and dividends and shares, respectively.

When analyzing these entities' profitability through the ROA and ROE indicators, an increase is observed, moving from 16.4% and 19.8% in December 2013, to 17.9% and 22.3% six months later respectively. However, when comparing the same indicators with the ones registered a year earlier, it is noted that both current ROA and ROE are below the June 2013 ones (20.98% and 26.32% respectively). This behavior, in the last year, is explained by the assets and equity higher annual growth against earnings. Additionally, these entities' equity loss indicator remained at 3.0 times. It should be noted that this indicator is at the last two years average.

In summary, the shown indicators suggest an encouraging panorama of trust companies' financial status; improvements in profitability indicators are observed, and equity loss levels remained the same; yet, liabilities backing decreased.

Graph 32
Trust companies' managed assets distribution by type of business



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

ii. Third party funds

In June 2014, trust companies managed funds⁷⁰ worth \$299.9 trillion⁷¹ (40.9% of the GDP), which represents an annual real growth of 7.1%. Of these assets, 27.5% corresponds to management trust, 23.7% to social security resources, 15.9% to investment trusts, 13.5% to mutual funds, and the remaining to other trust assets. Among the latter, there are the real estate (9.5%), collateral (9.4%) and voluntary pension funds (0.5%) trusts (Graph 32). Of the total assets managed by trust companies, investments accounted for 56.9%⁷² in June 2014,

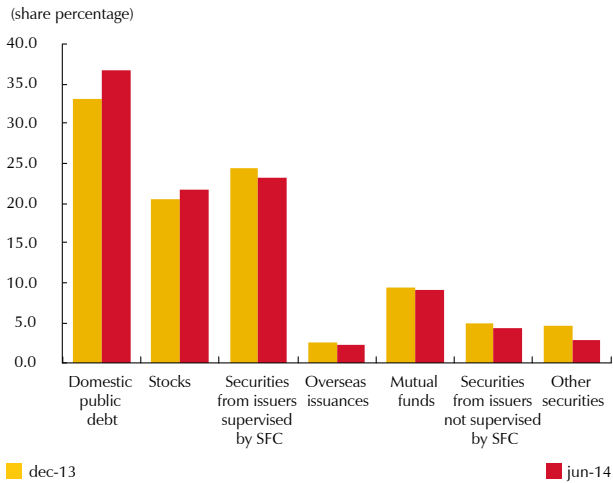
69 This item is, in turn, comprised by operating income, consortiums and temporary unions.

70 Funds managed by trust companies come from different types of businesses: investment trust, where the client gives a sum of money to the trustee to invest in securities and take care of these investments; this modality is known as earmarking; management trusts, on which clients deliver assets to the trust without losing ownership of these, so that the trust manages them in accordance with what was agreed in the contract; real estate trust, which aims to manage resources and assets tied to a real estate project; collateral trust, where resources or assets that the customer placed as collateral for a debt to a third-party are administered; mutual funds trust, which manages funds whose resources come from two or more people for obtaining a collective economic performance; social security trust, which administers funds for the social security, and voluntary pension funds trust, that manages the funds that customers intended for that purpose.

71 This figure includes the value of voluntary pension funds managed by trust companies.

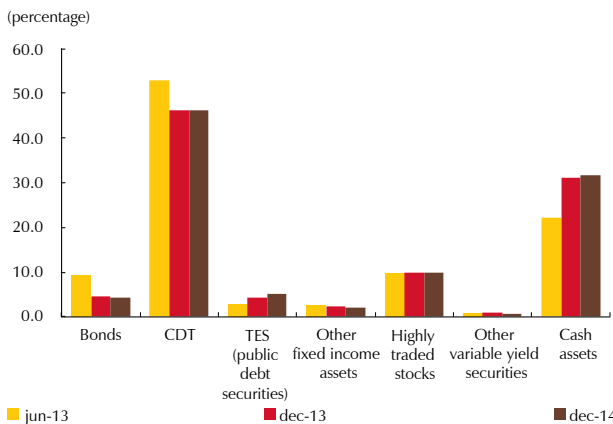
72 For its part, the properties and equipment item, represents 10.3%, cash available, 9.5%, other assets, 8.8%, accounts receivable 8.2%, marketable and received in payment assets by 5.3% and the loan portfolio by 1.0%.

Graph 33
Trust companies' investments composition



Source: Superintendencia Financiera de Colombia.

Graph 34
Open-ended mutual funds managed by trust companies composition



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

reaching \$70.8 trillion, a figure that is higher by \$ 11.5 trillion to the value recored six months ago.

By analyzing their investment portfolio, it is observed that the largest shares are in domestic public debt investments, securities from issuers supervised by Superintendencia Financiera de Colombia and stocks; which represent 36.6%, 23.1% and 21.6% of the investments total respectively (Graph 33). It is worth mentioning that the stocks and public debt securities contribution increased in the last semester, while those from issuers supervised and not supervised by Superintendencia Financiera de Colombia, overseas issuances and the other securities item decreased.

Additionally, the open-ended mutual funds⁷³ portfolio is analyzed, due to its potential systemic effects, considering that these funds are susceptible to runs by investors, along with the high level of resources it manages. The level of assets of these funds showed an increase, moving from \$32.1 trillion⁷⁴ in December 2013, to \$34.7 trillion in June this year, of which 31.7% corresponds to cash assets.

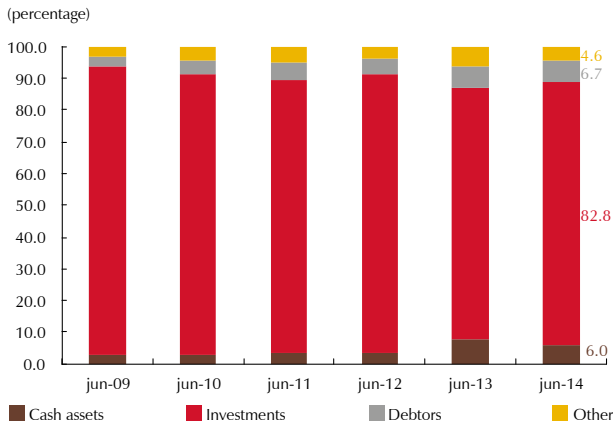
With respect to the behavior of the composition of these funds investments, it is noticed that from December 2013 to June 2014 increased the TES and highly traded securities contribution increased, while CDT share remained constant, and the bonds, other fixed income securities and other variable yield securities contribution decreased. It should

be noted that these funds investments are concentrated in CDT (46.2%) and highly traded shares (9.9%) (Graph 34).

73 This type of portfolio consist on where investors can redeem their share against the fund manager in the terms stipulated in the contract, which may be within the next three working days, that is, on demand, or by the covenant of permanence required under that contract. For further details on the types of mutual funds, see the box 'Changes in the regulation of the financial system, 2012-2013' of September 2013's Financial Stability Report.

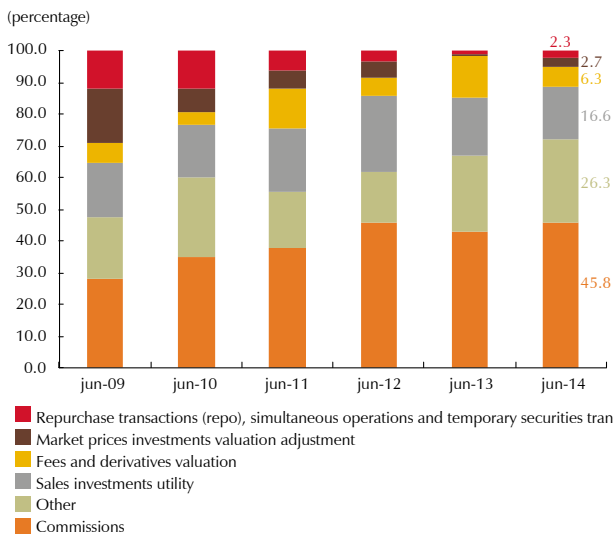
74 These balances correspond to the market value in Colombian pesos plus interests of Superintendencia Financiera de Colombai's number 351 format. The holding of these securities is accounted if they are not committed to repurchase transactions, temporary securities transfer (TTV in Spanish) or simultaneous operations involving the transfer of ownership of the security involved in the transaction; otherwise, these securities are counted to its counterpart.

Graph 35
Stock brokerage firms' assets composition



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Graph 36
Stock brokerage firms' income composition



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

3. Stock brokerage firms

i. Proprietary position

Stock brokerage firms' proprietary position asset grew at a annual real rate of 14.8% in June 2014, reaching \$3.5 trillion⁷⁵, which represents 0.4% of the financial system's assets. The "investments, derivatives and asset positions in money market operations and related" account, is the most important item of this account, registering \$2.9 trillion, equivalent to 82.8% these entities total assets. Meanwhile, cash assets and accounts receivable are 6.0% and 6.7% of the assets respectively (Graph 35).

When measuring the assets and liabilities ratio, it is found that between December 2013 and June 2014 this ratio decreased, from 1.5 to 1.3 times.

Regarding income composition, by June 2014, stock brokerage firms mainly obtain them from the commissions they charge their clients (45.8%), other earnings⁷⁶ (26.3%) and profits from the sale of investment (16.6%). When this composition is analyzed over time, despite the drop in 2013, commissions keep representing the most significant component of these entities earnings (Graph 36)⁷⁷.

By analyzing in detail the stock brokerage firms' fees, it can be found that, by June 2014, the most important items are those belonging to securities or investment funds management (35.2%), contracts by commission (32.5 %), and correspondent

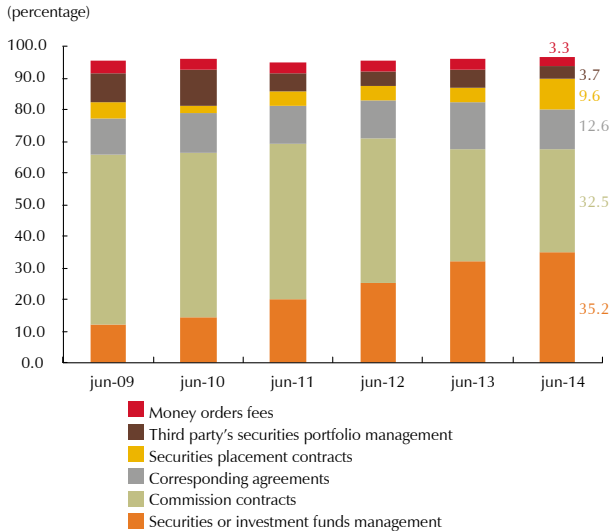
75 Investment management companies' proprietary position asset, decreased at a 57.9% annual real rate in June 2014, reaching \$17 billion.

76 This category includes earnings due to changes, for profits on the sale of speculation derivatives, hedging derivatives, and profits for hedging derivatives valuation. Additionally, the "various" and non-operating income account is included.

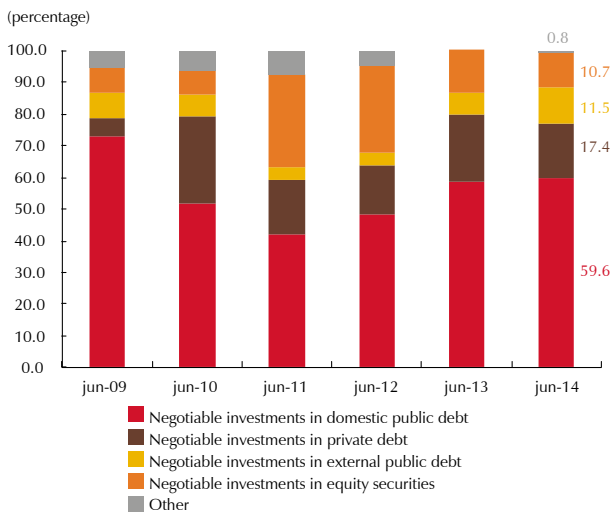
77 On the investment management companies' side, these entities income almost entirely come from fees derived from stock or investment funds management (89%). The importance of the fees for investment management companies has been high throughout the analysis period.

Graph 37
Stock brokerage firms' fees and investments sales composition

A. Fees



B. Investments sales



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

agreements (12.6%)⁷⁸. When analyzing long term items, a replacement between commission and securities funds management contracts since 2009 (Graph 37, panel A) is observed. As for earnings from the sale of investments, these were composed, in order of importance, from the sale of domestic public debt securities (59.6%), private debt securities (17.4%), public external debt (11.5%) and equity securities (10.7%) (Graph 37, panel B).

When analyzed in detail, the profitability of the stock brokerage firms through the ROA and ROE indicators, a decrease is observed in these, moving from 3.2% and 9.2%, to 1.8% and 7.7% respectively between December 2013 and June 2014. The decrease in the ROA is explained by the increase in assets (14.9%) and a decrease in earnings (-6.5%). On the ROE side, the indicator's performance is due to the greater decrease in earnings (-6.5%), compared with the observed by equity (-2.6%)⁷⁹. Additionally, the equity loss indicator of these entities decreased, going from 2.6 to 2.5 times in the last six months. This is below the average of the past five years (3.0 times).

In short, the analyzed indicators suggest, as of June 2014, a less favorable financial status to that seen in December 2013. This is given the decrease in the profitability indicators, a lower assets to liabilities ratio, and a lower equity loss for these entities.

78 With respect to such earnings, the contract by commission is an agreement by which the stock brokerage firm commits to buy or sell securities in its own name, but on behalf of an investor; on the other hand, the management of securities or mutual funds, is an operation by which the entity commits with the issuer to sell among the public the totality of an issuance or a part of it, making capital and yield collections, along with the performance of reinvestments, as provided by the investor; it should be highlighted that in this activity, the stock brokerage firm does not make decisions on behalf of the client without previous consultation. Finally, according to Decree 2558 of 2007, there are contracts between the stock brokerage firm and foreign or domestic entities for the promotion of the services which the latter offer; such contracts are called correspondent agreements, on where brokerage firms could develop activities related to the delivery and receipt of money, securities and other additional documents.

79 Investment management companies profitability indicators get deteriorated between December 2013 and June 2014. The ROA moved from -10.2%, to -14.1%, and the ROE, from -13.0% to -15.1%. This behavior is due to the losses that these entities have had during the analysis period.

ii. *Third party funds (stock brokerage firms)*

The asset value of the funds managed by stock brokerage firms reached \$11.6 trillion in June 2014, compared to the \$10.0 trillion in December 2013, and represents 1.2% of the financial system's assets, where investments represent 67.2% of these assets. Cash assets constitute 20.1% of the total assets.

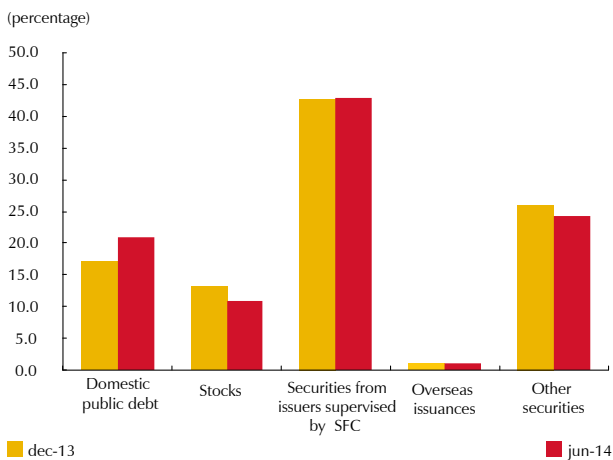
When the portfolio composition is analyzed, it can be seen that the most representative items are investments in securities from issuers supervised by Superintendencia Financiera de Colombia, domestic public debt securities and

stocks, which in June 2014 accounted for 42.9%, 20.9% and 10.8% of the portfolio respectively (Graph 38). By comparing this composition with the December 2013 one, it is observed that public debt securities were those who won more share, while stocks was the category that lost the most.

As for the open-ended mutual funds portfolio, an increase is observed, moving from \$6.9 trillion in December 2013, to \$8.1 trillion six months later, of which cash assets represented 27.1%. These funds investments are concentrated in fixed term certificates of deposit, CDT (44.4%) (Graph 39). With respect these funds investments composition behavior, it is noted that between December 2013 and June 2014, the share of bonds and other fixed income securities declined, while it increased for CDT and TES (a similar behavior to the one in the last half of 2013). Meanwhile, variable yield securities decreased their share during the first six months of 2014.

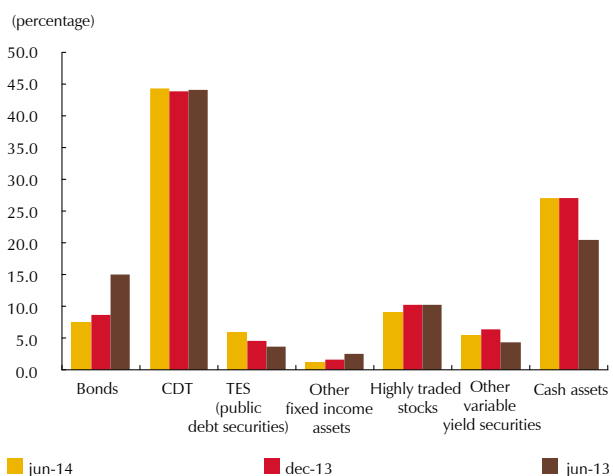
In short, the value of the assets of the funds managed by stock brokerage firms to June 2014, increased compared to that observed in December 2013. As for the portfolio composition, the most representative investments are securities of issuers supervised by Superintendencia Financiera de Colombia, domestic public debt securities and stocks. On the open-ended mutual funds side, an increase was observed during the first half of 2014, on which it was found that investments are mainly concentrated in CDT.

Graph 38
Stock brokerage firms and investment management companies



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Graph 39
Open-ended mutual funds managed by stock brokerage firms' composition



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

4. Insurance sector⁸⁰.

Insurance companies' assets showed an annual real growth of 7.8%, and reached \$46.3 trillion in June 2014, equivalent to 6.3% of the GDP. This item is mainly distributed among life insurance companies (66.3%) and the general insurance ones (32.4%)⁸¹.

To analyze the performance of such entities, monitoring of the net income of its operations is performed, which consists of the technical result and the investments portfolio product. The first reflects the losses or profits typical of insurance operations, and is calculated as the difference between earnings from issued premiums and the costs incurred (such as reinsurance, paid claims, administrative expenses, etc); while the second reflects these entities investment of reserves return.

During the first semester of 2014, the net income on issued premiums increased for insurance companies, moving from 3.8% in December 2013, to 7.5% in June this year. This higher result is explained by the increase in the investments on issued premiums product, which rose from 10.1% to 14.9% during the same period, although during this period the technical result for issued premiums recorded a decrease, moving from -6.3% to -7.4%. By insurance category, it is noticed that for the general one, the net income by issued premium exhibited a semiannual increase of 1.5 percentage points, reaching 3.5% in June 2014, while for life insurance, income increased by 3.7 percentage points, at 11.7% for the same period (Table 8).

To analyze the evolution of the components that constitute the technical result, the combined ratio is observed. This indicator is defined as the ratio between the different costs associated with the business and with premiums income

Table 8
Net income, technical result and issued premiums investments product

	Jun-13			Dec-13			Jun-14		
	General	Life	Total	General	Life	Total	General	Life	Total
Technical result/issued premiums	(1.64)	(12.04)	(6.60)	(2.17)	(10.09)	(6.26)	(2.83)	(12.23)	(7.42)
Investments product / issued premiums	5.45	13.81	9.43	5.64	14.21	10.07	6.30	23.88	14.88
Net income/issued premiums	3.82	1.77	2.84	2.02	3.83	380.60	3.47	11.65	7.46

Source: Colombian Federation of Insurers (Federación de Aseguradores Colombianos – Fasescolda).

80 This section does not analyze the portfolio managed by this group of entities, since they only manage a voluntary pension fund with assets of \$0.2trillion by June 2014.

81 Includes insurance cooperatives, because these institutions offer services similar to those of the general insurance companies and are supervised by Superintendencia Financiera de Colombia.

adjusted for reinsurances. A value greater than 100% in this indicator is understood as inefficiency, since costs are higher than earnings. In June 2014, the combined ratio reached a level of 107%, mainly explained by the evolution and high share paid claims have (64.7% overall), followed by administrative and personnel expenses (28.9% overall).

When comparing the combined ratio by type of insurance company, it is noticed that in life insurance companies, paid claims constitute an income ratio greater than that exhibited by general insurance companies. In June 2014, this item represented 73.5% in life insurance companies, while for general insurance companies it reached a share of 54.2%. The opposite occurs for the administrative, personnel and others item, on where for life insurance companies represents a smaller proportion (23.2%) of their income compared to that recorded by general insurance companies (35.7%) (Table 9).

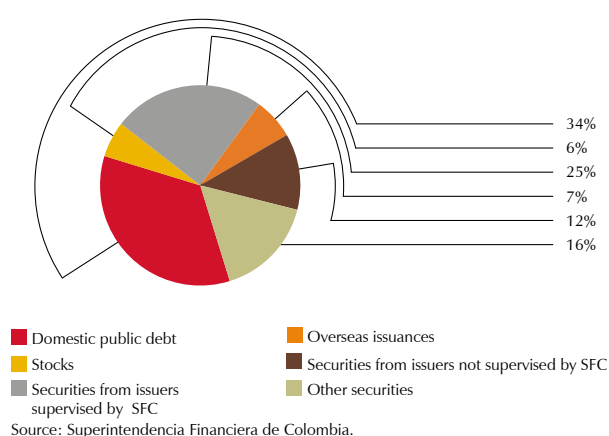
Table 9
Combined ratio

	Jun-13			Dec-13			Jun-14		
	General	Life	Total	General	Life	Total	General	Life	Total
	(percentage)								
Claims	53.54	72.68	63.48	54.59	72.04	63.88	54.18	73.52	64.70
Administrative expenses, personnel and other	34.81	25.21	29.83	34.66	24.32	29.15	35.74	23.17	28.90
Net fees	14.73	12.38	13.51	14.82	12.28	13.47	15.06	12.04	13.42
Combined ratio	103.08	110.27	106.81	104.07	108.65	106.51	104.97	108.72	107.01

Source: Federación de Aseguradores Colombianos (Fasecolda).

On the other hand, by June 2014, the investment portfolio accounted for 73.7% of assets, equivalent to 4.5% of the financial system's investments.

Graph 40
Insurance companies' investments portfolio



Source: Superintendencia Financiera de Colombia.

The portfolio of these institutions is mainly composed by TES and securities of supervised and not supervised by Superintendencia Financiera de Colombia entities, which represent 34.5%, 24.5% and 12.3% of the portfolio total respectively (Graph 40).

As for the profitability indicators, it is observed that for the insurance sector, the ROA and ROE increased between December 2013 and June 2014, moving from 1.4% and 6.4%, to 2.1% and 10.0% in that order. This behavior is due to the greater increase in profits (58.9%), compared the assets (2.6%) and equity (1.4%) increases. By kind of company, a similar dynamics is observed, since

both life insurance companies, as the general ones exhibited increases in both indicators.

In summary, for the insurance sector it is observed that their investments return continues to cover the costs associated with the business, which is reflected in the increase in the net income increase on issued premiums and the profitability indicators. Additionally, when analyzing the combined ratio, it is observed that its result is explained, mainly, by paid claims high share.

Box 1

CREDIT RESTRUCTURING IN COLOMBIA

Esteban Gómez
Miguel Ángel Morales*

In periods of stress, loan restructuring (forbearance) can help banks reduce losses and prevent their customers failing to fulfill their obligations; however, this practice may also affect the system's financial stability and restrict credit supply when done indiscriminately (Bank of England, 2011).

This box analyses the risks associated with loans restructuring processes, and show a diagnosis of this practice in the Colombian financial system. In the first section, credit restructuring and their classification are presented; in the second, loan restructuring objectives and risks are discussed; the third one, presents the international experience, and in the last, a domestic diagnosis is made, using the results of June 2014 credit situation in Colombia survey.

1. Definitions

At the international level, loan restructuring is understood as the renegotiation or easing of the initial terms of the loan contract, in response to a situation in which the borrower is under a stress situation (Financial Services Authority [FSA], 2011).

In the case of Japan, Sekine et al. (2003), they recognize that there is no single definition of credit restructuring; nonetheless, they understand restructuring as: the total or partial refinancing of a loan to a firm, even though it is in financial difficulties and it may be unable to repay the loan. Similarly, the Bank of England defines it as the support a bank grants to customers who are in financial difficulties, by easing the contract's standard terms. This assistance could arise in various ways, such as ignoring any provision of the credit to generate financial relief to the debtor, giving the debtor more time to comply with its obligations, or any other strategy that allows him to fulfill his payments (Bank of England, 2011).

In Colombia the concept of credit restructuring, also informally known as standardization, defined in Chapter II of the Accounting and Financial Basic Circular (section

1.3.2.3.3) as: “[...] any exceptional mechanism, implemented by conclusion and/or execution of any legal business, which aims to change the conditions originally agreed, to allow the debtor the proper fulfillment of his obligation facing the real or potential deterioration of his payment capability [...].” Additionally, agreements under laws 550 of 1999, 617 of 2000 and 1116 of 2006¹ are considered as restructurings, or the regulations that add or replace them, as well as extraordinary restructurings and novations (consolidation of loans from a new credit line to collect matured loans²). The chapter of the mentioned circular, also states that restructurings should not become into a widespread practice to normalize the loan portfolio behavior.

Table B1.1 features a summary of some types of restructuring employed in Colombia. It is important to point out that restructurings can be developed for bad execution reasons —when the debtor's capability to pay has been impaired—, or for good execution reasons —when these are due to reasons other than the debtor's real affectation. An example of the first case would be an extension of terms, given the lower payment capability for a company due to a transitional economic shock; an example of the second case, might be the change of the billing date requested by credit card customer that is financially solvent.

2. Credit restructuring's goals and risks

There are several reasons on why a bank would restructure loans. The first would be to reduce expected losses on their loans by providing greater flexibility to debtors at the time they have temporary difficulties; so, by easing the loan's contractual terms, the bank could reduce the default probability³. In addition, banks would be interested to restructure loans to delay the accounting

* The authors are, in that order, director and professional expert at the Financial Stability Department. Their opinions do not compromise *Banco de la República* or its Board of Directors.

1 Law 550 of 1999: Economic Intervention for corporate recovery and restructuring agreements; Law 617 of 2000: Signing of programs of fiscal and financial restructuring, and Law 1116 of 2003: Establishment of the corporate insolvency regime.

2 Credit relief ordered by law will not be considered as restructurings, as it was the case of the established by Law 546 of 1999.

3 According to Arrowsmith et. al. (2013), banks may also be interested in performing restructurings, because they believe that debtors are in temporary difficulties, firms are making operational changes, the debtor's collateral is valuable, or the firm is under restructuring.

Table B1.1
Most common types of restructuring in Colombia

Type of restructuring	Explanation
Successive extensions	The installment's collection term is extended
Capital at end of period	Amortized capital at end of period
Restructuring by autonomous equities	The loan amount is transferred to an autonomous equity for not to affect the debtor's credit rating
Moving of the installment to the end	The initial installment is payable at the end period established in the contract
Three month terms extendable in time	Term extension
Consolidating or unifying loans	Consolidates different loans into a single credit
Invoice change	Invoice date is changed
Credit card deferments	Credit installments are deferred
Novations	It is the substitution of a new obligation for a previous one, which is thus extinguished. For example, with a new line of credit, non-performing loans are consolidated.
Installment's redistribution	The interest and principal amortization component within the installment and in time is redistributed.
Rate reduction	Credit's interest rate is reduced

Source: Banco de la República

for losses or provisions against non-performing loans and thus assuming them when facing higher solvency levels. In this sense, the proper restructuring of loans would help bank stability, allowing intermediaries to continue granting loans in the short term, as well as reducing the debtors' cash flow, preventing a sale of assets (fire sales) that could generate a spiral of falling prices in a crisis situation.

When the loan restructuring process is properly developed, both, credit intermediary and debtor gain benefits; however, when this process is used indiscriminately, without strict analysis, it threatens the solvency of the debtor, the credit intermediary's one, and generates negative impacts in the market in terms of financial stability (FSA, 2011).

According to the financial stability report (Bank of England, 2011, section 2), among the distortions loan restructuring can generate there are:

Uncertainty and inadequate credit risk measurement: loan restructuring can hide banks' credit risk. When this practice is widespread, credit information associated with maturities and losses would be unreliable in credit risk terms. It is difficult to measure the degree of distortion when credit intermediaries do not fully and consistently report information on restructuring.

Overestimation of the debtors' soundness/solvency: changes in macroeconomic conditions may generate certain types of restructuring to be ineffective; hence

credit institutions should not overestimate debtors' payment capability after a restructuring. For example, loans that have been modified for interest payments only, would be more vulnerable to changes in interest rates than a credit whose loan to value (LTV) is modified. If banks do not provision enough regarding restructured loans, losses generated by these credits would result in reductions in their capital.

Restrictions on lending: the usual way of loan restructuring, could generate new credit offers to be reduced as a result of the excessive use of resources by financial intermediaries in loan restructuring for existing debtors. In general, if entities maintain credits that do not generate income, or that debtors cannot pay, then they would be facing a lower revenues scenario, affecting their capability to generate new loans.

The Bank of England (2011) also highlights the importance of accurate information on credit restructuring in order to measure their impact on the financial system's credit risk; nevertheless, it acknowledges that financial intermediaries do not properly report restructurings, and that their standardization practices widely vary between entities. The above behavior facilitates the misclassification of loans: loans that are in default are classified as restructured rather than risky or non-performing, thus avoiding causing new provisions. In the particular case of England, this mechanism could have explained British banks' higher profits since 2009, when a drop in the level of provisions relating to bad loans was recorded.

In general, when the proportion of restructured loans is high, the provisions of financial intermediaries may be insufficient to cover possible losses on these loans. For the particular case of Colombia, when a loan is restructured, it can maintain its previous rating, and even improve it, in certain conditions¹; a situation that increases uncertainty as to the profitability and intermediaries solvency.

3. International experience

Two of the most relevant and studied loan restructuring and its adverse effects on the economy cases, are those of Japan and England.

Some studies have concluded that loan restructuring is one of the factors that would have generated inefficiencies in the Japanese economy, causing deterioration in social welfare. Standardizations would have adversely affected the economy by “rescuing” inefficient firms (i.e., low return) at the edge of bankruptcy. Additionally, it would have created a moral hazard problem, since if firms anticipate they can get a restructuring of their obligations, they would reduce their management effort levels.

Another of the adverse effects evidenced in Japan, is the one exposed by Sakuragawa (2002), who argues that banks would have an incentive to alter their balance sheets to meet the minimum capital requirements suggested at Basel. In this case, a bank without sufficient provision levels, would try not reporting its loan portfolio as non-performing, writing it as a performing loan portfolio, thus avoiding capital decreases.

In the case of England, restructuring by banks during the most recent financial crisis, could have explained the low rates of firm bankruptcies and, partly, the low productivity which this country has shown since 2008. Arrowsmith et al. (2013) developed for the Bank of England a study measuring the credit restructuring for small and mid-size firms and its implications on the financial system's pro-

ductivity and soundness. Their results showed that about 6% of these firms had received some form of standardization, representing 14% of the balance of the five largest banks. In the end, the authors conclude that restructuring only partially explains the reductions in productivity in the United Kingdom.

4. Credit situation in Colombia survey results

In surveys conducted by the *Banco de la República* in March and June 2014, an additional module related to the restructuring of loans in Colombia, aiming to analyze their development and sectoral concentration, was included. The module consists of five questions, on which financial intermediaries are consulted if they have carried out restructurings, which are the most common types of restructuring, in what types of credit they are developed, how they have varied from three months ago, and which are the economic sectors where they are most applied.

Results show that during the last three months, 83.3% of banks, 91.7% of commercial financing companies, and 100% of financial cooperatives have carried out credit restructurings². In general, these restructurings have focused on term extensions (29.2% for banks, 33.3% for commercial financing companies, and 45.5% for cooperatives) and in grace periods (18.8% for Banks and 18.2% for commercial financing companies). In particular, cooperatives argue that the grant of new loans to former debtors to meet previous obligations is also a common type of restructuring (18.2%). Other measures, such as installment reductions, interest payments deferral and condonation of pending installments, seem less recurrent among intermediaries (Graph B1.1).

When credit institutions are asked which were the credit modalities on which the highest number of restructurings occurred, banks point out it was the consumer loan portfolio (34%), followed by the commercial loan portfolio (30.1%). In the case of commercial financing corporations and cooperatives, appear, on the first place, commercial loans (37.6% and 38.0%), followed by microcredits (29.3%) in the case of commercial financing corporations, and by consumer loans in the case of cooperatives (37%) (Graph B1.2).

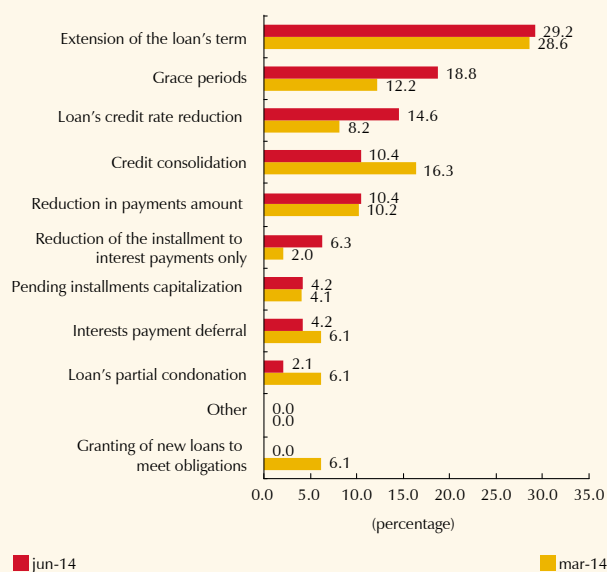
4 According to External Communication 036 of 2008 (Chapter II, Annex: Accounting Basic Circular): “Restructured loans may maintain the immediately preceding grade, provided that the restructuring agreement entails an improvement in the debtor’s payment capability and/or probability of default. If restructuring contemplates grace periods for the payment of capital, it can only maintain this rating when such periods do not exceed a one year from the signing of the agreement. Credits can improve rating or modify their default status after being restructured, only when the debtor demonstrates a regular and capital effective payment behavior, in accordance with a normal credit behavior, as long as his payment capability is maintained or improved”.

5 In the case of banks, 18 institutions responded the restructurings module, of which 15 reported they have done some restructuring in the last three months. Regarding commercial financing companies, 12 entities answered the module and 11 claimed they performed restructurings. Finally, in the case of cooperatives, 5 entities responded the module, and all say they have done restructurings.

When analyzing the restructured loans balance as a proportion of the total balance, it is observed that, in the mortgage and microcredit loan portfolios, all financial intermediaries restructured a proportion below 5% of the total balance. With regard to the consumer modality, the commercial financing companies and cooperatives total responded that the ratio is less than 5%, while 20% of Banks responded saying they have a restructured loans balance between 5% and 10%. In the case of commercial loans, a greater standardization proportion is observed, for some cases reaching levels between 10% and 15% of the total balance (9% of banks responses and 25% of commercial financing companies).

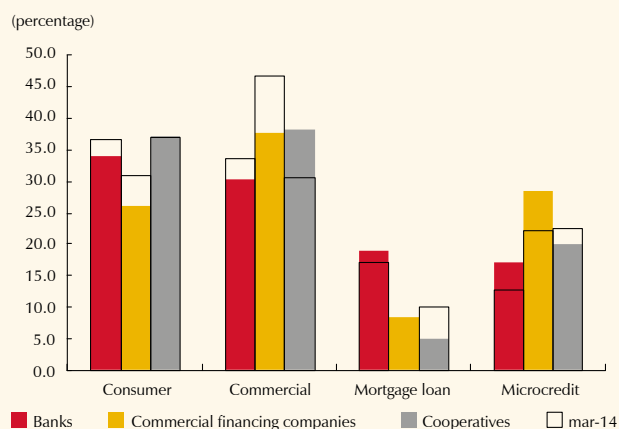
Regarding the change in the number of restructurings over the past year, all intermediaries claim that it is in commercial loans where there has been the greatest increase, while there have been reductions for mortgage loans. Finally, when analyzing restructurings by sector, it is noticed that for banks, the sectors that have presented the greatest number are natural persons (30%) and services (20%). For its part, commercial financing companies say that, it has been applied in the commercial sector in the first place (26.1%), followed by services (21.7%), while cooperatives do not remark any sector in particular. It

Graph B1.1
Types of restructuring undertaken in the last three months (Banks)



Source: Encuesta sobre la situación del crédito en Colombia, junio de 2014.

Graph B1.2
Modality in which the highest number of restructurings occurred in the last three months



Source: Encuesta sobre la situación del crédito en Colombia, junio de 2014.

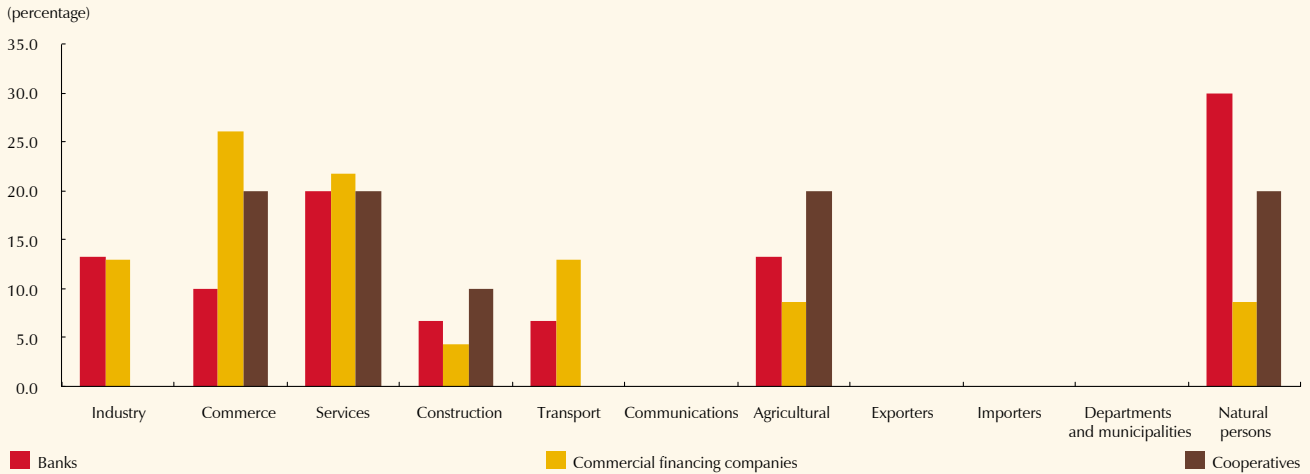
is important to mention that none of the entities at the communications and exporter and importer sectors were susceptible to restructurings (Graph B1.3).

5. Conclusion

Loan restructuring is a practice that brings both benefits and risks to the financial systems. The main problem underlies in the inadequate recording of this practice, which does not allow an adequate follow up because, by contrast, it enables it to be used as a tool for hiding the customers' credit risk, therefore reducing the required provisions and capital levels. According to international experience, credit standardization could also reduce the firms' productivity of firms, by allowing the most inefficient to survive, generating incentives towards the least effort. In Colombia, credit restructuring is an activity contemplated in the Basic and Accounting Circular, and that has supervision from Superintendencia Financiera de Colombia. However, the large number of practices used by financial intermediaries to ease the contractual terms of the debtors enables an adequate disclosure of these loans to exist, which is why Superintendencia Financiera has been strengthening supervision in this aspect.

Considering the survey's analysis on the credit situation, the levels of this practice in Colombia seem to be relatively low.

Graph B1.3
Sectors in which a greater number of loan restructurings have taken place



Source: Encuesta sobre la situación del crédito en Colombia, junio de 2014.

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III. CURRENT STATUS AND PROSPECTS OF THE DEBTORS OF THE FINANCIAL SYSTEM

During the first semester of 2014, household debt continued to slow down at a moderate rate mainly due to a lower growth in the consumer loan portfolio. Nevertheless, their financial burden slightly rose, but remains below the international thresholds. As for the expectations of these agents, it shows that they remain positive, particularly with their income levels increase.

The private corporate sector shows a favorable situation in terms of credit risk and size when the more recent indicators are compared against the historical average and the figures from two years ago. Notwithstanding, a lower sales performance is noted, which has resulted in lower profitability indicators. The proportion of liabilities to assets has decreased; however, the latest financial debt ratio, short-term hedging ratio and financial burden indicators have shown increases.

A. EXPOSURE OF CREDIT INSTITUTIONS TO THEIR MAIN DEBTORS

In June 2014, credit institutions' exposure to different debtors was of \$352.7 trillion, representing an annual real growth of 9.1% compared with the observed in June 2013. The exposed amount represented 78.8% credit institutions assets⁸² and 48.0% of the GDP, figures higher than those recorded a year ago (78.3% and 46.2% respectively) (Table 10).

⁸² The remaining 21.2% corresponds to net valuing accounts, accounts receivable, assets under operating leasing, acceptances, cash transactions and other derivatives, along with other assets.

Table 10
Credit institutions' exposure to their main debtors

Type	Jun-2013		Jun-2014		Percentage annual real growth
	June 2013 trillion Colombian pesos	Percentage share	June 2014 trillion Colombian pesos	Percentage share	
Public sector					
Loan portfolio	11.65	3.60	14.08	3.99	20.83
	1.59	0.49	2.34	0.66	47.28
Securities	46.64	14.43	47.08	13.35	0.94
Total	59.88	18.52	63.50	18.00	6.04
Private corporate sector					
Loan portfolio	140.32	43.40	152.58	43.26	8.74
	132.40	40.95	143.82	40.77	8.62
Microcredit	7.91	2.45	8.76	2.48	10.73
Financial leasing	15.91	4.92	16.48	4.67	3.55
Commercial	15.91	4.92	16.47	4.67	3.57
Microcredit ^{a/}	0.01	0.00	0.00	0.00	-38.47
Securities	0.69	0.21	0.80	0.23	16.19
Total	156.92	48.53	169.86	48.15	8.25
Household sector					
Loan portfolio	97.72	30.22	110.02	31.19	12.59
	75.79	23.44	82.58	23.41	8.96
Mortgage loan	21.93	6.78	27.44	7.78	25.15
Securitized ^{b/}	3.61	1.12	2.30	0.65	-36.48
Financial leasing	5.21	1.61	7.07	2.00	35.71
Consumer	0.40	0.12	0.34	0.10	-15.04
Residential	4.81	1.49	6.73	1.91	39.98
Total	106.54	32.95	119.39	33.85	12.06
Total exposed amount	323.34	100.00	352.74	100.00	9.09
Exposed amount over assets (percentage)		78.30		78.77	
Exposed amount over GDP^{c/} (percentage)		46.17		48.02	

a / Microcredit's financial leasing balance was of \$6.0 billion in June 2013, and of \$3.7 billion in the same month of 2014.

b / Securitized refer to the amount held by credit institutions.

c / To calculate the ratio of June 2014, the used projection of GDP's annual real growth in the second quarter of that year was 4.3%.

Source: Superintendencia Financiera de Colombia and Banco de la República; Banco de la República calculations.

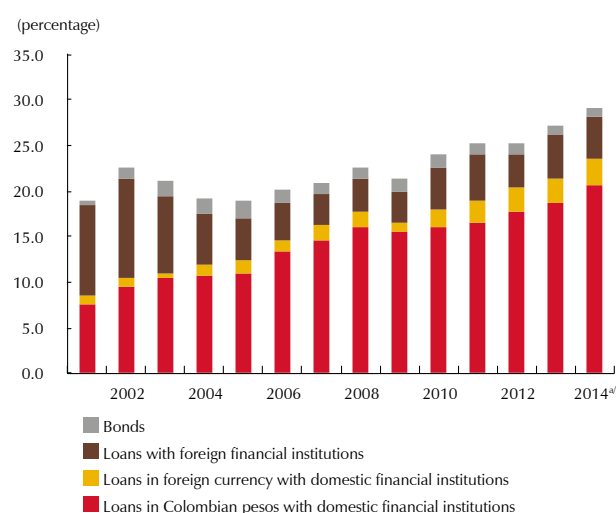
In assessing the exposed amount composition, an increase in the households shared is observed, explained by the mortgage loan portfolio behavior and residential leasing. The drop in the level of holding of mortgage-backed securities (securitization) by credit institutions, moving from \$3.6 trillion in June 2013, to \$2.3 trillion a year later is highlighted.

The credit institutions' exposure to the corporate and public sectors as a percentage of their total exposure, decreased between June 2013 and the

same month of 2014, moving from 48.5% to 48.2% in the first case, and from 18.5% to 18.0% in the second. For the private corporate sector, this reduction was due to the decrease of microcredit leasing, while for the public sector it is explained by the slowdown in investments in government bonds. It is important to note that, despite the decrease in the share of the public sector, the loan portfolio and financial leasing balance that credit institutions placed for these institutions grew at annual real rates of 20.8% and 47.3% respectively as of June 2014.

B. PRIVATE CORPORATE SECTOR

Graph 41
Private corporate sector's financial debt as proportion of the GDP



a/ Between 2001 and 2013, the figures for the ratio have an annual periodicity and are calculated with the month of December as closing date. By 2014, due to restriction on the information, the loans balance with domestic financial institutions and the one for bonds, corresponds to that recorded in June 2014, while the loans with foreign financial institutions one, is that registered in May of that year. Meanwhile, the GDP value used on this date to find the proportion, corresponds to the annualized nominal level of June 2014, considering that the annual real GDP growth in the second quarter of that year was 4.3%, and the annual inflation in June 2014 was of 2.8%.
Source: Superintendencia Financiera de Colombia and Banco de la República; Banco de la República calculations.

In June 2014, private corporate sector's financial debt⁸³ as a proportion of the GDP, registered an increase, reaching 29.2%. Loans with domestic financial institutions remain the main source of funding (23.4% of GDP)⁸⁴, followed by loans with foreign institutions (4.6% of GDP) and bonds (1.2% of GDP), (Graph 41).

On the other hand, the exposure of credit institutions to the private corporate sector remained relatively stable between June 2013 and December 2014; in particular, about half of its assets (48.2%) correspond to loans and assets under financial leasing to firms and securities from these (Table 10). Given this, it is important to analyze the evolution of some indicators that could give an overview on companies' performance.

1. Private corporate sector's financial status

For purposes of this Report, the "private corporate sector" is defined as the set of companies supervised by Superintendencia de Sociedades (Supersociedades), and whose financial statements (balance sheet, income statement and cash flow) are available to the public in this institution's website, annually and with a closing date to 31 December. Historically, this sample of firms has been used by the Financial Stability Department at Banco de la República, as a private real sector in

83 This debt corresponds to the total of financial obligations incurred into by private companies with domestic credit institutions, financial institutions from abroad, and the bonds balance from issuers whose information is available at Superintendencia Financiera de Colombia's website. It is worth mentioning that the debt with suppliers was not included because information of the total of credits with domestic suppliers is not available.

84 These credits are mostly placed in Colombian pesos (20.6% of the GDP).

Colombia proxy, to regularly monitor companies' financial status and credit performance. This is so considering that analyzing the performance and path of these indicators is key to maintain financial stability.

In December 2013, the private corporate sector consisted of 25,297 firms⁸⁵, accounting for 41.3% of the outstanding the commercial loan portfolio balance. During 2000-2013, this figure has been, on average, at 48.2% (Table 11). In terms of its sectoral composition, as it can be seen in Graph 42, about 66% of the firms belong to the wholesale and retail sectors (28.4%), real estate activities (21%) and manufacturing industries (16.4%).

Table 11
Number of companies in the private corporate sector and their representativity in the commercial loan portfolio

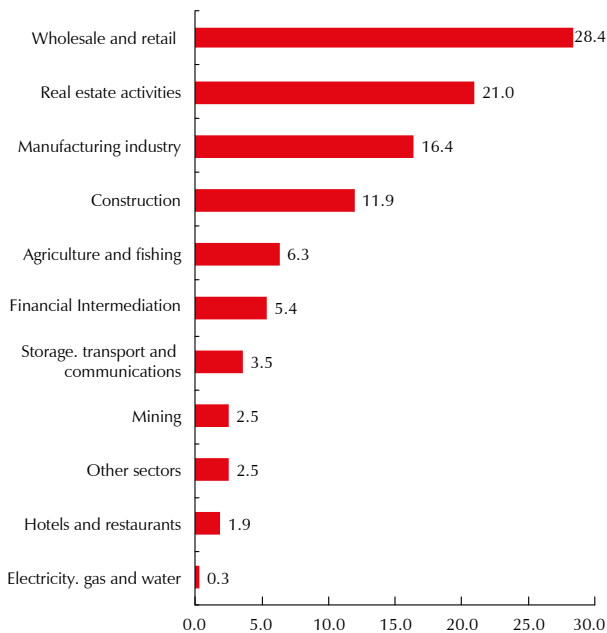
Year	Number of firms	Supersociedades's loan portfolio share in the commercial loan portfolio (percentage)
2000	10,157	51.7
2001	9,577	52.9
2002	8,927	46.4
2003	8,931	48.9
2004	9,623	47.8
2005	19,027	48.2
2006	22,787	51.0
2007	20,935	47.9
2008	20,437	51.3
2009	18,275	47.0
2010	21,825	49.9
2011	24,696	49.2
2012	24,456	41.4
2013	25,297	41.3

Note: Companies under equity loss were not considered
Source: Superintendencia de Sociedades de Colombia and Superintendencia Financiera de Colombia; Banco de la República calculations

For the 2000-2013 period, an unbalanced panel of 45 indicators was made for the Supersociedades sample in order to measure different firms' financial and non-financial attributes, such as activity, profitability, credit risk, liquidity and size, among others. This is relevant, because it allows counting on different measures that make it possible to analyze the companies' strengths and weaknesses, as well as identifying in greater detail those accounts that could explain their performance.

85 The figures on the number of companies in the private corporate sector in this section, as well as the results for all indicators, exclude firms that are under equity loss. According to Article 457 of the Colombian Commercial Code, this situation is for those that are or will initiate a dissolution process.

Graph 42
Sectoral composition of the private corporate sector at 31 December 2013



Source: Superintendencia de Sociedades; Banco de la República calculations.

In this edition, results for thirteen indicators are presented⁸⁶, grouped into seven categories that, together, can provide an overview of the financial situation of the private corporate sector as of 31 December 2013 (Table 10). The latest figures are compared with those observed in 2011, 2012 and against the historical average.

a. *Activiy indicator*

In 2013, the operating income of the private corporate sector grew at an annual real rate of 3.0% (Table 12, panel A), a figure higher than the observed in 2012, although lower compared to those recorded in 2011 and the historical average. This is due to a heterogeneous behavior among the sectors of the economy. From the sectors that showed a positive dynamics in their sales in 2013, transport is highlighted, growing at an annual real rate of 25.6%, followed by hotels and restaurants, which showed a variation of 7.7%. As for those who showed a negative performance in

their operating income, electricity, gas and water (-8.1%) and construction (-2.7%) are remarked.

b. *Profitability indicators*

In December 2013, profitability indicators showed a lower performance compared to the two previous years and the historical average (Table 8, panel B). However, it should be mentioned that they are positive, which shows that investment in assets resulted in the generation of profits. In accordance the latest issues of this Report, and when doing the analysis by sector of the economy, it is found that the greatest indicators belong to the mining sector (12.7% ROA and 19.2% ROE). They are followed by commerce (5.6% ROA and 12.0% ROE) and industry (5.6% ROA and 10.2% ROE). The lower profitability was registered for agriculture and fishing (0.8% ROA and 1.2% ROE).

86 The formulas for the indicators analyzed in this section are presented in Table 12's lower part

Table 12
Private corporate sector's financial indicators status as of December 2013

Financial indicators	2013 figure (percentage)	Comparison with:		
		2011	2012	historical average ^{a/}
A. Activity indicator (percentage)				
Sales annual real variation	3.0	↓	↑	↓
B. Profitability indicators (percentage)				
Return on assets (ROA) ^{b/}	5.4	↓	↓	↓
Return on equity (ROE) ^{c/}	8.6	↓	↓	↓
C. Leverage indicators (percentage)				
Debt to assets ratio ^{d/}	36.6	↓	↓	↓
Financial debt ratio ^{e/}	14.0	↑	→	↑
Short-term hedge ratio ^{f/}	1.3	↑	↑	→
Financial burden ^{g/}	6.3	↓	↑	↑
D. Liquidity indicators				
Current ratio ^{h/} (number of times)	1.4	↑	↓	↑
Working capital's annual real variation ^{i/} (percentage)	5.3	↑	↓	↓
E. Size indicator				
Total assets natural logarithm	27.3	↑	↑	↑
Total assets' annual real variation (percentage)	13.3	↑	↑	↑
F. Foreign exchange exposure (percentage)				
Nets exports as sales share ^{j/}	(2.8)	↑	↑	↑
Foreign exchange unbalance ^{k/}	(3.9)	↓	↓	↑
G. Relationship with the financial system intensity				
Number of relationships with credit institutions ^{l/}	1	→	→	↓
H. Risk indicators (percentage)				
Quality indicator ^{m/}	3.20	↓	↓	↓
Default indicator ^{n/}	0.80	↓	↓	↓

Note: For each year, the indicators' annual real growths are calculated using balanced samples, namely, 2013 data are calculated based on a sample whose individuals were also observed in 2012.

a/ Simple average of the annual indicators observed for the 2000-2013 period, except for the banking relationships indicator (panel G), where the median was chosen as central trend measure with the purpose of offering a whole number.

b/ Measured as the ratio between earnings before taxes, EBT (operating income) and assets.

c/ Measured as the ratio between earnings before taxes, EBT (operating income) and equity.

d/ Measured as the ratio between liabilities and total assets.

e/ Measured as the ratio between financial liabilities and total assets.

f/ Measured as the ratio between long-term liabilities and the difference between short-term assets and liabilities.

g/ Measured as the ratio between earnings before taxes, EBT (operating income) and interest payments. This indicator is calculated for the 2008-2013 period, since the interest expenses account is available to the public since 2008 at Superintendencia de Sociedades website.

h/ Measured as the ratio between current assets and current liabilities.

i/ Working capital's annual real growth, this being equal to the difference between current assets and current liabilities.

j/ Net exports over operating income ratio.

k/ Foreign exchange unbalance is defined as: [(exports – forwards selling) - (imports + debt in foreign currency - forwards buying)] / sales. It is important to clarify that, the calculations of this indicator is obtained through the relationship between balances and flows. Additionally, it does not include the assets part denominated in foreign currency, or debts to suppliers and non-resident financial entities. A negative indicator suggests that the firm is exposed to nominal depreciations of the Colombian peso against the US dollar. Meanwhile, a positive indicator suggests that the firm is exposed to a nominal exchange rate appreciation.

l/ Total number of existing relationships that a firm belonging to the private corporate sector has with financial entities. To construct this indicator, it is only considered if a firm is creditor to a credit institution, regardless of the total number of outstanding loans the firm has with it.

m/ The loan portfolio quality indicator is measured as the ratio between the risk and gross loan portfolios, both the numerator and the denominator include leasing.

n/ The loan portfolio default indicator, is measured as the ratio between the loan portfolio with a more than thirty days default and the gross loan portfolio; both the numerator and the denominator include leasing.

Sources: Superintendencia de Sociedades de Colombia and Superintendencia Financiera de Colombia; Banco de la República calculations.

c. Leverage indicators

As for leverage, when comparing their situation at the end of 2013 with respect to the observed in 2011, 2012 and against the historical average, a mixed behavior is found. In recent years, the debt to assets ratio has decreased, while the financial debt one is higher than the historical average. In turn, the financial burden indicator was at 6.3 times, which is positive, since it means that, on average, firms have profits that exceed their interest expenses flow (Table 12, panel C).

When analyzed by economic sector, companies whose liabilities have the largest share in assets are those belonging to electricity, gas and water (67.9%), construction (58.6%) and wholesale and retail (53.7%). By contrast, sectors presenting lower debt to assets indicators are mining (33.7%) and agriculture and fisheries (33.8%).

As for the representativity of the financial debt in the total assets, electricity, gas and water (38.9%), commerce (19.5%) and construction (19.0%) sectors are highlighted; while mining has the lowest indicator (4.7%). This suggests that this sector requires a low financial leverage to implement its investment projects and assets purchase.

Finally, when the financial burden indicator is studied, it is noticed that, on average, no sector has a fragile situation —defined as one in which interest payment is not met in respect of debts to the financial system—, as all analyzed sectors have above 1 indicators. It is important to highlight that, in concordance to the good performance observed in other indicators, the mining sector has a very high indicator (42 times), this being due to the high profits that it records, and its low financial leverage.

d. Liquidity indicators

By December 2013, liquidity indicators show a favorable situation. The current ratio indicator is greater than 1, and the working capital's annual real growth was positive, showing, on the one hand that, on average, the analyzed companies can cover all of their liabilities using their most liquid assets. It is important to clarify that, an equal or less than 1 indicator, suggests that the firm may default on its short-term obligations, because its liquid assets are insufficient. While no sector is in this situation, the liquidity of the electricity, gas and water; hotels and restaurants, and transportation sectors calls attention, since their indicators were at 1.03 times, 1.15 times and 1.04 times in that order (Table 12, panel D).

e. Size

The assets of the private corporate sector increased in relation to the observed in 2011, 2012 and against the historical average (Table 12, panel E). With the exception of electricity, gas and water, firms from other sectors of the economy exhibited positive growth in their asset accounts, highlighting, in annual real terms, the transportation ones (87.4%), followed by mining (12.0%).

f. Foreign exchange exposure and relationship with the financial system

In this Report, results of indicators that approximate the foreign exchange unbalance of companies and the total connections they have with the financial system are included for the first time. First, for the 2000-2013 period, the private corporate sector has shown at the aggregate level for all the analyzed years, a negative ratio of net exports and sales (Table 12, panel F). This suggests that the deficit in the trade balance in Supersociedades companies, has suggested that this sample has been exposed to depreciations of the Colombian peso against the US dollar.

When the above indicator is complemented by adding to the numerator the net position of forward contracts and the current balance of the loan brokered by domestic financial institutions of the companies analyzed, it is found that the exchange unbalance to December 2013 was at -3.9 %, having a greater magnitude than the net exports over sales indicator (-2.8%). The latter, in absolute terms, is greater than the figures for 2011, 2012 and the historical average; while the foreign exchange unbalance shows that as of 2013 firms are less exposed to depreciations of the Colombian peso against the US dollar compared to the results of 2011 and 2012. By economic sector, by studying the net exports over sales ratio, it is noted that two sectors present positive indicators: agriculture and fisheries (16.7%), mining (4.1%), which is expected, as these are characterized by being net exporters of goods. For the remainder, negative indicators are recorded, with commerce being the lowest (-14.3%).

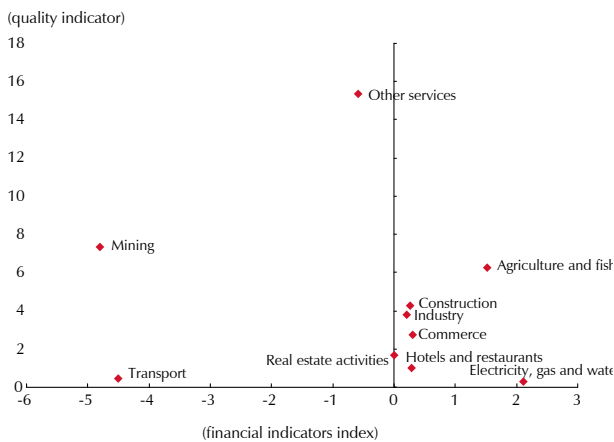
It is important to clarify that this last indicator cannot be understood as a measure of currency mismatch, as the asset accounts of companies denominated in foreign currency are not known. In turn, only the liability positions with domestic credit institutions are included, but not those from abroad (whether they are financial system's agents or suppliers). Therefore, the indicator should be read carefully, taking into account that it is an approximation of the real sector's foreign exchange unbalance, which was constructed from information available to Supersociedades companies prior to the writing of this Report.

Secondly, for the Supersociedades sample, the median of the number of connections between the analyzed firms and credit institutions was

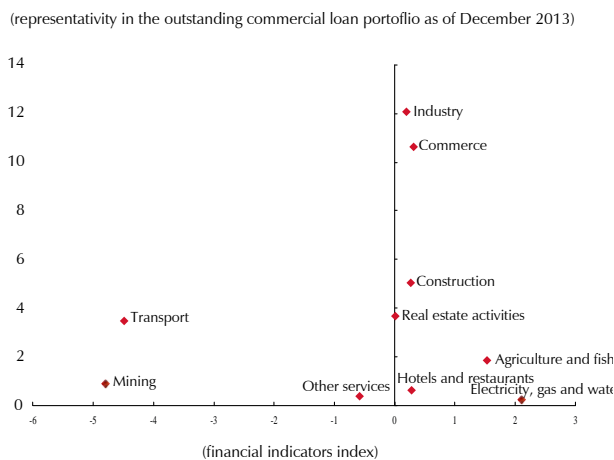
quantified⁸⁷. Although that by December 2013 the indicator's median was placed at a connection, and historically this figure has not been of more than two connections, it is important to note that not all the companies studied were financed through the financial system (Table 12, panel G). By sector, it is observed that those with the greatest relationships with the financial system are industry and commerce (two connections each) and transportation (1.5). The remaining have a one relationship median.

Graph 43
Financial performance aggregate indicator vs. quality indicator and concentration on the commercial loan portfolio balance by economic sector to December 2013

A. Commercial loan portfolio quality indicator vs. aggregate index of the financial situation by sector



B. Representativity in the commercial loan portfolio outstanding balance vs. aggregate index of the financial situation position by sector



Sources: Superintendencia de Sociedades y Superintendencia Financiera de Colombia; Banco de la República calculations.

g. Credit risk indicators

Finally, when analyzing the loan portfolio's quality and default indicators, it is noted that in December 2013, the quality indicator was at 3.2% and the default indicator at 0.8%, figures lower than those from 2011, 2012 and the historical average (Table 12, panel H). By sector, the highest quality indicators are agriculture and fishing (5.4%), construction (4.8%) and industry (4.4%). As for the default indicator, the greatest indicators were registered by agriculture and fishing (1.8%), construction (2.4%) and commerce (0.9%).

2. Aggregate analysis by economic sector as of December 2013

To summarize the above analysis, an index aggregating indicators by economic sector is made. High and positive values of the index are associated with deteriorations in the firms' financial position. For its part, negative figures suggest soundness, while levels around zero suggest an average performance.

In Graph 43, panel A, such index is compared against the quality indicator. A heterogeneous behavior across sectors is appreciated, being important to highlight that the ones which showed the lowest financial performance, are electricity, gas and water, agriculture and fishing, the latter recording the third highest quality indicator in the sample. The transport sector has one of the lowest levels of credit risk and the best situation in the index. Meanwhile, mining

87 Corresponds to the total number of connections with different credit institutions. For the calculation, it is irrelevant to know the number of credits that certain firm has with the same counterpart.

and other services⁸⁸, despite having a good aggregate performance of its financial indicators, have high quality indicator levels.

When the index is contrasted with the representativity that the sectors have in the commercial loan portfolio that was in effect at December 2013, it is observed that those with extreme values of the index have a low share (agriculture and fishing, electricity, gas and water, mining and transport). Sectors with higher debt levels (industry and commerce) have an average financial performance compared to other sectors (Graph 43, panel B).

3. Historical evolution of some financial indicators of the private corporate sector

Finally, the historical series of eight indicators for the 2000-2013 period are featured. Although these indicators, along with others, were already analyzed, this exercise aims to identify trends and compare the latest figures against periods in which the private corporate sector may have been exposed to different vulnerabilities.

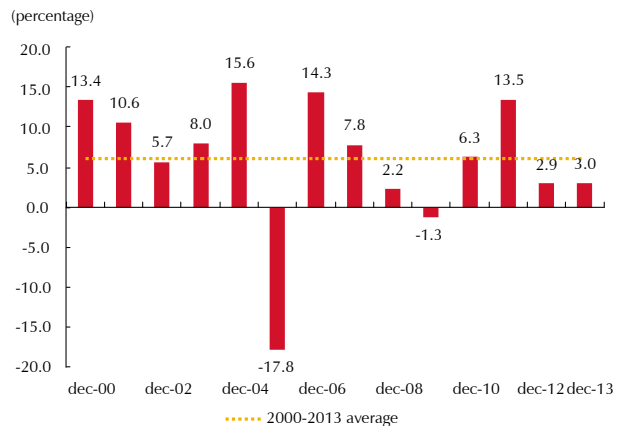
Graph 44, panel A, shows that since 2012, the annual real growth in sales has had a stable trend, reversing the one observed between 2010 and 2011. While sales have had a positive dynamic in the last two years, these have expanded at a rate below the historical average. The decreases observed in the most recent international financial crisis (2010) and in 2005 have not been repeated. For its part, the ROA showed an upward trend in the 2001-2008 period, which was temporarily reversed in 2009-2010; then increased in 2011, and has been falling since then, falling below the historical average in 2013 (Graph 44, panel B).

Furthermore, in the last five years leverage indicators have been located near the historical average, this being more accentuated in the debt to assets ratio case. The financial debt indicator has shown a more volatile behavior compared to the historical average; however, since 2012 it has been close to 14% (Graph 44, panels C and D). As for the liquidity of companies, the current ratio has shown high dispersion during the analysis period. Between 2001-2009, the indicator showed an increasing trend, which was reversed in 2010-2011, the latter might being associated with the effects of the most recent financial crisis (Graph 44, panel E). Since 2012, the indicator has been placed at an appropriate level (1.44 times), and above the historical average.

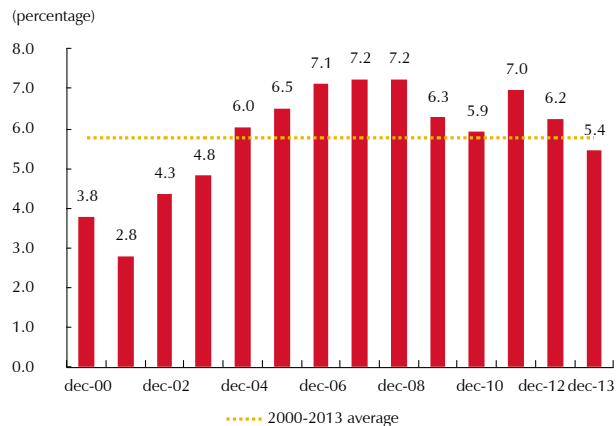
⁸⁸ The “other sectors” category brings together those firms whose operations are concentrated in education activities; social, health, community and personal services; households’ private activities, and extraterritorial organizations and bodies.

Graph 44
Some private corporate sector's indicators for the 2000-2013 period

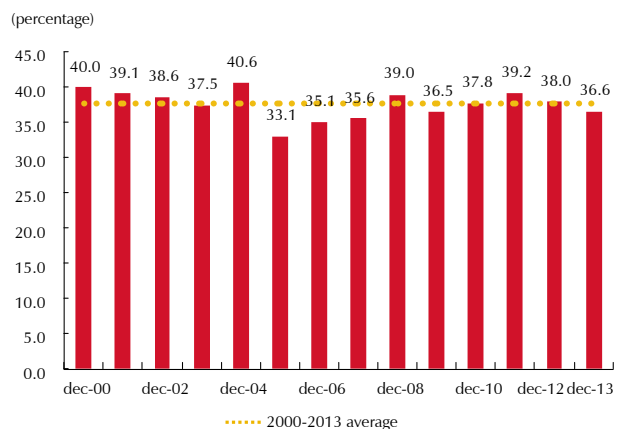
A. Sales annual real variation



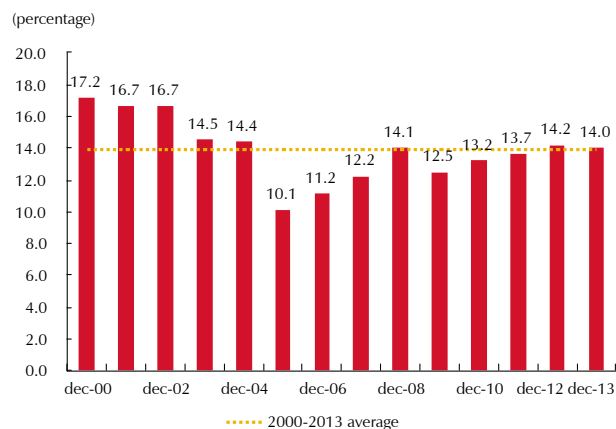
B. Return on assets (ROA) (operating income/assets)



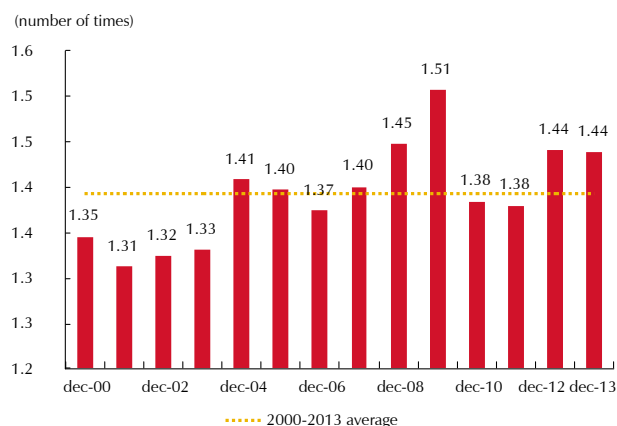
C. Debt-to-assets ratio



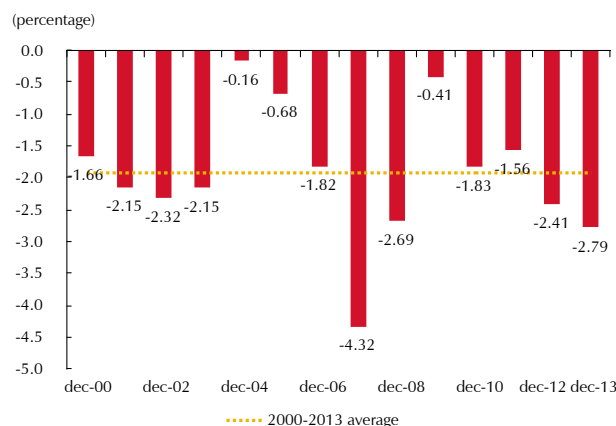
D. Financial debt ratio



E. Current ratio



F. Net exports as sales share



Sources: Superintendencia de Sociedades y Superintendencia Financiera de Colombia; Banco de la República calculations.

As mentioned, the private corporate sector's trade balance has consistently shown deficit in the analyzed period, leading to the net exports indicator and foreign exchange unbalance to be negative (Graph 44, panel F).

4. Conclusion

As of December 2013 the private corporate sector financial indicators analysis shows a good liquidity situation, a greater assets growth and lower credit risk levels. Nonetheless, the above was accompanied by lower profitability, increased financial leverage and increased foreign exchange exposure. To provide an overview of the companies' financial health by economic sector, an indicator that provides an aggregate measure of the financial performance was built. When compared to the quality indicator and representativity in the commercial credit by the fourth quarter of 2013, it is found that high quality indicator levels are associated with extreme values of the index; however, the financial system had less exposure to those sectors of the economy characterized as riskier. It should be noted that the sectors with the highest loan portfolio and quality indicator levels (industry and commerce) have, in turn, an average financial performance.

C. HOUSEHOLDS

This analyses the households' financial situation, evaluating their savings, debt and financial burden levels, and how these variables relate to the economic activity. Additionally, their expectations, confidence and economic conditions indexes are examined, in order to complement the current financial balance study with its future prospects.

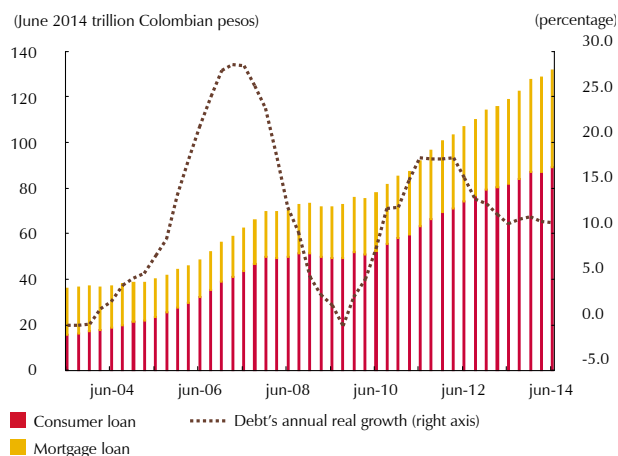
1. Economic situation and households' debt

Household debt is one of the most relevant variables in financial stability analysis, since given a possible default on its obligations the financial system may face difficulties. In order to more accurately monitor the dynamics of this variable, the way it had been calculated was modified⁸⁹. In particular, it is included, in addition to credit institutions' mortgage and consumer loan portfolios, that one granted by Fondo Nacional del Ahorro (National Savings Fund, FNA) and credit unions.

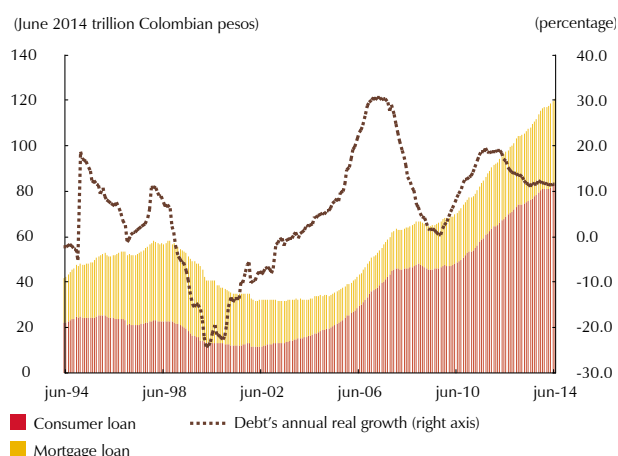
89 For this reason, data presented in this Report section does not match with the credit institutions section one.

Graph 45
Households' debt composition and annual real growth

A. Credit institutions, FNA and credit unions



B. Credit institutions



Note: the mortgage loan portfolio includes the total balance of securitizations and residential leasing. The consumer loan portfolio includes consumer leasing. In the case of credit unions, the balance for the mortgage and consumer loan portfolios for the months of July, August and September 2013 was estimated due to information problems; also, for years prior to 2008, since there is annual information only, a constant quarterly growth pace was assumed.
Sources: Superintendencia Financiera de Colombia, Superintendencia de la Economía Solidaria (Superintendencia of the Solidarity Economy) and Titularizadora de Colombia (Colombian Securitization); Banco de la República calculations.

In June 2014, households' debt amounted to \$131.9 trillion⁹⁰, of which 67.4% are consumer loans and the remaining 32.6% to mortgage loans (Graphic 45, panel A). The annual real growth of this joint debt was at 11.3% in June 2014, a figure less than the observed a year earlier (11.9%), which reflects a lower dynamics of consumer loans, which moved from growing at a rate of 10.7% in June 2013, to one of 8.6% a year later.

Of these agents total debt, 91.6% was granted by credit institutions, which record a joint balance of consumer and mortgage loan portfolios of \$120.8 trillion (Graphic 45, panel B). For their part, credit unions account for 4.9% of the total, and the remaining 3.5% was granted by Fondo Nacional del Ahorro.

If resources disbursed by the other institutions in the cooperative sector are considered (employee funds, multiactive, specialized and integral without a savings section, mutual associations and other), as well as the family compensation funds loan portfolio, households' debt to June 2014 amounted to \$140.9 trillion, of which \$14.3 trillion belong to the solidarity sector aggregate and \$1.2 trillion to the family compensation funds.

It is relevant to mention that the current household debt composition corresponds to a scenario with lower collateral backing than that from the late nineties, since the proportion of the housing loan portfolio has decreased, which could indicate a higher credit risk. Nonetheless, an increased exposure to credit risk has more hedging, because current regulations require a higher provisions level for this loan portfolio⁹¹. It should be highlighted that consumer loans are on smaller amounts and terms,

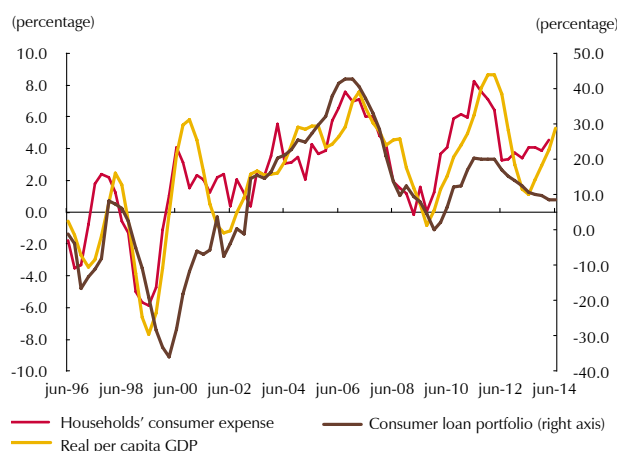
90 This value corresponds to consumer modalities (including consumer leasing) and mortgage loans (including residential leasing and securitizations). It is important to stress that residential leasing is underestimated, given that one entity of the financial system has these balances in an autonomous equity (off the balance). On the other hand, the securitized loan portfolio balance kept decreasing, reaching \$3.7 trillion in June 2014, compared to \$5.2 trillion from a year earlier.

91 With the entry into force of Superintendencia Financiera de Colombia's External Communications 043 of 2011 and 026 of 2012, mechanisms that increased the level of provisions for the consumer portfolio were implemented, and are intended to preserve the healthy growth for this type of credit.

and the loan portfolio balance is allocated to a greater number of debtors. In March 2014, the average amount of disbursements in the consumer modality was of \$11.4 billion, while for mortgage it was of \$66.7 billion.

When the households' consumer loan portfolio evolution is compared with the households' expense annual real growth and the per capita GDP, in general, a direct relationship between the three variables is noticed. Nevertheless, as of June 2013, it is evidenced that the slowdown in the consumer modality expansion rate, differs from the upward dynamic posed by households' consumer expense and per capita GDP.

Graph 46
Households' consumer expense, per capita GDP and consumer loan portfolio annual real growth



Note: June 2014 real per capita GDP was calculated on quarterly GDP annual real growth of 4.3% projection.
Sources: DANE and Superintendencia Financiera de Colombia; Banco de la República calculations.

During the first half of 2014, the annual real growth of the consumer loan portfolio was at 8.6%, a figure lower than that registered in June 2013 (10.6%) and in the same month of 2012 (16.9%). Meanwhile, households' expense average expansion rate in March 2014 was greater than a year ago (4.6% versus 3.4%), as well as the real per capita GDP (3.9% versus 1.4%). By June 2014, these variables are expected to continue to rise, since *Banco de la República's* real GDP growth forecast for the second quarter of this year is 4.3% (Graph 46).

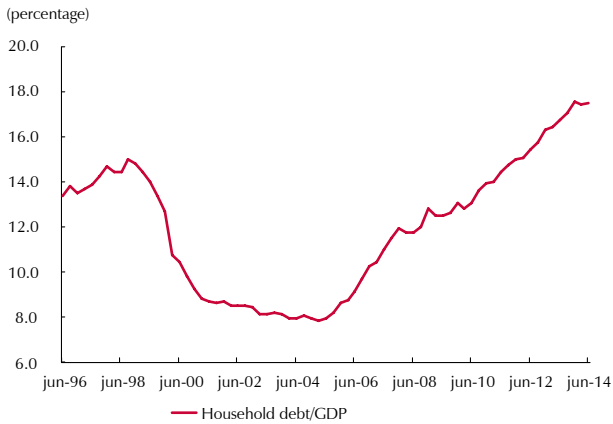
From the first quarter of 2014, the households' debt over GDP ratio has stabilized at about 17.4%, after an upward shown since March 2010. This behaviour is explained by a higher GDP per capita growth rate compared to previous quarters, as well as on

the stabilization in household debt (Graph 47, Panel A). Also in June 2014 the relationship between household debt and the annual disposable income stabilized at around 28%, after showing an upward trend since 2010 (Graph 47, Panel B). It is noteworthy that, when taking into account the other institutions of the solidarity economy and family compensation funds, these indicators amount to 18.7% and 29.8% respectively.

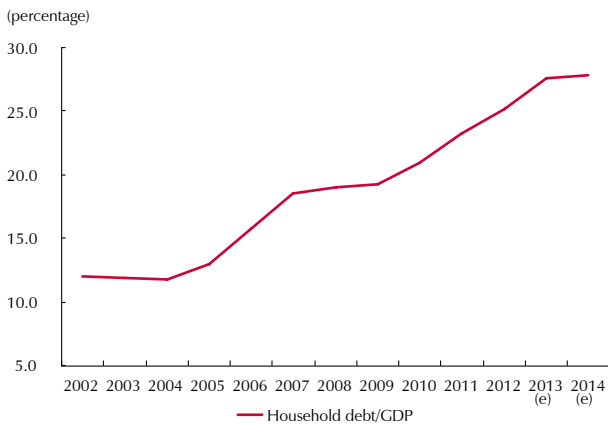
During the first quarter of the year, the average expansion annual real growth rate of disbursements in the consumer loan modality was of 10.6%, 6.9% higher than the observed during the last quarter of 2013. Between December 2013 and March 2014, the highest growths were observed in revolving loans (from -10% to 1.6%), vehicle loans (0.6% to 11.6%) and credit cards (from -1.9% to 22.2 %). In terms of amount, most of the disbursements were granted in the form of warrants (43.6%), followed by personal and vehicle loans, with shares of 26.3% and 10.4% respectively. Furthermore, the approved credit cards corresponded to 18.4% of disbursements, most of which were destined for customers with incomes above two monthly minimum salaries (78.8%).

Graph 47

A. Consumer and mortgage loan portfolios over GDP



B. Consumer and mortgage loan portfolios over available income



Note: mortgage loan portfolio includes the securitizations and residential leasing total balance. Consumer loans includes consumer leasing. In the case of credit unions, the mortgage and consumer loan portfolio for the months of July, August and September 2013 was estimated due to data problems; also, for years prior to 2008, since annual information is the only one available, a constant quarterly growth rate was assumed. June 2014 real per capita GDP was calculated over the second quarter of 2014 projected annual real GDP growth of 4.3%.

Sources: Superintendencia Financiera de Colombia, Superintendencia de la Economía Solidaria and Titularizadora de Colombia; Banco de la República calculations.

When analyzing the number of transactions by type in the consumer loan portfolio, it is observed that the approved credit cards continue to have the largest share, this being of 56.1% in the years first quarter. At the same time, the credits that are next in importance are those of warrant (19.8%) and personal investment (14.9%).

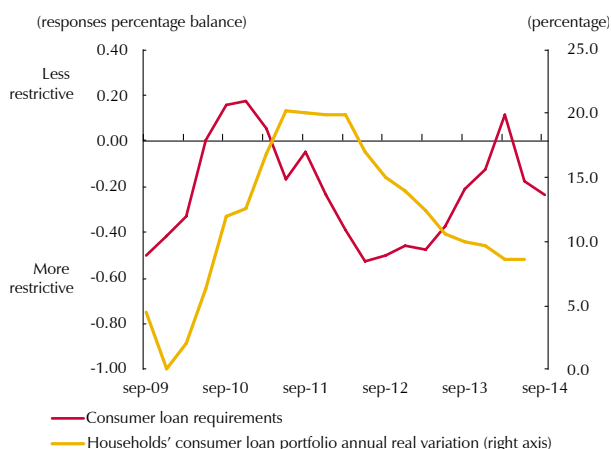
In turn, according to June 2014 Report on the Credit Situation in Colombia, an increase in the requirements for granting new consumer loans in the second quarter is evident. In fact, the entities' responses balance (weighted by their share in this modality) is still negative for the next quarter, indicating that household access to consumer loans could be more restricted than in previous years (Graph 48). It is observed, also, that historically, an increased in requirements is then reflected in a slowdown in the loan portfolio, so it might be expected for it to continue slowing down in the remainder of 2014.

As for the mortgage loan portfolio disbursements behavior, those for social housing (VIS in Spanish) have presented an acceleration, showing an average annual real growth rate of 10.4% in the first quarter of 2014, when in the last quarter of last year it was of -5.3%. Meanwhile, disbursements for housing different than VIS have shown a slowdown in their average growth, moving from 41.3% in the last three months of 2013, to 34.3% in the first three months of 2014. Although most part of the disbursements is still destined for non-social housing purchase, this share decreased

from 78.2% in December 2013, to 76.6% in March 2014. Regarding the number of mortgage portfolio disbursements, an increase in those destined for VIS purchase share is noticed, which went from 42.8% to 45.2% between December 2013 and March 2014.

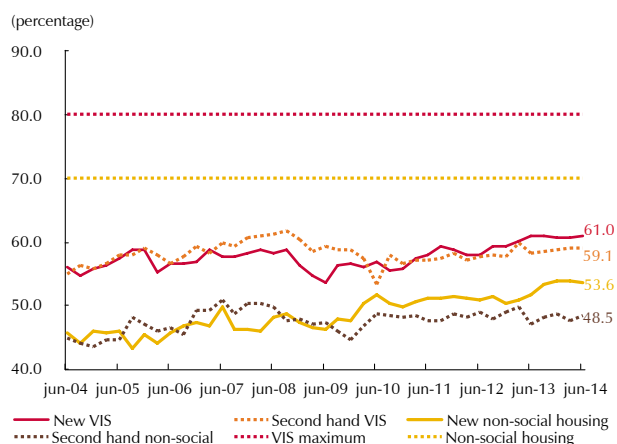
On the other hand, it is important to highlight that disbursements in the form of a fixed real rate (in real value unit: UVR in Spanish) had a 30.6% average annual real growth in the first three months of 2014, while in the last three months of 2013 this expansion was of 36.5%. In contrast, disbursements in the fixed nominal rate form (Colombian pesos) showed a rising, moving from -12.5% to 1.1% during the same period. By denomination, disbursements in Colombian pesos continue to have the highest contribution (77.4% vs. 22.3% in UVR), a situation that has been

Graph 48
Changes in requirements in the allocation of new loans in the consumer loan portfolio



Source: June 2014 Credit Situation in Colombia Survey; Banco de la República calculations.

Graph 49
Loan to value



Sources: Asobancaria con base a reportes de AV Villas, Banco Caja Social, Bancolombia, BBVA, Colpatria y Davivienda.

occurring since mid-2006, which implies a high exposure of the credit institutions to interest rate risk.

The loan to value⁹² (LTV) (ratio between disbursements value and collateral value) has increased compared to a year ago, both in the new housing market as well as for the second hand one, for VIS and non-VIS modalities. The largest increase keep happening in the new housing different from VIS indicator, which in June 2014 was at 53.6%, when a year before it was at 51.7% (Graph 49).

Moreover, the households deposits balance was at \$65.3 trillion in June 2014, recording a 13.6% annual real growth (twelve months average), higher than the observed six months ago (10.8%). 65.1% of deposits recorded in June 2014 corresponds to savings and current accounts⁹³, and 33.7% to fixed term certificates of deposits, CDT (Graph 50, panel A).

When the credit institutions' CDT balance composition by sector is analyzed⁹⁴, it is observed that the share of households in the total balance showed a downward trend until late 2012; since then it has stabilized at values around 22%⁹⁵ (Graph 50, panel B).

92 According to Decree 195 of 2000, modified by Decree 3760 of 2008, it is possible to finance up to 70% of the property value for different than VIS housing, while for the VIS this percentage is of 80%.

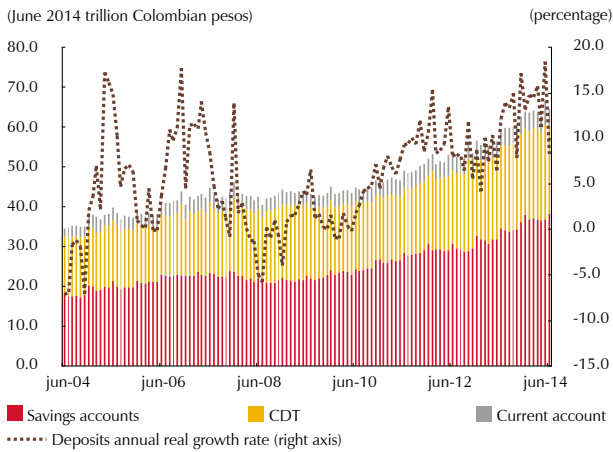
93 This includes special savings accounts.

94 It should be remarked that the category denominated as financial sector only includes proprietary position balances.

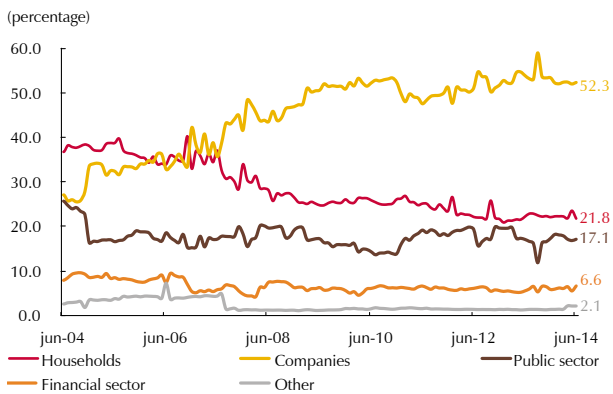
95 It is important to mention that this ratio is underestimated, since it does not quantify indirect holding of CDTs in mutual funds and other non-banking financial institutions.

Graph 50

A. Households' deposits composition and annual real growth

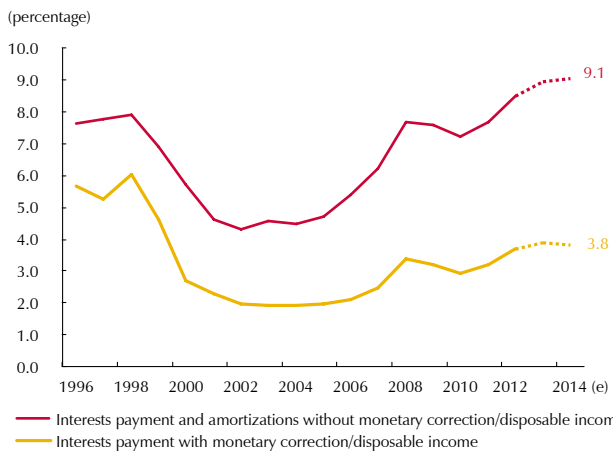


B. CDT composition by sector



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Graph 51
Households' financial burden



(e): estimated.
Sources: Superintendencia Financiera de Colombia and DANE; Banco de la República calculations.

2. Households' financial burden

In this section, the ratio between interest payments and payment to capital over household income is analyzed, where the latter passed from being the workers income, to the disposable domestic income⁹⁶, as with the first resources received by these agents are underestimated. During the first semester of 2014, the growing trend in the households' financial burden indicator remained, standing at 9.1% in June, while a year ago it was at 9% (Graph 51); however, it continues below the financial burden observed in the 1998 crisis (10.1%).

By separating the components of the financial burden by modalities, a reduction in debt service is found, explained by the slight drop in consumption, which is associated with the lower dynamics that is this loan portfolio is showing since the last years (Graph 52). Yet, interest payments and consumption amortizations represent 7.5% of the disposable income, while for the mortgage loan portfolio this ratio is of 1.6%.

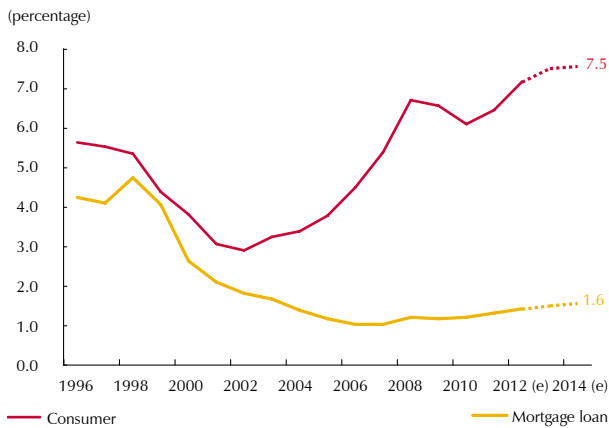
3. Perspectives

Households' expectations indicators showed a positive performance in the first half of 2014, suggesting a positive dynamic for the second. Fedesarrollo's consumer confidence index⁹⁷ rose for the fifth consecutive month, reaching 26.7% in July 2014. Since this indicator is related to household consumption (Graph 53), this favorable dynamics could indicate that in the remainder of the year,

96 For 2013, this income was estimated assuming an equal to the GDP growth; and for 2014, a 5% increase was supposed, in line with the GDP forecast in this year.

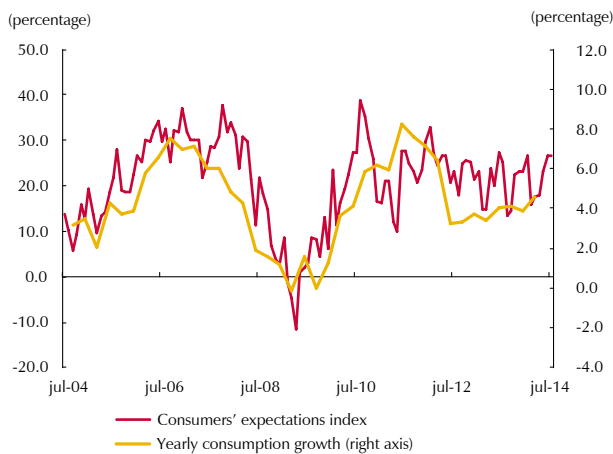
97 It is an index that is performed monthly by Fedesarrollo, and it aims to know the households' current and future perception in the country's major cities (Bogotá, Medellín, Cali and Barranquilla). This index includes five components: three of them allude to one year households' expectations, and two refer to the perception before the current economic situation. With the first three, the consumer expectations index (IEC in Spanish) is constructed, and with the remaining two, the economic conditions index (ICE in Spanish) is made.

Graph 52
Households' financial burden by type of credit (including amortizations)



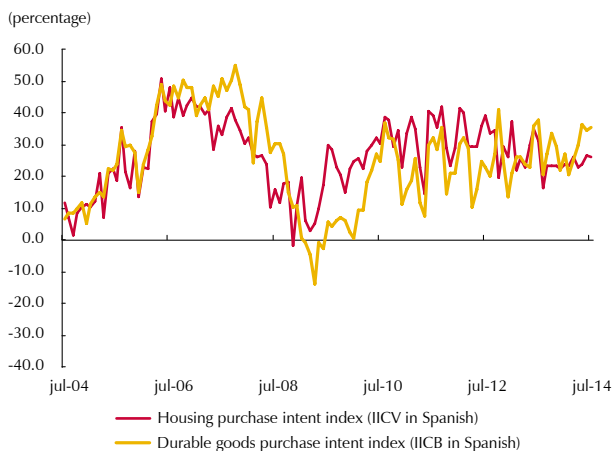
(e) estimated.
Sources: Superintendencia Financiera de Colombia and DANE; Banco de la República calculations.

Graph 53
Fedesarrollo's consumer confidence index



Sources: Fedesarrollo and DANE; Banco de la República calculations.

Graph 54
Housing and durable goods purchase intent indexes



Sources: Fedesarrollo and DANE; Banco de la República calculations.

consumer spending of these agents, and possibly their debt, will record a positive growth.

As for the housing and durable goods purchase intent indicators, an increase in both is evident; especially for the former, which increased from 26.9% in January 2014 to 35.6% six months later. As for the latter, the housing purchase intent index reached a value of 25.9%, when in the previous semester it was at 23.9% (Graph 54).

In conclusion, in the first half of 2014, household debt continued to slowdown at a moderate pace, mainly due to a lower growth in the consumer loan portfolio. When including the Fondo Nacional del Ahorro (FNA) and credit unions within this agents debt, this level amounts to \$131.9 trillion. In contrast, households' financial burden slightly increased, to the extent that the proportion of income that households destined for the purpose of meeting their financial obligations was higher when compared to the figure of 2013. It is worth noting that the economic situation of households is positive, while income growth of these agents remains at above average levels for the past two years, and expectations and purchase intent indicators remain positive and high.

Box 2 INFRASTRUCTURE LOAN PORTFOLIO AND THE RISKS ASSOCIATED WITH FOURTH GENERATION PROJECTS ANALYSIS

Felipe Clavijo Ramírez
Jorge Hurtado Guarín
Carlos Quicazán Moreno*

Within the next few years, especially between 2015 and 2020, the execution of investments in the road sector is expected to be worth \$47.0 trillion¹. By June 2014, this figure represented 26% of the commercial loan portfolio's value. These investments are aimed to fund the program of fourth generation road concessions (4G), which has been developed by the national government through the Agencia Nacional de Infraestructura (National Infrastructure Agency, ANI).

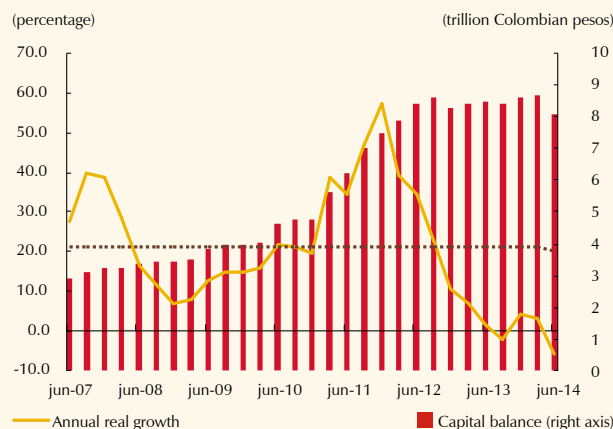
Given the expected amount of these investments and its possible effects on the financial system's loan portfolio, this box analyzes the behavior of the commercial loan and infrastructure portfolios in recent years, as well the risks associated with 4G project financing.

1. Infrastructure loan portfolio evolution

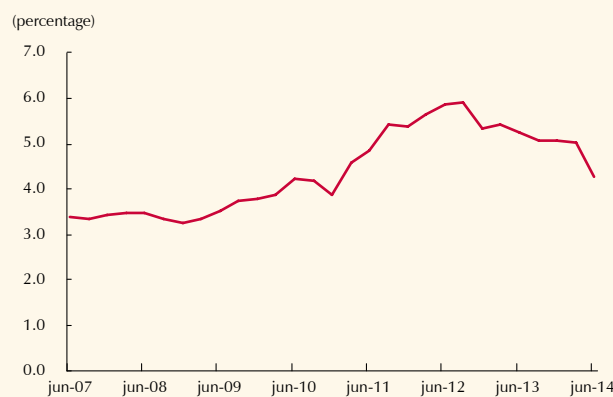
Between March 2007 and June 2014, it is observed that credits whose debtor are classified with an International Standard Industrial Classification (ISIC) of 4530 (code that refers to the civil engineering works construction sector²) exhibited an average annual real growth of 20.1% (Graph B2.1, panel A). However, in the last month it recorded a decrease of 5.9%, reaching \$8.1 trillion³. When the share of these loans in the commercial loan portfolio is analyzed, since 2011 an upward dynamic has occurred, representing 4.3% in June 2014 (Graph B2.1, panel B).

Graph B2.1
Loans with ISIC 4530 "construction of civil engineering works"

A. Loans real growth ISIC 4530



B. ISIC 4530's loans share in the commercial loan portfolio



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

* The authors are, in that order, professionals and specialized professional at the Financial Stability Department. Their opinions do not compromise *Banco de la República*, or its Board of Governors.

¹ This figure is taken from Conpes document 3760, from 2013.

² This typology includes the construction of civil engineering works such as highways, streets, bridges, tunnels, railways, airfields, harbors and other water system projects, irrigation systems, sewerage systems, industrial facilities, pipelines and electricity transmission lines, sports facilities, among others.

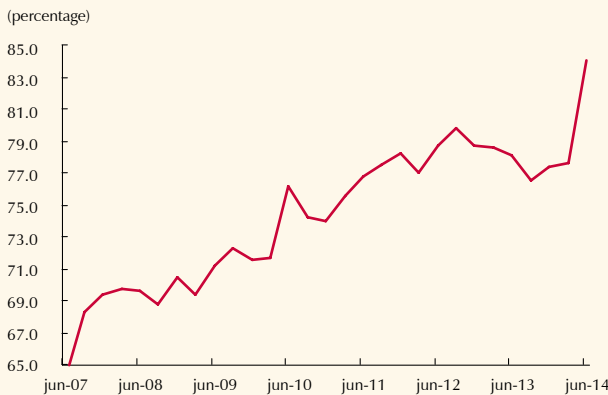
³ The calculation of the loan outstanding belonging to firms overseen by the Superintendencia de Sociedades's in yields a figure of \$3.5 trillion.

As for the quality indicator (QI) —risky loans to gross loans ratio—and and the default indicator (DI), non-performing to gross loans ratio, for the infrastructure loan portfolio, by June 2014, they were at 7.5% and 5.1%, respectively. It is important to note that these indicators are higher than those observed for the commercial loan portfolio, which in the second quarter of 2014 were at 6.3% and 2.2%.

Finally, as of June 2014 when analyzing the concentration of this loan portfolio, it is observed that, 84.0% of these loans were granted by five entities, among which three

accounted for 69.4%. Furthermore, since 2007 there has been a growing trend in the concentration of the five entities (Graph B2.2) with the highest shares.

Graph B2.2
Evolution of the infrastructure loan portfolio's concentration on 5



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

2. Risks associated with 4G projects financing

4G projects will be executed under the public-private partnerships scheme (PPP)⁴, which includes the participation of private capital in the provision of public goods and related services as its main objective. Prior to the implementation of this scheme (highway concessions projects of first, second and third generation), projects leverage significantly in public sources, given the low share of the concessionaire's own capital, as well of that for the institutional investor's. This generated a bad incentives scheme for private entities, and led to delays in the delivery of works, lawsuits, fines, additional works, cost overruns, schedules shifts and, therefore, to a financial imbalance in the contracts.

The execution of contracts related to 4G road projects will be done in three stages: the first is called preoperative, which in turn is divided into a pre-construction phase and another of construction; the second is the operation and maintenance stage, and the third, is the reversion one⁵.

4 The definition and features of this scheme are detailed in Law 1508 of 2012.

5 At this stage, the concessionaire delivers the goods associated with the project to Agencia Nacional de Infraestructura (ANI) for terminating the contract.

These contracts will have a maximum term of thirty years, including extensions.

With the enactment of Law 1508 of 2012, important changes for the development of infrastructure were incorporated, on which it specifies that the private partner or concessionaire should be established as an independent fund, whose sole aim is the execution of the project's contract that was awarded, with resources that are managed by a trust. The private partner should finance, with its own equity or debt, the building of the entire infrastructure (Capex), that can be divided into functional units⁶. Thus, the private entity is entitled to receive retributions⁷ as it delivers fully built each of functional units, with certain quality standards pre-agreed in the contract. This seeks to align incentives, so that the private entity builds rapidly and, to that extent, it has the right to receive its retribution, but building with good quality materials, as this will mean that less resources are invested in the operation and maintenance stage (Opex). The structure of the new 4G program contracts, including the actors and their interrelationships, can be summarized in Diagram B2.1.

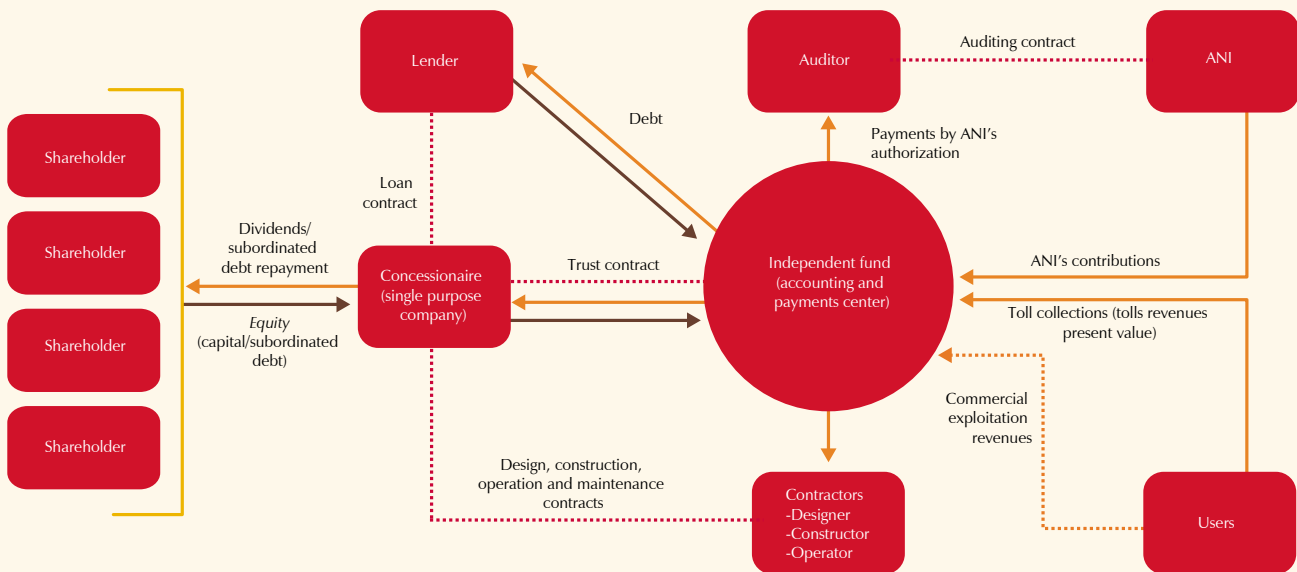
The diagram shows that the independent fund plays a crucial role in the development of the project, since it will function as an accounting and payments center. This independent fund feeds on the concessionaire's capital contributions⁸, on the debt it assumes with lenders by the

6 The term functional unit refers to each of the project's divisions. Corresponds to a set of engineering structures and necessary facilities for the provision of services, which have functional independence; i.e., that can operate individually. For example, if a project involves the construction of two tunnels, 15 mi of a dual carriageway and 25 mi of a single carriageway, it could be said that this project has four functional units if each tunnel and the two track sections can be exploited, independently of the termination of the other structures. Run-On Sentence

7 The sources for the payment of retributions to the concessionaire are threefold: i) contributions of Agencia Nacional de Infraestructura, ANI (national budget and/or territorial entities); ii) tolls collection, and iii) commercial revenues (revenues received from the provision of additional services in the concession area).

8 Capital contributions by the concessionaire (or equity transfers) are mandatory and must be deposited in the independent fund in terms established, which are agreed between the lender and the concessionaire or by ANI during the preparation of the contract. The concessionaire can make these equity transfers with capital contributions from its partners, placement of shares or debt purchased by its partners, subordinated to the senior debt.

Diagram R2.1
Relationships and acknowledged actors in 4G contracts



Source: Agencia Nacional de Infraestructura.

loan contract⁹, on the contributions from Agencia Nacional de Infraestructura (ANI), and on toll and commercial exploitation revenues. In contrast, the independent fund makes payments to the concessionaire (retributions) and its contractors, to lenders (debt service) and to the auditor hired by Agencia Nacional de Infraestructura. It should be remembered that the independent fund will be administered by a trust contract, signed between the the concessionaire and a trust company.

Looking to stimulate private investment within the different projects, and to attract long-term investors such as pension funds and insurance companies, Agencia Nacional de Infraestructura shall provide, in each of the 4G concession contracts, the risk matrix presented in Table B2.1).

The risks associated with 4G projects¹⁰ are distributed, so investors in the construction stage have the support

and sufficient guarantees to assume the financing of projects. This support materializes in less uncertainty in the revenue stream for the project, given the risk mitigation mechanisms generated by Agencia Nacional de Infraestructura, as the assumption of cost overruns by the same entity, risk redistribution to third parties through insurance schemes and EPC¹¹ type contracts, the negotiation flexibility of the loan contract by the lender, the design of liquidation formulas and the guarantee of the projected flow of contributions by toll revenues.

During the operation and maintenance stage, the most important risks that investors face are the commercial and regulatory ones. The expected revenue stream of the project may be insufficient if the retributions by toll revenues are lower than projected, when regulatory changes adversely affect the project's flows or if the concessionaires default generates deductions or fines. As in the initial stage, lower revenues from defaults are covered in the contracts, and are attenuated by the possibility of intervention in the project by investors, and limits on deductions by Agencia Nacional de Infraestructura. Moreover,

9 The loan contract is the agreement between the concessionaire and the lenders. It is essential for the latter to establish the conditions required to mitigate the risk of non-payment of the debt service by the concessionaire, and encourage him to meet the terms deadlines established for the project. This may be done by conditioning the disbursements to advances in the project, establishing clauses that prioritize payment of the debt, requiring equity contributions greater than the minimum established in the contract of the project, among others.

10 For further details about these risks and some of their mitigating factors, please follow CONPES document 3760 of 2013.

11 Which means engineering, procurement and construction, also known as "turnkey" contracts. They represent a tool with which the concessionaire differs to a third party (EPC contractor) the obligation to design and build the project in exchange for a "global price", which includes finding and contracting all the necessary inputs to develop these activities (personnel, equipment and materials).

Table B2.1
Risks and mitigators associated with 4G projects financing

Stage	Risk area	Who takes the risk		Mitigators
		Public	Private	
Preoperative (preconstruction and construction)	Financial		X	Loan contract.
	Property, environmental and social management cost overruns, and networks	X	X	Special powers granted to the concessionaire, ANI's partial guarantees backed by the contingency fund, minimum requirements demands before the beginning of construction and auditor hired by ANI.
	Design and construction		X	ANI's partial guarantees (only when there are tunnels cost overruns), minimum requirements demand and EPC contracts.
Operation and maintenance.	Operation and maintenance costs overruns.		X	EPC contract.
	Commercial	X		Payment on differentials collected by ANI in the years 8,13, 18 and 25 due to less traffic flow.
All	Regulatory	X	X	ANI's partial guarantees
	Force majeure	X	X	ANI's full guarantee, with the exception of insurable events, insurance on contracts demand.

Source: ANI and Conpes document 3760; *Banco de la República's* preparation.

lower revenues from tolls or regulatory changes are also paid by this entity.

That being said, investors or lenders who choose to finance 4G projects are expected to face a low exposure to credit risk because although there is a probability of default at any of the project's stages, the contracts provide different mechanisms to minimize loss given this default.

However, it should be noted that there is an exposure to liquidity risk, given that if the contract's liquidation takes place by any event of force majeure or default, the ANI has a period of 540 days to disburse the liquidation's value. Additionally, if the expected toll revenues in the different years are not reached, the ANI has a maximum of 45 days in the years 8, 13, 18, and 540 days in the year 29, to disburse the collection's differential against the projected collection. Finally, it should be noted that the

insurance sector would assume part of the construction risk, and trust companies would incur in an operating and legal risk, given that they are responsible for managing the resources of these projects.

References

- Congress of Colombia (2012). "Law 1508: by which the legal framework for Public Private Partnerships is established, organic budget rules are enacted, and other provisions are passed", Republic of Colombia.
- Conpes (2013). "Road projects under the public private partnership scheme: Fourth generation of highway concessions" Conpes 3760, National Council for Economic and Social Policy.

STRESS TEST ON THE COLOMBIAN PRIVATE CORPORATE SECTOR'S FINANCIAL BURDEN

Juan S. Lemus-Esquivel
 Angélica Lizarazo Cuéllar
 Carlos Quicazán Moreno*

1. Motivation

Historically, the debtor who has concentrated most of the assets of the credit institutions in Colombia is the private corporate sector¹. In June 2014, this sector owned 48.2% of credit institutions' assets (loan portfolio, financial leasing and bonds). To foresee and warn of potential financial stress episodes in these agents is critical for maintaining the system's stability. Therefore, it is necessary to monitor their balance sheets in order to identify all the risks that they could be exposed to.

Recently, in the April 2014 issue of the Global Financial Stability Report, the International Monetary Fund (IMF) published the results of a stress test on the corporate sector for a sample of 19 emerging economies, Colombia being one of these. The test consists in applying a shock to the financial burden indicator (interest coverage ratio: ICR) which is defined as the ratio between the EBITDA² and interest expenses. The numerator is decreased and the denominator is increased simultaneously by an amount equal to 25%. This sensitivity test simulates the potential effects that companies could face under the scenario of the simultaneous occurrence of high debt levels, low payment capability, adverse external financing conditions and a reversal of capital flows. The aggregate effects of this hypothetical event would bring an increase in funding costs and a drop in profits.

By country, the companies' sample is divided and analyzed in three groups, namely: i) companies with an ICR greater than or equal to two times, and less than or

equal to three times; ii) companies with an ICR greater than or equal to one and strictly less than two times, and iii) companies with a ICR of less than one time. For the IMF, a company is considered fragile if its ICR is below two times. Under this scenario, the company is not generating sufficient cash flow to meet interest payments on its financial obligations to third parties. An adverse situation occurs when the indicator is below 1, since resources derived from its operation are insufficient to assume debt service.

The stress test aims to build two performance indicators: first, it calculates the proportion of firms at risk (fragile) and, secondly, the debt that these concentrate before and after the stress test. For the Colombian case, a sample of 83 public and private companies whose total assets as of December 2012 (date by which the IMF performs the stress test) were approximately US\$ 211 billion, is used. The results published by the IMF show that before the shock, a significant proportion of companies were in an ideal financial situation, since their ICR was at over three times. In addition, debt at risk, i.e., fragile firms' debt, represented 3% of debt's total for the analyzed sample. Nevertheless, when stressing the indicator, fragile companies increase significantly, accounting for 25% of the sample. Thus, debt at risk of the Colombian corporate sector, following the stress situation, approximately represents 30% of the total debt after the shock.

Comparatively to the rest of the analyzed emerging countries, it is found that Colombia is one of the countries mostly affected by the stress test. Therefore, and taking into account that the Financial Stability Department of *Banco de la República* periodically analyzes the financial situation of the private corporate sector and the trends on its performance indicators, it was decided to replicate the test suggested by the IMF the 2008-2013 period, employing a larger sample. The latter is usually considered as the best proxy of the private corporate sector in Colombia (companies supervised by Superintendencia de Sociedades [Supersociedades])³. The exercise is extended, analyzing considerations on fragile firms, such as: sectorial composition, representativeness of its debt in the commercial loan portfolio's outstanding balance, credit risk indicators (quality indicator and default indicator), and representativeness of the assets in the GDP and in

* The authors are, in this order, specialized professional, professional and specialized professional from the Financial Stability Department at *Banco de la República*. Their opinions do not compromise *Banco de la República*, or its Board of Directors.

1 The private corporate sector is comprised of the private firms overseen by the Superintendencia de Sociedades (Office of the Superintendent that oversees the real sector in Colombia) and that have not filed a winding-up resolution.

2 The EBITDA is a financial indicator built based on the income statement accounts. Its construction starts with earnings before interest and taxes (EBIT in English), adding depreciations, amortizations and provisions.

3 A longer period is not considered given that the interest expense account is only available since 2008.

Supersociedades's sample total asset. These characteristics are compared with those observed for the total sample, in order to see, first, how representative the group of companies at risk is, and, second, how much both samples differ from each other.

2. Stress test results

The Supersociedades's sample of companies between 2008 and 2013 is composed yearly on average by 19,326 firms⁴, and whose average assets amount to US\$ 228.6 billion. In Graph B3.1, panel A, it is observed that by 2013, 26% of firms are fragile (i.e., who have an ICR<2), and after the shock, this figure slightly increases to 27.1% of the sample's total. When comparing debt at risk⁵, before and after the shock it is observed that for the same date the stress situation makes the indicator to increase by 1 percentage point (pp), reaching a level of 32.9%. (Graph B3.1, panel B). From these results it can be inferred that for the analyzed period, the shock does not have such a significant impact on the companies under study, which contrasts with the results published by the IMF. It should be noted that, while the stress test does not significantly increase the proportion of fragile companies and, therefore, the share of their debt in the total, in the analyzed period the representativeness of fragile firms with an ICR lower than two times is not insignificant (30% on average).

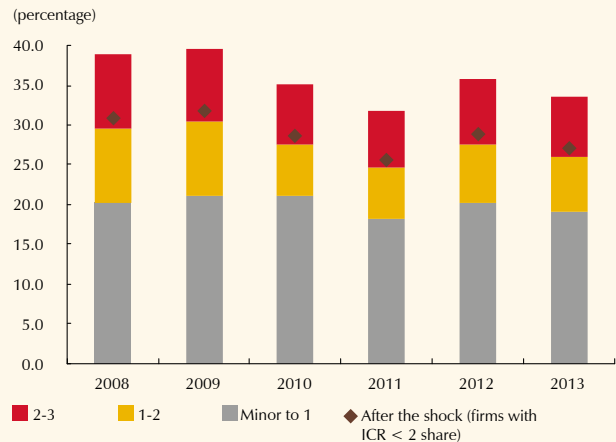
The following section discusses in detail some of the inherent characteristics of these companies in order to understand, among other aspects, how exposed the financial system is to them. It is expected to contrast as a hypothesis, whether there are any or several features that allow to distinguish a fragile company from a non-fragile one.

4 The analysis excludes firms experiencing equity loss resolutions, and those for which it is not possible to calculate their ICR due to lack of data.

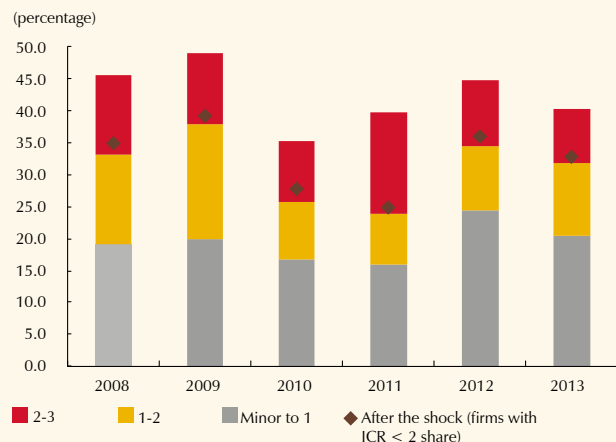
5 For purposes of this box, and as a replication of the exercise, the total debt of a firm is calculated as the sum of financial obligations, accounts payable to suppliers, and bonds (both short and long term). This information corresponds to liability accounts and is derived from the balance sheet data.

Graph B3.1

A. Distribution of firms at risk for interest coverage ratio (Supersociedades's total firms base percentage)



B. Distribution of debt at risk for interest coverage ratio (Supersociedades's total debt base percentage)



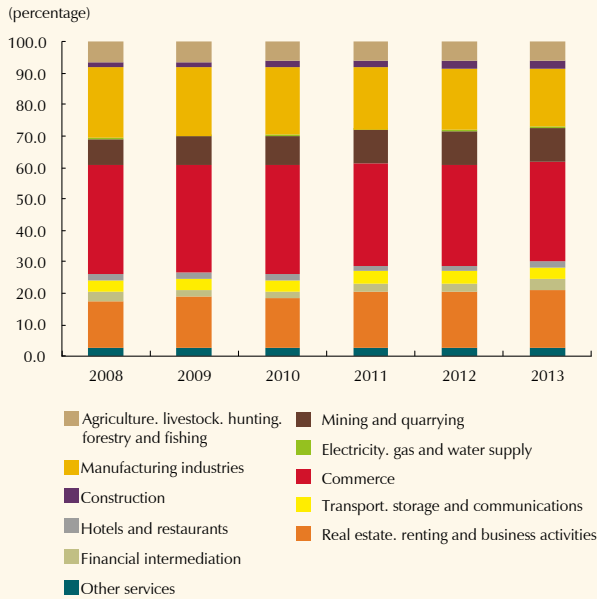
Source: Superintendencia de Sociedades; Banco de la República calculations.

3. Fragile companies' features after the shock

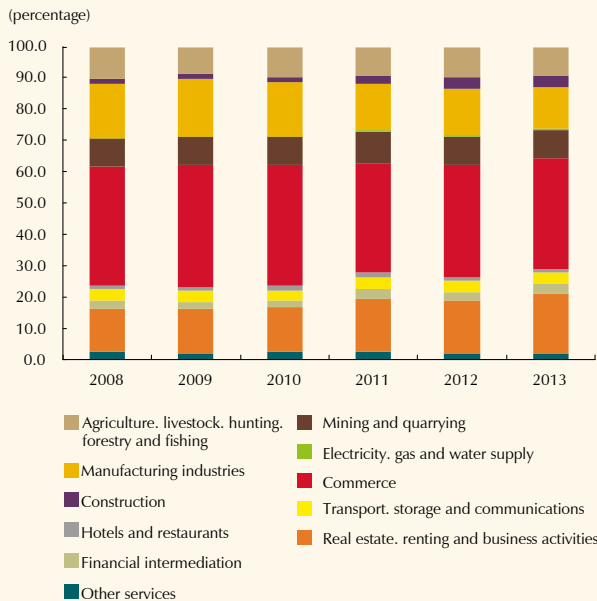
When the sectorial composition of Supersociedades's companies and those identified as fragile after applying the stress test are analyzed, it can be seen that during 2008-2013, the two samples are very similar (Graph B3.2). This leads to the conclusion that the economy's sector is not a determinant for explaining the fragility of a company. For both samples in the aforementioned period, the most representative sectors are commerce (on average 33.2%, and 37.0% for the total sample and the fragile companies one, respectively); manufacturing (on average 20.7% and 16.1% for the total sample and the fragile companies one, in that order); and real estate activities (on average 16.9% and 15.9% for the total sample and

Graph B3.2
Analyzed firms' sectorial composition

A. Supersociedades's base



B. Fragile companies' base



Source: Superintendencia de Sociedades; Banco de la República calculations.

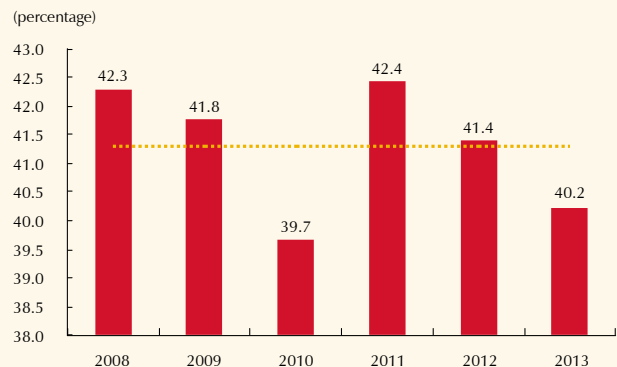
the fragile companies one, respectively). It is important to highlight that, after the shock, the representativeness of agriculture and fishing companies increases, while it decreases for mining ones. For the remaining sectors, their share in the sample before and after the shock is relatively stable.

As mentioned in the third chapter of this Report, historically, Supersociedades's sample of companies has been the largest debtor of the commercial loan portfolio. On Graph B3.3, panel A, it can be seen that this sample has concentrated on average, 41.3% of the commercial loans portfolio over the past five years. Moreover, fragile firms before and after the shock represent a significant percentage of the commercial loan portfolio during that period, being this figure in average of 13.9% and 14.8% respectively.

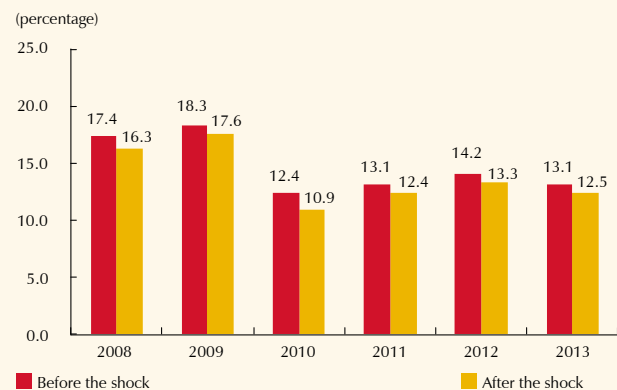
Credit risk indicators, default indicator and quality indicator, show that fragile companies (ICR < 2), identified after the shock, have higher credit risk levels relative to those observed for the total sample. The stress test allows identifying those agents that in the analyzed period have risk indicators that are twice for those observed for Supersociedades's companies. The stress test shows that, indeed, the fragility of the indicators calculated from the

Graph B3.3
Representativity in the commercial loan portfolio outstanding balance

A. Supersociedades's base



B. Fragile companies' base



Source: Superintendencia de Sociedades; Banco de la República calculations.

balance information, results in higher credit risk levels for companies (Graph B3.4, panel B).

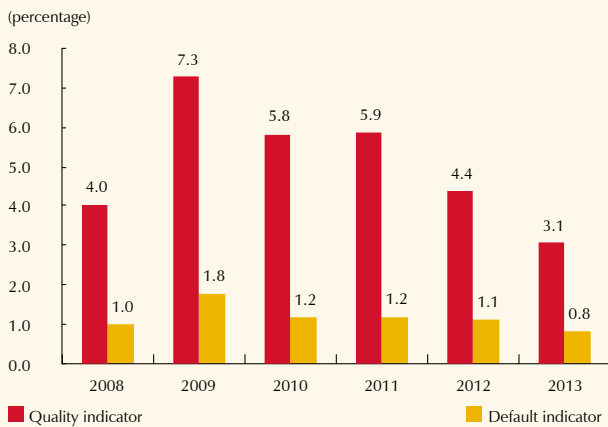
Between 2008 and 2013, the firms at risk accounted, on average, for 24.3% of the assets in the Supersociedades sample. For this period, the assets to GDP ratio yields an average figure of 18.1%. The 83 analyzed companies in the IMF test, had total assets near to US\$ 211 billion, representing 56% of the annualized GDP for the fourth quarter of 2012; while for the Supersociedades sample, comprising 20,321 agents, this figure yields to 76.7% (Table B3.1).

In short, when replicating the stress test on the corporate sector on the sample of companies supervised by Superintendencia de Sociedades,, as suggested by the IMF in the Global Financial Stability Report of April 2014 issue

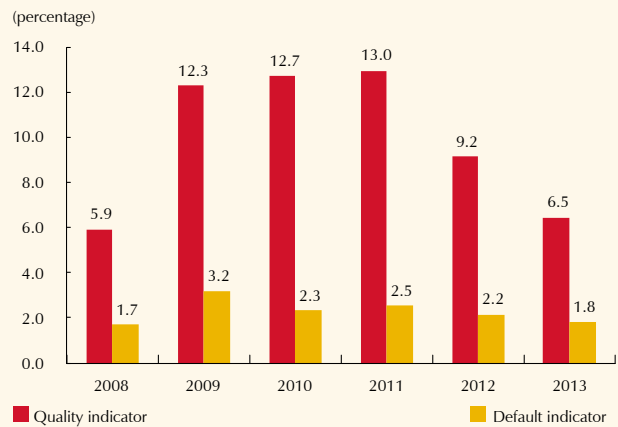
two important results are found. First, after the stress test, fragile firms exhibit risk indicators (firms and debt at risk) higher than the Supersociedades sample, which shows that the stress test identifies those agents with high credit risk levels within the total sample. Second, by simulating a stress situation in which profits decrease and the interest expense simultaneously increases, a low proportion of the analyzed firms become fragile and, therefore, debt at risk is not significantly increased. The latter contrasts with the results derived by the IMF, which can be possibly explained by differences in the size, composition of the samples employed. Specifically for the IMF case, prior to the application of the stress test, a low share of the firms was identified as fragile (about 15%). However, after applying the shock, this representativity is doubled, which contrasts to the results observed when the test is performed for the Supersociedades's sample.

Graph B3.4
Quality and default indicators for Supersociedades's sample and fragile companies after the shock

A. Quality and default indicators: Supersociedades's sample



B. Quality and default indicators: Companies at risk (ICR < 2 after the shock)



Source: Superintendencia de Sociedades; Banco de la República calculations.

Table B3.1
Analyzed samples' asset (fragile and Supersociedades's base) and representativity in the GDP

Year	Total asset: Superintendencia de Sociedades's sample (million USD)	Total asset: firms at risk (million USD)	Firms at risk asset share	Firms at risk asset share over GDP (percentage)	Firms at risk total asset share over GDP (percentage)
2008	145,446	38,608	26.5	18.0	68.0
2009	171,679	49,246	28.7	19.9	69.5
2010	204,551	41,301	20.2	14.5	71.8
2011	247,013	50,270	20.4	15.8	77.4
2012	288,724	76,725	26.6	20.4	76.7
2013	314,199	72,773	23.2	19.8	85.6
Average	228,602	54,821	24.27	18.07	74.83

Source: Superintendencia de Sociedades; Banco de la República calculations.

When fragile companies are identified and some of their features are compared with those observed for the total sample, it is found that these have higher credit risk levels, measured in terms of the quality and default indicators. Also, in recent years their loan portfolio has represented, on average, 14.8% of the commercial loan portfolio outstanding balance. That being said, it would be relevant to periodically monitor their creditworthiness and the expo-

sure credit institutions have to them. Furthermore, when analyzing the sector of the economy to which a company belongs to, it is observed that this variable does not seem to be a differentiating factor, yet, it draws attention that the agriculture and fishing sector increases its representativity in the fragile firms sample after the shock. Finally, all other variables do not show a different behavior when the two samples in question are compared.

Box 4 SOLIDARITY SECTOR

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Ana María Yaruro*

This box provides a brief characterization of the solidarity sector in Colombia, and the analysis of its recent developments, the behavior of the main balance sheet accounts and some indicators of its credit and liquidity risks are.

1. Main features of the sector

The solidarity sector is comprised of 4,576 companies, of which, 2,360 are engaged in some type of financial activity, according to information reported by the Superintendencia de la Economía Solidaria (SES in Spanish) in December 2013¹. Within the sector entities, these include specialized credit unions², multiactive cooperatives³, employee funds⁴, mutual associations⁵, among others. These entities differ, both in size as in their purpose, which gives rise to different degrees of supervision (one, two and three)⁶, thus determining both the type of information that should be reported,

* The authors are professionals from the Financial Stability Department. Their opinions do not compromise *Banco de la República*, or its board.

1 Financial activities refer to: financial intermediation, savings and loans services and credit services. The remaining entities are from the economy's real sector and focus on: agriculture and livestock; wholesale and retail commerce; hotels; restaurants and bars; tourism; industry; transportation, among others.

2 Credit unions are specialized cooperative organizations whose primary function is to carry out financial activities exclusively with its associates (Law 79 of 1988).

3 Law 79 of 1988 defines multi-active cooperatives as those entities/institutions that are organized to address several needs through concurrent services on a single legal entity. The services should be organized into separate sections, according to the characteristics of each specialized type of cooperative. In addition, these can exist with or without a credit union section.

4 Decree 1481 of 1989 contemplates that the employee funds' main feature, is that they are associative enterprises, consisting of dependent and subordinate workers.

5 Decree 1480 of 1989 provides that the mutual associations' goal is to provide mutual aid against potential risks, and to meet their needs through the provision of social security services.

6 Supervision levels are regulated by Decree 2159 of 1999 and Superintendencia de la Economía Solidaria's External Communication 005 of 2011.

as its periodicity. In particular, it is found that degree one is the most frequent (monthly) and information detail on its demand, followed by grades two (quarterly) and three (semester).

Table B4.1 features the different types of entities according to their supervision degree. As noted, all specialized savings and credit institutions are in the first supervision level, while a large number of institutions of other types are in grade three supervision.

Moreover, it is found that the sector's total assets amounted \$26.1 trillion in December 2013, while the reported loan portfolio was of \$14.3 trillion, equivalent to 54.7% of its assets total. Furthermore, it is emphasized that these entities have a large number of associates that for by that date were of about 5.8 million (Table B4.2).

By type of institution, it is observed that multiactives without a savings section concentrate most of the sector's assets (28.5%), followed by specialized credit unions (27.1%). As for the loan portfolio, the latter correspond to those with the largest share of the institutions' total (40.6%), despite being the second category with the lowest number of entities (144). Secondly, employee funds have 31.6% of the loan portfolio in the sector, being the most representative group in terms of entities (1,561). It should be highlighted that solidarity organizations that concentrate the highest percentage of associates, are specialized credit unions and multiactives without a savings section, which together correspond to 72.3% of the sector.

2. Solidarity sector's assets, liabilities and equity

a. Assets composition and growth

When analyzing in more detail the dynamics of the assets in the solidarity sector's entities, a slowdown in the expansion pace during the last year is noticed, moving from registering an annual real growth rate of 5.7% in December 2012, to one of 4.6% in the same month of 2013. In addition, it is observed that in the sector's total assets, 54.7% corresponds to the credit loan portfolio, whose share has been increasing since 2002, when it was at 47.0% (Graph B4.1). By type of credit, consumer loans have the largest share, which represented 83.8% of the loan portfolio total in December 2013,

Table B4.1
Solidarity sector's entities by supervision degree

Type of entity	Supervision degree			General total
	1	2	3	
Specialized in savings and credit	144	0	0	144
Specialized without a savings section	18	56	329	403
Employee funds	85	237	1,239	1,561
Multiactive with a savings and credit section	34	0	1	35
Multiactive without a savings section	62	152	1,079	1,293
Mutual associations	1	9	165	175
Integral with and without a savings and credit section	13	13	118	144
Other cooperatives	17	49	755	821
Solidarity sector total	374	516	3,686	4,576

Source: Superintendencia de la Economía Solidaria; Banco de la República calculations.

Table B4.2
Main variables by type of entity

Type of entity	Specialized in savings and credit	Specialized without a savings section	Employee funds	Multiactive without a savings section	Multiactive with a savings and credit section	Other savings and credit cooperatives	Solidarity sector total
	(percentage)						
Loan portfolio share	40.6	4.3	31.6	12.1	9.0	2.5	100.0
Assets share	27.1	8.2	22.5	28.5	6.2	7.5	100.0
	(trillion Colombian pesos)						
Loan portfolio	5.8	0.6	4.5	1.7	1.3	0.4	14.3
Total assets	7.1	2.1	5.9	7.4	1.6	2.0	26.1
Liabilities	4.4	0.9	4.0	3.8	0.8	1.0	14.9
Equity	2.6	1.3	1.9	3.6	0.8	1.0	11.2
Surplus and/or losses	0.1	0.1	0.1	0.1	0.04	0.0	0.5
	(number)						
Entities	144	403	1,561	1,293	35	1,140.0	4,576
Associates (thousand)	2,205	300	933	2,002	135	243.3	5,820
Employees (thousand)	7.0	13.3	20.8	30.7	0.9	13.1	85.8

Source: Superintendencia de la Economía Solidaria; Banco de la República calculations.

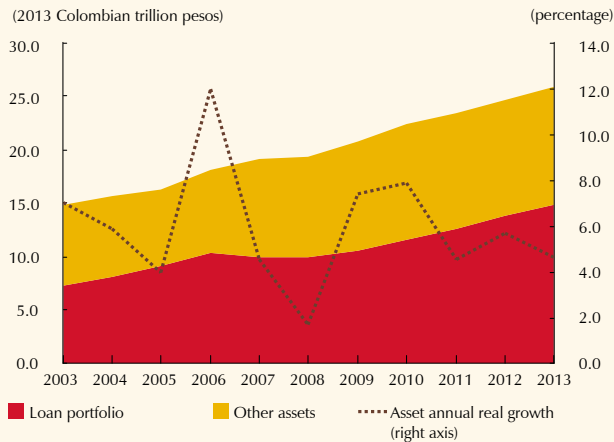
followed by commercial loans (6.3%), mortgage loans (5.8 %) and microcredits (4.2%).

If these values are compared with those recorded for credit institutions, it is found that the solidarity sector's entities asset is significantly lower, since in December 2013 it amounted to 6.1% of the credit institutions total assets. Also, it is observed that the assets expansion rate is lower for the first group (4.6% of the solidarity sector, versus 12.6% for credit institutions), and the dynamics is more volatile than the registered for the credit institutions case.

In Graph B4.2, the composition of the solidarity sector's asset is presented. As it can be seen, investments represent 12.7% of assets; property, plant and equipment account for 6.3%, and 5.6% belongs to cash assets. Other assets, such as inventories and other accounts receivable, have a share of 20.6% on that date. It is important to remark that, when compared to 2012, no difference in the composition is noticed.

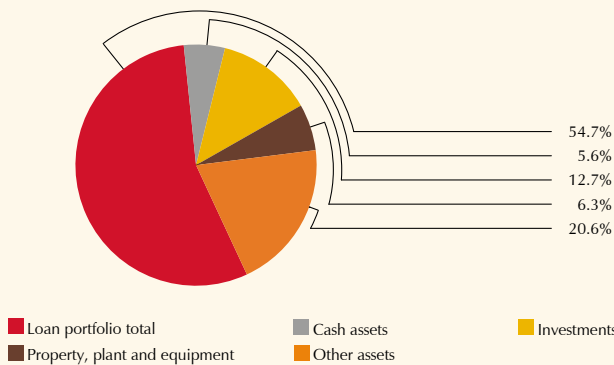
As mentioned, the solidarity sector's loan portfolio is highly concentrated in consumer loans (83.8%), unlike credit institutions, whose modality with the greatest share is the commercial one, which represents 60.2% of

Graph B4.1
Solidarity sector's entities by supervision degree



Source: Superintendencia de la Economía Solidaria; Banco de la República calculations.

Graph B4.2
Main variables by type of entity

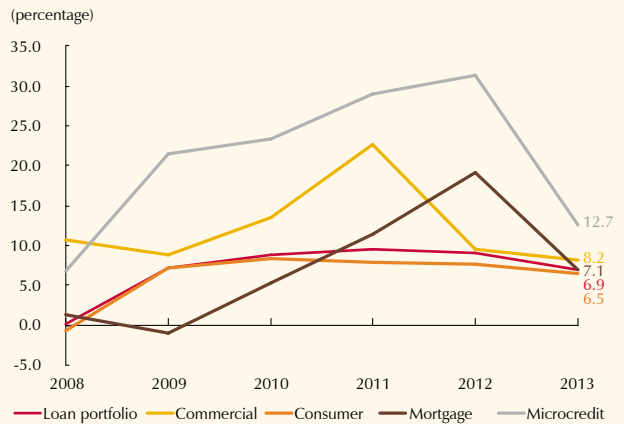


Source: Superintendencia de la Economía Solidaria; Banco de la República calculations.

the total. This behavior could represent a higher credit risk for the sector, because the consumer modality has fewer guarantees, compared to the remaining loan portfolios.

As shown in Graph B4.3, the modality with the highest dynamics as of 2013 was microcredit, with an annual real growth of 12.7%, followed by commercial loans, which showed an expansion of 8.2%. It is important to highlight that, a slowdown in the rate of expansion of all types of credit is evidenced, compared to the observed in 2012. This trend is particularly strong in microcredit and mortgage loans, which changed from 31.3% and 19.1%, to 12.7% and 7.1% in that order.

Graph B4.3
Solidarity sector's loan portfolio annual real variation



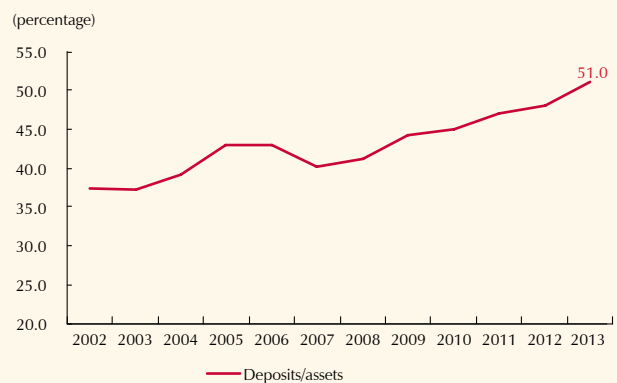
Source: Superintendencia de la Economía Solidaria; Banco de la República calculations.

b. Liabilities composition and growth

At the end of 2013, entities supervised by the Superintendencia de la Economía Solidaria showed a liabilities balance of \$14.9 trillion, equivalent to 4.1% of credit institutions' total liabilities. On this date, liabilities grew at an annual real rate of 4.2%; with the highest share, belonging to associates deposits (51.0%). Compared with 2002, associates deposits increased by about 13.7 percentage points (pp) (Graph B4.4).

Based on available data, it is possible to know the credit unions' liabilities composition in more detail, represented

Graph B4.4
Deposits and total liabilities ratio



Source: Superintendencia de la Economía Solidaria; Banco de la República calculations.

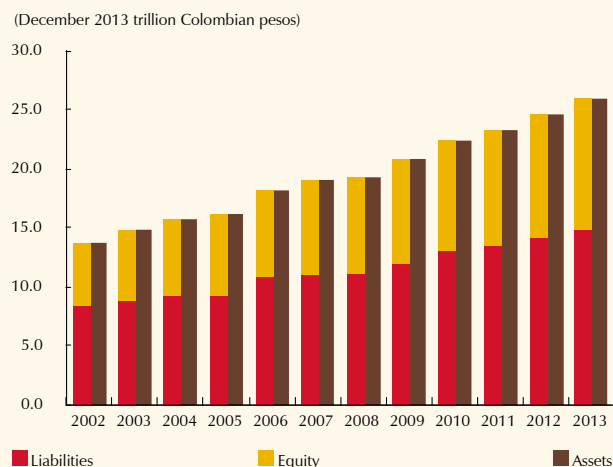
7 For this box, the credit unions category includes specialized savings and credit institutions and some specialized institutions without a savings section, multiactive and integral cooperatives. This is due to the way their financial data is disclosed.

ting 36.5% of the sector's total. In these entities, deposits account for 83% of liabilities, followed by bank loans (9.4%) and accounts payable (3%). Within deposits, the main item corresponds to term certificates of deposits (56.5%), followed by savings deposits (33.1%). Importantly, 87% of term certificates of deposits have a less than one-year maturity, while for credit institutions this ratio is of 49.1%.

c. Balance sheet structure

In Graph B4.5, the solidarity sector's entities balance sheet composition is featured. In December 2013, the equity's share was of 42.8%, a figure significantly higher to that recorded for credit institutions (14.7%). This difference is consistent with the fact that, in the first case, users of financial products are also associates of the entities, since they are required to make social contributions⁸.

Graph B4.5
Solidarity sector's entities balance composition



Source: Superintendencia de la Economía Solidaria; Banco de la República calculations.

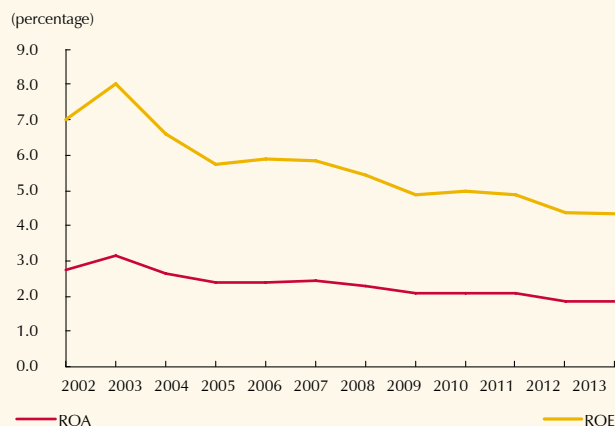
8 It is relevant to mention that the Ministry of Finance and Public Credit contemplates the introduction of a draft decree which seeks to update prudential norms relating to equity and solvency requirements of credit unions and multiactive and integral cooperatives with savings and credit sections. Regarding equity, it is highlighted that the initiative seeks to modify their proper levels, as well as their technical, basic and additional equity measuring.

With regards to equity, it is noted that 59.0% corresponds to social capital. In the case of credit unions, this proportion reaches to 63.3%. It is important to highlight that associates contributions can be partially or fully returned only under four specific situations⁹, and can not be crossed with credit lending operations as long as the associate remains tied to the cooperative¹⁰. Furthermore, in order to protect equity, these entities must allocate a proportion of those contributions to constitute an irreducible social contribution, which at any time may be decreased during the organization's existence. In case a massive associate withdrawal occurs, the organizations may return contributions only without affecting the irreducible minimum amount.

3. Profitability

The solidarity sector's earnings amounted to \$0.5 trillion in December 2013, representing an annual real growth of 4.7%. It should be noted that, while the level of earnings is significantly lower than the credit institutions one (\$7.5 trillion), the annual real growth rate is higher (4.7% versus 0.1% on the same date).

Graph B4.6
ROA and ROE



Source: Superintendencia de la Economía Solidaria; Banco de la República calculations.

9 According to the Basic Accounting and Financial External Communication 004 of 2008, these cases are: 1) when the associate retires; 2) when there is a 10% excess as a natural person, or of 49% as a legal person of the total value of the solidarity organization's contributions; 3) when the entity payoffs or buys back contributions, and 4) when the organization is liquidated.

10 External Communication No. 001 of 2009 of the Superintendencia de la Economía Solidarias.

In Figure B4.6, return on assets (ROA)¹¹ and on equity (ROE)¹² indicators between 2002 and 2013 are presented. Both indicators show a declining trend since 2003, particularly the ROE. Although earnings have increased in the period under analysis, the assets and equity expansion rates have been on average on average, which explains the aforementioned decrease. Next, an analysis of credit unions' risk and liquidity risks is presented, for which the full data on the financial statements is, unlike the other institutions that are part of the sector, which have some information restrictions.

It is noteworthy that for this document, credit unions correspond to savings and credit specialized entities, and some specialized ones without a savings section, Multiactive and integral cooperatives, due to the way their balances information under a monthly basis is found.

4. Credit risk

When calculating the loan portfolio quality indicator¹³ for the different types of credit, it is observed that the commercial and consumer loan portfolios show the indicator's

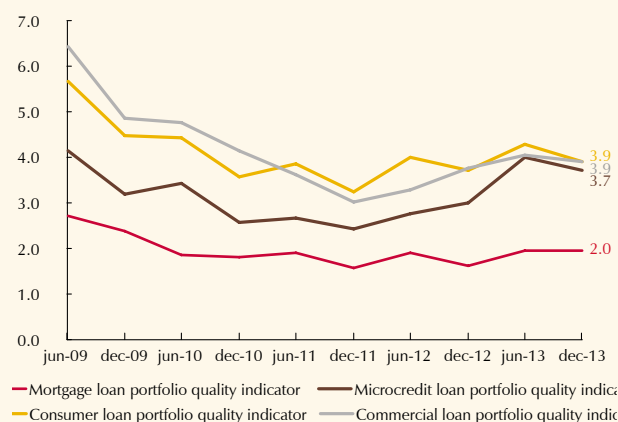
-
- 11 This corresponds to the annualized earnings as a proportion of the asset.
 - 12 This is defined as the ratio between annualized earnings and the sector's total equity.
 - 13 According to the Basic Accounting and Financial External Communication No. 004 of 2008 by the Superintendencia de la Economía Solidaria, the quality indicator is measured as the ratio between the non-performing loan portfolio and the total portfolio (including individual and general provisions), where the first is defined by the age of maturity (for consumer, commercial and microcredit loan portfolios it corresponds to loans with more than 31 days in default, while for the mortgage loan portfolio modality, those loans with maturity over 61 days are considered).

Table B4.3
Individual provision by type of credit and days of maturity

Grade	Commercial		Consumer		Mortgage loan		Microcredit	
	Days	Provision	Days	Provision	Days	Provision	Days	Provision
A	0-30	0%	0-30	0%	0-60	0%	0-30	0%
B	31-90	1%-19%	31-60	1%-9%	61-150	1%-9%	31-60	1%-19%
C	91-180	20%-49%	61-90	10%-19%	151-360	10%-19%	61-90	20%-49%
D	181-360	50%-99%	91-180	20%-49%	361-540	20%-29%	91-120	50%-99%
E	>360	100%	181-360	50%-99%	541-720	30%-59%	>120	100%
			>360	100%	721-1080	60%-99%		
					>1080	100%		

Source: Superintendencia de la Economía Solidaria.

Graph B4.7
Loan portfolio quality indicator by type of credit



Source: Superintendencia de la Economía Solidaria; Banco de la República calculations.

highest levels (3.9% in both cases); while the mortgage loan modality exhibits, the lowest levels (2%). For its part, the microcredit loan portfolio presents a quality indicator of 3.7%. Additionally, a slight upward trend is seen in all modalities, except for the mortgage loan portfolio, starting from December 2011, although in the last six months this trend has been reversed (Graph B4.7).

It is worth noting that the quality indicator for loans granted in the form of warrant, which represents about 39.8% of the total loan portfolio, is smaller than the quality indicator for those loans that are not originated under this form of payment, in all modalities. On the other hand, it is found that the entire loan portfolio was granted with guarantees, which mitigates credit risk.

In terms of provisions, the Superintendencia de la Economía Solidaria states that the institutions must keep a general provision with a 1% minimum of the total gross loan portfolio, and a maximum of 5%. In addition, these institutions must individually provision their graded loans

in the categories that correspond to risky loans (B, C, D and E)¹⁴ (Table 4.3).

5. Liquidity risk management and administration

With regards to liquidity risk management, to which the solidarity sector's entities are exposed to, Superintendencia de la Economía Solidaria's Accounting and Financial Basic Circular 004 of 2008, gives instructions to evaluate and measure this type of risk. As well as control mechanisms for which credit unions, multiactive and integral cooperatives with a savings and credit section, employee funds and mutual associations are subject to. According to this circular, such entities should make a comprehensive management of their assets structure, liabilities and off-balance sheet positions, estimating and controlling the degree of exposure to liquidity risk, in order to be protected from eventual changes that cause losses in the financial statements.

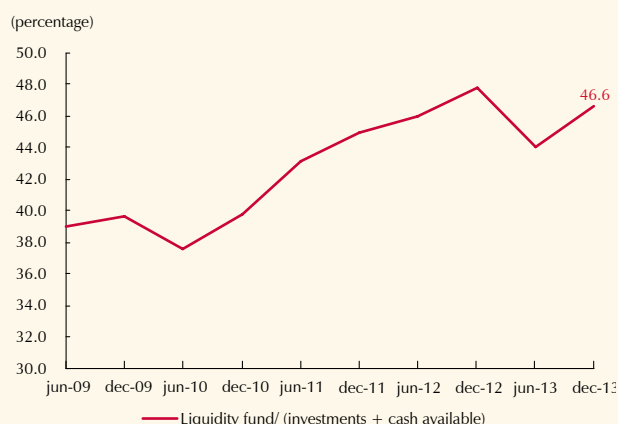
In this sense, Superintendencia de la Economía Solidaria requires entities to fill in a form on which the estimations of the liquidity gap for each time band should be carried out. The latter is calculated as the sum of assets plus off-balance sheet liabilities position (asset position), minus the liabilities sum and off-balance sheet asset positions (liabilities position)¹⁵. Likewise, entities must report the accumulated liquidity gap for each period, which corresponds to the sum of the liquidity gap of the respective period, and the accumulated gap obtained in the immediately preceding time band.

Moreover, to mitigate liquidity risk, current regulation provides that entities¹⁶ must establish and maintain a liquidity fund to meet their obligations rising from deposits and current liabilities before any contingencies, which must be at least equivalent to 10% of deposits. This fund may be managed by credit institutions and high degree cooperative bodies¹⁷ supervised by Superintendencia Financiera de Colombia, through savings accounts, fixed term certificates of deposits (CDT in Spanish), term cer-

tificates of deposits (CDAT in Spanish) or ordinary bonds issued by the entity. However, currently, the sources are deposited in two institutions, which could set a high concentration risk.

Based on available information, it is only possible to analyze the amount and composition of the invested sources in the credit unions' liquidity fund. In December 2013 the sum invested in the fund amounted to \$468.8 billion, of which 86.2% corresponds to investments¹⁸, and the remaining 13.8% to cash available. This amount is equivalent to 10.6% of the deposits and current liabilities total,

Graph B4.8
Resources invested in the liquidity fund by credit unions



Source: Superintendencia de la Economía Solidaria; Calculations by Banco de la República.

which is in line to the required by regulation. The fund's balance annual growth has been of 5.5% on average between 2002 and 2013.

In Graph B4.8, the resources invested in the liquidity fund as a proportion of investments and cash available are presented. As it can be seen, this proportion reached 46.6% in December 2013.

Finally, it should be mentioned that there is a Cooperative Entities Guarantee Fund (Fogacoop in Spanish), which aims to protect the confidence of depositors and savers of registered cooperative organizations¹⁹, guaranteeing their credits (Decree 2206 of 1998). Thus, depositors are insured against losing their savings, in case the entity is facing liquidity problems or files for liquidation. The insu-

14 Basic Accounting and Financial External Communication No. 004 of 2008 by the Superintendencia de la Economía Solidaria.

15 The off the balance sheet position includes figures registered in contingent order accounts but which generate rights and obligations to exercise or perform on certain dates, such as approved or undisbursed loans and interest receivable or payable backed in contracts.

16 Credit unions, multiactive cooperatives with a savings and credit section, employee funds and mutual associations.

17 To date, there is no cooperative body of a higher order in Colombia.

18 These investments are found in: i) securities issued, endorsed, accepted or guaranteed by institutions supervised by Superintendencia Financiera de Colombia; ii) term deposit savings certificates; iii) trust funds, and iv) equity funds.

19 Financial cooperatives, credit unions, multiactive and integral cooperatives with a savings and credit section.

red value in name of a saver is of maximum \$8.0 million. Nonetheless, this value gets a 25% deductible applied, so that the sum payable per person corresponds to 75% of the sum of the values that correspond to all covered credits which he owns and, in no single case, this value may exceed 75% of the maximum insured value (Law 454 of 1998 and Decree 2206 of 1998).

6. Conclusions

In short, the solidarity sector shows a good performance of the analyzed indicators. First, it is found that while the entities' assets belonging to this sector mainly consist of loans, which exhibits moderate expansion rates and a

downward trend in the last year. Additionally, it is emphasized that it is a capitalized and low leveraged sector. Secondly in terms of profitability, a slight downward trend is observed, although earnings recorded a positive growth.

It should be noted that, while this sector is small in terms of balance sheet accounts compared to credit institutions, it concentrates around 5.8 million associates. In terms of the credit unions' credit risk, it is found that the quality indicator has moderate levels for all modalities, and not a single type of loan is granted without collateral. Meanwhile, as for liquidity risk management, entities keep near to 10.6% of their deposits at the liquidity fund in accordance to Superintendencia de la Economía Solidaria's regulation. Nevertheless, a concentration risk is noted, since the fund's resources are deposited in two institutions belonging to the financial system.

IV. RISKS OF THE FINANCIAL SYSTEM

Between June 2013 and a year later, the quality indicator decreased and the default indicator increased. Meanwhile, the non-performing and risk loan portfolios showed a slowdown. The dynamics exhibited by the non-performing loan portfolio and the provisions, led to a drop in the hedging indicator. In terms of market risk, the exposed securities balance increased for the financial system between February and August of this year. Furthermore, the financial system's VaR in August reported a decrease in its six months average compared to that observed in February 2014. Regarding liquidity risk, it is observed a decreasing trend in the thirty-day liquidity risk indicator, especially for banks; however, all intermediaries have liquidity levels greater than those required by regulation.

The joint analysis of risks shows that the probability of experiencing an exceptional risk situation, as well as the level of systemic stress in the financial system, are low. However, materialization of a greater risk as a result of a deterioration of some liquidity indicators is observed.

In this chapter, the main risks faced by the Colombian financial system are analyzed. Following, a summary of the vulnerabilities of the system is presented; taking into account the results of the financial stability map (FEM).

Later, in subsequent sections, each one of the risks is studied in detail, considering the results of the sensitivity tests and, finally, a joint analysis of risks section is presented.

The financial stability map aims to measure the financial stability under six dimensions: domestic macroeconomic environment, the external sector's conditions, credit institutions' profitability and solvency, as well the credit, market and liquidity risks they face. For each of the categories, representative variables were selected in order to assess the risk levels each one of them faces⁹⁸. The methodology seeks to provide an indicator of the current state of

⁹⁸ The FSM was developed following the methodologies suggested in the Global Financial Stability Report of the International Monetary Fund (October of 2008), and P. Bedford; C. Bloor (2009). A Cobweb Model of Financial Stability in New Zealand, Discussion Paper Series, no. DP2009/11, Reserve Bank of New Zealand. For further details, see the Financial Stability Report of March 2010, pp. 124-129.

the risks of the financial system, and ranks the risk assessment on a one to nine scale, being one the lowest risk level⁹⁹.

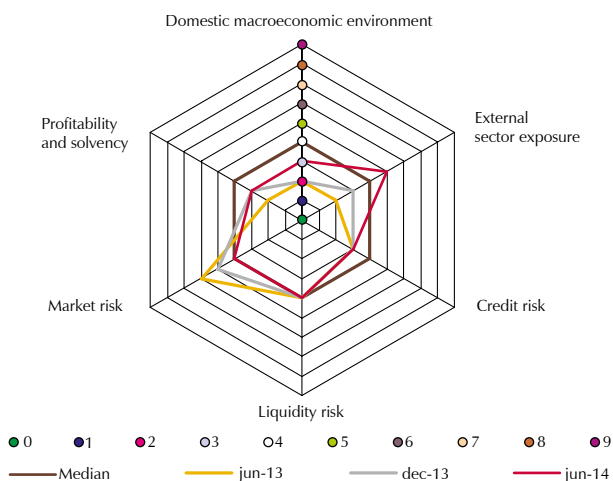
The indicators considered for each of the dimensions are featured in Table 13.

Table 13
Financial stability map's dimensions and variables

Domestic macroeconomic environment	External sector exposure	Credit risk	Liquidity risk	Market risk	Profitability and solvency
GDP growth	Colombia EMBI+	Default indicator	Unhedged liabilities ratio ^{a/}	Negotiable securities percentage	Solvency
Inflation	Exports over imports	Non-performing loan portfolio growth	Liquid liabilities over liquid assets	Value at Risk	Return on equity (ROE)
Unemployment	Current account/GDP		Deposits over gross loan portfolio	Duration	Ex-post intermediation margin
Cash deficit of the national central government	Foreign direct investment /GDP		Interbank funds over liquid assets		Leverage

a/ This ratio seeks to measure the shortage of liquid assets that financial institutions may face as a result of their term transformation activity. For its calculation, liquid liabilities, negotiable and available for sale investments, and liquid and total assets are taken into account. For more information see the March 2010 Financial Stability Report, liquidity risk section.
Source: Banco de la República

Graph 55
Financial stability map



Sources: Superintendencia Financiera de Colombia, DANE and Bloomberg; Banco de la República calculations

The comparative results of the Financial Stability Map are presented in Graph 55. The brown line represents the median, and is considered as an average level of risk. It should be noted that the interpretation of the graph should be careful, given that the description of risks does not involve the analysis of the systemic risk median, or takes into account the interrelationships between the different risks.

In June 2014, the external sector registered a significant decline, reaching an above the median risk level. This is explained by a fall in the exports to imports ratio, and an increased current account deficit, which reflects a negative export growth and a further expansion of imports. The former is explained as a result of lower volumes in some

99 The model was implemented on a quarterly basis for the dimensions related to the macroeconomic environment; and monthly for the financial system's ones. It is worth mentioning that the difference in the periodicity of each of the dimensions, does not lead to difficulties because each one was built independently of the others. Additionally, indicators with longer time series were considered.

sectors, such as petroleum products; and second, due to the increased fuel domestic demand and purchase¹⁰⁰.

Moreover, the financial system's exposure to the domestic macroeconomic environment, increased compared to December 2013, but it is below the average risk level. For this dimension, an increase in the inflation level and in the national central government's cash deficit, as well as an increase in the unemployment rate compared to December last year¹⁰¹.

Additionally, it is emphasized that credit institutions' market risk¹⁰² exposure decreased, being at the median's limit. This result is explained by a reduction in both the proportion of the balance exposed to market risk, as in the value at risk (VaR)¹⁰³, despite an increase in the duration was observed.

With respect to credit and liquidity risk dimensions, the financial stability map does not show significant changes relative to December 2013 results and both risks remain below or above the median, indicating that the financial system's vulnerability to these risks has not increased in the first half of 2014. However, it should be mentioned that in the case of credit risk, an increase in the non-performing loan portfolio and default indicator¹⁰⁴ growth rate is noticed. With regards to liquidity risk, a reduction in liquid assets was recorded as a result of a decrease in the public debt securities investments balance; yet an improvement in the unhedged liabilities ratio took place. Finally, credit institutions' profitability and solvency showed no significant changes during the most recent semester, and continued registering below the median vulnerability levels.

In short, during the first half of 2014 a deterioration of the conditions in the external sector and the domestic macroeconomic environment was evident, while the system's vulnerability to market risk decreased. For their part, the dimensions of credit and liquidity risk, as well as the profitability and solvency ones, remained at the same level as of December 2013. In general, although only one component of the financial stability map records a risk level higher

100 The latter is due to the scheduled closure of the Cartagena refinery plant (Reficar) since early March.

101 This unemployment rate corresponds to that reported for the seven metropolitan areas. It is worth noting that the increase in unemployment is due, in part, to a seasonal effect, since in December generally lower rates are recorded.

102 Starting from this Report issue, market risk data applies to all credit institutions and not just banks.

103 Value at risk (VaR), is a measure that allows estimating the maximum loss that an institution may experiment in its investment portfolio on a certain forecast horizon, and at a determined confidence level. In this Report, this measure is calculated for investments in Colombian public debt securities (TES).

104 The default indicator is defined as the ratio between the non-performing loan portfolio equal or higher than thirty days, and the total gross loan portfolio.

than the median (external sector), it is necessary to continue monitoring the analyzed indicators in order to identify trend changes in the map that may show signs of deterioration in the system's stability.

Next, a separate and more detailed analysis of the market risk evolution for the entire financial system is presented (credit institutions and non-banking financial institutions); and of credit and liquidity for credit institutions, with the study of a set of indicators and sensitivity tests in each case in order to determine how fragile the system is before adverse macroeconomic and financial shocks.

In general, in the case of market risk, it is found that between February and August 2014, the exposure of the entities of the financial system increased, due to higher exposed public debt balances, and an increase in their sensitivity before variations in rates; however, given the lower market volatility, their portfolio recorded an inferior maximum loss measure¹⁰⁵. For credit risk, over the last year, an increase of the default indicator and a decrease in the non-performing loan portfolio hedging indicator¹⁰⁶ is observed, in contrast with an improvement in the quality indicator¹⁰⁷ and a slowdown in the non-performing loan portfolio. Finally, liquidity risk analysis shows that credit institutions had a lower liquidity level than six months earlier, mainly explained by the drop in the banks thirty-day liquidity risk indicator; nonetheless, this indicator continues being at higher levels than those required by regulation.

A. MARKET RISK¹⁰⁸

In this section, the exposure that the financial system's entities have to variations in the price of TES on their investments portfolio is analyzed, because such variations can significantly affect their balance sheet and, therefore, affect the system's stability.

For this, the analysis is divided into three sections: balance exposed to market risk, portfolio sensitivity to increases in TES rates, and a value at risk (VaR) measure to determine the portfolio's maximum possible loss.

105 For the particular case of credit institutions, it is observed that their vulnerability to TES price changes decreased compared to the one from a semester ago, due to the decrease in the exposed balance and a lower value at risk measure. This result is congruent to that observed in the financial stability map.

106 The non-performing loan portfolio hedging indicator is defined as the ratio between provisions and the non-performing loan portfolio total.

107 The quality indicator is defined as the ratio between the balance of the loan portfolio with a grade different than A, and total gross loan portfolio balance.

108 To deepen the analysis and results presented in this section, we suggest consulting the corresponding special report, published on *Banco de la República's* website (www.banrep.gov.co).

It is important to highlight that, in the pension and severance fund managers third party position, the presented measures are not the most appropriate for analyzing the vulnerability to which portfolios are exposed to, since a drop in their value does not constitute the main risk to the contributor. Indeed, this risk is associated with obtaining a greater replacement rate, defined as the ratio between the value of the pension and the salary earned in the working years near the time of retirement. For example, access for a future pensioner to a lifetime annuity scheme, depends on whether, at the time he retires, his savings (which equals to his portfolio value) has been sufficient to cover the cost of acquiring such benefit. Since the lifetime annuity value depends on factors similar to those that determine the value of a portfolio comprised of long-term instruments, the longer term that the pension and severance fund managers investments in third party positions present, provide a natural hedging to contributors, allowing that savings value and the pension cost to move in the same direction. Therefore, short-term movements in the portfolio value do not reflect changes in the contributors risk exposure.

1. Exposure of the financial system to public debt securities

In this section, the market risk exposure of the public debt securities (TES) portfolio of different entities in the financial system is analyzed. For this, the balance of investments in these assets was quantified in accordance with the available data in *Banco de la República's Securities' Central Deposit (DCV in Spanish)*.

Pension and severance funds managers and trust companies, are the entities that manage the largest amount of public debt securities in the financial system, while commercial banks are the entities that have the largest number of these in a proprietary position.

On the credit institutions side, all showed a decrease in the TES exposed to market risk balance¹⁰⁹ between February and August of this year. By August 22 of this year, the exposed portfolio of these entities was at \$ 26.51 trillion, when six months before it was at \$ 33.32 trillion. This contraction was accompanied by a reduction in the proportion of negotiable securities within the TES portfolio, moving from 74.69%, to 70.17% (Table 14). Similarly, it should also be noted that the largest decline occurred in the financial cooperatives balance: by 21 February 2014, the TES exposed to market risk balance was of \$563.1 million, whereas six months later it did not record any balance at all.

109 Corresponding to the nominal balance in Colombian pesos of TES holdings for different entities.

Table 14
Financial entities' market risk exposed TES balance (TES in Colombian pesos and UVR)

	21-Feb-14		22-Aug-14		Variation (percentage)
	Exposed Balance ^{a/}	Exposed Balance ^{b/}	Exposed Balance ^{a/}	Exposed Balance ^{b/}	
Credit institutions	33.32	74.69	26.51	70.17	(20.45)
Commercial banks	30.57	73.10	24.54	68.61	(19.74)
Financial corporations	2.74	99.23	1.96	99.24	(28.37)
Commercial financing companies		42.23	0.01	31.45	(11.47)
Financial cooperatives ^c	0.00	28.35	0.00	-	(100.00)
Non-banking financial institutions	101.33	95.68	119.55	96.02	17.98
Pension funds proprietary position	0.17	86.88	0.18	82.73	6.11
Pension funds third party position	53.73	100.00	57.85	100.00	7.66
Trust companies proprietary position		93.22	1.76	93.80	13.54
Trust companies third party position	38.33	100.00	51.56	100.00	34.52
Stock brokerage firms proprietary position	0.24	99.97	0.26	99.98	6.98
Stock brokerage firms third party position		100.00	2.41	100.00	9.66
Insurance and capitalization companies	5.11	53.56	5.53	53.53	8.19
Financial system	133.32	88.64	146.54	90.39	9.91
Other	26.44	100.00	27.44	100.00	3.79
TES total in Colombian pesos and UVR		90.34	173.98	91.78	8.90

a/ Figures in trillion Colombian pesos.

b/ TES total portfolio percentage.

c/ The market risk exposed TES balance for these entities was of \$563.1 million Colombian pesos on 21 February 2014, while on 22 August 2013 it did not record any balance.

Sources: Superintendencia Financiera de Colombia and Banco de la República (DCV); Banco de la República calculations.

As for non-banking financial institutions, a general increase in TES holdings was observed, moving from \$101.33 trillion in February this year, to \$119.55 trillion six months later (representing a variation of 17.98% in the exposed balance). It is relevant to remark that from the public debt securities total in proprietary and third party positions, the pension and severance funds managers and trust companies jointly managed 93.14% of them (48.54% and 44.60% respectively), whereas stock brokerage firms and insurance and capitalization companies had the remaining (2.23% and 4.62% in that order).

To measure the sensitivity of the public debt portfolio value to changes in the interest rate, the duration for each of the financial system's entities was

calculated¹¹⁰. Between February and August of this year, an increase in the duration of the government debt and the financial system's total supply occurred; however, the duration of the pension and severance funds managers proprietary position portfolio, had the greatest decrease¹¹¹, moving from 3.61 to 2.51 years in the period under analysis, followed by the stock brokerage firms, which passed from 2.85 to 2.70 years (Table 15).

Table 15
Financial entities' TES portfolio duration a/ (TES in Colombian pesos and UVR)

	21-Feb-14	22-Aug-14	Difference
Credit institutions			
Commercial banks		2.70	0.16
Financial corporations		3.87	0.06
Commercial financing companies		2.59	1.15
Financial cooperatives	2.31	0.00	(2.31)
Non-banking financial institutions			
Pension funds proprietary position	3.61	2.51	(1.11)
Pension funds third party position		5.53	0.38
Trust companies proprietary position	2.37	2.59	0.21
Trust companies third party position	2.85	2.70	(0.15)
Stock brokerage firms proprietary position	4.06	4.14	0.08
Stock brokerage firms third party position		4.53	0.61
Insurance companies	5.67	5.99	0.31
Financial system			
		4.53	0.46
Other	3.36	3.53	0.17
Supply			
	3.96	4.39	0.42

a/ Figures in years.

Sources: Superintendencia Financiera de Colombia and Banco de la República (DCV); Banco de la República calculations.

In short, credit institutions showed a general decrease in the TES exposed to market risk balance. Meanwhile, non-banking financial institutions increased their holdings of government securities, being these more relevant for pension and severance funds managers and trust companies. Finally, as for the portfolio duration, an increase for the financial system was observed, except for financial cooperatives, pension and severance funds managers proprietary position and stock brokerage firms third party positions.

110 Duration is a measure of a bond's price sensitivity, given changes in the interest rates. Similarly, this measure represents the bond's effective maturity, i.e., the time in years on which the holder gets the investment's price back.

111 Cooperatives were excluded for the analysis performed, these being the ones that showed the greatest decrease in their portfolio duration. This, because to the date of analysis, they don't present a TES exposed to market risk balance.

2. Sensitivity to increases in the TES rate

This section provides a sensitivity test performed in order to analyze the market risk exposure of different financial entities. This consists in calculating the portfolio value losses given an increase of 400 bp in all the maturities for the TES zero coupon curve in Colombian pesos and real value units (UVR)¹¹², which is the shock suggested by the Financial Stability Board for such tests.

The results herein show a lower exposure of the credit institutions with respect to that recorded six months ago, while it increased for non-banking financial institutions. On the one hand, with data from 22 August 2014, credit institutions would have lost \$2.88 trillion after the 400 basis points increase in the zero coupon curve rates, a figure lower than the \$3.40 trillion that they would have had to assume on 21 February of that year. This lower value is consistent with the decrease in holdings of securities exposed to market risk from all credit institutions. Meanwhile, non-banking financial institutions' hypothetical losses before the mentioned stress scenario, went from \$17.40 trillion in 21 February, to \$22.22 trillion six months later, due to increased losses, both in the proprietary position as in the third party one, except for the pension and severance funds managers' proprietary position (Table 16).

By type of entity, the pension and severance funds managers and trust companies third party positions represent the items with the highest potential losses in the analyzed scenario (\$11.88 trillion and \$8.7 trillion respectively). This is because about 75% of the securities exposed to market risk across the financial system are concentrated in these items. Additionally, the increase in losses in trusts companies' third party positions (moving from \$5.64 trillion in February to \$8.70 trillion in August), after a period in which their exposed securities and portfolio duration increased.

With the aim to give an order of magnitude to the potential losses, these are presented as a equity percentage for credit institutions and non-banking financial institutions¹¹³, within which the trust companies' proprietary position are the most exposed to a shock in securities rates, since losses would amount to 15.73% of their equity. As for credit institutions, financial corporations are the entities whose losses represent a higher proportion of their equity (5.20%), despite their decline compared to the reported on 21 February (7.11%). It should be remarked that a decrease in exposed securities allowed all credit entities to lower losses on their equity versus the observed in February, except for financial corporations, due to the increase in their portfolio duration. With

112 For the UVR TES, an increase in the UVR's benchmark rate real margin is assumed. If it were an increase in the inflation expectations, losses would only occur in fixed rate TES, as the security's in UVR real return would not change.

113 The equity value employed in this test corresponds to the one reported to Superintendencia Financiera de Colombia, with the closing dates of February and June 2014. For its part, third party position equity corresponds to the sum managed by the entities.

Table 16
Losses due to valuation before a 400 basis points increase as equity percentage

	21-Feb-14			22-Aug-14		
	Losses (trillion Colombian pesos)	Equity (trillion Colombian pesos)	Equity percentage	Losses (trillion Colombian pesos)	Equity ^{a/} (trillion Colombian pesos)	Equity percentage
Credit institutions	3.40	63.35	5.36	2.88	65.92	4.37
Commercial Banks	3.02	54.70	5.52	2.59	56.98	4.55
Financial corporations	0.38	5.28	7.11	0.29	5.48	5.20
Commercial financing companies	0.00	2.86	0.03	0.00	2.96	0.04
Financial cooperatives	0.00	0.50	0.01	0.00	0.50	0.00
Non-banking financial institutions	17.40	401.75	4.33	22.22	428.56	5.18
Pension funds proprietary position	0.03	2.61	0.97	0.02	2.68	0.65
Pension funds third party position	10.29	153.75	6.70	11.88	164.42	7.23
Stock brokerage firms proprietary position	0.02	0.84	2.46	0.03	0.83	3.09
Stock brokerage firms third party position	0.25	10.85	2.26	0.26	11.49	2.24
Trust companies proprietary position	0.24	1.77	13.50	0.28	1.76	15.73
Trust companies third party position	5.64	222.35	2.53	8.70	237.30	3.67
Insurance companies	0.94	9.58	9.85	1.06	10.07	10.52
Financial system	20.80	465.10	4.47	25.10	494.48	5.08

a/ Equity as of June 2014.
Sources: Superintendencia Financiera de Colombia and Banco de la República; Banco de la República calculations.

this, credit institutions losses would represent 4.37% of their equity, a figure lower by 99 basis points to that from six months ago.

When analyzing jointly the non-banking financial institutions, it is found that they have a greater exposure to the simultaneous depreciation of public debt securities against that for credit institutions, to the extent that potential losses would represent 5.18% of their total equity. The types of entities which would incur in greater losses are trust companies in proprietary position (15.73%) and insurance companies (10.52%).

Up to this point, only potential losses from depreciation in the portfolio of the analyzed companies have been considered; however, it is possible to estimate an income flow from coupons and securities maturities that could offset or mitigate the mentioned losses in a determined time horizon. For this, the calculation of income flows for each type of entity was performed, assuming that their 22 August portfolio remain the same for six months, so that if the studied rate increase materializes, the income flow could compensate losses, or a proportion of these, in a six-month horizon.

For credit institutions, it is noticed that the amount of income (\$6.01 trillion) is higher than the potential losses after the shock (\$2.88 trillion)¹¹⁴. Similarly, if the shock had materialized six months earlier, the losses would have been fully compensated by expected income flows (\$9.38 trillion). As for non-banking financial institutions, the estimated income (\$11.31 trillion) is less than the hypothetical losses (\$22.22 trillion), a difference that increased versus the immediately preceding semester (\$9.45 trillion in earnings compared to \$17.40 trillion in losses). This is explained, to a greater extent, to the fact that the pension and severance funds managers in a third party position portfolios and trust companies are of a long duration nature, thus estimate income flows are relatively small compared to the losses associated with the stress scenario.

The sensitivity test of this section reveals an increase in market risk exposure for non-banking financial institutions, while credit institutions decreased their exposure compared to that recorded a semester earlier. This is explained, mainly, by the increase in exposed securities holdings by non-banking financial institutions and the decrease in the holding of such securities by credit institutions. Insurance companies and trust companies still remain as the most vulnerable entities in terms of equity, along with pension and severance funds managers and banks.

3. Value at risk

Value at risk (VaR) is a measure that enables estimating the maximum loss that an institution may experience on its investment portfolio in a certain forecast horizon with a determined confidence level. This is included in order to obtain a more rigorous approach of market risk to which they both credit institutions and non-banking financial institutions are exposed to. Specifically, the VaR of each of these sectors is defined as the aggregate individual VaR value of each one of the entities that make them up, and is presented as a percentage of the exposed balance¹¹⁵.

For all the sectors analyzed, the average VaR between February and August 2014 were lower than those observed six months before (Table 17). With regard to credit institutions, the banks, financial corporations, commercial financing companies and cooperatives average VaRs decreased by 22 basis points, 15

114 It is worth noting that the compensation of losses for credit institutions is explained, mainly, by the maturity of the TES in the next six months (September and November 2014 and February 2015).

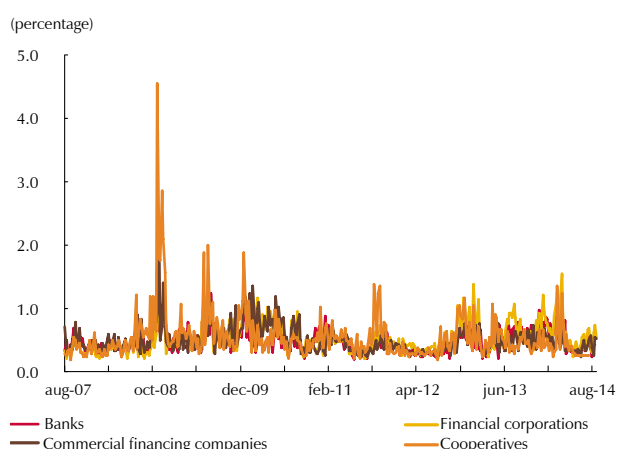
115 For more information see RiskMetrics (1996). "Technical Document", JP Morgan/Reuters, Fourth Edition, December 1996; O. Martínez; JM Uribe (2008), "A dynamic approach to market risk measurement for commercial banks in Colombia" (Una aproximación dinámica a la medición del riesgo de mercado para los bancos comerciales en Colombia), *Banco de la República's* Financial Stability Issues, Financial Stability Report, March 2008, and W. Cabrera; L. Melo; J. Mendoza; S. Téllez (2012), "Conditional Value at risk for the financial institutions' public debt portfolio" (Valor en riesgo condicional para el portafolio de deuda pública de las entidades financieras), *Banco de la República's* Financial Stability Issues, Financial Stability Report, September 2012.

Table 17
Six-month average VaR

	Average (August 2013 to February 2014)	Average (February 2014 to August 2014) (percentage)	Difference
Credit institutions			
Commercial Banks	0.63	0.41	(0.22)
Financial corporations	0.71	0.55	(0.15)
Commercial financing companies	0.51	0.39	(0.12)
Financial cooperatives	0.47	0.36	(0.11)
Non-banking financial institutions			
Pension funds proprietary position	1.15	0.61	(0.54)
Pension funds third party position	1.27	0.78	(0.49)
Trust companies proprietary position	1.11	0.60	(0.52)
Trust companies third party position	1.14	0.60	(0.54)
Stock brokerage firms proprietary position	0.51	0.34	(0.17)
Stock brokerage firms third party position	0.75	0.46	(0.29)
Insurance companies	0.96	0.76	(0.19)
Financial system's proprietary position	0.82	0.49	(0.33)
Financial system	1.02	0.63	(0.40)

Sources: Superintendencia Financiera de Colombia and Banco de la República; Banco de la República calculations.

Graph 56
Credit institutions' VaR as exposed balance percentage



Source: Banco de la República (DCV); Banco de la República calculations.

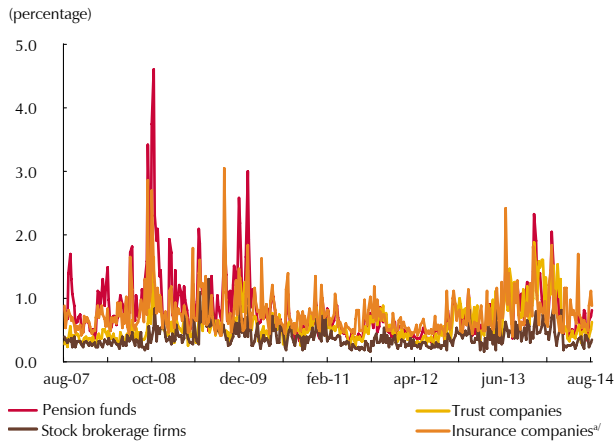
basis points, 12 basis points and 11 basis points in that order (Graph 56). For their part, for non-banking financial institutions, the greatest variations occurred for pension and severance funds managers proprietary and third party positions (54 basis points and 49 basis points) and trust companies (52 basis points and 54 basis points) (Graph 57).

According to the above, the financial system's VaR has registered a decrease on its six-month average compared to the immediately preceding period. It is noteworthy that during the last month, the risk measure has presented a slight increase, although it is still at levels below those observed during greater volatility periods in the public debt market (Graph 58). Despite this, it is important to continue

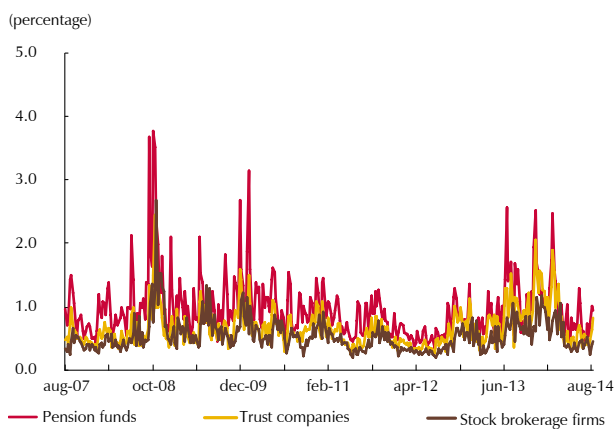
monitoring this risk, as an adverse situation in this market, accompanied by high TES holdings registered by some sectors of the financial system, may cause deteriorations in the value of these portfolios, as well in the entities' capital and solvency levels.

Graph 57
Non-banking financial institutions' VaR as exposed balance percentage

A. Proprietary position

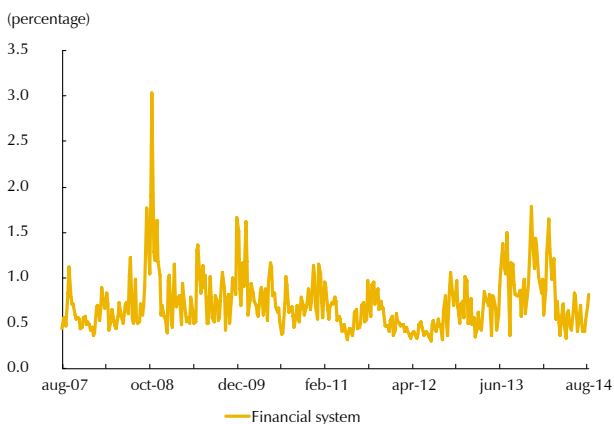


B. Third party position



a/ Includes proprietary and third party positions.
Source: Banco de la República (DCV); Banco de la República calculations.

Graph 58
Financial system's VaR as exposed balance percentage



Source: Banco de la República (DCV); Banco de la República calculations.

B. CREDIT RISK¹¹⁶

1. Loan portfolio quality and coverage

Between June 2013 and a year later, slight variations in the risk indicators for the total loan portfolio occurred: the quality indicator decreased, and the default indicator increased. When analyzing this result by type of credit, it is found that the consumer and mortgage loans showed improvements in their indicators during the last year, while microcredit continues to show deterioration. Meanwhile, the commercial loan portfolio shows a stable behavior on its loan portfolio quality, but a slight deterioration on its default indicator.

The quality indicator —measured as the ratio between risk¹¹⁷ and gross loan portfolios— was at 6.6% in June 2014, a figure lower by 30 basis points to that observed a year ago (Graph 59). By type of loan portfolio, all, except for microcredit, saw a drop in the indicator during the same period. Housing loans showed a reduction of 80 basis points, consumer loans, of 51 basis points, and commercial loans, of 24 basis points, reaching 4.1%, 7.5% and 6.3% in June 2014 respectively. In addition, microcredits continued to deteriorate, exhibiting a 12.3% quality indicator in June 2014, when in June 2013 it was of 9.3%¹¹⁸. It is important to mention that the microcredit loan portfolio quality indicator has been showing an increasing trend since April 2012.

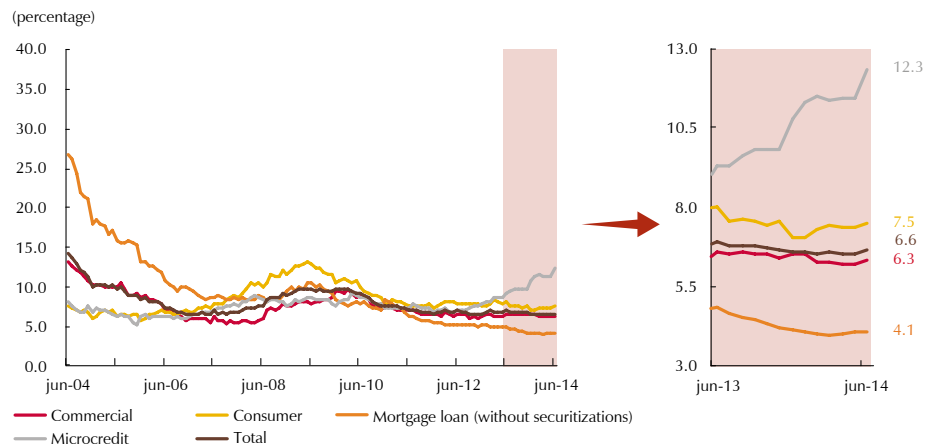
The total risk loan portfolio recorded an annual real variation of 6% in June 2014, a figure lower than that observed in the same month of 2013 (13.7%). During that period, by type of credit, the microcredits' risk loan

116 To deepen the analysis and results presented in this section, it is suggested to consult the corresponding special report, published on Banco de la República's website (www.banrep.gov.co).

117 The risk loan portfolio is defined as the set of credits rated other than A.

118 Considering financial leasing, the total loan portfolio's quality indicator as of June 2014 was at 6.7%, the commercial loan portfolio's one was at 6.5%, 7.5% for the consumer loan portfolio, and 12.3% for microcredit. The quality indicator for the mortgage loan portfolio with leasing is not featured, since residential leasing is included within the commercial leasing modality.

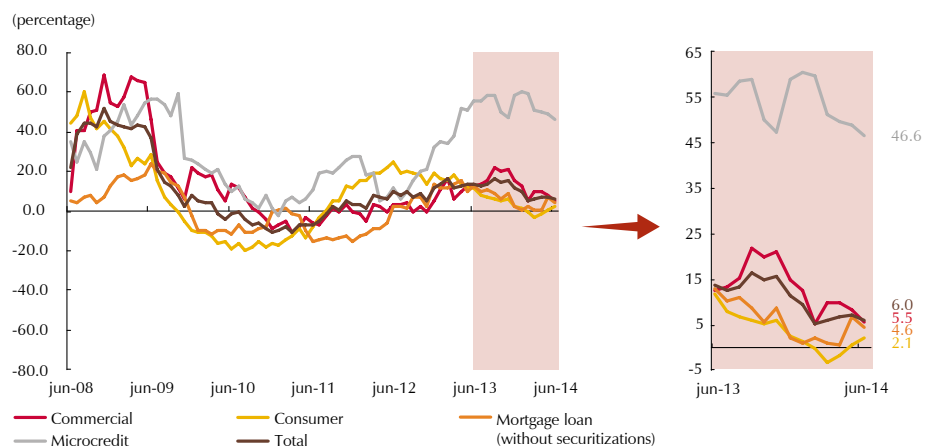
Graph 59
Loan portfolio quality indicator by type of credit: risk loan portfolio/gross loan portfolio



portfolio was the one with the greatest expansion, however if compared to June 2013 it showed a slowdown going, from growing 55.8% to 46.6% annual real. Similarly, for commercial loans, the risk loan portfolio expanded at a rate of 7.1 percentage points, figure lower than that recorded a year ago (5.5% in June 2014). Also, for consumer and mortgage loans, the risk loan portfolio expansion rate slowed down, decreasing from 11.8% to 2.1%, and from 12.7% to 4.6% respectively (Graph 60)¹¹⁹.

On the other hand, at the end of the first half of 2014, the total loan portfolio default indicator —measured as the ratio between the non-performing loan portfolio¹²⁰ and the total gross loan portfolio— showed a slight increase

Graph 60
Risk loan portfolio's annual real growth



119 When considering leasing in the analysis, it is found that the total risk loan portfolio grew by 7.3% in June 2014, 7.9% for commercial loans, 2.0% for consumer loans, and 46.5% for microcredits.

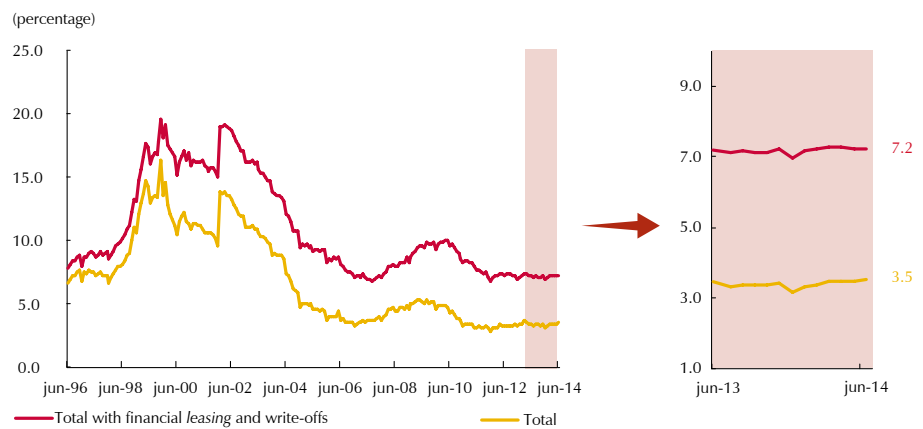
120 The non-performing loan portfolio is the one which has a default equal to or exceeding thirty days. The default indicator is considered as an ex-post credit risk measure.

compared with the one observed a year earlier, reaching 3.5% (3.4% in June 2013)¹²¹. When analyzing the default indicator with write-offs¹²², it is found that, as of June 2014, it is 3.7 percentage points higher than the without write-offs indicator (Graph 61, panel A).

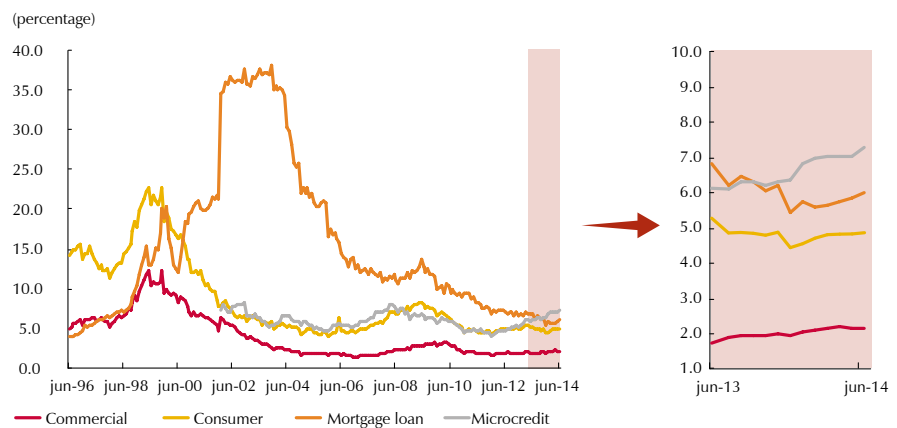
By type, it is emphasized that microcredit was the one that showed the greatest indicator deterioration, reaching 7.3%, a figure higher by 1.2 percentage points than the one observed in June 2013. This behavior indicates a greater

Graph 61
Default indicator: non-performing loan portfolio / gross loan portfolio

A. Total loan portfolio's default indicator with and without write-offs



B. Default indicator by loan portfolio type



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

121 Including leasing, it is found that the total loan portfolio recorded a 3.5% default indicator in June 2014.

122 Write-offs are assets which, by being considered uncollectible or lost, have been withdrawn from the balance sheet in accordance with current legal regulation. It should be clarified that the balance consolidates historical data, so it does not exactly reveal the loan portfolio's management evolution on a monthly basis.

materialization of credit risk for this modality. Similarly, the commercial loan portfolio showed an increase of 34 basis points, reaching 2.2% in June 2014. By contrast, mortgage and consumer loan portfolios, whose indicators stood at 6% and 4.9% respectively, showed reductions of 74 basis points and 31 basis points during the same period in that order¹²³ (Graph 61, panel B).

The total non-performing loan portfolio growth showed a slowdown, moving from 17.9% in June 2013, to 14.3% a year later. By modality, except for the commercial loan portfolio, all of them recorded slowdowns as of June 2014, highlighting the microcredit loan portfolio in particular, which grew by 32.7%, while in the same month in 2013 it did at a 51.9 % rate. Meanwhile, the non-performing commercial loans expanded at a 30.4% rate, when a year earlier they did at 16.8%¹²⁴. This growth is the highest registered for this modality since December 2012¹²⁵.

At the end of the first semester of 2014, total provisions¹²⁶ expanded at an annual real rate of 9.3%. By type of credit, microcredit, commercial, mortgage and consumer provisions grew at a rate of 34.9%, 10.7%, 13.1% and 4.4% respectively. When comparing the provisions dynamics with that of total non-performing loan portfolio with leasing, it is found that during the last year, the average annual real growth of the latter (12.3%) was higher in relation to the provisions one (10.6%). When performing the same analysis by type of credit, it is found that the provisions average growth is higher than that for the non-performing loan portfolio with leasing in the case of consumer and mortgage loans¹²⁷, lower for commercial loans, and similar for microcredits (Graph 62).

Consistent with the behavior recorded by the non-performing loan portfolio and provisions, the hedging indicator, defined as the ratio between provisions and the total non-performing loan portfolio, was at 129.7% as of June 2014, a figure lower by 6 percentage points to the one presented a year earlier. This drop is mainly explained by the commercial loan portfolio indicator behavior,

123 If considering the financial leasing, it is noticed that, as of June 2014, a 2.3% default indicator for commercial loans, one of 4.9% for consumer loans, and 7.3% for microcredit. The commercial loan portfolio indicator includes non-performing residential leasing because the set of accounts of the financial statements (Plan Único de Cuentas, PUC in Spanish) put together the non-performing commercial and residential leasing. For the same reason, the default indicator for housing leasing is not presented.

124 In June 2014, including leasing, the total non-performing loan portfolio recorded a 14.4% growth, the consumer loan portfolio did it by 2.3%, microcredit by 32.8%, and 27.6% for commercial. As mentioned, the latter includes non-performing residential leasing, so the non-performing mortgage loan portfolio with leasing is not presented.

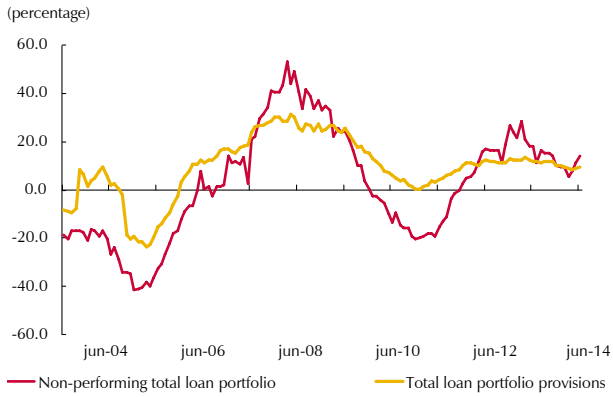
125 The high growth observed in June 2014 is explained because in the same month of 2013, the non-performing commercial loan portfolio had a considerable decrease.

126 Total provisions include those for loans and leasing, with their own countercyclical component and general provision.

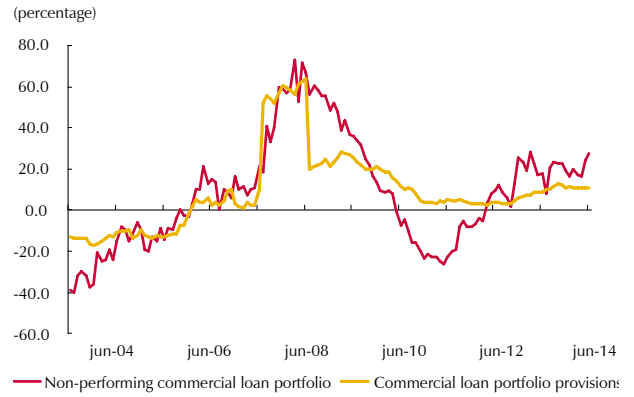
127 It should be noted that the comparison for the mortgage loan modality does not include leasing on its non-performing loan portfolio.

Graph 62
Non-performing loan portfolio with leasing growth and provisions growth by modality

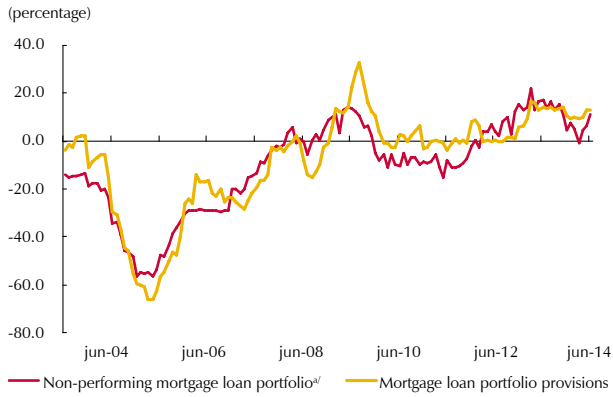
A. Total



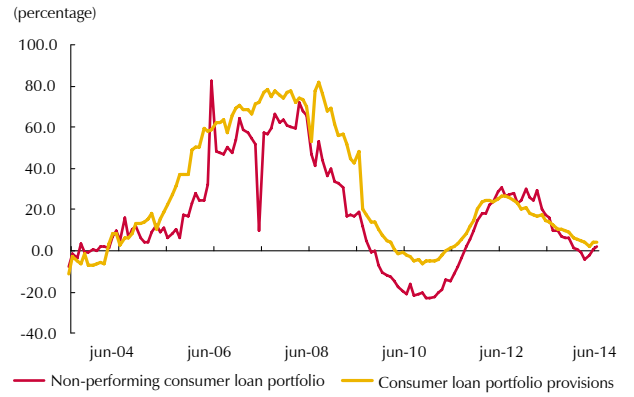
B. Commercial



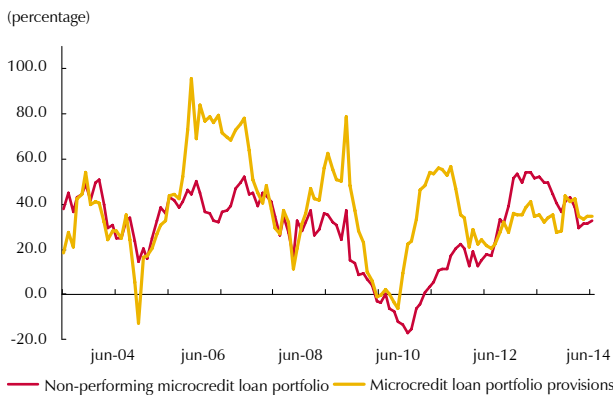
C. Mortgage loan



D. Consumer



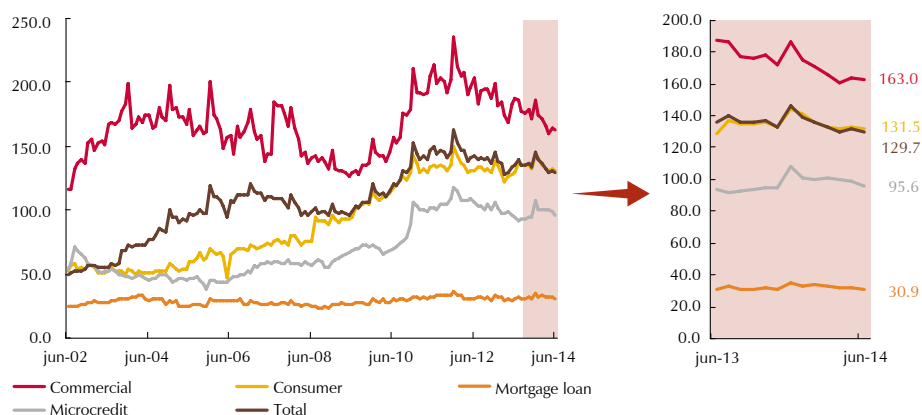
E. Microcredit



a/ It does not include residential leasing.
Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

which, during the same period, exhibited a decrease of 24.9 percentage points, reaching 163% in June 2014. Meanwhile, the other modalities showed slight increases on their hedging. Despite the decline of this indicator for the total and commercial loan portfolio, it is emphasized that, in both cases, it still remains at levels greater than 100%, while for the microcredit loan portfolio it was located at a lower level, but close to this value (Graph 63). In the case of the mortgage loan portfolio, the indicator is lower than 100% because there is a real estate guarantee which backups this type of loan.

Graph 63
Hedging indicator (provisions/non-performing loan portfolio) (percentage)



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

2. Transition matrices and static pool analysis

In this section, transition matrices and static pools are analyzed for each loan portfolio. A transition matrix represents the loans movements from one grade to another during a quarter. Letters in the rows correspond to the initial grading, and those in the columns belong to the final grade. Percentages below the diagonal represent improvements in ratings, while those above represent deteriorations. Meanwhile, a static pool represents the set of loans that are granted within a determined period; its analysis allows examining its evolution, as well as comparing its behavior between periods. In static pool graphs, the horizontal axis shows the creation quarter for each static pool, and the vertical axis shows the corresponding quality indicator in different horizons (from zero to three months, six months, one year and two years ahead).

a. Commercial loan portfolio

The probability of remaining¹²⁸ in the same grade for commercial loans (Table 18) in the first half of 2014, was at 89.7%, a slightly lower figure than six months ago (90.2%). When grade improving and worsening probabilities are calculated¹²⁹, it is observed that in June 2014, the first was at 3.3%, while

128 The conditional probability of remaining is calculated as:

$$P(A_i | A_{i-1})P(A_{i-1}) + P(B_i | B_{i-1})P(B_{i-1}) + P(C_i | C_{i-1})P(C_{i-1}) + P(D_i | D_{i-1})P(D_{i-1}) + P(E_i | E_{i-1})P(E_{i-1})$$

129 The probability of improving is calculated as:

$$P(A_i | B_{i-1})P(B_{i-1}) + P(A_i | C_{i-1})P(C_{i-1}) + P(A_i | D_{i-1})P(D_{i-1}) + P(A_i | E_{i-1})P(E_{i-1}) + P(B_i | C_{i-1})P(C_{i-1}) + P(B_i | D_{i-1})P(D_{i-1}) + P(B_i | E_{i-1})P(E_{i-1}) + P(C_i | D_{i-1})P(D_{i-1}) + P(C_i | E_{i-1})P(E_{i-1}) + P(D_i | E_{i-1})P(E_{i-1})$$

For its part, worsening probability is calculated as:

$$P(B_i | A_{i-1})P(A_{i-1}) + P(C_i | A_{i-1})P(A_{i-1}) + P(D_i | A_{i-1})P(A_{i-1}) + P(E_i | A_{i-1})P(A_{i-1}) + P(C_i | B_{i-1})P(B_{i-1}) + P(D_i | B_{i-1})P(B_{i-1}) + P(E_i | B_{i-1})P(B_{i-1}) + P(D_i | C_{i-1})P(C_{i-1}) + P(E_i | C_{i-1})P(C_{i-1}) + P(E_i | D_{i-1})P(D_{i-1})$$

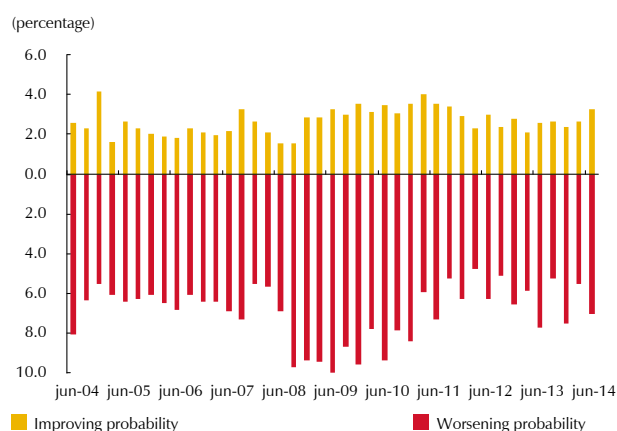
Table 18
Commercial loan portfolio transition matrix (percentage)
June 2014

t-1 grade \ t grade	A	B	C	D	E
A	95.2	4.0	0.7	0.1	0.0
B	34.1	45.1	14.6	6.1	0.1
C	3.8	11.1	47.7	35.8	1.6
D	1.5	1.1	3.8	85.4	8.3
E	0.5	0.2	2.0	0.5	96.9

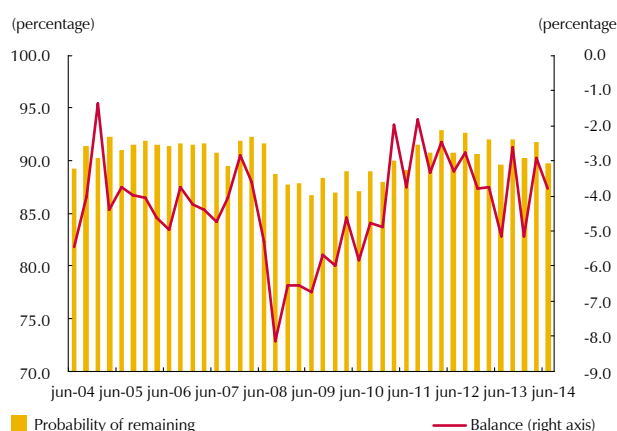
Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Graph 64

A. Improving and worsening historical probabilities



B. Historical Probability of Remaining and its balance



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

the second was at 7.0%. These results, at the end of the second half of 2013, were 2.3% and 7.5% respectively, suggesting an improvement in risk perception by institutions with respect to loans which remained outstanding during the analyzed period.

In Graph 64, panel A, worsening and improving probabilities for the commercial loan portfolio over the past decade can be seen. It is highlighted that the first has shown a volatile behavior, reaching historical peaks between June 2008 and September 2011, a lapse during which high values for both the quality and default indicator of the total balance were observed, this being a reflection of a greater credit risk perception and materialization by institutions. For its part, the second has shown a more stable behavior in time.

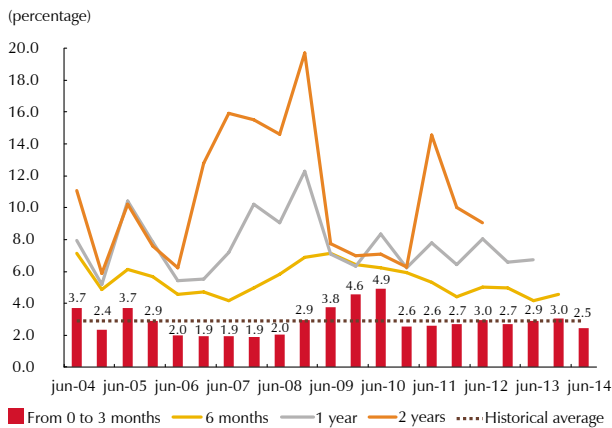
On the other hand, Graph 64, panel B, shows the probability of remaining and the balance. For a certain period, the balance is defined as the difference between the improving probability and the worsening probability. It is important to remark that the latter is always greater than the improving one because a high percentage of loans are rated as “A”, and therefore they do not have the possibility to migrate to a better grade. In terms of financial stability, it is relevant to identify those periods on which the balance deteriorates, and the probability

of remaining in the same grade decreases, this being evident between the fourth quarter of 2007 and the third quarter of 2008. In contrast, the rising trend observed in the balance after this decline was due to both decreases in the worsening probability and increases in the improving one. Finally, since

December 2013, the balance has been volatile, where it is noteworthy that during the first half of this year, the improving probability has shown increases.

It is important to highlight that between June 2004 and the same month of 2014, the probability of remaining fluctuated between 86.7% and 92.9%, with low dispersion: it has been located in 90.3% on average.

Graph 65
Static pools' quality indicators at the moment they are generated, six months, one year and two years later



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

The quality indicator of loans generated during the second quarter of 2014 reversed the indicator's stable trend for static pools that were originated between the fourth quarter of 2010 and the same period of 2013, reaching 2.5%. In fact, this figure is below last decade's average (2.9%), and is the lowest recorded since the second quarter of 2008 (Graph 65)¹³⁰. When the credit risk of these static pools is analyzed over time, i.e., the quality indicator they showed in six months, one year and two years after the quarter in which they were originated, it is observed that generally those that are generated with a good grade (this is, low quality indicators), tend to show significant deterioration after a year and, especially, after two years. This is evident in static pools generated between the fourth quarter of

2006 and the same period in 2008 and, recently, in the one generated in the second quarter of 2011, periods when the commercial loan portfolio showed significant expansions.

Nonetheless, during one static pool's life, its outstanding is significantly reduced, so that its share in the commercial loan portfolio's total balance also decreases. For example, for pools generated between the second quarter of 2004 and the same period of 2012, when assessing this representativity two years after they were originated, an average share of 3.4% is found. This shows that, even though in this loan portfolio static pools tend to show significant deterioration over time, the exposed outstanding does not turn to be significant within the commercial loan portfolio's credits.

b. Consumer loan portfolio

The consumer loans grade transition analysis is performed on those loans with a score for both March and June 2014 (Table 19). Complementary to this analysis, Graph 66, panel A, presents the improving and worsening probabilities evolution. As may be seen, the worsening probability increased

¹³⁰ The graph should be read as follows: the bars represent the static pool's quality indicator in the quarter of generation. For each period, in turn, the indicator's value during the pools life is presented, particularly for six months, one year and two years later.

Table 19
Transition matrix for the consumer loan portfolio total (percentage)
June 2014

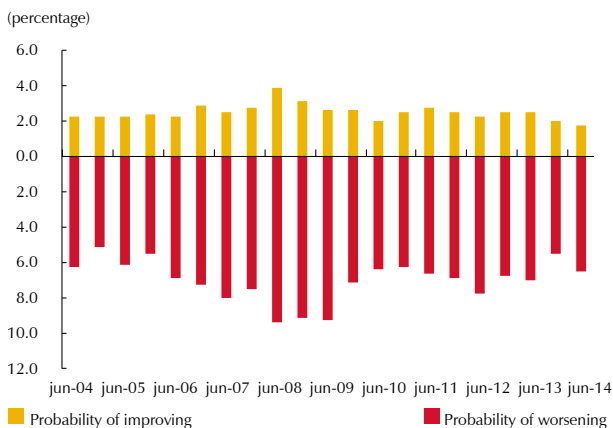
t-1 grade \ t grade	A	B	C	D	E
A	95.70	2.20	1.20	0.90	0.00
B	31.30	34.30	11.20	22.90	0.40
C	11.80	13.60	27.60	45.00	2.00
D	2.90	3.70	10.80	44.60	38.00
E	4.00	1.00	3.20	10.40	81.30

Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

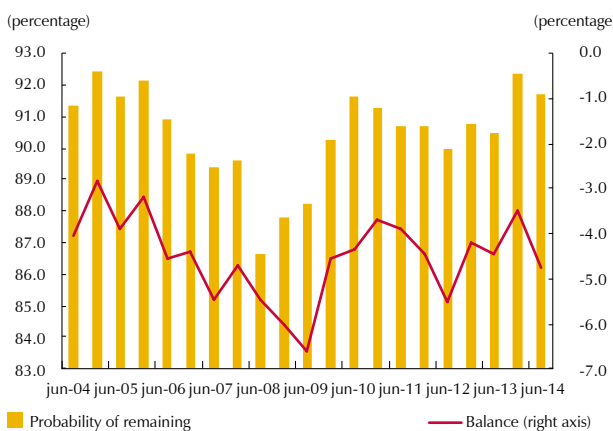
in the last semester, passing from 5.6% to 6.5%, and the improving one decreased, passing from 2.1% to 1.8%.

Graph 66

A. Consumer loan portfolio's improving and worsening historical probabilities



B. Historical probability of remaining and its balance

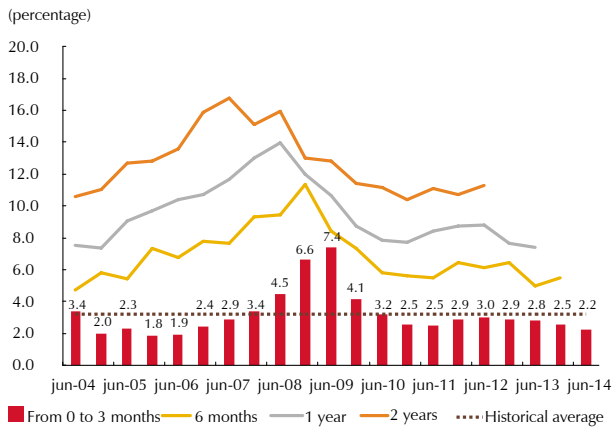


Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Moreover, in Figure 66, panel B, the mentioned probabilities balance is exposed, along with the evolution of the probability of remaining in the same grade. The results show that the latter decreased, moving from 92.4% to 91.7% in the last semester, and that the balance was lower than the last semester's one, which generated a less favorable situation for the analyzed loans. It is worth mentioning that, despite the deterioration observed, the balance of probabilities is above that noticed between 2008 and 2009, and that the probability of remaining is also at historically high levels.

Meanwhile, for analyzing the quality indicator's evolution for static pools of this loan portfolio, Figure 67 is presented, where the static pool's generation quarter appears on the horizontal axis, and the quality indicator, evaluated for different horizons, does in the vertical axis (zero to three months, six months, one year and two years later). It is observed that the quality indicator for static pools generated during the second quarter of 2014, was at 2.2% during its first monitoring period, continuing with the same downward trend observed for static pools since June 2012. It is emphasized that this value is below the historical average of 3.2%, and the levels seen in mid 2009. In addition, the loan portfolios deterioration that is observed using the gap between the contemporary quality indicator and the other series has remained stable for each one of the analyzed horizons.

Graph 67
Static pools' quality indicators at the moment they are generated, six months, one year and two years later



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

c. Mortgage loan portfolio

When calculating the transition matrix for those outstanding loans between March and June 2014 (Table 20), it is found that the conditional probability of migrating to a better grade decreased, passing from 2% to 1.4%, while the worsening one increased, from 2.9% to 3.1%. On the other hand, the probability of remaining in the same rating increased by 30 basis points, reaching a 95.3% level. It is important to remark that the probability of remaining in grades “A” and “E”, are the highest (97.6% and 87.7% respectively).

In Figure 68 (panels A and B), improving and worsening probabilities and their balance¹³¹ are featured, as well as the probability of remaining in the same grade one. As it can be seen, historically, the latter is above 85%, while the worsening and improving ones reach, on average, values of 5.1% and 2.9% respectively.

Table 20
Transition matrix for the mortgage loan portfolio total
June 2014

t grade \ t-1 grade	A	B	C	D	E
A	97.6	2.3	0.0	0.0	0.0
B	28.5	54.4	16.8	0.1	0.1
C	13.5	9.0	60.6	16.7	0.3
D	5.9	2.3	6.1	63.8	21.8
E	4.7	0.8	2.7	4.2	87.7

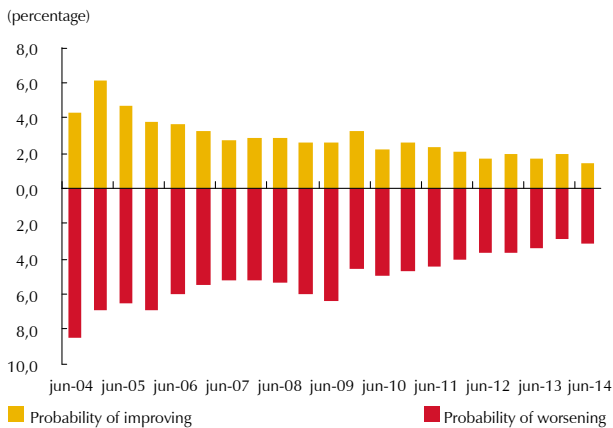
Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

As of June 2014, the worsening probability increased, while the improving one decreased at the same time, showing a less favorable balance to this type of loans. However, this result reflects a better financial situation in comparison with the recorded throughout the analyzed period, except for December 2004 and December 2009 and 2013. In addition, although a deterioration took place, the probability of remaining in the current grade is close to 95.3%, which, together with the fact that most of the loan portfolio is rated as “A”, suggests a low risk exposure.

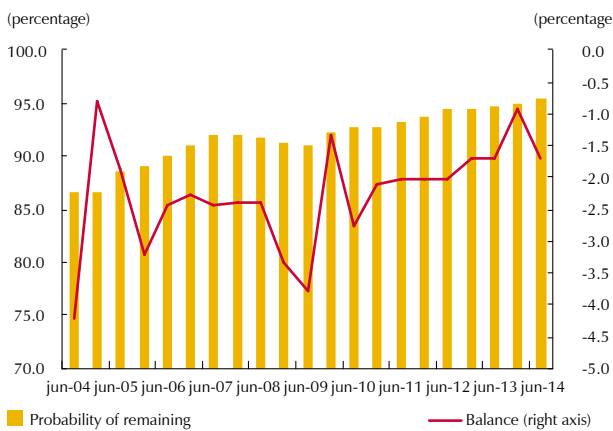
131 For certain period, the balance is defined as the difference between the improving probability and the worsening one.

Graph 68

A. Mortgage loan portfolio's improving and worsening historical probabilities



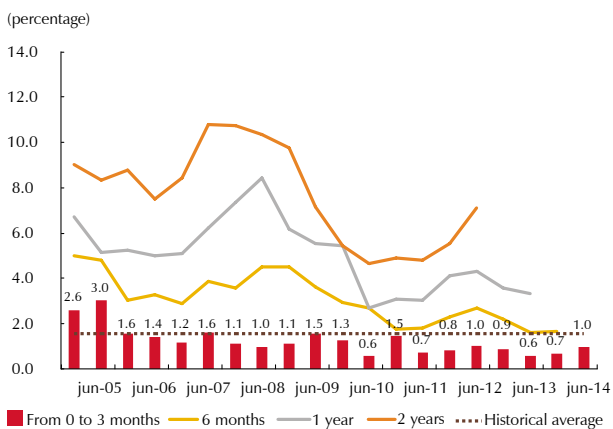
B. Historical probability of remaining and its balance



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Graph 69

Mortgage loan static pools' quality indicators at the moment they are generated, six months, one year and two years later



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Figure 68, panel B, shows that in the loan mortgage portfolio there have not been episodes where the probability of remaining decreases and the balance deteriorates, since a clear upward trend in the probability of remaining during the analysis period is noticed.

When studying the quality indicator's evolution for the static pools in the mortgage loan modality, it is observed that this showed a level of 1% for loans generated during the first half of 2014, being above the indicator for the static pool for the second half of 2013 (0.7%), although below the historical average (1.5%) (Graph 69).

Regarding the static pools deterioration in time, it is noted that the higher the evaluation horizon, the higher the static pool deterioration is with respect to its contemporary level. In particular, static pools which have the biggest deterioration one year and two years after the quarter in which they were originated, are those created between December 2006 and 2008.

d. Microcredit loan portfolio¹³²

To analyze the behavior of the microcredit loan portfolio, transition matrices of outstanding loans between March and June 2014 were calculated (Table 21). In particular, the probability of remaining in the same grade is 89.5%, while the probabilities of improving and worsening are 0.9% and 9.7% respectively, when six months earlier they were at 88.6%, 1.3% and 10.0% in that order (Graphic 70, panel A).

When comparing the probabilities of the second quarter of 2014 with those of the last decade, it is observed that for the financial system¹³³,

132 The analysis of the microcredit loan portfolio, is performed excluding Banco Agrario from the financial system's total, taking into account the size of the share of this entity in the total loan portfolio for this modality (over 50%). It is not contemplated because the allocation of its microcredit does not necessarily respond to market conditions.

133 From now on, the whole of the financial entities with be known as the financial system, without including Banco Agrario.

Table 21
Transition matrix for the microcredit loan portfolio total
June 2014

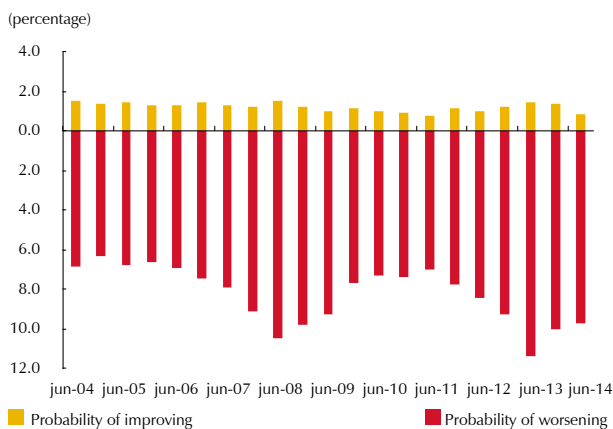
t-1 grade \ t grade	A	B	C	D	E
A	93.9	3.4	1.6	0.9	0.1
B	14.3	30.6	13.3	13.0	28.8
C	6.2	5.1	20.1	9.0	59.5
D	2.4	1.4	3.6	8.7	83.8
E	0.7	0.4	0.5	0.9	97.5

Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

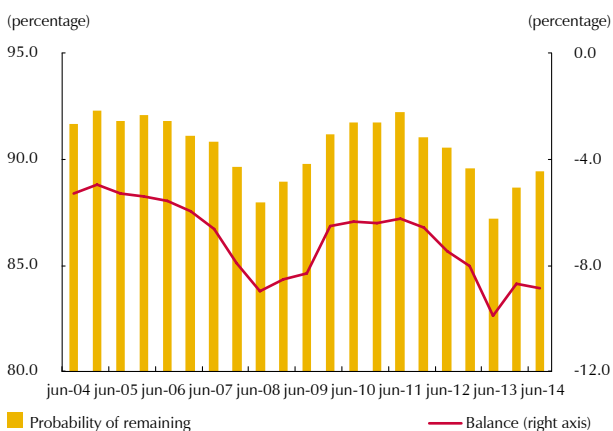
improving and worsening probabilities in this loan portfolio decreased compared to a year ago; yet, the worsening probability is on a level higher than the historical one, and the improving one is at a lower level. As it can be seen in Graph 70, panel B, the fall of the balance presented between December 2010 until June 2013, indicates a more than proportional growth of the worsening probability with respect to the improving one; this behavior was accompanied by a decrease in the probability of remaining.

Graph 70

A. Microcredit loan portfolio's improving and worsening historical probabilities



B. Historical probability of remaining and its balance

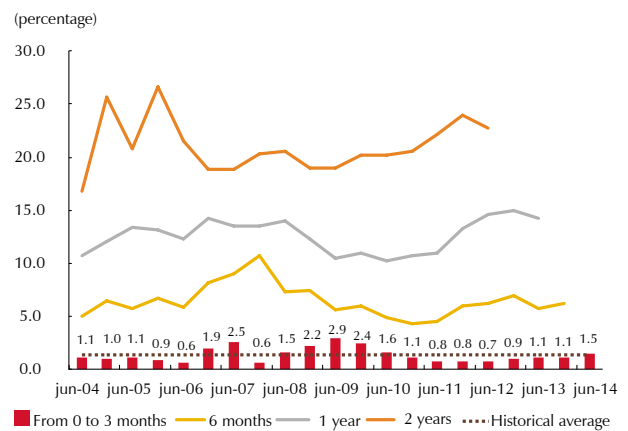


Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

For its part, the loans static pool analysis shows that the quality indicator for new microcredits of the second quarter of 2014, is higher than that recorded for loans generated in the fourth quarter of 2013 (1.1%), reaching 1.5 %, a figure higher than the historical average (1.3%). On the other hand, if the pools deterioration over time is analyzed, it is

Graph 71

Static pools' quality indicators at the moment they are generated, six months, one year and two years later



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

observed that it has continued to accelerate, especially for loans generated between the second quarter of 2011 and 2012 for the entire financial system (Graph 71).

In summary, it is noticed that between December 2013 and June 2014, all modalities showed a decrease in the balance between the improving and worsening probability; however, the probability of remaining has kept at levels equal and above 90%, which is not a worrying situation in terms of financial stability. As for the credit quality of loans generated during the year's second quarter, a heterogeneous behavior was observed: while static pools for the commercial and consumer loan portfolios had a lower quality indicator during the creation quarter compared to those generated six months earlier, mortgage loan and microcredit exhibited higher levels of the indicator. Therefore, although the quality indicator of the different modalities still registers low and stable values, it is necessary to continue with the constant monitoring of these indicators.

3. Sensitivity test

In this section, a sensitivity test is performed in order to assess the soundness of the banking institutions against adverse scenarios that affect the loan portfolio dynamics and delinquency rates¹³⁴; therefore, the effects of shocks in some macroeconomic variables on some of the entities' various financial indicators are estimated.

Sensitivity analysis using macroeconomic shocks

Given that as of June 2014 the loan portfolio represented 69.4% of the banks assets, and that during the 1999 crisis the materialization of credit risk resulted in high losses, it is of great importance to assess the ability entities have to absorb losses associated with an increase in the credit risk level to which they are exposed to as a consequence of a possible macroeconomic shock.

This section provides a sensitivity test that aims to assess the soundness of some financial indicators of commercial banks, if facing an adverse scenario in real GDP growth, the real interest rate (DTF in Spanish), the new housing real price index, and the unemployment rate over a two-year horizon. The proposed scenario was built based on the worst trends observed for each of the series between June 1991 and June 2014. It is important to highlight that the test corresponds to a hypothetical case, whose probability of occurrence is

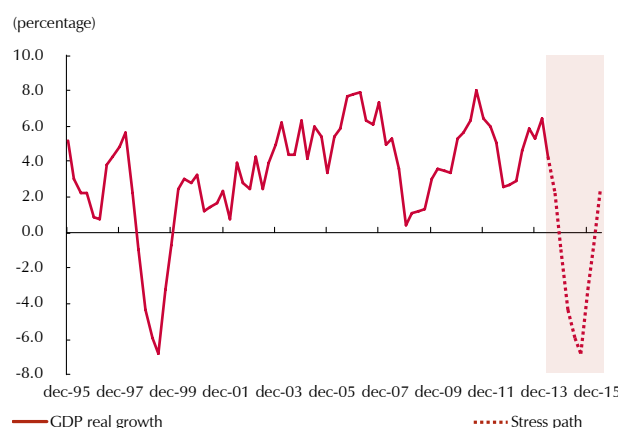
134 This test does not take into account the microcredit loan portfolio, since the information to make estimates and projections is only available from 2002. Nonetheless, the sum of the analyzed loan portfolios, represents 91.4% of the total loan portfolio with leasing as of June 2014.

low, since these trends have never materialized simultaneously. In Graph 72, paths for each of the variables in the considered stress scenario are featured¹³⁵.

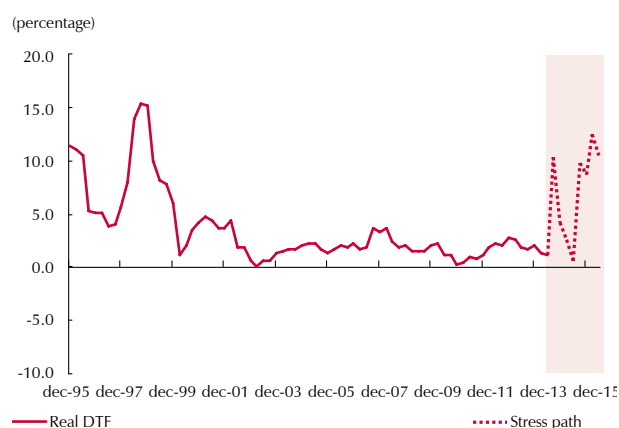
The results featured in this document show the effect the adverse scenario has on loan portfolio delinquency rates, profitability and commercial banks capital adequacy ratio¹³⁶. Shocks on macroeconomic variables increase the non-performing loan portfolio of the different types of credit, and deteriorate the banking institutions gross loan portfolio dynamics, resulting in a decline in

Graph 72
Macroeconomic variables' path

A. GDP real growth



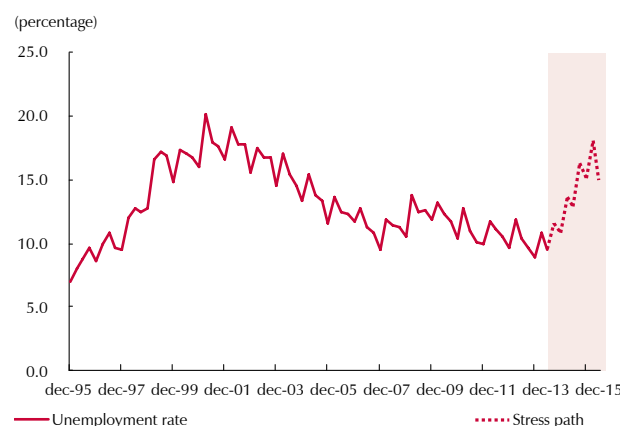
B. Real DTF



C. Real new housing price index



D. Unemployment rate

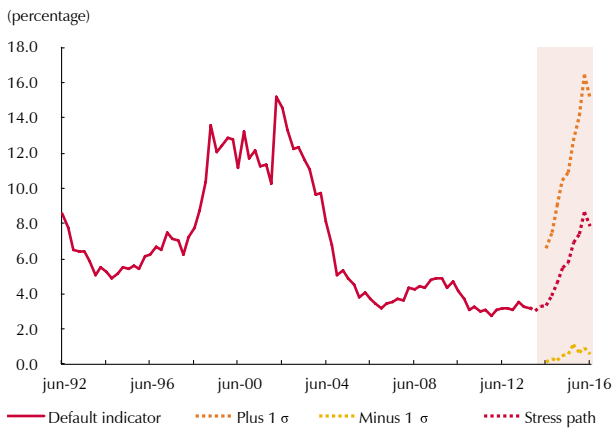


Sources: DANE, National Planning Department (Departamento Nacional de Planeación – DNP) and Banco de la República.

135 For more information on the methodology used in this section, see Credit Risk Stress Testing: An exercise for Colombian banks, Banco de la República's Financial Stability Issues, Financial Stability Report, September 2012.

136 In this exercise, some procedures were modified in order to improve the estimates made, so the results presented here are not comparable with those from the March 2014 Financial Stability Report.

Graph 73
Default indicator's evolution during the stress scenario



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

profits as consequence of an increase in provisions spending and a reduction in interest income. It is worth noting that the expense on provisions is softened by the use of countercyclical provisions¹³⁷. Also, it is assumed that when an intermediary has a negative return, it must cover losses with capital, so its solvency ratio is reduced.

If a scenario as the described occurs, the Banks default indicator would increase from 3.3% in June 2014, to a maximum of 8.7% in March 2016 (Graph 73). Subsequently, the indicator would decrease to 7.8% by the test's end.

The increase in the delinquency rate would cause a decrease in the annualized income of \$12.9 trillion during the two years of the shock, i.e., earnings before taxes would decrease from \$9.3 trillion in June 2014, to -\$3.6 trillion by the test's end (Table 22). The minimum value would be reached in the seventh quarter, when profits would amount to -\$5.7 trillion. It is emphasized that losses generated at that time would represent 10.1% of the aggregate equity as of June 2014. This ratio presents a high dispersion within the set of entities, reaching a maximum of 47.8%, and a minimum of 0.27%.

Table 22
Earnings evolution in each period due to the external shock

	Commercial ^{a/}	Consumer ^{a/}	Mortgage loan ^{a/}	Total annualized earnings ^{a/}	Total accumulated variation (percentage)	Banks with negative earnings ^{b/}
Earnings as of June 2014				9.3		0.0
t + 1	(0.2)	(0.1)	(0.5)	6.4	(31.7)	0.0
t + 2	(0.3)	(0.2)	(0.0)	3.8	(59.2)	0.0
t + 3	(0.2)	(0.0)	(0.9)	(0.2)	(102.2)	10.0
t + 4	(0.0)	0.2	(0.4)	(2.8)	(129.6)	16.0
t + 5	(0.3)	(0.5)	(1.3)	(4.1)	(143.8)	17.0
t + 6	(0.7)	(0.2)	0.5	(4.0)	(143.1)	17.0
t + 7	(0.8)	(0.7)	(1.4)	(5.7)	(161.1)	18.0
t + 8	0.5	0.9	0.6	(3.6)	(138.1)	17.0

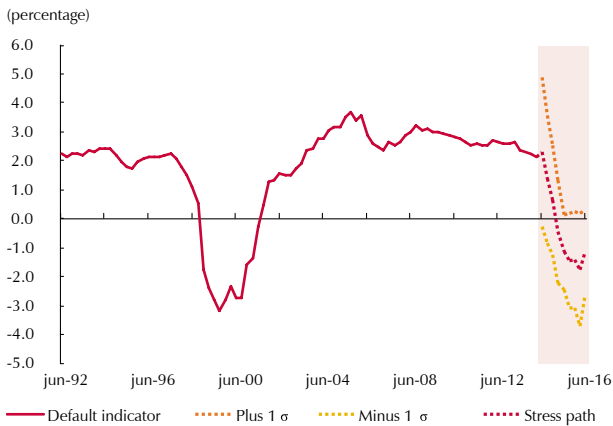
a/ Data in trillion Colombian pesos. For the commercial, consumer and mortgage loans, quarterly earnings generated by each loan portfolio are presented.

b/ Represents the number of banks, of the 22 analyzed, which would pass from having positive earnings, to negative as a shock's result.

Source: Superintendencia Financiera de Colombia. Banco de la República calculations.

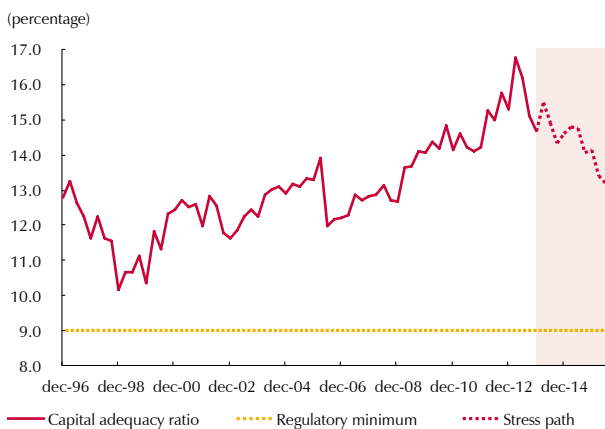
137 Countercyclical provisions contribute with up to 40% of the provisions expense in each period. The model assumes that the indicators that allow the use of these provisions are activated in the stressed scenario. It is found that, for both the commercial and the consumer loan portfolio, countercyclical provisions last one year.

Graph 74
Return on assets evolution during the stress scenario



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Graph 75
Banks' capital adequacy ratio evolution during the stress scenario



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

In the case of the return on assets (ROA), a 3.2 percentage points reduction in the ROA would be observed, moving from 2.3% in June 2014, to -0.9% two years later. It is worth noting that the ROA would reach its minimum value seven quarters after the shock, period during which it would be at -1.4% (Graph 74). The behavior of this indicator is mainly explained by the sharp fall in earnings (-138.1%).

On the other hand, the banks' capital adequacy ratio would show a decline, moving from 14.9% in June 2014, to 13.2% two years later, a figure that is above the regulatory minimum set by Superintendencia Financiera de Colombia (9%) (Graph 75). Additionally, when considering the Tier-1 capital ratio, it is found that this would pass from 10.1% to 8.3%¹³⁸ during the same period, a value higher than the 4.5% regulatory one. The dynamics of both indicators is explained to a greater extent by the reduction in earnings, which decreases both the technical equity and the equity Tier 1.

When analyzing these indicators individually, four entities would register a capital adequacy ratio lower than the regulatory minimum (9%), while three would have basic Tier 1 capital ratio below the legal limit (4.5%) at the test's end. It is remarked that two of the entities would show at the same time a capital adequacy ratio and Tier 1 capital ratios below the required by law.

In conclusion, the sensitivity test shows that the macroeconomic shocks considered as of June 2014, would increase commercial banks' loan portfolios delinquency rates, which would result in an unfavorable performance on their profitability and capital adequacy levels. The ROA would be at negative levels because of low earnings, although higher than those those recorded in the 1999 crisis. As for the banking system's capital adequacy ratio, it is emphasized that, despite the projected contraction, it would be at levels higher than those required by regulation. When disaggregating the analysis, it is found that four of the considered entities would not comply with this limit, although it is worth mentioning that the level of additional capital required to reach the regulatory limit, would be equivalent to 0.3% of the banking system's assets, and 1.3% of the involved entities assets.

138 If banks did not use countercyclical provisions to soften provisions expenses, the solvency ratio and the Tier 1 solvency ratio, would reach 12.4% and 7.6% respectively by the test's end.

4. Credit booms indicator

A credit boom is generally defined as an excess of credit above its long-term trend (González et al., 2012). The occurrence of a period like these could be associated with the placement of loans to riskier agents, increasing defaults and causing losses in the credit institutions main asset. In fact, the literature on this phenomenon (Kaminsky and Reinhart, 2000; Gourinchas et al., 2001; Barajas et al., 2007; Dell’Ariccia et al, 2012; Williams, 2012), states that credit booms are often associated with increases in the inflation rate, instability in the banking sector, and increases in the probability of a financial crisis, and tend to increase volatility in the economy, as well as making it more vulnerable to adverse shocks. For these reasons, the identification of credit boom periods turns out to be relevant for maintaining financial stability.

In this section, the prediction of a credit boom occurrence probability in the Colombian economy is presented¹³⁹. Particularly, considering the data set up to March 2014, the probability for the second and third quarters of that year is estimated.

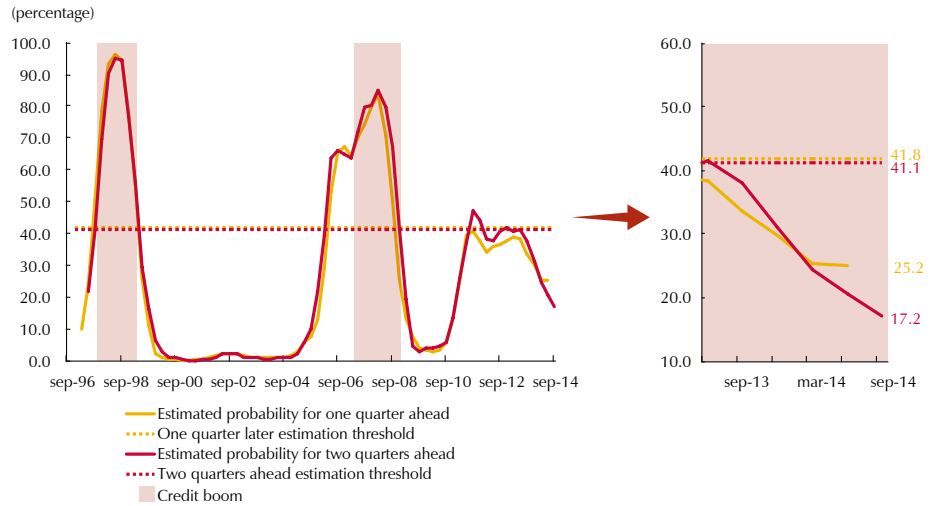
Graph 76 shows the estimated probabilities of credit boom for one and two quarters ahead. As it can be seen, the model manages to identify the two credit boom periods presumed to have occurred in the Colombian economy: the first, between the fourth quarter of 1997 and the first quarter of 1999; and the second, between the second quarter of 2007 and the fourth quarter of 2008. Also, its importance is evident as an early warning indicator, since in June 2011, the occurrence of a credit boom in the next two quarters was predicted; however, due to possibly the measures taken by the authorities¹⁴⁰, in September 2011 the indicator for a quarter ahead showed that in December of the same year this probability was already below the threshold.

When analyzing the situation for the second half of 2014, the occurrence probabilities of a credit boom one and two semesters ahead forecast, shows that this is at 25.2% for the second quarter of 2014, and 17.2 % for the third one of the same year. It is important to note that for both periods, the predicted levels are below the thresholds that determine the presence of a boom, which

139 For more information on the estimation methodology, see A. González, A. Guarín and D. Skandali (2012), An Early Warning Model for Predicting Credit Booms Using Macroeconomic Aggregates, Borrador de Economía, Issue 723, *Banco de la República* de Colombia.

140 In October 2011, by means of External Communication 043, and in June 2012, via External Communication 026, Superintendencia Financiera de Colombia implemented two regulatory changes. The first was to increase the loss given default for consumer loan debtors who had no guarantees, which led to an increase in provisions, which should be reflected in the financial statements at 31 December 2011; the second, ordered the establishment of a temporary provision for those entities that had positive changes in the non-performing consumer loan portfolio rate, which would have been to be reflected in the 31 December 2012 financial statements. Also, starting from February of the same year, *Banco de la República* began with a period of increases in the intervention rate.

Graph 76
Probability of a credit boom for one and two semesters ahead, with data up to 2014's first quarter



Source: Superintendencia Financiera de Colombia, Datastream and Banco de la República; Banco de la República calculations.

are at 41.8% for the one-quarter-ahead prediction, and 41.1% for two quarters ahead (Graph 76).

The results indicate that, by following this methodology, the dynamics of the credit institutions' main asset shows no evidence of the existence of a credit boom event. Additionally, it is emphasized that the probability of occurrence measure of this event, is presenting a downward trend in the most recent period.

C. LIQUIDITY RISK¹⁴¹

The funding liquidity risk refers to the difficulty financial institutions may face when servicing their financial obligations in different time horizons. Analyzing this risk is important, since its materialization represents high costs for institutions as well as the loss of confidence from the public and its counterparts. In addition, the liquidity problems of an entity may threaten the stability of the financial system if a significant proportion of the transactions depend on the timely payment of its obligations.

This section analyzes this risk with the liquidity risk indicator (LRI)¹⁴², as well as its components evolution. On the other hand, a test to assess the concentration of non-contractual deposits by sector and deposits on the major

141 To deepen on the analysis and results presented in this section, it is suggested to consult the corresponding special report, published on Banco de la República's website.

142 The details of the liquidity risk management model can be found in Superintendencia Financiera de Colombia's Chapter VI of the Accounting and Financial Basic Circular and its annexes.

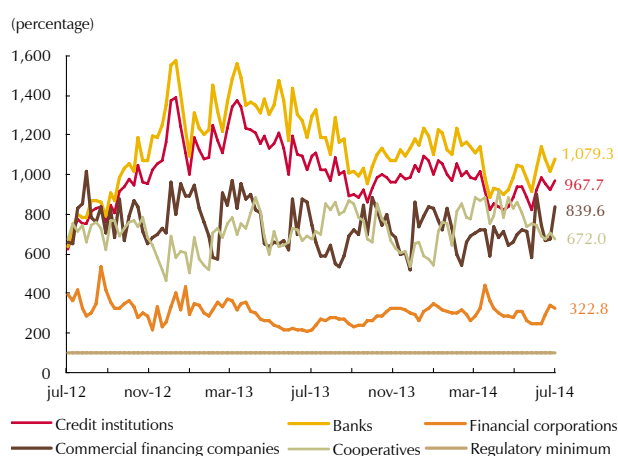
customers is included. In addition, a test which measures the sensitivity of credit institutions to extreme, but very unlikely, low liquidity scenarios is presented.

Superintendencia Financiera de Colombia uses LRI_R indicator, which is constructed as follows:

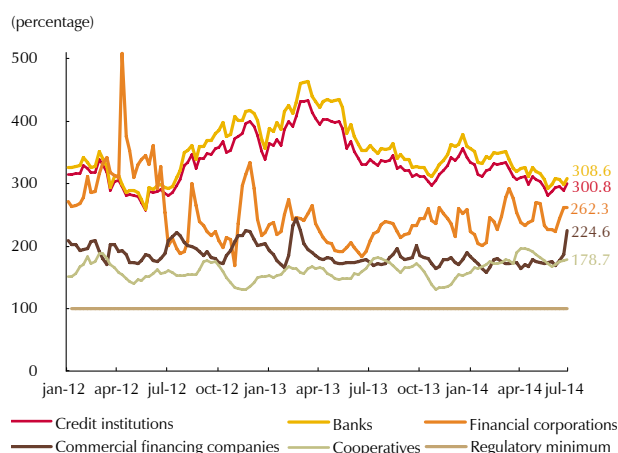
$$LRI_R = \frac{\text{liquid assets}}{\text{total net cash outflows}}$$

Graph 77

A. E7-day liquidity risk indicator (LRI_R) by groups of intermediaries (weighted moving average)



B. LRI_R calculated for a 30-day horizon by groups of intermediaries (weighted moving average)



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Entities must maintain an indicator level exceeding 100% in seven and thirty-day horizons indicator. The interpretation of the LRI_R is as follows: a value of less than 100% involves high risk, whereas higher LRI_R levels are associated with a better liquidity situation for the analyzed entity. In this section, the seven and thirty-day indicators recent behavior is observed, since there is a minimum threshold required by regulation for these horizons.

As shown in Graph 77 (panels A and B), in seven and thirty-day horizons, banks handle a higher level of liquid assets relative to their total net cash outflows in comparison with other financial intermediaries. When analyzing the seven-day liquidity levels, it is observed that during the first quarter of 2014 the banks and commercial financing companies indicators exhibited a downward trend, but strating from March of that year, they has a recovery, reaching 1079.3% and 839.6% respectively by July 25. Meanwhile, the cooperatives indicator shows a greater dynamic in the first three months of the year, followed by a decrease until the last week of July, reaching a level of 672.0%. Finally, financial corporations exhibit a relatively stable behavior, registering a 322.8% indicator.

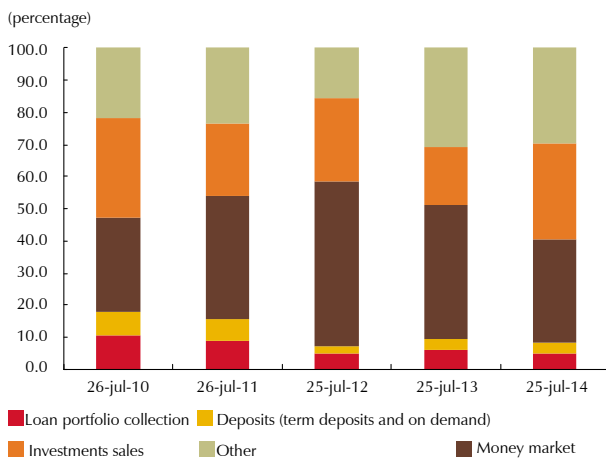
When the LRI_R for a thirty-day horizon is analyzed, it is found that, as well as in the seven-day one, the Banks indicator is the highest among all intermediaries, reaching a level of 308.6% in July 2014, a figure lower than that observed in January of the same year (355.7%). In the second place, financial companies are located with a 262.3% indicator, followed by commercial financing companies (224.6%) and cooperatives (178.7%). In this horizon, a decreasing trend for banks is noticed, while

financial corporations and commercial financing companies exhibit a slight increase.

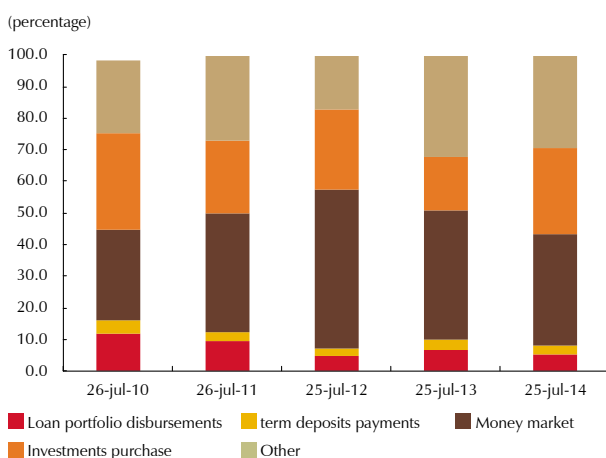
On the other hand, the main components of total net cash outflows are analyzed. It is observed that, within the credit institutions' aggregate cash flow¹⁴³, inflows derived from the sale of investments increased their share between July 2013 and July 2014, from 17.7% to 29.9%. This behavior happens because this item went from average weekly flows of \$17.1 trillion, to \$34.7 trillion in the period mentioned. In turn, inflows from the money market reduced their share in the last year, moving from 42.1% to 32.3%. Also, inflows from loan portfolio collection and those classified as other (inflows from derivatives, bank loans and other inflows) show a slight decrease over the same period (Graph 78).

Graph 78
Weekly cash flow components

A. Inflows



B. Outflows



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

As for the outflows composition, it is observed that the related to the money market have lost share since July 2012, in contrast to what happened with items relating to investments purchases and other (outflows from derivatives, banks loans and other net outflows) that have gained representativity. Despite this, in July 2014 the component with the greater share in the outflows total is the money market (35.3%), followed by other (29.3%). It should be pointed out that, like in the investments sale item in the case of inflows during the last year, an increase in outflows for investments purchase was observed, moving from \$16.6 trillion to \$32.4 trillion.

It is important to consider the financial system's entities type of business within liquidity risk management. Those with a greater share of investments in the balance sheet, typically deal with a higher level of liquid assets, while inflows derived from operations in the money market and investments sale represent a higher proportion of the total. Such is the case of financial corporations, whose inflows from these operations correspond to 94% of the total. In contrast, cooperatives derive most of their inflows from deposits and loan portfolio payments (86.9%), while 81.3% of their outflows correspond to term deposits payments and disbursements, something related to the lower level and less volatile behavior of their IRL_R.

143 This information is contained in Superintendencia Financiera de Colombia's 458 format, and corresponds to the revenues and expenses recorded for the five business days prior to the liquidity risk indicator's report date.

Non-contractual deposits counterparts by sector

It is important to analyze the exposure the financial system has against those sectors or institutions that concentrate a significant proportion of deposits. This analysis takes into account only those who do not have a contractual maturity, since the objective is to identify those counterparts that have presented the largest withdrawals. Table 23 presents the deposits concentration level according to their major counterparts, as well as the maximum withdrawals and on average percentages for each one since 2004. As it can be seen, in June 2014 most of deposits corresponded to private sector companies (43.1%) and individuals (22.9%), while the public sector, pension and severance fund managers and trust companies concentrate a significant percentage of these resources (24.2 %).

When comparing the different sectors shares observed in June 2014 with the historical average and data from a year ago, it is noted that the share of deposits from private companies and pension and severance funds has increased, while exposure to trusts companies has decreased. As for the public sector's exposure, it is found that this increased compared to that presented a year earlier, but it records a lower than the historical average value.

Table 23
Deposits concentration by sector (financial system)
(percentages)

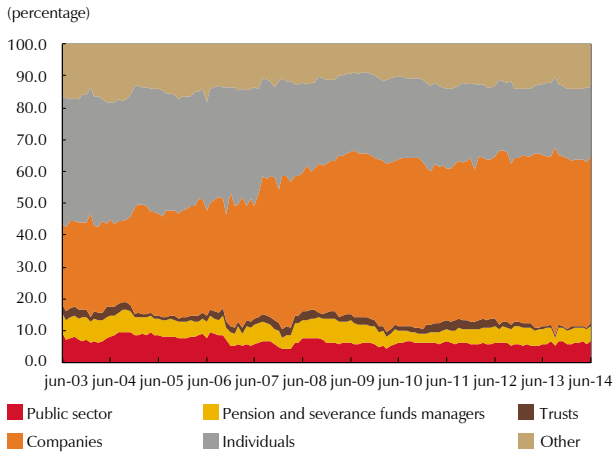
Sector	Share			Maximum withdrawals percentage	Monthly withdrawals percentage (average)
	Jun-13	Jun-14	Average since 2004		
Non-financial public companies	1.2	1.1	2.2	62.5	20.8
Social security public companies	0.2	0.6	0.9	66.6	12.8
Other from the public sector	13.0	13.2	13.7	10.3	2.8
Pension and severance fund managers	3.8	3.9	3.2	27.1	9.0
Trust companies	2.9	2.5	2.8	26.0	5.3
Special official institutions	2.3	2.9	1.6	19.9	5.8
Companies	44.5	43.1	39.8	5.9	2.0
Individuals	23.1	22.9	27.6	7.6	1.7
Other	9.0	9.8	8.2	19.1	4.4
Total	100.0	100.0	100.0	2.1	0.7

Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

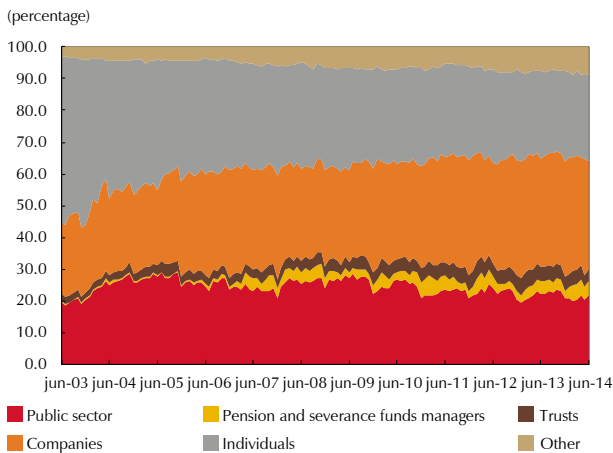
By type of deposit, it is found that term deposits holdings are primarily concentrated in companies and individuals, while a substitution in the shares of the latter to the former over the last ten years is observed (Graph 79, panel A). Also, in savings accounts, these two sectors are the ones with the most representative contributions, noticing at the same time a less pronounced substitution between the two than in the case of term deposits (Graph 79,

Graph 79
Credit institutions deposits share by sector

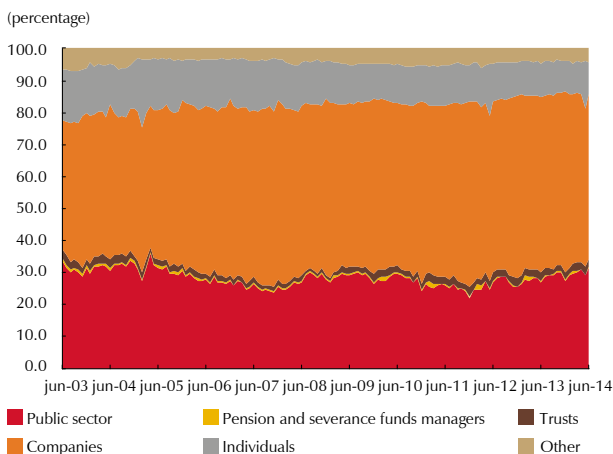
A. CDT



B. Deposits concentration by main clients and amount



C. Current accounts



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

panel B). Finally, in the case of current accounts, a preponderance by companies that has been maintained during the last decade is evidenced (Graph 79, panel C).

The historical performance of these deposits indicates that the ones which may have withdrawals of a greater magnitude are those from the public sector, particularly social security public companies, whose maximum withdrawals monthly percentage reaches 66.6% of their deposits, although credit institutions exposure to this sector is very low. Resources from trust companies and pension and severance funds managers also show a high volatility, while those from companies and individuals are more stable. This may be because in these sectors deposits concentration by agent is lower, so massive withdrawals scenarios are less likely to be found.

It should be highlighted that, although social security public companies are those with the highest withdrawals historic percentage, in June 2014 they recorded a 27% increase in deposits. For their part, non-financial public companies are those showing the maximum average monthly withdrawals percentage (20.8%), although as of June 2014 they exhibited a 20.5% increase in deposits.

Deposits concentration on the main customers

Complementary to the above analysis, it is important to analyze the main customers share in the total of deposits (current and savings accounts, and term deposits). Although the term deposits have a contractual maturity, their non-renewal by a main customer could have a significant effect on the entities liquidity. To perform this analysis, the information credit institutions report to Superintendencia Financiera de Colombia on customers who meet any of the following conditions is used: 1) is part of

the entity's fifty biggest customers, 2) its a mutual fund or 3) is supervised by Superintendencia Financiera de Colombia¹⁴⁴.

Table 24 presents the main clients average number for each of the financial intermediaries groups and their deposits share in the total. Also, it shows the entities with the highest and lowest concentration by number of clients, and by the main clients share in the total of deposits. In June 2014, banks exhibit a high concentration of deposits in a reduced number of entities: on average, a bank has 163 main clients whose deposits correspond to 54.3% of the total. Compared with the observed in June 2013, a lower main clients average number is registered, with a higher average share in the deposits amount. Financial corporations, meanwhile, recorded an average number of clients, similar to a year ago, but with a higher average concentration. Finally, commercial financing companies and cooperatives showed no significant changes in the number of main clients or in their deposits average share. In short, while banks and financial corporations showed increases in their deposits concentration in the main clients in the past year, commercial financing companies and cooperatives did not have significant variations.

Sensitivity test

This section develops a sensitivity test on the LRIR liquidity indicator, where several elements, typical of a low liquidity situation in the market are incorporated. The scenario assumed in this section is unlikely; however, in crisis scenarios it is possible that sources of funding reduce their availability, and that credit institutions' assets liquidation to become more adverse.

The Basel Committee proposes some elements that should be considered in a stress scenario to assess the funding liquidity risk, which are presented in Table 25.

Some of these items are included within the indicator's calculation, as different deductions are applied to the variables that compose it¹⁴⁵, which seek to simulate a stressed scenario. Nonetheless, some of these discounts do not correspond to a record high, but are calculated based on information reported by the institution each week. Therefore, it is relevant to build an additional sensitivity scenario which allows determining whether credit institutions can withstand a greater stress situation in terms of liquidity risk, and still have the levels required by regulation.

144 This data corresponds to the one reported in Superintendencia Financiera de Colombia's format 474 ("Deposits' main clients list").

145 Among the deductions included in the calculation of the LRIR are: a deposits run-off rate, a term deposits renewal percentage, a liquid assets haircut, among others.

Table 24
Deposits concentration by main clients and amount

Entity	Jun-13		Jun-14		
	Share amount	Number of main clients	Share amount	Number of main clients	
Banks	Entity with lower concentration by amount share	21.9	140	19.2	140
	Entity with higher concentration by amount share	88.3	100	100	46
	Entity with lower concentration by number of clients	382	43.2	39.9	376
	Entity with higher concentration by number of clients	100	88.3	100	46
	Average	52.8	173	54.3	163
Financial corporations	Entity with lower concentration by amount share	96.3	171	97.3	165
	Entity with higher concentration by amount share	100	1	100	1
	Entity with lower concentration by number of clients	96.3	171	97.3	165
	Entity with higher concentration by number of clients	100	1	100	1
	Average	59.0	35	79.5	38
Commercial financing companies	Entity with lower concentration by amount share	26.0	50	17.5	97
	Entity with higher concentration by amount share	99.8	50	100	49
	Entity with lower concentration by number of clients	32.8	132	38.2	132
	Entity with higher concentration by number of clients	26.0	50	100	49
	Average	47.2	68	44.1	68
Cooperatives	Entity with lower concentration by amount share	12.0	98	10.7	97
	Entity with higher concentration by amount share	38.5	97	30.7	101
	Entity with lower concentration by number of clients	28.4	104	30.7	101
	Entity with higher concentration by number of clients	16.1	96	12.5	94
	Average	24.1	99	21.0	98

Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

In this test, the LRIR liquidity indicator, calculated for the banks, commercial financing companies, financial cooperatives and financial corporation's thirty-day horizon is used. The stressed liquidity indicator for these groups of entities is constructed using the 80th percentile of the historical distribution of all

Table 25
Sensitivity test elements (Basel Committee)

Shock
Withdrawal of a significant proportion of deposits
Partial loss of the capacity of funding via collateralized transactions and through the interbank market.
Increase in the contractual outflows that may arise from a decline in public trust towards the institution.
Increase in the market volatility that may affect the quality of the collateral, so bigger haircuts are applied to securities.
Increased use of customers pre-approved loans.

Source: Basel Committee III (2010), International framework for Liquidity Risk Measurement, Standards and Monitoring, Bank for International Settlements, December).

entities for each item since 2009, in the case of banks, and since 2011 for the other types of intermediaries¹⁴⁶. Table 26 presents the shock for each item.

The term deposits renewal shock causes increased outflows for the entities, due to the inability to count on such deposits at each time horizon. In turn, it is included a shock on non-contractual outflows that make up the LRIR, which is constructed by applying the stressed run-off rate for each group of intermediaries.

For its part, the increase in the haircut applied to liquid assets, indicates a lower capability to obtain short term liquidity. Finally, the increase in the loan portfolio default indicator, means lower inflows from loan portfolio payments¹⁴⁷.

Table 26
Shocks used in the stress scenario over the thirty-day LRIR indicator

Variable	Banks		CFC		FC		Cooperatives	
	July 2014 stressed value	Value of the median applied in the LRIR	July 2014 stressed value	Value of the median applied in the LRIR	July 2014 stressed value	Value of the median applied in the LRIR	July 2014 stressed value	Value of the median applied in the LRIR
Term deposits renewal percentage	10.9	46.2	0	58.3	0	0.0	50.08	70.3
Haircut applied to liquid assets in legal tender	14.1	9.2	17.4	8.1	14.5	6.6	48.7	20.0
Weekly reported delinquency rate ^{a/}	6.1	3.9	5.6	3.2	0	0.0	6.6	5.0
Deposits run-off rate	18.1	11.7	16.7	7.3	61.8	0.0	15	10.0

a/ In addition to the increase of the delinquency rate, it is assumed that loan portfolio inflows decrease by an amount equal to the delinquency rate, while in the original scenario these are only reduced to 50% of this value.

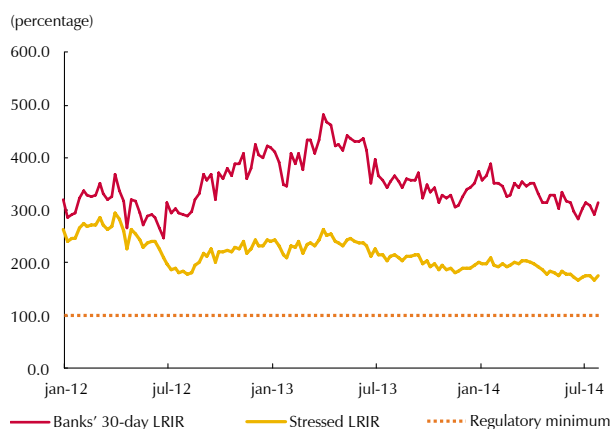
Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

146 In the case of the CDT renewal rate, the 20th percentile is considered, as lower values of this item indicate a more adverse liquidity scenario for entities.

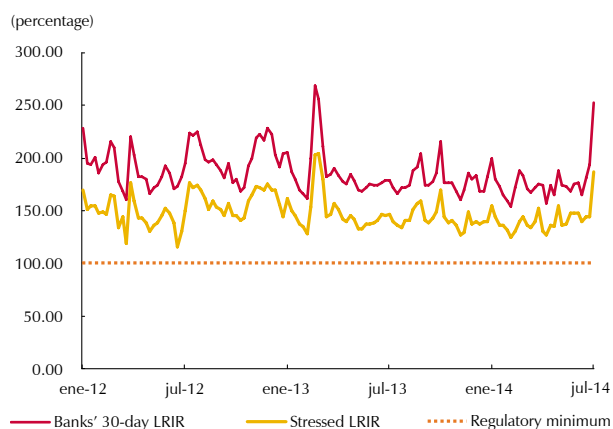
147 In the liquidity indicator defined by Superintendencia Financiera de Colombia, resources from the loan portfolio must receive a deduction corresponding to 0.5 times the observed delinquency rate. In the stress test, on the other hand, a deduction equal to the delinquency rate is applied.

Graph 80
Sensitivity test over the thirty-day LRI_R

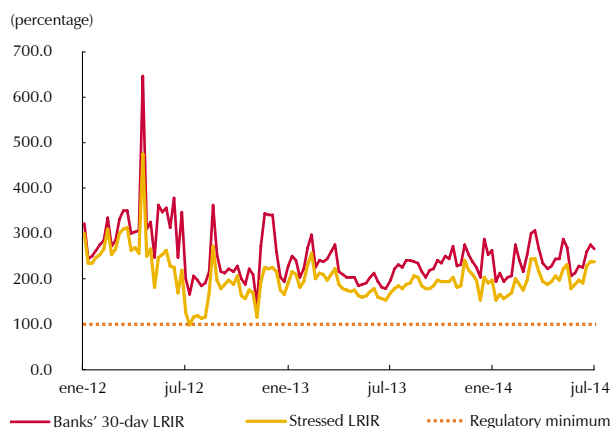
A. Banks



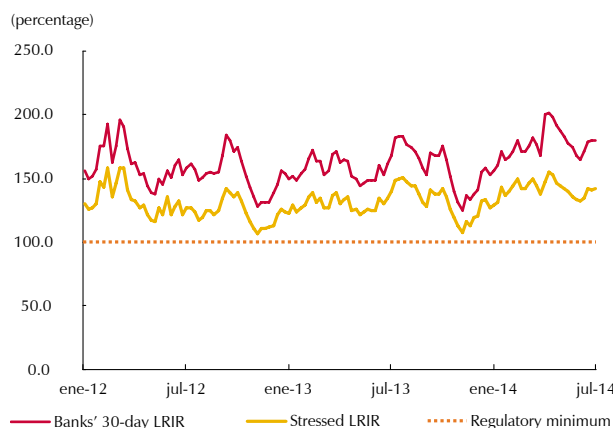
B. Commercial financing companies



C. Financial corporations



D. Financial cooperatives



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

In Graph 80 (panel A), the banks' stressed liquidity indicator calculated for a thirty-day horizon is presented. Between July 2013 and July 2014, the average difference between the initial indicator and the stressed one, was of 142.3 percentage points. Yet, during this period, the latter has values higher than the minimum threshold required by regulation, suggesting that Banks liquidity levels will allow them to meet their financial obligations, even under more adverse funding conditions.

On the other hand, when applying shocks to the other financial intermediaries, it is found that the average difference between the initial and the stressed indicator, is 36 of percentage points for commercial financing companies, 44 percentage points in the financial coporations case, and 31 percentage points

for financial cooperatives. Significantly, as of July 2014, no group would present a level below the regulatory minimum.

D. JOINT RISK ANALYSIS

The analysis of the various risks the financial system faces, presented in the previous sections of this chapter, allows an individual diagnosis of the state of each of the studied risk dimensions. Nonetheless, in terms of financial stability, it is important to complement this kind of analysis with tools that allow to assess, jointly, the financial system's risk exposure and vulnerability. In this section, three risk indicators constructed for that purpose are included. The first of them, forecasts possible future vulnerability situations in banks; the second, provides a measurement of the level of contemporary stress in the financial system as a whole; and the third, shows the status of credit institutions in case of the materialization of the various risks they face.

1. Financial fragility indicator¹⁴⁸

This indicator uses a wide range of variables related to commercial banks' credit risk, liquidity risk, profitability and capital adequacy¹⁴⁹¹⁵⁰. Additionally, the different sources of intermediaries' funding are specially analyzed, because from them, information used to assess the fragility of these financial institutions on a complementary manner is extracted. In particular, the composition of the intermediaries' liabilities provides relevant information on how the entities fund themselves during booms, and the possible vulnerabilities that they are exposed if a cycle reversion occurs¹⁵¹.

148 For more information on the financial fragility indicator and the methodology used for its construction, see Guarín, A. and Lozano, I. (2014). *Fragilidad bancaria en Colombia: un análisis basado en hojas de balance (Banking Fragility in Colombia: a balance sheets based analysis)*, Borradores de Economía, Vol. 813, *Banco de la República*.

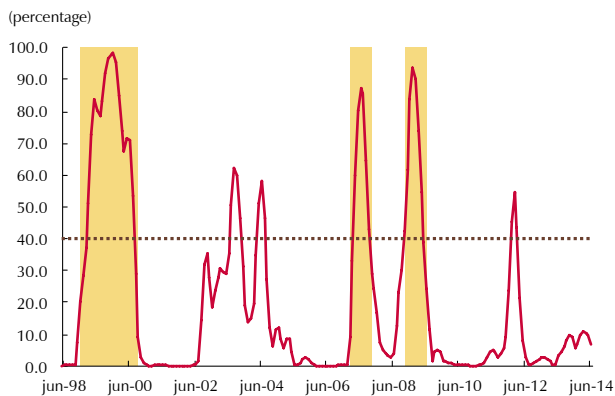
149 The four risks are measured with the following indicators: 1) Credit risk: ratio between non-performing loans and the total loan portfolio (default indicator) and the ratio between unproductive loans and the total loan portfolio; 2) Liquidity risk: deposits to gross loans ratio and unhedged liabilities ratio; 3) Profitability indicators: return on assets (ROA) and return on equity (ROE), and 4) capital adequacy and leveraging indicator.

150 It should be noted that a market risk dimension is not included due to lack of information available at the time of analysis.

151 See, among others: Damar, H., M., C. and Y. Terajima (2010). *Leverage, Balance Sheet Size and Wholesale Funding*, working paper no. 39, Bank of Canada; Hahm, J., H. Shin and K. Shin (2012). *Non-Core Bank Liabilities and Financial Vulnerability*, working paper no. 18428, National Bureau of Economic Research; Hahm, J. H., M. F. S. H. and K. Shin (2012). *Macroprudential Policies in Open Emerging Economies*, working papers, no. 17780; Huang, R. and L. Ratnovski (2010). *The Dark Side of Bank Wholesale Funding*, *Journal of Financial Intermediation*, vol. 20, no. 2, pp.248-263, and Shin, H. and K. Shin (2011). *Procyclicality and Monetary Aggregates*, working paper, no. 16836, National Bureau of Economic Research.

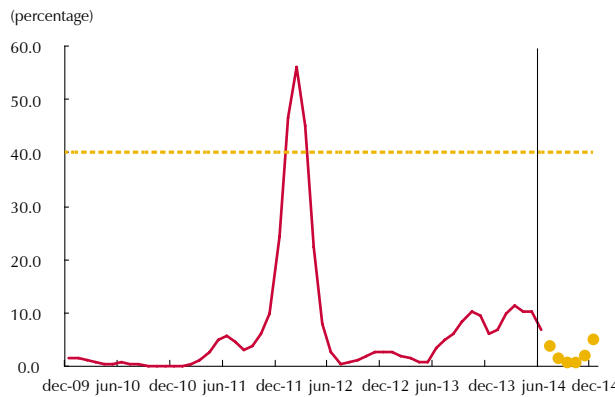
In this analysis, a fragility episode is understood as an exceptional risk period faced by the system, which leaves it exposed to adverse shocks, and thus requires a strict monitoring by the authorities to avoid possible crisis situations. The model used in this section, allows to calculate the probability of an episode of fragility in the banking system at the moment and in a short time horizon (six months ahead).

Graph 81
Estimated financial fragility (banking sector)



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Graph 82
Financial fragility probability prediction

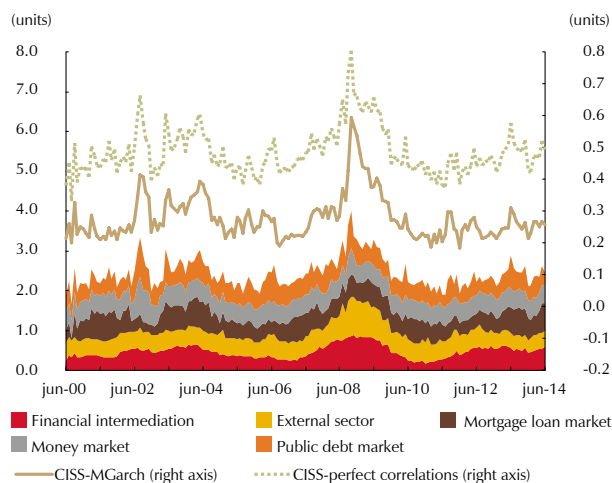


Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

The main results are presented in Graph 81. The solid line represents the monthly estimate of the probability of being in a situation of financial fragility, while the yellow areas correspond to periods of fragility identified in the first stage of the exercise; the dotted line represents the threshold at which vulnerability episodes are defined. As it can be seen, the model provides a good adjustment to fragility periods identified from the risk variables behavior. Additionally, it is noted that, with information up to June 2014, the probability of being in an episode of fragility is 6.8%, a value which is below the defined threshold (40%).

Finally, the exercise proposed in this work can be used to predict the probability of being in an episode of financial fragility in the short term. Figure 82 presents the results of the forecast with the information available up to June 2014. The direct prediction is performed for a horizon of one to six months after this date, so that each of the dots on the right side of the graph constitutes a forecast done with the information available in June. As it can be seen, the model predicts that during the next six months (i.e., until December 2014), the probability that the banking system is in a fragility situation is below the threshold, so it is expected that the system will exhibit a good performance in terms of financial stability.

Graph 83
Systemic risk index



Source: Bloomberg, FED, DNP; Superintendencia Financiera de Colombia; Banco de la República calculations.

2. Systemic risk indicator¹⁵²

The systemic risk indicator (CISS, for its acronym in English) is a monthly aggregate index that condenses important information about the main activities and markets that make up the financial system: financial intermediation, the housing market, the government bond market, the external sector and the money market (for further details see Box 5, p. 136). With this indicator it is possible to measure the volatility or imbalance degree that these markets individually and jointly have.

In Graph 83, the CISS with its respective components is presented; the solid line shows the current systemic risk level, whereas the dotted line represents an extreme scenario where there is a perfect contagion (equal to one correlation) between the different sectors¹⁵³. Meanwhile, the areas at the bottom of Graph 83, show the five components that comprise the index individual dynamics.

The evolution of the indicator shows that the period of greatest systemic risk occurred between late 2008 and 2009. When analyzing the components during this time, it can be seen that the financial intermediation sector, the external sector and the public debt market were the ones with the largest increases.

The distance between the solid line and the dotted one also provides information on the existing contagion across sectors, which is important in identifying periods of systemic risk. In this model, a systemic event is characterized by high levels of the indicator, along with high levels of correlation between dimensions. For example, at the peak of systemic risk in 2008, the CISS (solid line) is very close to the simple average (dotted line), which means that in this period the markets were highly correlated, and therefore the systemic risk was greater. Although the simple average exhibits an important peak in the second half of 2002, this is not considered a period of systemic stress because the CISS does not grow to the same extent, since the markets correlation was not high. This is because while in that period there was stress in the public debt and money markets, the other sectors remained stable.

152 For more information on the systemic risk indicator see: Cabrera, Hurtado, Morales & Rojas (2014). A Composite Indicator of Systemic Risk (CISS) for Colombia, Borradores de Economía, No. 826, Banco de la República. June 2014. The same article can also be read at Financial Stability Issues No. 80, Banco de la República.

153 To assume perfect correlations is equivalent to calculate the simple average for the five sub-indexes. This contagion situation may occur during periods of simultaneous stress in all sectors studied.

Regarding the recent behavior of the CISS, it is observed that as of June 2014 it registered a 5 basis points decrease compared to June 2013, a behavior that is mainly explained by the decrease of 49 basis points in the public debt market subindex. As for the correlation between dimensions, this is in relatively low levels since the gap between the CISS and the dotted line has remained.

3. Financial stability index¹⁵⁴

To perform an analysis of the materialization of risks in the financial intermediaries balance sheet, the financial stability index for Colombia (IEFI in Spanish) is featured, which is designed to determine credit institutions' contemporary stress level, both globally as by type of institutions (banks, financial cooperatives and commercial financing companies), in order to generate a diagnosis of Colombia's financial stability. The index is calculated on a monthly basis, and takes into account profitability and default probability considerations¹⁵⁵.

The construction of the IEFI uses financial intermediaries capital adequacy, profitability, credit risk and liquidity ratios. The variables selected to form the index¹⁵⁶ are: earnings before taxes over average assets for the last twelve months (ROA), income before taxes over average equity for the last twelve months (ROE), the default indicator, unproductive loan portfolio over total loan portfolio, intermediation margin, liquid liabilities over liquid assets, interbank funds¹⁵⁷ over liquid assets, and the unhedged liabilities ratio¹⁵⁸.

It is worth noting that all the variables that make up the indicator were standardized, thus facilitating its interpretation. Thus, the stress level of the

154 For further information on the index's calculation methodology see, Morales and Estrada (2010), A Financial Stability Index for Colombia, *Annals of Finance*, May 2010.

155 As suggested by the document from O. Aspachs; C.A.E. Goodhart; M. Segoviano; D. P. Tsomocos; L. Zicchino (2006). Searching for a Metric for Financial Stability, LSE Financial Markets Group Special Paper Series, no. 167.

156 These variables are weighted using different methods suggested by the international literature, such as the variance equal approach, principal components and models for count data. In this report the calculation results are presented using the variance equal methodology, since the index's behavior is similar using all three methods. In this technique, the variables are standardized to express them in one unit, then adding them using identical weights.

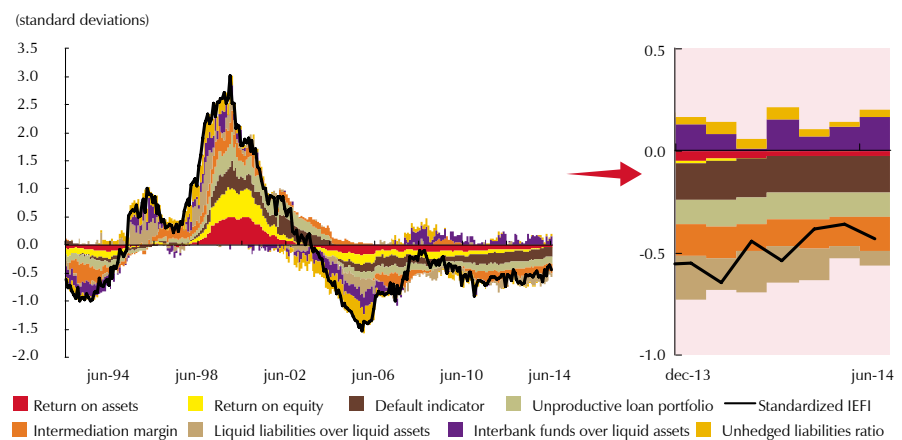
157 This interbank funds correspond to the reported by financial entities in their number 12 mandatory set of accounts of their financial statements (PUC in Spanish), on which the asset positions in money market and related operations are registered.

158 This ratio seeks to measure the shortage of liquid assets that financial institutions may face as a result of their maturity transformation process. For their calculation, liquid liabilities, trading and available for sale investments and liquid and total assets are taken into account. For more information see the March 2010 issue of the Financial Stability Report, in the liquidity risk section.

current period can be compared with the historical one in terms of deviations from the mean. Index values greater than zero are equivalent to above-average financial stress periods, while negative values indicate periods of a greater stability. Also, an increasing or decreasing behavior of the index during a certain period provides useful information regarding the evolution of the stress level in time.

Graph 84 shows that the aggregate IEFI for credit institutions increased between December 2013 and June 2014, mainly due to the lower liquidity reflected in the increases of the liquid liabilities over liquid assets and interbank funds over liquid assets ratios¹⁵⁹. It should be noted that since the middle of 2003, the index has been negative, suggesting that the system’s stress levels have remained low. Additionally, it is important to mention that the only factors that have positive values in the most recent periods, are those associated with liquidity risk (interbank funds/liquid assets and the unhedged liabilities ratio).

Graph 84
Financial stability index



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

In Graph 85, the index calculated for the different types of credit institutions is shown. During the first half of 2014, the level of financial stress increased for banks and commercial financing companies, and remained stable for financial cooperatives. In the case of banks, the indicator was closer to zero due to the higher levels recorded for the liquid liabilities over liquid assets and interbank

159 Between December 2013 and June 2014, the liquid liabilities over liquid assets and interbank funds over liquid assets ratios, moved from 19.4% and 13.7%, to 23.7% and 15.7% respectively. These increases occurred due to the fact that liquid assets began to record negative growth rates (-12.8% in June 2014 versus 9.8% in December 2013), which at the same time were related to the decrease showed by the trading investments in government bonds.

funds over liquid assets ratios¹⁶⁰; while for commercial financing companies the index increased due to a higher unhedged liabilities ratio¹⁶¹. It is worth noting that for Banks, the indicator has been showing an increasing trend since early 2013.

Therefore, the joint risk analysis suggests that currently the financial system's situation is favorable. First, the prospective analysis of possible situations of fragility in the banking system suggests that the probability of experiencing an exceptional risk situation, which involves exposing the sector to adverse shocks, is low and significantly below the minimum threshold at which the estimated probability is considered relevant. Additionally, CISS results confirm that at present the financial system's level of systemic stress is at relatively low levels (below the average for the last ten years and the average level in 2013), and so is the correlation between risk dimensions. This is particularly relevant given that these correlations tend to increase during periods of systemic stress.

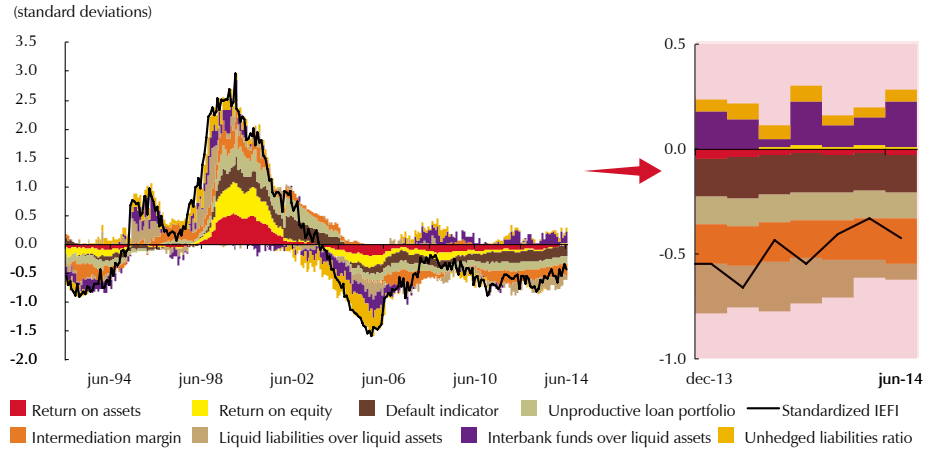
Finally, the results of the IEFI point to a worsening situation in the financial system as a result of a deterioration of some liquidity indicators; however, the aggregate index remains at levels below the historical average. Given this, it is important to maintain a continuous monitoring of the various indicators proposed here, in order to identify trends and sources of vulnerability that may affect the system's stability.

160 Between December 2013 and June 2014 the liquid liabilities over liquid assets and interbank funds over liquid assets ratios moved from 14.2% and 15.2%, to 19.4% and 17.3% respectively. This dynamic occurs because the liquid assets of banks decreased at an annual nominal rate of 15.4% in June 2014, while six months earlier they were growing at one of 10.2%. This is explained by the decrease in these entities trading investments in government bonds.

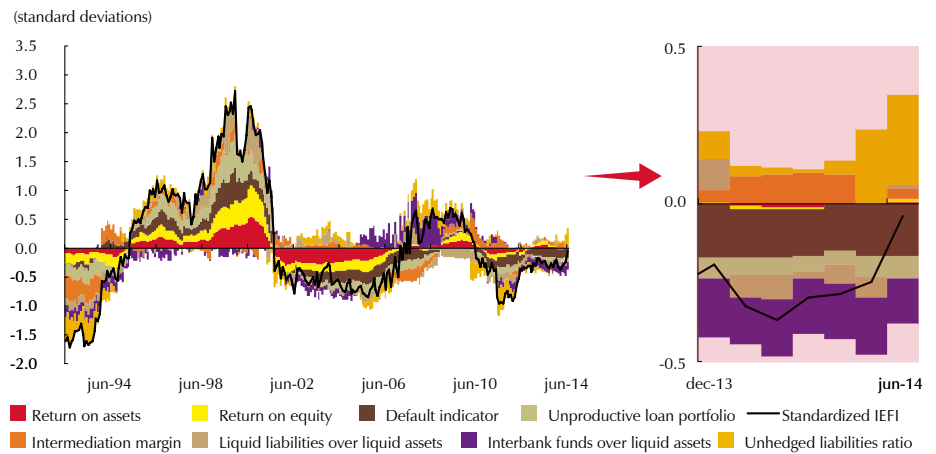
161 The commercial financing companies unhedged liabilities ratio moved from -4.4% in December 2013, to 3.6% six months later. This is explained by the increase in these entities transitory liabilities, whose dynamics was determined by the increase in deposits and current liabilities, which rose from growing 18% annually nominal, to 34.0% in the first half of 2014.

Graph 85
Financial stability index by type of entity

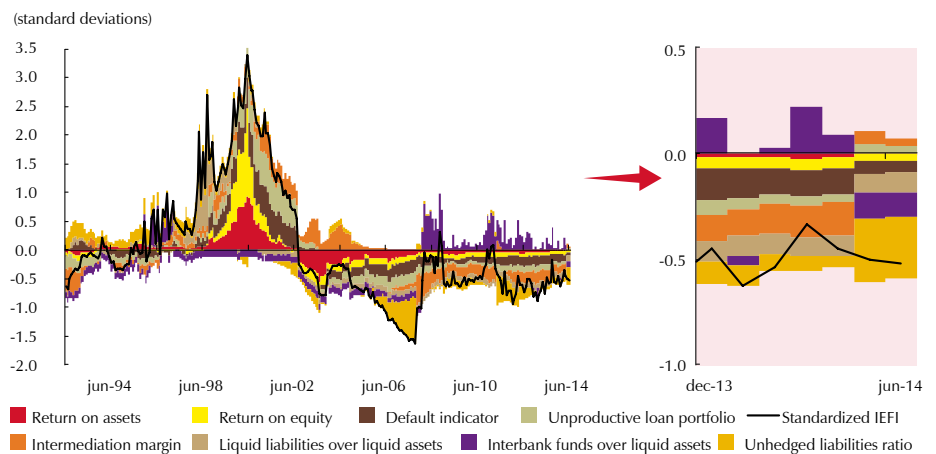
A. Banks



B. Commercial financing companies



C. Cooperatives



Source: Superintendencia Financiera de Colombia; Banco de la República calculations.

Box 5 SYSTEMIC RISK INDEX FOR THE COLOMBIAN ECONOMY

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One of the key lessons of the global financial crisis of 2008, both for policymakers and the academy, is the importance of making a correct identification and monitoring of the systemic risk a economy faces. This is understood, following the definition of the IMF, BIS and FSB (2009), as the risk of a failure in financial services caused by a partial or full malfunction of the financial system, which could have important consequences in the real sector. Given the breadth of this concept, the study of this risk involves monitoring various sectors whose behavior and interrelationships can increase the vulnerability of the system as a whole.

In Colombia, multiple studies that seek to quantify the contribution of a particular sector to the vulnerability of the system,¹ or whose aim is to identify which institutions are systemically important², have been developed. Nonetheless, still there is not an indicator that offers a joint measure of the accumulation of systemic risk in the Colombian economy. Such indicators have already been developed, among others, by Mikhail et al. (2011) for the United States; Hollo et al. (2012) for the European Union; Millwood (2012) for Jamaica; Louzis and Vouldis (2013) for Greece, and Kota and Saqe (2013) for Albania, and have also been presented in some financial stability reports, such as those of Spain and Mexico.

Therefore, this box describes the construction of a systemic risk indicator (CISS) for Colombia, which follows the methodology proposed by Louzis and Vouldis (2013), and which seeks to capture the existing dynamics and interrelationships between five dimensions that were identified as relevant, given their contribution to the system's risk in stress periods³. These categories are: financial intermedia-

tion, housing market, external sector, and the money and public debt markets.

For each of these dimensions, a subindex that measures the accumulation of individual risk in these sectors is constructed. It results from the aggregation, by the principal components methodology, of three variables capturing balance or market monthly information,. The indicators that make up each one of these subindexes were selected taking into account both the availability of time series for the Colombian case, as well as the considerations suggested by Holló et al. (2012) and Hakkio and Keeton (2009), about the features that stress indicators should capture⁴. Next, the used variables are listed below:

1. Financial intermediation
 - Credit gap⁵
 - Non-performing loan portfolio gap
 - Ex post intermediation margin annual growth
2. Housing market
 - New housing prices annual real growth
 - Non-performing mortgage loan portfolio gap
 - Mortgage loan portfolio gap
3. External sector
 - Foreign exchange rate volatility
 - Financial intermediaries' external debt gap
 - Commodities Price index
4. Money market
 - Bond spread of the three-month TES (Colombian government bonds) denominated in US dollars with respect to the three-month United States Treasury bond.
 - Three-month TES volatility
 - Interbank rate and benchmark rate spread

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cal systemically important institutions (BIS methodology), of the September 2013 Financial Stability Report.

3 For more details on the construction of the CISS, as well as its subindexes, see Cabrera et al. (2014). A Composite Indicator of Systemic Stress for Colombia, in Financial Stability Issues no.80 (2014).

4 According to the authors, an indicator of financial stress should capture the following symptoms: i) uncertainty about the fundamental value of assets, ii) uncertainty about the behavior of investors, iii) information asymmetries, iv) reductions in the tenure of risky assets (flight to quality), and v) reductions in illiquid assets holding (flight to liquidity).

5 The credit gap and the other variables are defined as the difference between the variable's level and its long term trend calculated with a Holdrick and Prescott filter.

5. Public debt market
 - Bond spread of the ten-year TES denominated in US dollars with respect to the ten-month United States Treasury bond.
 - IDXTES (Domestic public debt market representative index) volatility
 - Correlation between the ten-year TES and the Colombian Securities Exchange General Index (IGBC in Spanish).

Once each of the five subindexes is constructed, these are standardized with the logistic function that transforms them to a scale between zero and one, and are added to the CISS so that the correlation⁶ between them determines their weighting in the aggregate index in each period. Thus, the CISS turns out to be greater as the markets interrelation increases (correlation between the subindexes), which is desirable because it gives more weight to the periods on which a simultaneous stress is observed. In the joint risks analysis section, the systemic risk indicator with its respective components is presented.

Given the availability of information, the CISS was built for the period covering January 2000 to June 2014, on a monthly basis. The evolution of the indicator shows that the period of greatest systemic risk was between late 2008 and 2009, during the most recent international financial crisis. By component, it can be seen that the subindexes of the financial intermediation and money market sector registered the highest increases during that period. However, the rest of subindexes also increased, although to a lesser extent. For the same period, it is also noted that correlations between sectors increased, reflecting a possible contagion between them. Thus, monitoring the systemic stress by the CISS approach is key to measure this type of risk, that can lead to a major shock in the real sector as in the financial sector.

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6 The estimation of correlations was performed using a DCC-MGarch model.

Box 6

IDENTIFYING EARLY WARNING INDICATORS FOR THE MONEY MARKET IN COLOMBIA

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Jorge Cely*

The money market is one of the main sources of short-term funding for financial institutions, on which they trade funds, generally overnight, with or without collateral and in large amounts. The literature has identified that this market allows its participants to mitigate idiosyncratic liquidity shocks (e.g.: for unexpected withdrawals by depositors) (Freixias et al., 2000; Carlin et al., 2007). Also, the behavior of the money market's interest rates has been a traditional source used to identify, not only the transmission of monetary policy, but also the presence of market discipline and risk taken by its participants (Freixias, et al., 2011; Gale and Yorulmazer, 2011).

Indeed, the identification of the presence of market discipline in the money market is a matter of great importance, since institutions of a larger size can concentrate liquidity, affecting small or new entities in the market. Likewise, entities with higher credit risk are probably being punished by their peers in the market via higher interest rates, which is a pattern difficult to observe by the regulator with the balance sheet information. In fact, early warning indicators have been used as a proxy to identify evidence of market discipline (Iori et al., 2012).

In Colombia, since 2010, *Banco de la República* has been developing a system of early warning indicators to monitor the behavior of the participant entities in the interbank and repo market with such entity. It has been possible to identify entities that take resources to a higher cost than the market average, which may suggest that they are facing liquidity problems that their peers in the market are identifying¹.

This box is aimed at presenting the results of the implementation of a system of early warning indicators for the money market in Colombia, which allows identifying

the entities that are funding themselves at a relatively higher cost than the market and with a high frequency. Due to differences in operation and type of participants, the indicators are calculated for the three main markets: interbank, simultaneous operations by the Electronic Negotiation System (SEN in Spanish), and simultaneous operations by the Colombian Electronic Market (MEC in Spanish). Also, warning indicators for commercial banks are analyzed, these entities have increased their share in the simultaneous operations market.

1. Early warning indicators for the money market

In literature, it has been observed that in periods of low liquidity, institutions tend to lend fewer funds in the non-collateralized market, and when they do, they charge a higher cost to entities with a greater counterparty risk. However, in normal liquidity time periods, they also tend to charge a higher price to riskier entities, thus, exercising market discipline based on peer monitoring (King, 2008; Cocco et al., 2009). In collateralized markets, funding costs additionally depend on the market liquidity conditions and the market risk associated with the collateral (Angelini et al., 2011). In this context, identifying those institutions that borrow funds at relatively higher cost than the market can give a warning indicator about the risks the entity is taking (Iori et al., 2012).

Therefore, those entities that borrowed funds at high rates at the over-the-counter market (e.g.: interbank and MEC) would be "punished" by their counterparties, who perceive a higher credit risk, and therefore demand a greater compensation or premium for the risk they assume when lending resources. Moreover, in the collateralized and anonymous market (SEN), entities cannot identify their counterparts and, therefore, the counterparty risk is transferred to the market risk associated with the collateral. In this market, the condition of anonymity allows its participants (market makers) to borrow significant amounts to fund themselves, which is probably concealing a liquidity problem that the market cannot identify or, conversely, an incentive to take funds and lend them in other markets where they can get a higher return derived from the rates differential (e.g.: MEC or interbank).

In order to identify the behavior of the entities in the money market and the presence of market discipline, a system of warning indicators for each market was developed (interbank, SEN and MEC), where it is identified the entities that have taken resources from their counterparts at

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1 At *Banco de la República* (2011), an analysis of the results of the early warning signals for the interbank market in September 2011 was presented, showing that some entities had warning signs, although with a low frequency. Since 2011, on a monthly basis, the Central Bank reports to the Financial System's Coordination and Monitoring Committee the results of the warning signs for the interbank market and repos with *Banco de la República*.

relatively higher rates than the market. In particular, three warning levels that are determined based on deviations of the observed daily rate against the market median.

The system of warning indicators is presented in equations (1) to (3), where $I_{j,t}$ represents the weighted average interest rate by amount paid by entity j on day t ; $IML_{L,t}$ refers to the market interest rate on the day L for the total of participating entities (M), and $SDI_{IML,t}$ is the standard deviation of the market interest rate for day t . Equation (1) represents the warning level I, where the indicator is activated when the interest rate of the $I_{j,t}$ entity is above the $IML_{L,t}$ market rate plus one standard deviation. At level II (equation 2), the indicator is activated when the entity's interest rate exceeds the market rate plus 1.5 standard deviations. In equation (3), warning level III is presented, which is activated when the entity's interest rate exceeds the maximum value between the interest rate of the market where the entity operates ($IML_{L,t}$) plus 2 standard deviations, and the interest rate of an alternate market ($IML'_{L,t}$) plus 2 standard deviations. For interbank market indicators, the interest rate of the alternate market corresponds to the Central Bank's reference rate, while for SEN and MEC indicators the alternate market is the Interbank Interest Rate (TIB). The objective of defining an alternate comparison market for warning level III is to relate the behavior of the interest rate compared to other money market spaces from which entities also take resources.

$$\text{Level I: } I_{j,t} > I_{L,t}^M + SDI_{L,t}^M \quad (1)$$

$$\text{Level II: } I_{j,t} > I_{L,t}^M + (1,5 * SDI_{L,t}^M) \quad (2)$$

$$\text{Level III: } I_{j,t} > \max(I_{L,t}^M + 2 * SDI_{L,t}^M), (I_{L,t}'^M + 2 * SDI_{L,t}'^M) \quad (3)$$

The system of warning indicators is constructed individually for each market: interbank, SEN and MEC, during the 03.01.2011 to 13.08.2014 period. During this period, 884 effective trading days were registered, on which 6,656 operations were carried out in the SEN, 21,575 in

the MEC and 9,683 in the interbank market². While in the SEN, the number of operations is lower and their value is higher than the other markets³.

Table B6.1 presents the average interest rate during the period for each market, as well as the average interest rates for each warning level. It is observed that the amplitude of the range between each warning level tends to be higher in the MEC compared to SEN and the interbank. In particular, the spread between the average rate of the MEC and the warning level I, is of 101 basis points, whereas this difference in the SEN and interbank was 48 basis points and 13 basis points respectively. For levels II and III, the differential in the MEC increases by 50 basis points, while for the SEN and interbank the gap between levels increases on average by 30 basis points and 8 basis points respectively⁴. The differential between the SEN and MEC interest rates has been maintained over the period of study (Graph B6.1).

2. Warning indicators in the interbank market

During the period of study, 9,683 operations in the interbank market were performed, where 46 companies participated, mainly banks and financial corporations. Of the 2,810 operations performed in 2011, 302 indicators were observed, that means, 10.7% of the operations were carried out at a higher cost than the market average, where most were located in warning level I and

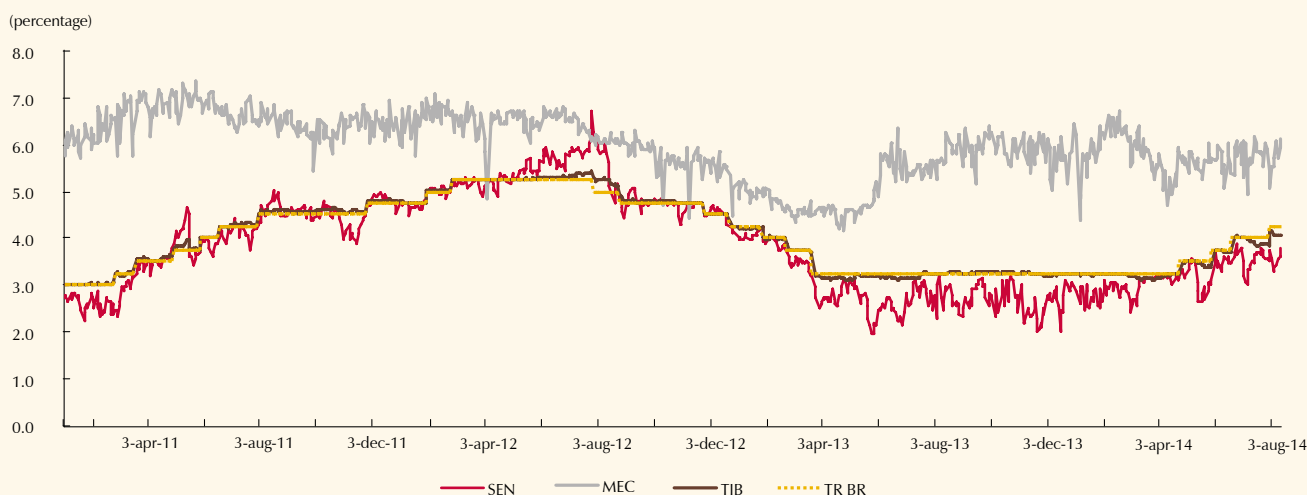
- 2 A robustness test was conducted using the standard deviation for the last five days, and it was found that the results do not significantly vary.
- 3 During the period of study, the average daily value of simultaneous operations at the SEN was \$1.1 trillion, a higher amount than those carried out in the MEC (\$60.7 billion) and interbank (\$49.2 billion).
- 4 The literature has observed that the spread of each entity vis-à-vis the average market rate reflects the premium for credit risk in non-collateralized markets, whereas in collateralized markets, this spread also includes the liquidity and market risks associated with collateral (Schwarz, 2014).

Table B6.1
Early warning indicators system for the money market

Indicator	Interbank		SEN		MEC	
	Rate (percentage)	Differential average (basis points)	Rate (percentage)	Differential average (basis points)	Rate (percentage)	Differential average (basis points)
Average	4.06	0.00	3.67	0.00	6.02	0.00
Level I	4.19	12.83	4.15	48.46	7.03	100.91
Level II	4.26	19.24	4.40	72.69	7.53	151.36
Level III	4.33	27.06	4.67	100.29	8.04	201.88

Source: Superintendencia Financiera de Colombia and Banco de la República; Banco de la República calculations.

Graph B6.1
Early warning indicators system for the money market



Source: Superintendencia Financiera de Colombia and Banco de la República; Banco de la República calculations.

II with 65 % and 25% respectively. In 2012, there was a change in the indicators composition for this market. While the total number of warnings was reduced to 269 (10.3%), 66% of these (177) occurred at level III, suggesting a significant increase in funding costs for some entities. This difference was accentuated in 2013, with 87% of indicators in warning level III, and in 2014 with 84% (Table B6.2).

Table B6.3 presents the results of the indicators for the 21 banks that participated in the interbank market during the period of study. This exercise is implemented with the aim of identifying peer monitoring inside sectors. It is observed that the first ten entities account for 84% of the indicators. The entity number 9 outstands, activating 166 indicators during the period, i.e., 41% of the indicators among the top ten entities. This entity recorded 106 indicators in warning level III. Entities 7 and 4 also recorded high quantity of warning indicators at level III. The high

frequency of indicators at all three levels, may suggest that these entities are having recurring liquidity problems and, therefore, are being disciplined by their peers at the interbank market.

3. Simultaneous operations market warning indicators at the SEN

In the study period, 6.656 simultaneous operations at the SEN were carried out, where 17 institutions participated throughout the period. In 2011, 117 indicators were observed, this is, 7% of the operations were performed at a higher than the average market cost, where most operations were located on Level I with 77%. In 2012, 133 indicators were registered, of which 80% occurred in level I and 18% at Level II were recorded. This trend continued in 2013 and 2014, albeit with a smaller number of indicators: 105 and 65 respectively (Table B6.4).

Table B6.2
Warning indicators for the interbank market by level

Level	2011		2012		2013		2014		2011-2014	
	Number	(percentage)	Number	(percentage)	Number	(percentage)	Number	(percentage)	Number	(percentage)
Level I	195	64.6	35	13.0	11	4.1	10	5.3	251	24.4
Level II	72	23.8	57	21.2	25	9.4	21	11.1	175	17.0
Level III	35	11.6	177	65.8	231	86.5	158	83.6	601	58.5
Total	302	100.0	269	100.0	267	100.0	189	100.0	1027	100.0
Total operations	2,810	10.7	2,729	9.9	2,656	10.1	1,488	12.7	9,683	10.6

Source: Superintendencia Financiera de Colombia and Banco de la República; Banco de la República calculations.

Table B6.3
Warning indicators for banks in the interbank market (2011-2014)

Entity	Level I	Level II	Level III	Total
9	24	36	106	166
7	21	19	8	48
4	12	11	23	46
14	25	2	1	28
10	16	3	4	23
8	13	4	4	21
12	16	3	1	20
2	5	7	8	20
23	13	4	2	19
17	18	0	0	18
Total (10 entities)	163	89	157	409
Percentage share (10 entities)	78.0	82.4	91.8	83.8
Total (21 entities)	209	108	171	488

Source: Superintendencia Financiera de Colombia and Banco de la República; Banco de la República calculations.

Table B6.5 presents the results of the indicators for the twelve banks that participated in the SEN during the study period, following the same approach used for the interbank market. It is observed that the ten banks with the most activated indicators account for 99% of these at level I, and 100% at level II. It is noted that for this group of entities, no indicators were presented at level III. Entities 10 and 17 had the highest number of indicators, of which most are concentrated at level I. It is also clear that six banks recorded indicators on warning level II. In general, this result shows that entities with a high presence of indicators are frequently taking resources at higher rates in the SEN, a market where their counterparties cannot identify from each other. This suggests that they may be experiencing temporary liquidity shortages, or are willing to pay more for their funding in this market, given the lower cost compared to the MEC, where they can exploit

that advantage in costs, mitigating credit risk using the same type of collateral.

4. Warning indicators for simultaneous operations at the MEC

In the study period, 21,575 simultaneous operations, with the participation of 73 entities, were conducted on the MEC. Table B6.6 shows that in 2011, 681 indicators were observed, suggesting that 10% of the operations were performed at a higher cost than the average market, where most of them were located at Level I (99%). In 2012, 217 indicators were registered, of which 88% occurred in level I, and 9% at level II. For 2013, 459 indicators were presented, and between January and September of the current year, 181 warning indicators have been activated, mainly in warning level I.

Table B6.4
Warning indicators by level in the simultaneous operations market at the MEC

Level	2011		2012		2013		2014		2011-2014	
	Number	(percentage)	Number	(percentage)	Number	(percentage)	Number	(percentage)	Number	(percentage)
Level I	90	76.9	106	79.7	89	84.8	57	87.7	342	81.4
Level II	25	21.4	24	18.0	16	15.2	8	12.3	73	17.4
Level III	2	1.7	3	2.3	0	0.0	0	0.0	5	1.2
Total	117	100.0	133	100.0	105	100.0	65	100.0	420	100.0
Total operations	1,776	6.6	1,680	7.9	1,911	5.5	1,289	5.0	6,656	6.3

Source: Superintendencia Financiera de Colombia and Banco de la República; Banco de la República calculations.

Table B6.5
Warning indicators for banks in the simultaneous operations market at the SEN (2011-2014)

Entity	Level I	Level II	Level III	Total
10	59	2	0	61
17	36	4	0	40
18	34	2	0	36
7	22	2	0	24
8	21	1	0	22
3	21	0	0	21
22	18	0	0	18
11	17	0	0	17
21	17	0	0	17
14	11	1	0	12
Total (10 entities)	256	12	0	268
Percentage share (10 entities)	99,2	100,0	0,0	99,3
Total (12 entities)	258	12	0	270

Source: Superintendencia Financiera de Colombia and Banco de la República; Banco de la República calculations.

Table B6.6
Warning indicators by level in the simultaneous operations market at the MEC

Level	2011		2012		2013		2014		2011-2014	
	Number	(percentage)	Number	(percentage)	Number	(percentage)	Number	(percentage)	Number	(percentage)
Level I	672	98.7	192	88.5	407	88.7	175	96.7	1446	94.0
Level II	8	1.2	13	6.0	43	9.4	6	3.3	70	4.6
Level III	1	0.1	12	5.5	9	2.0	0	0.0	22	1.4
Total	681	100.0	217	100.0	459	100.0	181	100.0	1538	100.0
Total operations	6,729	10.1	5,672	3.8	5,943	7.7	3,231	5.6	21,575	7.1

Source: Superintendencia Financiera de Colombia and Banco de la República; Banco de la República calculations.

Table B6.7 presents the results for the 18 banks that participated in the MEC during the period. The ten banks with the highest indicators are concentrated in warning levels I and II. Entity 18 is highlighted, with 82 signs during the period, mainly in level I. In turn, entity 8 draws attention, which recorded eight warnings at level II, being the most frequent one at that warning level. Thus, it is noticed that, since most of these operations are over the counter, this group of entities is taking resources in the MEC at a higher cost than their peers, reflecting that they are being subject to market discipline by their counterparts.

5. Conclusions

This box presented the results of a system of early warning indicators implemented at the central bank to mo-

onitor the behavior of the participant entities in the money market. The evaluation was performed independently for the simultaneous operations market in the SEN and the MEC, and for non-collateralized operations in the interbank market due to differences in operation for each market. These three markets represent 52% of the money market when it is included Banco de la República, and 98% when it is not. Also, it was observed that banks have significantly increased their share in simultaneous operations at the SEN and the MEC, and have reduced their activity in the interbank market.

The results showed that there is a group of entities with high frequency of warning indicators in all three markets. In the interbank market and the MEC, it can be inferred that these entities are subject to market discipline via peer monitoring, since entities can fully identify their coun-

Table B5.7
Warning indicators for banks in the simultaneous operations market at the SEN (2011-2014)

Entity	Level I	Level II	Level III	Total
18	76	6	0	82
17	43	4	0	47
2	41	1	0	42
3	37	5	0	42
11	33	2	0	35
24	30	3	0	33
9	29	2	0	31
8	22	8	0	30
12	21	2	0	23
10	15	2	0	17
Total (10 entities)	347	35	0	382
Percentage share (10 entities)	90.1	87.5	0.0	89.9
Total (18 entities)	385	40	0	425

Source: Superintendencia Financiera de Colombia and Banco de la República; Banco de la República calculations.

terparts. By contrast, in the SEN, being an anonymous market, those entities with high presence of warning indicators may be experiencing liquidity problems, or are willing to pay more for their funding in this market, given the lower funding cost compared to the MEC, a market where they can exploit that advantage mitigating credit risk through the use of collateral.

When the test is performed just for banks, it was noted that several entities register warning indicators at all three levels in the interbank market, and at levels I and II in the simultaneous operations market at the SEN and MEC. In general, it is observed that warning indicators constitute a timely tool for monitoring the money market participant entities.

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Box 7

EFFECT IN THE COLOMBIAN FINANCIAL SYSTEM OF AN ENTITY'S "EXIT"

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Carlos Quicazán*

A useful tool to identify and monitor systemically important and most vulnerable entities is to quantify potential losses that the default of an entity can generate on other entities in the financial system.

In the study by Gauthier et al. (2012) the contribution of the risk of a number of banks on the Canadian financial system's risk was quantified considering an adverse event that may result in the non-payment of interbank obligations, assets depreciation and, thus adversely affecting the system's entities solvency¹.

In Colombia, Cabrera et al. (2012) were able to replicate this methodology, considering only banks and assuming a shock to their commercial loan portfolio. This exercise had the following drawbacks: first, it failed to consider the total of the financial system's entities, and second, the possible losses that were generated in the system directly depended on the banks' exposure to their commercial loan portfolio.

Therefore, this box includes all entities from the financial system in proper position, with the purpose of quantifying their individual contribution to the risk system. Additionally, the "exit" of an entity from the system was considered as a shock, which implies that this entity fails to meet its contractual obligations (default), and liquidates the total of its liquid assets.

The potential losses that the proposed scenario could generate to the system are related to the following causes:

Losses for breach of contract: the entity fails to meet its obligations to other financial entities (interbank loans and money market operations, net position in the exchange

rate forward market² and the non-payment of issued of fixed term certificates of deposit [CDT]).

Losses due to liquid assets depreciation (Available for Sale): at the entity's moment of exit from the system, it sells all of its liquid assets, generating a loss of value for such securities. This may affect the level of capital of other entities that own the securities, forcing them to liquidate part of their positions in liquid assets, generating a spiral of falling prices.

In Graph B7.1, losses by entity as a proportion of its equity in June 2014 are presented. On the horizontal axis, the entity that exits the system is shown and, on the vertical axis, losses as a proportion of the remaining entities' equity, is presented. In each of these graphs, possible losses are presented, considering the total effects mentioned before (squares), and on each panel they are compared with the contribution of each component (triangles).

It is observed that the greatest losses that can arise, are due to CDT default (Graph B7.1, panel B) and Available for Sale (Graph B7.1, panel D). This is because CDTs are considered as an investment option by the different agents that compose the Colombian financial system.

Additionally, the analysis between the possible effect that credit institutions generate on themselves and over non-banking financial institutions, and the effect of the latter group on themselves and over credit institutions, was divided (Graph B7.2). In analyzing the results, it is found that the greatest effects are presented in non-banking financial institutions when credit institutions are the ones affected (Graph B7.2, panel B). On the other hand, the smallest effect happens from non-banking financial institutions to credit institutions (Graph B7.2, panel D).

This exercise helps to identify potential sources of risk between the different entities of the financial system, as well as those entities that would generate greater losses to it before an adverse scenario. Finally, the test helps to identify the most vulnerable entities given their relationship with the rest of institutions.

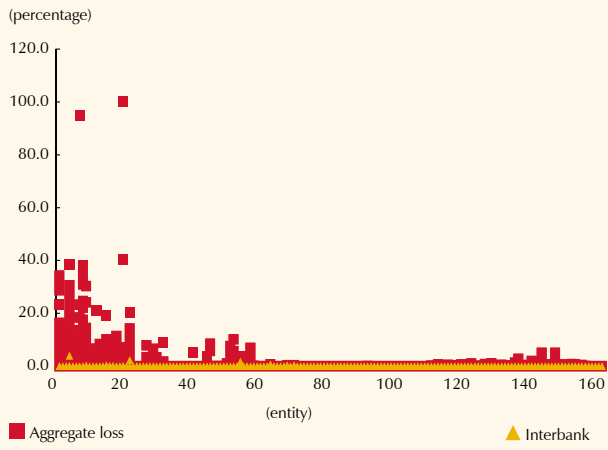
* The authors are specialized professionals at the Financial Stability Department. Their opinions do not compromise *Banco de la República* or its board.

1 Gauthier et al. (2011) use a stressed macroeconomic scenario that is reflected in increases in the default probability of the different economic sectors in the Canadian economy. This increases the potential losses of each bank, depending on their loan portfolio composition.

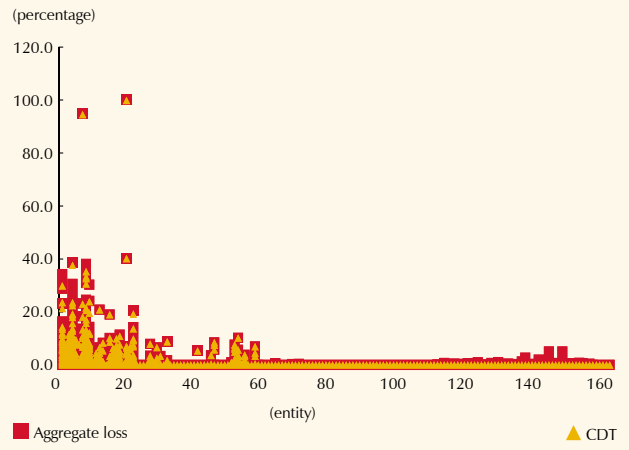
2 Operations conducted through a clearinghouse are excluded due to the low exposure to counterparty risk that these operations have.

Graph B7.1
Equity loss by entity

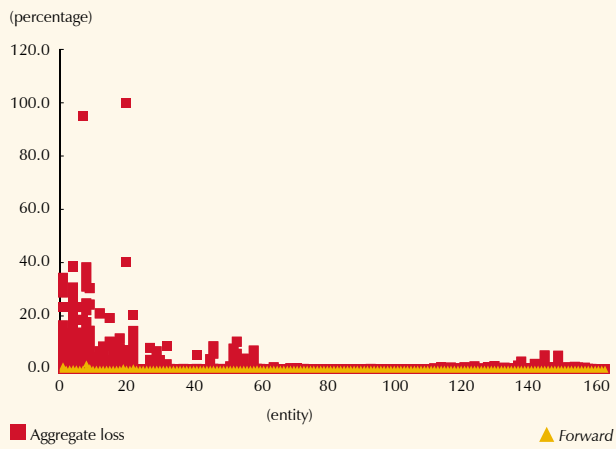
A.



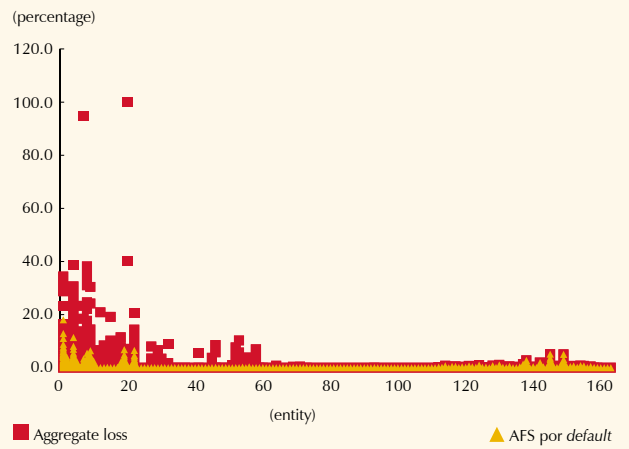
B.



C.



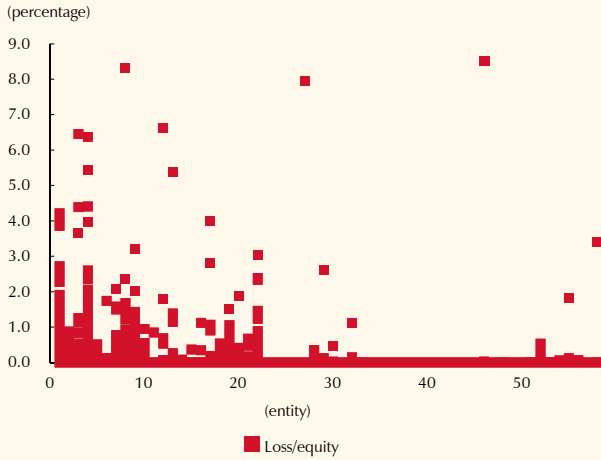
D.



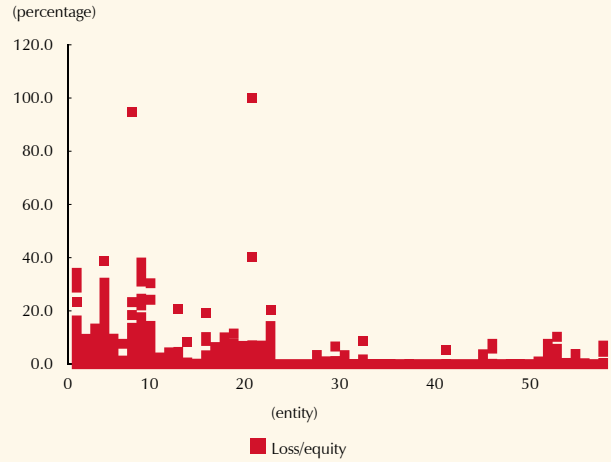
Source: Superintendencia Financiera de Colombia and Banco de la República; Banco de la República calculations.

Graph B7.2
Equity loss by type of entity

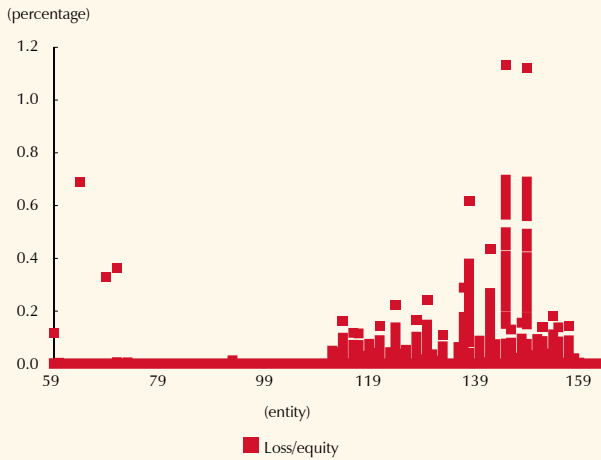
A. Credit institutions – Credit institutions



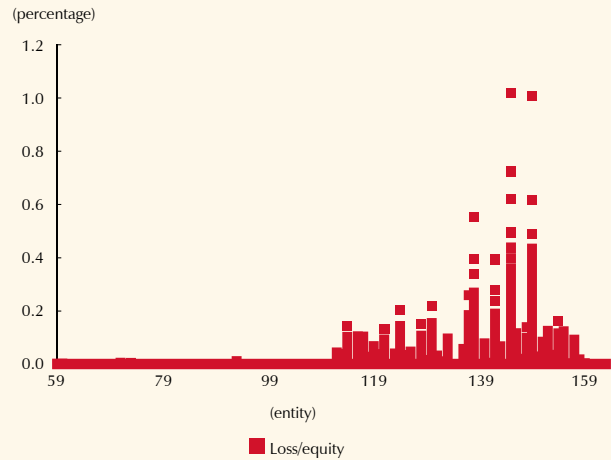
B. Credit institutions – Non-banking financial institutions



C. Non-banking financial institutions - Credit institutions



D. Non-banking financial institutions - Non-banking financial institutions



Source: Superintendencia Financiera de Colombia and Banco de la República; authors' calculations.

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Cabrera, W.; Corredor-Waldron, A.; Quicazán, C. A. (2012). Requerimientos macroprudenciales de capital y riesgo sistémico: una aplicación para Colombia (Macroprudential Capital Requirements and Systemic Risk: An Application for Colombia), *Financial Stability Issues*, no. 74.

Gauthier, C.; Lehar, A.; Souissi, M. (2012). Macroprudential Capital Requirements and Systemic Risk, *Journal of Financial Intermediation*, no. 21, pp. 594-618.

V. FINANCIAL REGULATION

During 2014, new measures and modifications in terms of regulation of the financial system have been implemented. Particularly, the main changes and adding new rules to the current regulation were focused on the stock brokerage firms' liquidity risk, loan portfolio buying and selling, fourth generation infrastructure financing, housing leasing, and financial inclusion.

This chapter recounts the most important local regulatory changes in recent months, both for their impact on the performance of the Colombian financial system, as for its potential implications on financial stability.

A. STOCK BROKERAGE AND SECURITIES FIRMS' LIQUIDITY RISK: SUPERINTENDENCIA FINANCIERA DE COLOMBIA'S EXTERNAL COMMUNICATION 10 OF 2014

In the second quarter of 2014, Superintendencia Financiera de Colombia announced a modification to Liquidity Risk Management System (SARL in Spanish) of the brokerage firms, for which adjustments were made to Chapter VI: "Rules relating to the Liquidity Risk Management System" and Annex 2: "Methodology for the measuring and standard reporting of the stock brokerage and securities firms' liquidity risk" of the Accounting and Financial Basic Circular. The aim of the new regulation is to ensure that entities have sufficient liquid funds to face liquidity risks derived from their own positions and in third position.

The main modifications are related to establishing a limit for the liquidity risk indicator (IRL) of the SCBs, as well as an explicit definition for significant exposure to risk in the case that this limit is defaulted for the IRL to one or seven days. Additionally, prudential and corrective measures are determined in order to counteract the significant exposure to liquidity risk by these entities. On the other hand, the changes also modify the methodology for liquidity risk measurement, introducing the definition of high-quality liquid assets and incorporating liquidity requirements by third parties.

Schematically, the new liquidity risk measuring model can be expressed as follows:

$$LRI_M = LA - (NLR_{PA} + NLR_{TA})$$

Where:

$$IRL_R = \frac{LA}{(NLR_{PA} + NLR_{TA})}$$

- Subscripts M and R represent the liquidity risk indicator (LRI) measured in amount and ratio respectively.
- LA are the stock brokerage firms' liquid assets.
- $LA = HQLA + \min(OAL; ALAC \times 3/7)$, where *HQLA* are the high quality liquid assets, and *OAL* stands for other liquid assets. It is noteworthy that, similar to credit institutions, the stock brokerage firms must maintain a level of high quality liquid assets (*HQLA*) representing, at least, 70% of the total of their liquid assets.

The net liquidity requirement (*NLR*) is divided between the own position requirement (NLR_{PA}) and the third party one (NLR_{TA}), where the former is defined as:

$$NLR_{PA} = \max(0, PANF - PAPP)$$

The term PANF-PAPP reflects the difference between negative (PANF) and positive (PAPP) flows derived from transactions in the money market¹⁶² in own position.

Meanwhile, the NLR_{TA} is defined as follows:

$$NLR_{TA} = (CrossOp + AgreedOp) \times 3.5\%$$

- *CrossOp*: denotes operations where the stock brokerage firm is involved on both sides of the transaction (i.e.: the buyer and the seller are represented by the same broker).

162 Operations performed at the Electronic Negotiation System (SEN) are not included.

- AgreedOp: denotes operations where the stock brokerage firm acts as a buyer or seller (i.e.: the buyer and the seller are represented by different stock brokerage firms).
- The sum of the agreed and cross operations is multiplied by 3.5%, since the stock brokerage firm should only be responsible for these operations (i.e.: having the liquidity to ensure their compliance) when its customer makes a default, which occurs with a low probability.

Stock brokerage firms must start delivering daily information associated with this report starting from 1 October 2014, and must meet the minimum limit set from November 4, moment at which the necessary prudential and corrective measures will be enforceable. In effect, it is established that if an entity observes that its LRI is negative, it shall report immediately in writing to Superintendencia Financiera de Colombia, on the reasons that led to the one or seven days LRI drop, the temporary or lasting nature of the situation, and the adjustment plan containing the actions that the entity will carry out to restore the LRI R to 110%, within a period not exceeding five working days.

If the entity: 1) does not present an adjustment plan, 2) this is contested by Superintendencia Financiera de Colombia, 3) the prudential actions mentioned in the plan are breached, 4) the implementation of the plan did not allow to restore the LRI R to 110% within the established deadline or 5) for the third time in a period of thirty calendar days it presents an adjustment plan, the stock brokerage firm cannot perform:

1. Money market asset operations in own position.
2. Investments purchase and, in general, new acquisitions on an own position.
3. Involve new customers.

Once the entity reestablishes the LRI R to 110%, it can restart the operations previously restricted.

B. REGULATION FOCUSED TO PROMOTE FINANCIAL INCLUSION: RESOLUTION CRC 4458 OF 2014 OF THE COMMUNICATIONS REGULATORY COMMISSION, LAW 731 OF 2014, AND DECREE 457 OF 2014 FROM THE MINISTRY OF FINANCE AND PUBLIC CREDIT

Financial inclusion is one of the central issues in the development, not only of the local financial system, but also for the economy as a whole. While financial deepening levels have increased in recent years, as well as the presence of banking in the country through the banking correspondents figure, the use of financial services, especially by the low-income population, remains a

challenge to overcome. Recently, the country has set a national strategy for financial inclusion, which goes around the following themes:

1. Transactional services for not included population.
2. To promote the use of financial services for households, through mobile banking, designing products tailored to needs and promoting new points of use in commercial establishments.
3. Promoting access and use of financial services for the rural sector.
4. Increased access to credit for Small and Mid-size Companies, using the newly regulated Registry of Security Interests, enabling them to use movable assets as collateral for their credits¹⁶³.
5. Defining a financial education strategy, leveraging the significant progress already made by the Ministry of Education, Superintendencia Financiera de Colombia, *Banco de la República*, the Financial Institutions Guarantee Fund (Fogafin) and the private sector, establishing a policy coordination committee.

Regarding the first point, it should be mentioned that currently there is a pending bill that proposes to create a new simplified financial license that will allow the creation of organizations specialized in payments, savings and deposits (PAD in Spanish). These entities will only be entitled to take deposits, which shall be deposited at *Banco de la República* or in a commercial bank; in this manner, they will not lend or invest resources from the public. In principle, these entities will be responsible for making money orders and payments to people, at low cost, they will have simplified processes for opening products, will be exempt from the financial transactions tax (GMF in Spanish) and will be supervised by the Superintendencia Financiera de Colombia.

Regarding the second point, the Communications Regulatory Commission, issued Resolution CRC 4458 of 2,014¹⁶⁴, which establishes guidelines for the promotion of financial services. In particular, the resolution requires operators to reduce prices to be paid by content and applications providers (including financial institutions) per text message (SMS) used in mobile banking transactions, which may not exceed \$9.2 per message. Moreover, the resolution contemplates that users have new channels to interact with their financial institution (USSD technology)¹⁶⁵, to facilitate interaction from any cellphone.

163 See the Financial Stability Report from March 2014 for further details regarding this regulatory change.

164 “By which Resolutions CRC 3066, 3496, 3500 and 3501 of 2011 are modified and other provisions are issued”. The Resolution was published in the Official Gazette on 14 April 14 2014.

165 Services based in unstructured supplementary service data (USSD) technology for mobile telephony (GSM), allow a quick and intuitive user interaction with information services, such as balance inquiries, credit reloads, information on weather, news, etc. USSD navigation is simple for the user, since it does not require any technical knowledge or preinstalled menus on the phone’s software, as only the numeric keypad is used to select options.

With this resolution, the government intends to facilitate the massification of financial services and seeks that lower income people can use them through the cellphone network.

Regarding to promoting access and use of financial services in the rural sector, the enactment of Law 1731 of 2014 should be remarked¹⁶⁶. The Law contains 25 articles and includes rules related to the following topics:

1. Financial instruments for sector development (e.g., rural microfinance, National Agricultural Risk Fund [FNRA in Spanish] and Agricultural Guarantee Fund [FAG in Spanish]),
2. The National Agricultural Revival Programme (PRAN in Spanish) and the Agricultural Solidarity Fund (Fonsa in Spanish)
3. Provisions relating with the Colombian Agricultural Research Corporation (Corpoica).

In relation to financial inclusion there are highlighted, in particular, the creation of the Rural Microfinance Fund. It is an unincorporated fund, administered by Finagro, separated entity from the equity of its administrator, in order to fund, support and develop the country's rural microfinance. In charged of the resources of this fund, it is going to be able to offer microcredit lines to unregulated entities (e.g.: NGOs), which currently cannot access to Finagro's rediscount lines¹⁶⁷.

Additionally, in order to stimulate the agricultural insurance offer, the use of the available resources at the National Agricultural Risk Fund is authorized, which will be administered by Finagro, to co-finance the costs for the technical strengthening of the agricultural insurance and the gathering of information of the insured products. Likewise, in order to foster risk management in the agricultural sector, it will be possible to offer subsidies, support or incentives to implement risk management instruments in the agricultural sector, different to insurances, may be granted, such as climate financial derivatives, or price or exchange risk hedging.

This is relevant if it is considered that one of the main weaknesses of the agricultural insurance market is the lack of supply, which reflects the lack of technical strength and insured products information, as well as the absence of an adequate risk management culture by agricultural sector producers.

166 “By which measures in financing for the revival of the agricultural, fishing, aquaculture, forestry and agroindustrial sector are taken, and other provisions related to strengthening of the Colombian Agricultural Research Corporation (Corpoica) are issued”.

167 Also, the issuance of Resolution 2 of 2014 by the National Commission on Agricultural Credit, which allows the issuing of the Agricultural Guarantee Fund (FAG) warranty, of up to 50% of the credit's capital, for Finagro's agricultural microcredit rediscount line, which should stimulate the offer in this segment.

Finally, in relation to the establishment of a policy coordinating committee, the issuance of Decree 457 of 2014 is relevant to be mentioned. Under this decree, the National Administrative System for Economic and Financial Education was established, in order to coordinate government and individuals activities to achieve an adequate level of economic and financial education for the population. Furthermore, the Intersectoral Commission for Economic and Financial Education is created as the coordinating and guidance superior body of the National Administrative System for Economic and Financial Education.

The Committee has, among other functions, proposing policies, guidelines, tools and methodologies to adopt the National Strategy for Economic and Financial Education, as well as to recommend the implementation of management mechanisms, the necessary coordination and funding between public and private sectors to implement and execute that strategy. In the same way, is responsible for coordinating the activities undertaken by public and private institutions related to the formulation, execution and monitoring of the necessary policies to implement it.

The above is an important step in the financial inclusion process, since “[..] economic and financial education is the process through which individuals develop the values, knowledge, skills and behaviors necessary for the making of responsible financial decisions”(National Development Plan, 2010-2014), which guarantees the proper use of financial services for the welfare of consumers.

**C. LOAN PORTFOLIO'S PURCHASE AND SALE:
SUPERINTENDENCIA DE LA ECONOMÍA SOLIDARIA'S
EXTERNAL COMMUNICATION 008 OF 2014 AND
SUPERINTENDENCIA FINANCIERA DE COLOMBIA'S
EXTERNAL COMMUNICATION 004 OF 2013**

So far in 2014, the Superintendencia de la Economía Solidaria (Office of the Superintendent for Solidary Economy, SES) has implemented a series of regulations aimed at regulating some practices developed by the solidarity sector entities. On the one hand, it established some rules for the loan portfolio purchase and sale by entities supervised by it, because that practice had become recurring between its institutions, and did not have precise procedures which facilitated the information flows and transparency among sector's organizations. Additionally, the SES regulated other practices related to its business, in order to ensure the compliance of various laws around consumer protection.

Meanwhile, in March 2013, Superintendencia Financiera de Colombia (Office of the Financial Superintendent, SFC) defined a set of rules for the loan portfolio purchase by credit institutions to entities not supervised by this institution.

Regarding the first group of measures, in July 2014 SES issued the External Communication 008 of 2014, which seeks to regulate the process of loan portfolio purchase and sales between the solidarity sector's entities, and ensure the compliance of various laws around consumer protection.

In general terms, within the criteria and parameters that must be taken into account to make loan portfolio purchases or sales, the following aspects are highlighted: i) the regulation of this practice within the entities' statutes; ii) the availability of information on debtors behavior; iii) the assessment of credit risk; iv) the transfer and management of the traded loan portfolio's guarantees; v) the evaluation of the loan portfolio in terms of the expected loss, and vi) the provisioning by both types of entities (originators and purchasers).

Also, the circular states that, within the loan portfolio purchase agreement, the parties must define who bears the risk; i.e., if the type of contract is "with responsibility", the originator entity will be the one who fully assumes the risk of the loans in question, for which it must constitute a cash reserve equal to the percentage of expected loss, to support future losses. For its part, in case the loan portfolio sale is "without responsibility", the risk lies on the buyer organization. In this sense, this regulation allows to align the incentives of different agents, so that loan portfolio sellers under contracts "with responsibility" would be concerned in originating high quality loans and properly measuring their risk, while the purchasing organizations under the "no responsibility" contract should make sure they are buying good quality loans, making a continuous monitoring.

It should be noted that, in case the entities do not comply with the guidelines established for the loan portfolio purchase process, they should make a provision for the entire purchased or sold loan portfolio, as applicable. In addition, it is established that during the purchase process, the conditions initially settled with the debtor should be maintained.

Additionally, this circular covers other aspects related to the cooperatives business, particularly on better practices in consumer protection issues, following several complaints filed from the Superintendencia de Economía Solidaria's associates. In particular, it aims to eliminate practices that go against the cooperatives social object against its associates, such as tied sales, interest charges over the of legal limits, associates overindebtedness, breach of the voluntary retirement, return of social contributions and to participate at the Associates Assembly rigst, and the loan's early payment refusal.

Meanwhile, in March 2013, Superintendencia Financiera de Colombia issued External Communication 004, by which some rules related to the acquisition of loan portfolios by credit institutions to originators not supervised by the Superintendencia Financiar de Colombia were modified, in order to have a tighter control over these operations.

Generally speaking, this regulation seeks both, originators and buying entities, to meet certain minimum requirements which allow them to reduce the risks associated with these operations. Next, these changes are described below:

The loan portfolio purchase by credit institutions to legal persons (originator), will only be possible if the latter certify compliance with the following requirements:

1. To be authorized or have the legal registration required to develop the lending activity, when it may apply.
2. Report to credit bureaus information about their debtors' credit behavior.
3. Comply with the legal dispositions regarding interest rates and their maximum limits.
4. In the case of loans warrants, to comply with the maximum wage deductions.
5. Information availability on the debtors' behavior, including their historical payment, so that the credit institution that purchases the loan portfolio can correctly apply the provisions that will be explained later.

On the credit institutions side, the following requirements must be met, which must be approved and reviewed by the board:

1. To include within the credit risk manuals, policies and explicit procedures for selecting originators, so that selection criteria for verifying the background and experience are defined, and to know the originator's market niche. They must also define parameters to analyze and study the balance sheet of the originator. Moreover, these procedures should contemplate diversification guidelines by product and by originator (concentration limits).
2. To have knowledge of the originator's policies and procedures in the granting, monitoring and recovery stages.
3. To define some minimum criteria for selecting the loan portfolio to be purchased, in terms of risk profile and debtors' payment capacity.
4. If the type of loan portfolio acquired does not belong to the credit institution's market niche, it must first inform Superintendencia Financiera de Colombia on the policies and strategies implemented to enter the new market.

In short, these decisions tried to reach a greater monitoring and transparency in the loan portfolio's purchase and sell process, since this practice can have significant effects on the entities equity situation.

Finally, it is worth noting that currently the Ministry of Finance and Public Credit contemplates introducing a draft decree, which consists of an update of the prudential standards for solvency, individual credit limits and risk

concentration for saving and credit cooperatives and multiactive or integral cooperatives with a saving and credit section.

D. FOURTH GENERATION (4G) INFRASTRUCTURE FINANCING: MINISTRY OF FINANCE AND PUBLIC CREDIT'S DECREE 816 OF 2014

Decree 816 of 2014 seeks to encourage the participation of credit institutions and some non-banking financial institutions in financing infrastructure projects, developed in accordance with the public-private partnerships (PPPs) scheme.

The arrangement modified Decree 2555 of 2010¹⁶⁸ in relation to individual credit limits, regimes to investment of the severance funds and mandatory pension funds resources, and the portfolio supporting life insurance companies' technical reserves, and partially changed the definition of private equity funds.

Before issuing this decree, no credit institution could perform active lending operations that exceeded 10% of its technical equity, if the only guarantee of the operation was the debtor's assets. However, this rule increased the rate to 25%, provided that the excess corresponds to financing fourth generation (4G) road infrastructure projects under the PPP scheme, in which the National Infrastructure Agency (ANI) takes part.

Additionally, the Financiera de Desarrollo Nacional (National Development Financing Company, FDN) was included for first time, whose individual share maximum amount can be raised up to 40% of its technical equity, provided that the excess is subject to finance infrastructure projects. It should be clarified that this individual limit applies whenever the FDN does not have simple deposits, fixed term certificates of deposits (CDT), savings deposits, special savings accounts, mortgage bonds, special deposits, bank collection services and electronic deposits on its balance sheet. If the FDN constitutes any of these financial claims, the institution may not grant new loans to counterparties to which it has a percentage of concentration higher to the limit applicable to credit institutions in general.

On the other hand, the document refers to private equity funds as closed mutual funds, which spend at least two thirds of their investors' contributions to purchase assets or rights of an economic nature, different to securities registered and the Securities and Issuers National Register (Registro Nacional de Valores y Emisores - RNVE). With the issuance of Decree 816, assets

168 By which norms on the financial, insurance and securities exchange sector are gathered and reissued, and other provisions are enacted.

issued to finance infrastructure projects under the PPP scheme, described in Law 1508 of 2012, will count for this limit.

Finally, the decree modified the pension and severance fund managers and insurance sector's investment regimes. On the one hand, mandatory pension funds (moderate risk fund), severance funds (long-term portfolio) and life insurance companies (value of the portfolio that supports their technical reserves), may invest up to 5% of the value of such portfolios in private equity funds which allocate at least two thirds of their investors contributions in infrastructure projects under the PPP scheme. On the other hand, mandatory pension funds (high risk fund) may invest up to 7% (Table 27).

Table 27

Maximum amount that some non-banking financial institutions can invest in 4G infrastructure projects

Non-banking financial institutions	Investment percentage (under Decree 816 of 2014)
Mandatory pension fund – Moderate	5.0
Mandatory pension fund – High risk	7.0
Severance funds – Long-term portfolio	5.0
Life insurance companies ^{a/}	5.0

a/ The fund's value corresponds to the portfolio value which supports its technical reserves.

Source: Table made by *Banco de la República*, based on Decree 816 of 2014 from the Ministry of Finance and Public Credit.

E. RESIDENTIAL LEASING: MINISTRY OF FINANCE AND PUBLIC CREDIT'S DECREE 1058 OF 2014

In June 2014 the Ministry of Finance and Public Credit issued Decree 1058 of 2014¹⁶⁹, by which it authorizes residential leasing operations for the acquisition of family housing equity with a capital component administered as long-term savings.

Previously, with Law 1537 of 2012, a new mechanism for financing housing known as saving option through residential leasing or leasing contract with purchase option, was defined. Under this figure is established, the possibility of a long-term saving through the capital component of a periodical fee, which would be managed by financial institutions authorized to perform residential leasing contracts for the acquisition of family housing. Within these entities,

169 By which a chapter is added to Title I Book title 28 Part 2 of Decree 2555 of 2010, related to the residential leasing operation destined for the purchase of family housing with a capital component administered as a long-term saving as provided under the first paragraph of Article 37 of Law 1537 of 2012.

banking institutions, commercial financing companies and Fondo Nacional del Ahorro are included¹⁷⁰.

Given the existence of such a mechanism for housing financing, the Ministry of Finance and Public Credit regulates this figure by Decree 1058 of 2014. The new legislation provides that financial institutions authorized to conduct residential leasing operations, can structure a product aimed at housing financing, in which a proportion of the capital component of the fees agreed could be administered by them as long-term savings on behalf of tenants.

Also, the decree states that the fee set for the leasing contract consists of two components: one destined to cover financial costs, and the other corresponding to capital. The latter, in turn, consists of: i) regular amortization of part of the property purchase option price, and ii) a long-term saving which is managed by financial institutions, which together with its yields, can be destined to cover in all or in part the payment of the purchase option exercise value defined in the contract.

With respect to the capital component administered as long-term savings, the following points are highlighted:

1. The estimated value is calculated assuming that, at the end of the agreed period, the tenant has saved part or all of the purchase option's value defined in the contract.
2. Capital administered as long-term savings must be paid by the financial institution in favor of the tenant, considering that the purchasing power of these savings must be maintained throughout the whole period in which it is administered.
3. If the tenant wishes to exercise the agreed option on his favor, but the amount of long-term savings and their yields are lower than the value of this option, the tenant will have to pay the remaining value.
4. The long-term savings component shall be administered by the authorized financial entity in separate accounts for each tenant, and cannot be used to offset matured financial and capital costs, nor any other requirement that the tenant has with the respective entity.
5. In case of default on the agreed fees by the tenant, the rules for reporting information to credit bureaus will apply.

Regarding to the creation of this new product that will be offered by financial institutions, it is noted that this must be approved by the respective board or body acting as it, contemplating the financial viability and sustainability. Additionally, the institution may set the interest rate that will pay on the capital

¹⁷⁰ Law 795 of 2003 authorizes banking institutions and commercial financing companies to perform leasing operations, while paragraph 2, Article 26, of Law 1469 of 2011 does the same with Fondo Nacional del Ahorro.

administered as long-term savings, the form and periodicity of payment of this rate, in order to preserve the savings purchasing power.

Finally, this new measure states that in cases where: i) the tenant decides not to exercise the purchase option; ii) if prior to the deadline for exercising the option the tenant defaults, or iii) the parties elect to terminate the leasing contract, the capital component administered as long-term savings will be part of the resources on which are made the discounts that cover the contract settlement's deductions.

Additionally, the Ministry of Finance and Public Credit, recognizing the power of Fondo Nacional del Ahorro to perform residential leasing operations destined for housing purchase, issued Decree 1102 of 2014, where it adds the legal power for affiliates to the contractual voluntary savings product (AVC in Spanish), to subscribe residential leasing contracts, in which case the funds will be used to pay their fees.

F. SECOND MARKET: MINISTRY OF FINANCE AND PUBLIC CREDIT'S DECREE 1019 OF 2014

Given the limited use it has been given to the second market scheme, and to encourage the participation of new issuers in the securities market, thus generating an increase in the offer of new investment alternatives for professional investors, the Ministry of Finance and Public Credit made changes to the second market's regulatory framework through Decree 1019 of May 2014. The decree seeks to create a simplified channel for issuances aimed at institutional investors, and seeks to facilitate access to capital markets for small and medium companies or one-time issuers (such as partnerships created to finance infrastructure). The issued amendments look to reduce registration and issuance costs and times, and to facilitate issuers' placement requirements, as well as to improve investors' information regarding issuances¹⁷¹. All this in order to deepen and boost this market, thus expanding formal financing sources and generating a wider range of financial products for institutional investors. The main features of the second main market are summarized in Table 28.

171 Two articles were added to Decree 2555 of 2010. The first provides that issuers wishing to be part of the second market must submit a placement prospectus to the authorized investors who have shown interest in the issuance, with a minimal information requirement. The second requires issuers that are part of the second market, to update, at the request of at least one of the holders of securities investors, either physically or through the website, the information related to "End of year's information exercise" and "Intermediate periods' information".

Table 28
 Relevant aspects comparison between the primary and the secondary market

Item	Secondary market	Primary market
Inscription at the Securities and Issuers National Register (RVE in Spanish) and rating	Voluntary	Mandatory
RVE's inscription cost	0.04 x 1,000 of the issuer's equity	0.08 x 1,000 of the issuer's equity
Superintendencia Financiera de Colombia's response time	10 days	30 days
Public offer rights	Does not charge a public offer rights	0.35 x 1,000 on the issuance's total amount
Issuance's minimum amount	Without a minimum amount	2.000 monthly minimum salaries (SMMLV in Spanish)
Placement prospectus	Simplified	Complete

Note: RVE: Registro Nacional de Valores y Emisores.
 Source: Ministry of Finance and Public Credit.

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