



FOREIGN RESERVE MANAGEMENT

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INTRODUCTION

The Colombian Constitution and Law 31 of 1992, Article 14, assign the administration of international reserves to Banco de la República. They also specify that international reserves shall be managed according to strict criteria of safety, liquidity and profitability, in that order. The purpose of this document is to bring up to date the March 2009 report on Colombia's *International Reserve Management*.

This present report first introduces the main concepts associated with international reserves, and the framework providing a basis for their management by the Bank. It then describes in detail the country's reserve management policy and the basic operational aspects of the policy. The report ends with an account of the current status of the reserves.¹

¹ Unless otherwise indicated, all figures in this report are as of the end of December 2010 and are provisional. Any discrepancies between figures arise from rounding.

I. PURPOSE OF INTERNATIONAL RESERVES

A. DEFINITION

International reserves are assets invested overseas controlled by the monetary authority. A foreign asset must meet two conditions to be regarded as a reserve asset: first, it must be under the direct, effective control of the monetary authority and, second, it must be available for immediate use. Assets that may be regarded as international reserves include gold, the country's position at the International Monetary Fund, and assets denominated in a foreign currency, such as cash, deposits and bonds.

B. GENERAL OBJECTIVES OF ACCUMULATING INTERNATIONAL RESERVES

To give a clear idea of Banco de la República's management of international reserves, it is necessary to identify the objectives intended to be reached with the reserves. The Bank holds international reserves in such quantities as it considers sufficient for intervening in the exchange market and for facilitating access by the government and the private sector to international capital markets.

1. Foreign-exchange intervention

Intervention in the foreign-exchange market is one of the instruments available to the Bank for meeting the basic objective of keeping inflation stable within a long-term target range (2% to 4%) and fostering output growth at around its long-term trend. For example, when a rapid depreciation of the peso poses a threat to meeting inflation targets, the Bank may mitigate exchange-rate pressures by selling foreign currency in the market, while avoiding that the burden of the adjustment should fall exclusively on the interest rate. The Bank may also intervene in the foreign exchange market to control atypical or sharp exchange-rate movements, characterized by high volatility and a significant broadening of the spread between the currency's purchase and sale prices. Such movements may influence the performance of other financial assets connected with the exchange

market, jeopardizing the objectives of fostering financial stability and the proper functioning of the payment system.

It should be pointed out that intervention by the Bank does not seek any specific exchange-rate target. As stated above, the Bank's main objectives have to do with inflation, economic activity and orderly foreign exchange-market behavior. Furthermore, the Bank recognizes that foreign-exchange intervention is not always advisable or effective; accordingly, it is neither constant nor indiscriminate.

2. Access to international capital markets

International reserve holdings, in a sufficient amount, facilitate access by the government and private sector to international capital markets. The level of reserves is a determining factor in perception of the payment capacity of Colombian borrowers. Rating agencies and foreign lenders consider that an adequate level of reserves would allow residents to meet their foreign-currency obligations such as import payments and foreign-debt service, should the country face difficult access to foreign funding. The recent use by agents in international capital markets of indicators of the payment capacity of reserves, as a measure of the country's liquidity, highlights the importance of holding an adequate level of international reserves.

In this context, the Banco de la República seeks to maintain an adequate level of available, freely convertible assets denominated in foreign currencies, to be able to meet its above-stated objectives efficiently. Moreover, the IMF has approved access by Colombia to the Flexible Credit Line, which operates as insurance allowing countries to deal with deterioration in external conditions.² Like other central banks, the Bank lays special emphasis on ensuring the safety and liquidity of its reserve investments, without the generation of return being neglected as a further important aim.

C. HISTORICAL EVOLUTION OF OBJECTIVES OF INTERNATIONAL-RESERVE ACCUMULATION AT THE BANCO DE LA REPÚBLICA

Before the 1990s the main purpose of reserves was to support foreign trade transactions. The criterion for reserve adequacy was, therefore, the number of months of imports they could cover. Exchange-rate policy at the time, known as

2 The IMF's Flexible Credit Line (FCL) has been created to provide support to member states that have strong economic fundamentals, prudent policies and a sound institutional framework for economic policy. Colombia's application for FCL access was initially approved in 2009 for 900% of the country's IMF quota. On May 7, 2010 the IMF approved renewal of Colombia's access for one year, for about \$3,500m, equivalent to 300% of the quota.

“crawling-peg,”³ operated in a market with very low exposure to foreign capital, because of restrictive regulations in place at the time.

Starting from 1991 several structural changes influenced the new definition of international reserve objectives. Domestically, Law 9 of 1991 liberalized the foreign-exchange market in order to stimulate foreign investment and facilitate international-trade transactions. “Crawling-peg” was gradually replaced by a system of exchange-rate bands, and in 1999 free floatation was introduced. With this new regulatory framework in place, the private sector increased its foreign borrowings; and syndicated loans—the traditional source of public-debt funding in international markets—were replaced by bond issues. The rise in capital flows made it more necessary to hold sufficient international reserves to protect the economy from a sudden reversal.

The decade of the nineties saw several emerging countries with sound fundamentals face capital outflows, as a result of the contagion effect of crises in Mexico, countries of south-east Asia and Russia. The possibility of facing contagion, even if the country has prudent fiscal and monetary policies, further strengthened the need to hold adequate reserves, because empirical evidence showed that countries with adequate levels of international reserves were less vulnerable to contagion.

As a result of these events, the credit ratings of emerging countries began to attach greater importance to international-reserve levels as a measure of the capacity of the government and private sector to meet their foreign currency obligations. Accordingly, Banco de la República revised its objectives for accumulating international reserves, to take into account the effects of capital market deregulation, as well as the empirical evidence on the effect of contagion among emerging countries, and the increasing importance given to policies on foreign currency liquidity in the country’s credit rating.

D. OBJECTIVES OF ACCUMULATING INTERNATIONAL RESERVES, AND THEIR IMPLICATIONS FOR RESERVE MANAGEMENT

The reserves are made up of: i) the ‘investment portfolio’, which accounts for most of the reserves and consists of international financial market instruments; ii) gold investments; iii) contributions to supranational organizations, such as the IMF and the Latin American Reserve Fund (LARF)⁴; and iv) international agreements. Contributions to the IMF and LARF provide Colombia with access to contingency

3 Under the crawling-peg regime, the Bank used to determine the official exchange rate on a daily basis by making small daily devaluations.

4 For statistical reasons and following the methodological criteria for calculating reserve assets, established in the IMF’s Balance of Payments Manual, contributions to LARF are not included in the balance of international reserves. But they continue to figure among reserve assets on the Bank’s balance sheet.

lines of credit, and international agreements, for example with the Latin American Integration Association (ALADI), serve to facilitate trade between member states.

As the objectives of accumulating international reserves evolved, they in turn brought about changes in reserve management policies. Three changes, in particular, stand out:

- With a floating exchange-rate regime, there is less likelihood of central bank intervention in the exchange market, and the amount of the intervention is smaller. As a result, the percentage of reserves remaining available to cover immediate liquidity needs, referred to as working capital (invested for very short periods), has decreased over time: falling from some 90% of reserves in 1994 to about 4% today.
- Given that the floating-rate regime has meant lower liquidity needs, the aim with respect to the rest of the investment portfolio has been to obtain longer maturities and higher expected returns, which involves assuming greater risk.
- To attain the above aim, the Bank relies on both a specialized internal infrastructure and an external one to enhance its capacity to control for any risk.
- In accordance with these criteria and to ensure that the country's external-payment obligations are met, the reserves have been invested in financial assets with high levels of safety and security, for which there is a broad secondary market.

These investment policies are not exclusive to Banco de la República; rather, they are in line with a trend occurring in most central banks across the world.

II. INSTITUTIONAL FRAMEWORK

A. LEGAL FRAMEWORK

The Colombian Constitution⁵ and Law 31 of 1992 together with Decree 2520 of 1993 set forth the rules to be observed by the Banco de la República in performing its functions, which include managing the country's international reserves.

Law 31 of 1992, Chapter IV, on the administration of international reserves and authority in international matters, provides in Article 14 that “Banco de la República shall administer the international reserves in accordance with public interest, to the benefit of the national economy and with the aim of facilitating the country's foreign payments. Administration includes the management, investment, placing in custody and disposition of reserve assets.” Law 31 further lays down that reserves “shall be invested subject to the criteria of safety, liquidity and return, in freely convertible assets denominated in reserve currencies or in gold.”

Moreover, the Bank's Board of Directors is authorized to “make contributions from the reserves to international financial organizations, provided said contributions also constitute reserves [...] carry out hedging operations [and] obtain non-monetizable, balance-of-payment credits”. It should be pointed out that the Board is not authorized to make loans from the international reserves. Lastly, Law 31 further provides that the Bank's international reserves shall be immune from seizure.

B. ORGANIZATIONAL FRAMEWORK

The Bank's Board of Directors, in the exercise of its authority under law and the Bank's Statutes, in particular the authority contemplated in Articles 14, 15 and 34(ñ) of the Statutes, issued Internal Resolution 3 of 1994, subsequently replaced by Resolution 2 of 2001, whereby it regulated the objectives, functions and responsibilities of the International Reserves Committee and created the Internal Committee on International Reserves.

⁵ Colombia's Constitution of 1991, Title XII (On the economic regime and public finance), Chapter 6 (On the central Bank), Article 371.

The International Reserves Committee is responsible for setting reserve management objectives, principles and general policies. Committee meetings are held at least once every two months, chaired by the Governor of the Bank, and attended by all the exclusively dedicated members of the Board of Directors, and the Minister of Finance and Public Credit (or his representative).

The Reserves Committee's function of setting reserve management policies includes responsibility for establishing investment guidelines and setting the benchmark. The guidelines and the benchmark define composition criteria for the investment portfolio, the types of eligible assets, authorized operations and tolerable exposure to different risks.

The Bank's Internal Committee on International Reserves is responsible for defining the internal operational framework required for meeting the objectives, principles and investment policies determined by the Reserves Committee. Meetings of the Internal Committee are usually held at least once a month, chaired by the Bank's Deputy Technical Governor or the Chief Monetary and Reserves Affairs Officer. The members of the Internal Committee are the Deputy Technical Governor, the Chief Monetary Reserves Affairs Officer, and the Director of the International Reserves Department.

The International Reserves Department belongs to the Monetary and Reserves Affairs Division and is responsible for implementing and monitoring investment policies established both by the Reserves Committee and by the Internal Reserves Committee. Within the Reserves Department, the Markets Division is the area responsible for investments of the internally managed portfolio, and the Risk Division is in charge of risk management, compliance with investments guidelines, and the performance attribution of all investments. In addition, two groups within the Department provide technical support to the other areas. The Research and Analysis Group undertakes economic and financial research and develops quantitative tools in support of the process of investing international reserves. The Information Development and Analysis Group, for its part, helps in creating and improving technological tools used in the process of investing reserves and is responsible for efficient management of portfolio information.

2. Control bodies

The Bank relies on a broad infrastructure for control and management of investment portfolios, including staff from other entities as well as from different areas of the Bank itself, in order for such control to be impartial and independent.

Under the country's Constitution, control over the Banco de la República rests with the Colombian President, who has been authorized by Law 31 of 1992 to delegate this function to the Auditor General's Office. The Auditor, as the Presi-

dent's delegate, is responsible inter alia for: "certifying the Bank's financial statements, performing such other functions as the Code of Commerce assigns to the Statutory Auditor and exercising control over the running and results of the Entity,"⁶ including the management of international reserves. The Auditor is in charge of supervising compliance of asset accounting with accounting principles established by the Financial Superintendency, and presenting quarterly assessments on different aspects of management of the reserves to the President of Colombia, the Financial Superintendency and the Bank's Board of Directors.

Other provisions⁷ stipulate that the functions of inspection and oversight over the Bank, assigned by the Constitution to the President of Colombia, shall be performed by the Banking [now Financial] Superintendency in accordance with Decree 239 of 1993. Insofar as the Bank carries out fiscal- management actions, competence rests with the Office of the Comptroller General.

Furthermore, the Bank engages a firm of external auditors to issue an opinion on its financial statements in accordance with international auditing standards. Since 2008 this task has been performed by PricewaterhouseCoopers; before, it was performed by Deloitte & Touche Ltda. The involvement of an external entity is a reflection of the agreements made by all countries with the IMF, and also of the importance that international markets attach to verifying information connected with international reserves. (Auditors' comments on the Bank's financial statements may be found on: www.banrep.gov.co/el-banco/ef_1.htm.)

Lastly, the Bank's Internal Control Department was created under Law 87 of 1993, which lays down internal-control procedures for public entities. The function of the Department is to verify, independently, that the necessary procedures for the performance of tasks concerning the investment of reserves are in place and are being complied with.

Besides the different control entities referred to above, the Bank itself, in the interests of transparency and pursuant to Article 5 of Law 31 of 1992, submits each year to the Colombian Congress two reports that include information on the policy of management, composition and performance of the country's international reserves during the immediately preceding period.

Information on international reserves is also to be found in the Bank's financial statements published every month in the *Revista de la República*, and also in monthly reports to the Financial Superintendency and quarterly reports to the General Accounting Office. At the start of each year the Bank's financial statements as of December 31 of the immediately preceding year are published in a nationally

6 Law 31 of 1992, Title IV (Inspection, oversight and control), Article 48.

7 Law 31 of 1992, Article 47, and Decree 2520 of 1993, Article 70.

circulated economic newspaper, and the notes to the financial statements are posted on the Bank's website (www.banrep.org; www.banrep.gov.co). These notes contain detailed information on certain balance-sheet items, including international reserves, and carry comments on internally and externally managed portfolios and risk-management policies.

Lastly, the level of international reserves is posted on a weekly basis on the Bank's website.

III. INVESTMENT PORTFOLIO MANAGEMENT AND ASSOCIATED RISKS

The basic financial theory of portfolio management is based on the relationship between expected return and risk. Thus, an investor, in defining his portfolio, will choose a combination of assets that will allow him to maximize his return, depending on the level of risk he is willing to accept. To put it simply, to earn a higher return, he must assume higher risk, and to face lower risk, he has to sacrifice return. Moreover, any investment decision is taken in an environment of uncertainty, causing the investor to be faced always with different types of risk. What may be considered a safe investment at a given moment, may become a risky one with time, depending on the economic environment and the security issuer's financial situation.

The need to ensure the safety and liquidity of international reserves means that investments should have a low risk profile. Once this requirement is met, the aim of portfolio management is to generate the greatest possible return. In certain special circumstances, such as occurred during the international financial crisis,⁸ the Bank will be willing to sacrifice return to obtain greater safety and liquidity for international reserves.

In the past ten years (2001-2010) the country's international reserves generated a profit of \$5,786 million. To achieve this return, it was necessary to assume financial risks, taking into account that, as stated above, there are various types of risk facing every investor. A description follows of the main risks every central bank is necessarily exposed to in managing its international reserve portfolios. The way the Bank has dealt with them is also described.

8 A detailed description of the most recent international financial crisis is to be found in the March 2009 report on *International Reserve Management* (Boxes 3 and 4).

A. MARKET (OR INTEREST-RATE) RISK

In the case of international reserve investments, market risk arises when interest rates in the major world financial markets go up.⁹ Conversely, when international interest rates fall, reserves become more valuable.

The chief indicator for measuring market risk is the percentage change in portfolio value caused by a 1% change in interest rates (modified duration). For example, if interest rates rise by 1%, a portfolio with a modified duration of two will lose 2% of its value. Since there is an inverse relation between interest rates and portfolio values, a decrease in the modified duration means that reserves face a lower risk of loss should external interest rates rise. A portfolio with a higher modified duration has a higher long-term expected return but also faces greater market risk.

To limit market risk, the Banco aims to keep the probability of negative returns over twelve months, excluding the exchange-rate component, at no more than 5%. In its calculations it uses such measures of market risk as modified duration and Value at Risk (VaR)¹⁰.

B. LIQUIDITY RISK

For central banks this is the risk of not being able to convert reserve assets to cash quickly and at minimum cost when they need them. They minimize this risk by investing in financial assets with liquid secondary markets, such as securities issued by governments of industrialized countries (for example, US government bonds). Liquidity risk is dealt with dynamically, since liquidity conditions in the market change over time.

Central banks usually define investment tranches based on the liquidity and return criteria contemplated in the general objectives of international reserves. Shorter-term, more liquid investments are used for foreign exchange-market intervention. The longer-term, higher-return investments of reserves are expected to be deployed in exceptional cases. The Bank divides the investment portfolio of reserves into two components: working capital, and investment tranche.

- *The working capital* is intended to cover immediate liquidity needs from reserves. It is the portfolio where funds from foreign exchange-market interventions are placed. Working-capital investments are concentrated in very short-term assets and are made only in dollars. Given that this tranche is

9 The prices of fixed-income instruments fall when market interest rates rise. This occurs because these instruments pay fixed interest rates, which become less competitive when market rates rise. A more detailed explanation is given in Box 1 of the March 2009 report on *International Reserve Management*.

10 Value at Risk is widely used internationally. It estimates, with a level of confidence of 95%, the maximum loss the portfolio may incur over different time horizons.

meant to provide immediate liquidity for foreign exchange-market interventions, it is concentrated in deposits and investments that can be liquidated in one day without heavy costs. Its level fluctuates between \$390m and \$2,000m.

- *The investment tranche* is executed with a term and a return profile superior to the working capital's. Compared with the working capital this tranche is invested in a larger number of instruments and for longer maturities. As of December 31, 2010 the value of the investment tranche stood at \$25,244m.

To keep the liquidity risk of investments low, the Bank mostly invests in negotiable securities with a broad secondary market and issues greater than \$250m.¹¹ Moreover, purchases are not allowed to be greater than 10% of the total amount outstanding of each instrument.

C. CREDIT RISK

This is the risk the portfolio is exposed upon occurrence of credit events, such as: i) deterioration in the credit quality of issuers/issues of investment assets, and/or ii) default by issuers. Central banks control this risk by setting limits on their exposure to each type of financial instrument. The maximum acceptable risk is defined on the basis of credit ratings issued by specialized international rating agencies.¹²

To limit this risk the Bank uses as a benchmark the credit ratings published by the most renowned agencies (S&P, Moody's and Fitch Ratings). On the scale used by these agencies, the highest long-term rating is AAA and the lowest D. For an average investor, it is considered safe to invest in paper with long-term ratings higher than BBB-, i.e. investment-grade ratings.

The importance of limiting credit risk has led the Bank to require a long-term rating of at least A- for its investments, that is to say, three levels higher than what is recommended. In the case of bank and corporate securities, it requires at least an A+ rating.

The Bank also sets restrictions on the type and characteristics of eligible assets. So, for example, it is forbidden to invest in securities issued from tax havens; and only senior (unsubordinated) securities, having priority in the event of liquidation, are considered eligible.

11 This limit is applied to investments with a maturity of more than one hundred days.

12 For a more detailed explanation of the ratings used by the specialized agencies, see Box 2 of the March 2009 report on *International Reserve Management*.

Investments are concentrated in government bonds of the United States, Germany and Japan. Within strict limits, investments are also allowed in debt of other governments and other issuers of high quality, such as quasi-governments, supranational organizations, banks and corporations. US Agency Mortgage-backed securities¹³ are also eligible for investment. Maximum limits are set on concentration by issuer, to ensure diversity and reduce the impact of any credit event. Table 1 presents aggregate limits by issuer for the investment portfolio.

Table 1
Limits by issuer^{a/}

Issuer		Investment-portfolio limit
Sovereign issuers: US, Germany, Japan		No limit
Other local-currency sovereign issuers	AAA	4,0
	AA	2,8
	A	1,6
Quasi-governments	AAA	3,2
	AA	2,4
	A	1,1
Corporate issuers	AAA	2,4
	AA	1,6
	A	0,7
Local governments	AAA	2,4
	AA	1,6
	A	0,7

a/ Quasi-governments are issuers connected to governments (for example, supranationals, and agencies). Local governments (for example, states and provinces) are also included in quasi-governments but have stricter limits.
Source: Banco de la República.

D. EXCHANGE-RATE RISK

International reserves are valued in US dollars. Accordingly, investments in euros, yen and other currencies are converted to dollars at the prevailing market exchange rate. This means that the portfolio value expressed in dollars may fall if the currencies of the investments depreciate against the dollar. This exposure to exchange-rate movements is known as exchange-rate risk.

Currency quotations are highly volatile and often show no definite long-term trends. To smooth out the impact of exchange risk on international reserves earnings the Bank has established a currency-fluctuation reserve, which increases in years when currencies grow strong against the dollar and decreases when they weaken against it.

13 In the United States such agencies are known as ‘government-sponsored enterprises’. They are private-sector entities created for public purposes, to reduce the borrowing costs of certain sectors of the economy. The most familiar are Fannie Mae and Freddie Mac, which finance mortgage debt and were intervened by the US government in 2008.

Besides US dollars, euros and yen, which make up most of the investments, the following currencies are also eligible for investment: Sterling, Swiss francs, Canadian, Australian and New Zealand dollars, and Norwegian and Swedish kronor. The Bank sets strict limits to control the exchange-rate risk of these investments. As of December 31, 2010, some 85.6% of the investment portfolio was invested in US dollars, 11.3% in euros, 2.8% in yen, and 0.3% in other currencies.

E. OTHER RISKS

In addition to the financial risks associated with management of the international reserve portfolio, central banks face other types of risk, notably the following:

1. Operational risk

Operational risk is the risk of loss resulting from deficient internal processes, staff error, fraud, or system or equipment failures. An example of this risk is failure to take precautions against investments in ineligible assets or with an unauthorized counterparty.

To mitigate operational risk the Reserves Department has prepared, and issued internally, documentation on critical operational processes and runs a database of identified past errors and the follow-up action taken on each. It has contingency plans in place, which are frequently revised, to deal with the possible effects of earthquakes or system failures. The Department also possesses a tool for recording perception of operational risk and the estimated expected loss involved in each of the critical internal processes.

2. Legal risk

Legal risk is the risk the Bank is exposed to on account of omissions or imprecisions in contracts formalizing its operations, or the impossibility of legally enforcing what is agreed on in the contracts.

The Bank's Legal Department is responsible for revising contracts connected with the management of international reserve. The International Reserves Department is charged with supporting the Legal Department to ensure that contract conditions reflect financial-market practices and correspond with the technical conditions of the operations. The Legal Department also receives support also from law firms specializing in international financial legislation.

3. Reputational risk

Reputational risk is the possibility of a perception arising among the public that the Bank is not managing international reserves in accordance with the provisions of the Constitution. This may result in a bad image for the Bank and a loss of its credibility.

The Bank deals with this risk by being transparent about policies on the management of reserves and about any problems occurring in such management. The management of reserves and the results obtained are explained in the Bank's two annual reports to Congress and also in the reports on *International Reserve Management*. In addition, when any events occur that affect investments, the Bank puts out press releases and holds informative meetings with journalists.

IV. RISK-MANAGEMENT STRUCTURE

The existence of financial risks, plus fraud, operational, legal and other risks, makes it imperative to maintain strict risk management practices at all stages of managing international reserves. For the Bank and many other central banks, a key aspect of the risk management framework is separating the functions assigned to the front, middle and back offices, and separating these from the areas of internal control, auditing and accounting. Separation of functions ensures that the exposures assumed are within the limits established by the defined hierarchy; it also minimizes the chances of fraud. The main elements of this entire scheme of risk management are as follows:

- The Bank's *front office* is the Markets Division of the International Reserves Department, which itself belongs to the Monetary and Reserves Affairs Division. The front office is responsible for planning and implementing internally-managed portfolio operations, in accordance with policies set by the Reserves Committee and guidelines approved by the Internal Reserves Committee. A team of eight people work in the front office.
- The *back-office* tasks for reserves management are performed by the International Payments Registration and Control Unit (Urcpi). This Unit belongs to the Banking Operations Division. It is responsible for accounting and confirming, carrying out and reconciling the operations made during the investment process, and also for the operational aspects of relationships with custodians,¹⁴ counterparties, correspondent banks and external managers.¹⁵ The back-office unit, Urcpi, has a staff of sixteen people.

Thus, there is complete separation between the people who initiate financial transactions and those who register, confirm and reconcile them. What is more, the International Reserves Department, as a part of the Deputy Governor's Office for Monetary and Reserves Affairs Division, belongs to the Deputy Governor's

14 The custodians are financial entities in which the Bank's securities are deposited.

15 The Bank engages firms to manage part of the reserves. The external-management program is described in detail in Chapter VII.

Office, whereas the back-office unit, Urcpi, as a part of the Banking Operations Division, comes under the Deputy Executive Governor's Office. All this reduces the risk of fraud; and it does so more especially because the separation of functions is entirely transparent.

- The Risk Division of the International Reserves Department is in charge of monitoring all portfolios on a daily basis. It verifies managers' compliance with the investment policies and guidelines set by the Reserves Committee. It also analyzes managers' investment policies and strategies. The Risk Division has formed working groups for controlling the risks that international reserves are exposed to, including among others market, credit, liquidity, operational and legal risks. To control some of these risks, the Risk Division teams up with other areas of the Bank, such as the Internal Control Department and the Legal Department. The Risk Division is the *middle office* in the management of reserves and has a staff of six people.

Note, therefore, that there is separation of functions not only between the *back and front offices*, but also between the people who initiate transactions and manage exposures (*front office*) and those who measure them (*middle office*).

- Other departments within the Bank participate in managing the reserves and are thus a part of the risk management framework. The Accounting Department is responsible for the independent accounting of international reserves. The International Exchange Department manages the SWIFT system, which allows the secure exchange of messages between financial entities around the world; access to the system is restricted. The Reserves Department and the *back-office* Unit, Urcpi, have access to SWIFT with different profiles. Thus, different areas participate in the area of capturing, verifying and releasing payment messages. The Internal Control Department, which reports directly to the Deputy Governor's Office, verifies that all procedures are being duly documented and advises on the safest execution of procedures. Process and procedures manuals are posted on the Bank's Intranet. They are frequently updated and serve as a tool for training new staff and clearly defining the authority of each area and position. Lastly, Human Resources requires that for each position there should be a manual of functions, clearly setting out the extent of the staff member's responsibilities and authority.
- As mentioned above, the Auditor General's Office, as an independent body, performs a very important control function in the management of reserves. The Auditor General attends the meetings of the Reserves Committee. And his Office carries out frequent inspections of the Reserves Department and the *back-office* Unit, Urcpi, analyzing their operability and compliance with guidelines, with the aim of making recommendations to improve the safety of processes and procedures. The Auditor's Office also pays visits to custodians and external managers to check their control mechanisms.

V. BENCHMARK AND PORTFOLIO MANAGEMENT

A. DEFINITION

Most central banks manage their international reserves guided by a theoretical portfolio or benchmark. In capital markets a benchmark refers to a basket of assets with predetermined weights, according to certain rules defining their composition. In general, a benchmark tries to replicate broadly the behavior of a market of financial assets and serves as an indicator of the performance of other investment portfolios in this market.¹⁶

The reserve portfolio's benchmark reflects the maximum expected return subject to strict risk criteria set by the Reserves Committee. This benchmark serves as a framework of reference for measuring the management of each one of the portfolios.

B. COMPOSITION

Once the Bank has decided to employ a benchmark for the investment tranche,¹⁷ it needs to define the composition of investments in terms of the types of instrument and currency.

16 Some of the best-known benchmark indices in the markets are, in Colombia: IGBC and Colcap; in the United States: S&P500 and Dow Jones.

17 The working capital is denominated in dollars and has no benchmark index because its purpose is to cover immediate liquidity needs.

1. Currency composition

In choosing the currency composition, several considerations need to be taken into account. If one of the central objectives of holding reserves is to be able to intervene in the foreign-exchange market, the currency or currencies in the reserves portfolio should be of considerable importance to such intervention. Similarly, if reserves are accumulated so that they can be used at any given time to meet foreign-currency obligations in respect of goods-and-services trade and capital flows, there should be a proportion of the reserves that replicates balance-of-payment outflows. The Reserves Committee currently sets the investment tranche's currency composition as a replication of balance-of-payment outflows over the past three years. Although transactions are made with many countries, the only currencies chosen are the ones with low transaction costs and high liquidity in their financial markets. A further consideration is that the US dollar has, up to now, been the only currency accepted in the Bank's intervention operations. The currency composition of the benchmark is currently as follows: 85% dollars, 12% euros and 3% yen.

2. Eligible instruments

Once the currency composition has been decided, the type and maturity of the benchmark portfolio's instruments need to be defined. In this process, instruments are chosen that satisfy the safety and liquidity conditions required for reserves. The only instruments currently eligible for the benchmark are the market's safest and most liquid assets: government securities of the United States, Germany and Japan.

C. CONSTRUCTION

The benchmark is constructed through the following process of financial optimization:

- The process starts off with the established currency composition and defined eligible instruments.
- The Bank's restrictions on risk tolerance are defined. The Reserves Committee has determined that for any admissible solution the probability of loss over twelve months should not exceed 5%.
- The set of portfolios or baskets of assets that meets the restrictions and maximizes return for each level of risk is constructed.¹⁸

18 Known as the "efficient frontier".

- The portfolio that provides the maximum expected utility for the Bank is selected¹⁹.

The result is a theoretical portfolio that is used as a benchmark. The eligible assets that go to make up the benchmark are, in themselves, baskets of assets (associated indices, listed in Table 2) built by third parties and widely used internationally. These indices have the advantage of being transparent, computable, replicable, kept up to date and available at no cost.

Table 2
Composition of the investment-tranche benchmark
(percentage)

Currency	Asset class	Associated index ^{a/}	Share
US dollars	Short-term investments in government securities	<i>Merrill Lynch T-Bill</i>	81,3
		<i>Merrill Lynch 0 to 5 year Government Bond Index</i>	1,4
	US government bonds	<i>Merrill Lynch 5 to 10 year Government Bond Index</i>	1,3
		<i>Merrill Lynch TIPS 1 to 10 year Government Bond Index</i>	1,0
	Total dollars		85,0
Euros	Short-term investments in government securities	<i>Merrill Lynch German T-Bill index</i>	11,0
	German government bonds	<i>Merrill Lynch 0 to 5 year Government Bond Index</i>	1,0
	Total euros		12,0
Yen	Short-term investments in government securities	<i>Merrill Lynch Japan T-Bill index</i>	2,0
	Japanese government bonds	<i>Merrill Lynch 10+ year Government Bond Index</i>	1,0
	Total yen		3,0

a/ Merrill Lynch, among others, builds indices for measuring the performance of different sectors of the fixed-income market. Government-bond indices include all instruments that meet minimum size and liquidity conditions. Their rules are public knowledge.
Source: Banco de la República.

Table 2 presents the current benchmark for the investment tranche, together with its associated indices. The modified duration of the index is presently very low (0.65), compared with the historical average,²⁰ in order to lessen the potential effect of an interest-rate rise in developed countries. In the current scenario of low interest rates, there is ample scope for rates to go up in the future, which means that low interest income does not compensate for higher market risk.

D. INDEXED AND NON-INDEXED TRANCHES

As stated earlier, given the different objectives of reserves, the investment portfolio is divided into working capital and an investment tranche. The invest-

19 The utility function takes into account return on the portfolio, its risk or volatility, and a parameter that measures the Bank's aversion to risk.

20 Between 2002 and 2008 the average duration of the benchmark index was 1.45. In 2009 it fell to 0.43.

ment tranche, in turn, is divided into two components: indexed and non-indexed tranches.²¹

- *The indexed tranche* is intended to replicate the composition of the benchmark. It is mainly invested in government securities of the United States, Germany and Japan. It is the most liquid portfolio after the working capital, one of its purposes being to meet high liquidity needs. As of December 31, 2010 the value of the indexed tranche stood at \$15,959m (60.71% of the overall investment portfolio).
- *The non-indexed tranche*, or active, is managed with the aim of obtaining a higher return than the benchmark. To this end, the portfolio composition of this tranche is different from the benchmark. Within a controlled-risk framework, the managers of the non-indexed tranche apply their experience and resources to determining strategies for increasing the long-term return on reserves. The value of the non-indexed tranche at the end of 2010 was \$9,262m (35.24% of the overall investment portfolio).

The returns observed for the reserve investment portfolios are compared against the benchmark's return to assess whether execution by managers has been successful. Managers face the challenge of obtaining higher returns than the benchmark, within strict investment guidelines and a controlled risk budget

E. PERFORMANCE MEASUREMENT AND ATTRIBUTION

Measurement of the reserve investment portfolio's performance is based on daily mark-to-market valuations. Monthly returns are calculated by using a time-weighted daily rate of return.²²

Performance is measured on a monthly, a year-to-date and a full-year horizon, using US dollars as the base currency.²³ This calculation is made both for the benchmark index and for the portfolios. It is therefore possible to measure absolute and relative returns relative to the respective benchmark. Fees charged by external managers are deducted from gross returns to get net returns.

21 For operational reasons, the benchmark index for the indexed tranche is different from the index for the non-indexed tranche. Nevertheless, the aggregated index reflects the composition presented in Table 2.

22 The daily time-weighted rate of return calculates the daily change in the value of the portfolio, excluding withdrawals or additions to the portfolio. The return for any period of time is calculated by geometric compounding of daily returns. This is the method recommended by the CFA Institute, one of the most important associations of investment professionals in the world. One of the Institute's objectives is to disseminate common standards for measuring portfolio performance.

23 Note that most private-sector portfolio managers report their earnings in the local currency of clients. In contrast, central banks use a foreign currency (US dollars or euros), which in most cases is the one they use for interventions.

To determine the most important factors that explain absolute and relative portfolio returns, the performance attribution analysis is carried out by using a multifactorial risk model. This makes it possible to attribute returns to individual securities, types of assets, countries, currencies, portfolios, mandates and programs. And an integrated analysis of returns and risk factors can also be conducted to determine the efficiency of investment strategies.

VI. EXTERNAL-MANAGEMENT PROGRAM

Many central banks use external portfolio managers to invest their reserves. They do so partly because of limited resources but also for other reasons: access to external managers' experience and tools; access to training for staff involved in internal reserves management; and as a basis for comparison.

The Markets Division of the International Reserves Department manages the working capital, the indexed tranche and one of the portfolios of the non-indexed tranche, amounting in all to \$18,464m. In 1994 the Reserves Committee set up an external-management program for the management of all other resources. Managers of the non-indexed tranche are authorized to invest in different assets and in different proportions from those of the benchmark, in accordance with the policies and strict limits that are established by the Reserves Committee.

The engagement of external managers is intended to generate added value to the investment portfolio of reserves, through the use of a greater capacity for analysis and a more sophisticated infrastructure to define investment strategies for international reserves. The chosen firms exhibit both these characteristics and, in addition, have access to quite a few sources of information. The resources managed by external managers are held in accounts administered by the Bank, and the contracts may be terminated whenever the Reserves Committee deems it necessary.

The external-management program has brought the following benefits to the Bank:

- The program's net return (after fees) has, from the beginning, exceeded the benchmark by 7 basis points a year, on average. In 2010 the excess net return was 25 bp.
- The external managers' capacity for analysis has allowed them to choose investments with good risk/return profiles, within what is permitted by the investment guidelines.
- External managers have trained Bank staff members, contributing to the development of qualified staff. In addition, advisory services received from

external managers have helped to improve the Reserve Department's investment and risk analysis processes.

- The Reserve Department receives information and analyses from specialists in the financial markets where reserves are invested. Moreover, the firms participating in the program have a solid group of credit analysts, allowing them to supplement and improve the rating agencies' analysis of issuers.

External managers may deviate from the benchmark by means of interest-rate and exchange-rate strategies²⁴ and by investing in debt issued by low credit-risk entities, such as governments and government-related entities,²⁵ in agency mortgages and in corporate bonds. The Bank monitors the portfolios on a daily basis to ensure that the firms comply with the established limits.

The firms currently participating in the external-management program are Western Asset Management, DB Advisors (a part of Deutsche Bank), Goldman Sachs Asset Management, Blackrock Institutional Trust, UBS Global Asset Management, and Fisher Francis Trees & Watts (a part of BNP Paribas) (Table 3).

Table 3
External reserve managers

Firm	Amount managed (millions of dollars)
DB Advisors	1.117
Goldman Sachs Asset Management	1.725
BlackRock Institutional Trust	1.685
Western Asset Management	1.120
UBS Global Asset Management	1.099
Fisher Francis Trees & Watts	1.098
Total	7.843

Source: Banco de la República.

24 Interest-rate strategy consists of buying or selling bonds according to expected interest-rate behavior. Exchange-rate strategy consists of altering the portfolio's currency composition, according to expected exchange-rate behavior.

25 The internally managed portfolio is handled in the same way as the portfolios included in the external-management program, but with stricter limits.

External managers are evaluated in the following stages:

1. Selection process: Firms are selected from among leaders in the management of international fixed-income portfolios. Participating firms must answer a Request for Proposal, which is used to evaluate such aspects as: company structure, organization, investment process, risk management, reporting, transfer of technology and training services, and historical returns. The final stage of the selection process consists of visiting the finalist firms. The decision is made by taking into account the proposed fees and the ratings resulting from the entire process. The Reserves Committee has determined that the process of selecting external managers should be carried out at least every three years.
2. Periodic evaluation: Upon initiation of a management agreement, the Reserves Department starts strict monitoring of the firm and reports every month on its performance to the Internal and Reserves Committees. Although the results of the program are constantly monitored, the Reserves Committee has decided to undertake a detailed balance of managers' execution after three years to avail itself of sufficient information. This exercise is carried out on a yearly basis and includes reviewing excess risk-adjusted returns, the investment process, risk management, and other, operational and service aspects. Depending on each manager's evaluation result, the Bank may decide to modify the delegated amount or cancel the agreement. Firms that obtain better evaluations and have been working with the Bank for a longer time manage larger portfolios. Cancellation of manager's agreement may lead to a new selection process being initiated.

VII. CURRENT SITUATION OF COLOMBIA'S INTERNATIONAL RESERVES

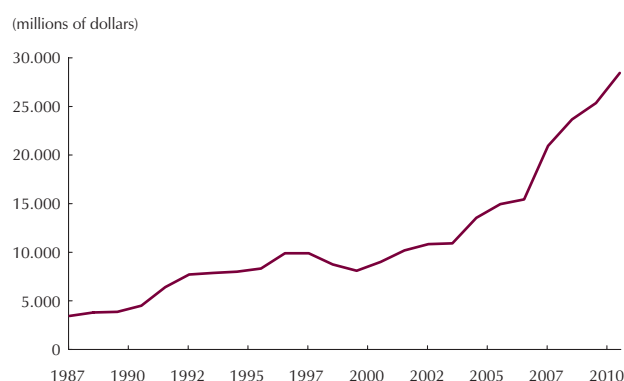
This chapter explains the current situation of Colombia's international reserves and analyzes the factors that have caused lower returns.

A. RESERVE-ADEQUACY INDICATORS

The adequate level of reserves depends, as may be expected, on multiple factors: extent of market intervention, size of central-bank assets, opportunity cost of holding external assets, the degree of openness of the economy, and the depth of domestic dollar and peso markets.

The Bank's strategy for accumulating international reserves recognizes the importance of holding an adequate level of international liquidity to deal with capital outflows from the country, which may be induced by such factors as terms-of-trade deterioration, financial panic or financial crisis in neighboring countries. In this context, holding an adequate level of international reserves also serves to improve confidence in the country and so to cope with a foreign crisis to a better extent (Graph 1).

Graph 1
Colombia's international reserves



Source: Banco de la República.

To determine whether a country's international reserves are sufficient to prevent and combat external shocks, several indicators of external vulnerability are employed. The most important ones are the ratio of international reserves to monetary aggregates, and the ratio of reserves to foreign-debt payments in the following twelve months plus the current-account deficit. The aim in comparing reserves with monetary aggregates, such as M2 or M3, is to determine the economy's capacity for responding to capital outflows induced by a speculative attack. The ratio of reserves to short-term debt plus current-account deficit indicates the country's capacity to meet its credit obligations to the rest of the world in an extreme scenario of complete closure of

access to international funding. In general, international markets consider that low value of these ratios may be alarm signals about the external vulnerability of economies (Table 4).

Table 4
Payment-capacity indicators of international reserves (IR):

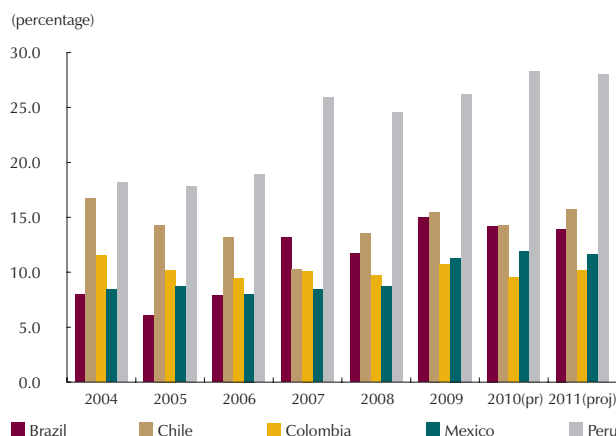
	2009	2010 (proj)	2011 (proj)
IR/M3 (percentage)	26,25	24,75	24,2
IR/GDP (percentage)	10,85	10,02	9,84
IR in months of imports	9,67	8,86	8,57
IR/foreign debt service	1,75	2,15	1,94
IR/foreign debt	2,22	2,86	2,63
IR/(foreign debt + current-account deficit)	1,54	1,51	1,41

(proj): projected.
Source: Banco de la República.

Table 4 presents different indicators of Colombia's international reserves. The literature warns that indicators of this type signal greater likelihood of crisis if they are below one. According to these indicators, Colombia has an adequate level of reserves.

Comparing the different international liquidity indicators for Colombia with those of other countries of the region shows that until 2008 Colombia's reserves-to-GDP ratio stood at an intermediate level, near those of Brazil, Mexico and Chile. But last year the Colombian peso's greater appreciation was reflected in a less favorable position for Colombia compared with other countries of the region, even though the ratio remained stable over the period under study (Graph 2). The growth and levels of Peru's reserves/GDP ratio are striking, thanks to domestic banks being able to take dollar deposits and the reserve requirements on those deposits being counted as reserves.

Graph 2
International reserves as a percentage of GDP



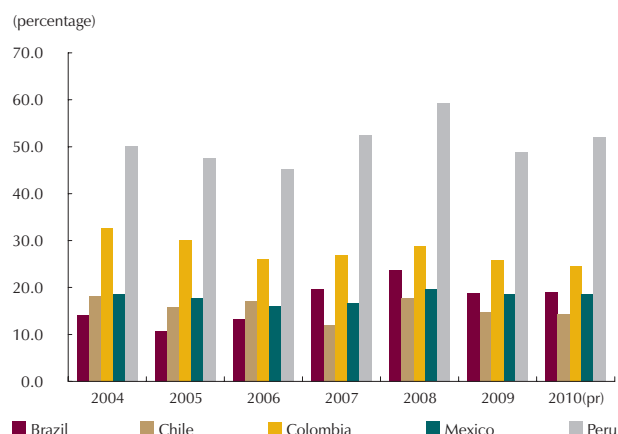
(pr): preliminary.
(proj): projected.
Source: Banco de la República.

Regarding the ratio of reserves to M3, Colombia registers higher levels than Chile, Mexico and Brazil, and a lower position than Peru (Graph 3A). Another indicator of international liquidity is reserves measured in months of imports of good. In this case Colombia has a relatively higher position than Chile and Mexico and a lower one than Brazil and Peru (Graph 3B).

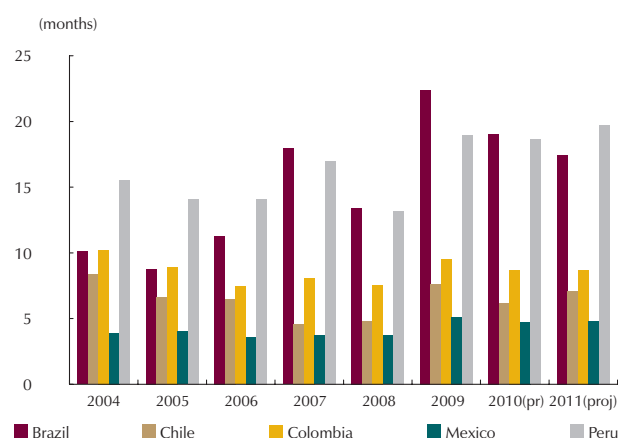
Colombia's ratios of international reserves to short-term debt, to debt service, and to current-account deficit plus short-term debt are higher than Chile's and similar to or lower than those of Mexico, Brazil and Peru (Graphs 4A, B, C).

Graph 3
International reserves as a percentage of M3 and
as months of imports

A. As a percentage of M3



B. As months of goods imports



(pr): preliminary.
(proj): projected.
Source: Banco de la República.

B. COMPOSITION OF INTERNATIONAL RESERVES

At December 31, 2010, net international reserves²⁶ amounted to \$28,451.84m, while gross reserves stood at \$28,463.55m, and short-term external liabilities at \$11.7m (Graph 5). The main component of the country's international reserves is the investment portfolio, representing 92.4% (\$26,308.06m) of the total. The rest consists of: IMF position and special drawing rights (\$1,417.8m); ii) contributions to the Latin American Reserve Fund (\$405.45m); iii) investments in gold (\$310.96m); and iv) contributions to the international agreement ALADI - Latin American Integration Association (\$14.68m). The composition of the country's international reserves is shown in Graph 5.

C. COMPOSITION OF INVESTMENT PORTFOLIO OF INTERNATIONAL RESERVES

Graph 6 presents the composition of the investment portfolio.

Some 94% of the investment portfolio is invested in securities issued by governments or government-related entities,²⁷ and in repurchase agreements with the United States Federal Reserve. Bank and corporate debt securities of industrialized countries currently make up about 4%, and all have a credit rating of A+ or higher (Graph 7).

Graph 8 depicts the credit quality of the investment portfolio, showing that most of the investments (90.5%) are rated AAA, the highest rating. Only 1% of the portfolio is rated A. These figures are evidence of the high quality of the assets held in the investment portfolio.

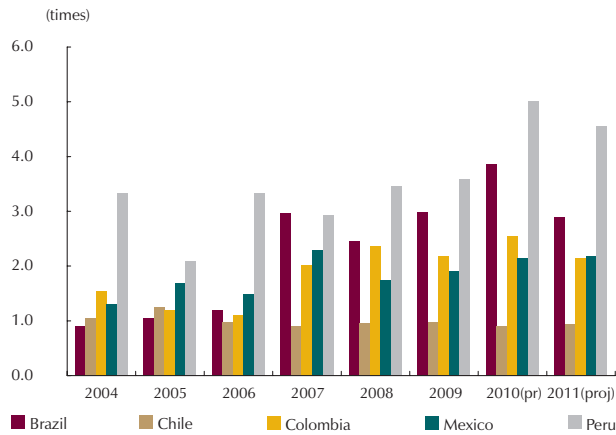
Lastly, Graph 9 presents the investment portfolio's currency composition. The Bank sets the currency composition of the investment tranche as a replication of

26 Net reserves are equal to total international reserves, or gross reserves, less the Bank's short-term external liabilities; such liabilities consist of foreign-currency sight obligations to non-resident agents.

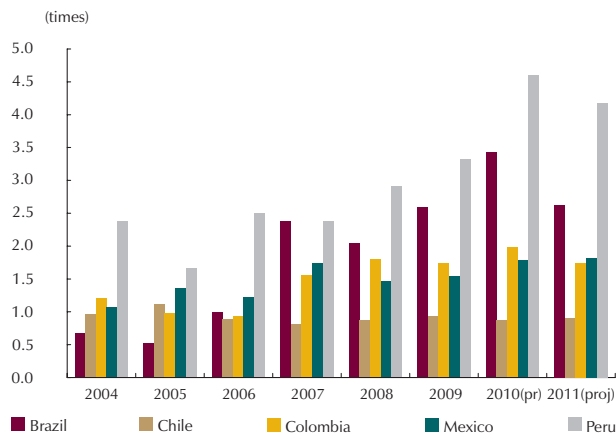
27 Such assets consists of securities issued, among others, by government-backed or government-sponsored entities (e.g. Fannie Mae and Freddie Mac), supranational organizations (i.e. the World Bank and the Inter-American Development Bank) and local governments (e.g. cities and states).

Graph 4

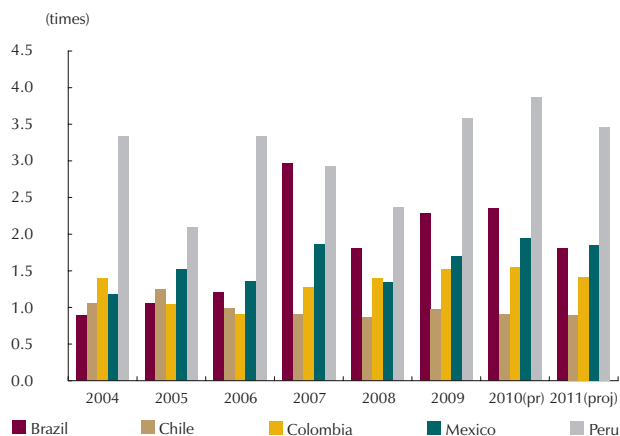
A. International reserves/short-term debt



B. International reserves/debt service



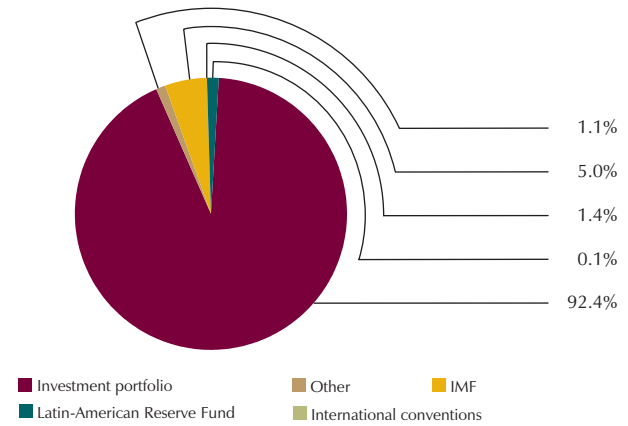
C. International reserves/(current-account deficit + short-term debt)



(pr): preliminary.
(proj): projected.
Sources: Central banks, The Economist Intelligence Unit and Banco de la República

Graph 5

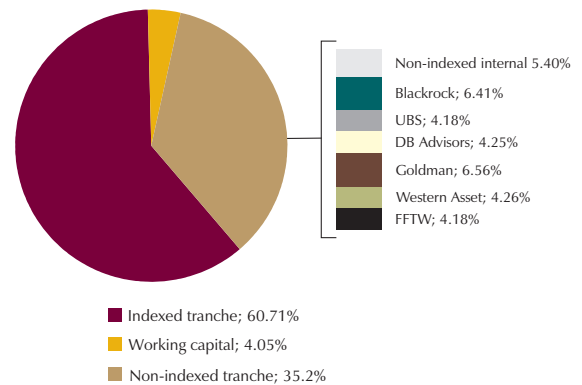
Composition of gross reserves



Source: Banco de la República.

Graph 6

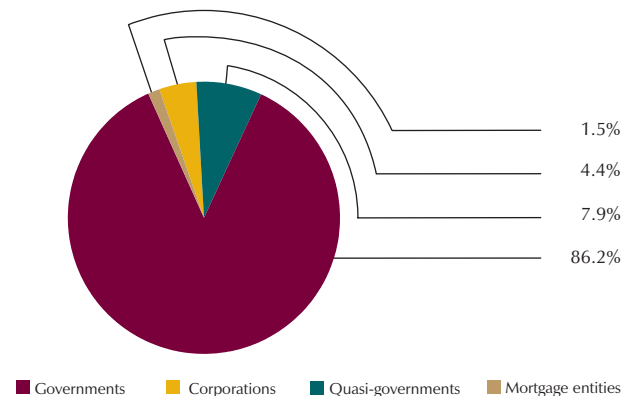
Composition of investment portfolio



Source: Banco de la República.

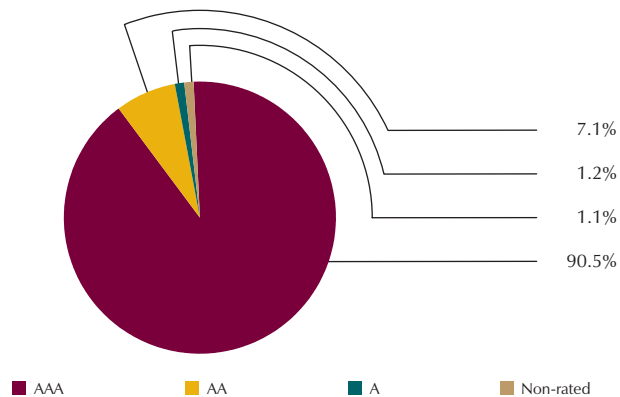
Graph 7

Composition of investment portfolio by sector



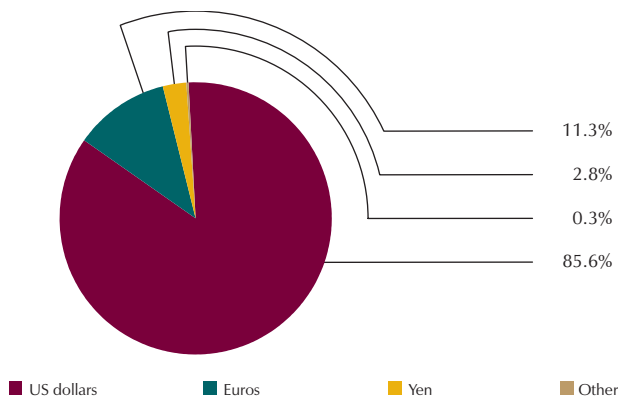
Source: Banco de la República.

Graph 8
Discrimination of investments by credit rating



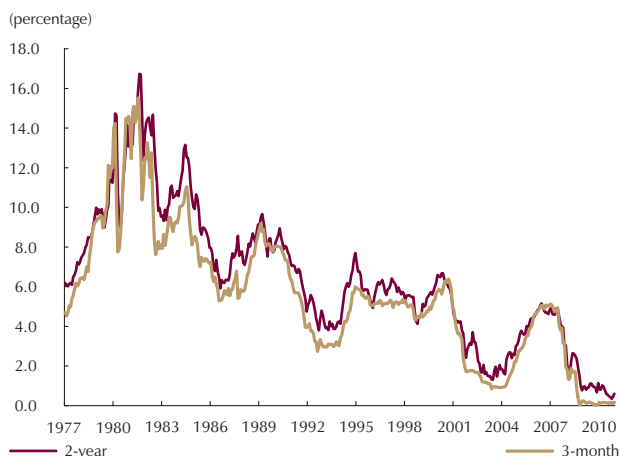
Source: Banco de la República.

Graph 9
Currency composition of investment portfolio



Source: Bloomberg.

Graph 10
Interest rates on US Treasury securities



Source: Banco de la República.

the country's balance-of-payments outflows. As stated earlier, the aim is to have the following composition: 85% US dollars, 12% euros and 3% yen. The portfolio's present currency composition differs somewhat from the desired composition, for it includes the working capital, which is invested solely in dollars. Furthermore, within strict limits, slight deviations are allowed in portfolios, and investments may be made in other currencies of developed countries, such as sterling, Swiss francs and Canadian dollars.

The modified duration of the investment tranche is currently 0.62.

D. PERFORMANCE OF RESERVES

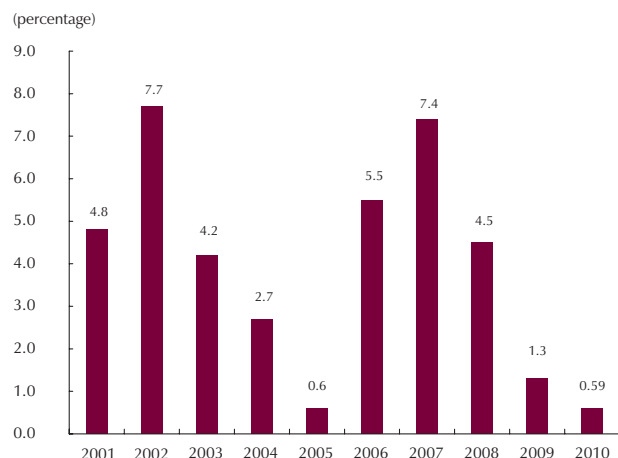
In 2010 net return on international reserves was \$159.7m, equivalent to an approximate rate of return in dollars of 0.59%. Investment valuation gains and accrued interest amounted to \$189.1m in 2010, while exchange-rate differentials (appreciation of other currencies against the dollar) resulted in a loss of \$29.4m. The low return on reserves is attributable to three factors:

- Interest rates remained very low in the major developed economies. Graph 10 presents a historical series of rates on three-month and two-year US government securities. It may be seen that rates observed since the end of 2008 have been the lowest for the past three decades.
- The decision to have a portfolio with a conservative risk profile implies receiving a lower return.
- The euro depreciated by 6.7% in 2010.

Graph 11 shows returns received on international reserves in the past ten years. The rate of return over the past three years has averaged an annual rate of 2.13%.

The investment portfolio produced a return of 0.29% in 2010 and an annual average of 2.08% over the past three years. Table 5 breaks down the return on the investment portfolio of international reserves, by tranche.

Graph 11
Historical return on reserves



Source: Banco de la República.

E. OUTLOOK

Earnings on reserves are expected to remain low in 2011. The US Federal Reserve's decision to keep its interest rate within a range of 0% -0.25% means that the expected return on Colombia's reserve investments will be less than 1% because of the very low interest earned on investments. Furthermore, portfolio returns may be affected if the euro and/or yen, which make up a good part of investments, weaken against the dollar over the course of the year.

Table 5
Rates of return on investment-portfolio tranches

	Annualized portfolio returns 2008-2010			Portfolio returns 2010		
	Portfolio	Benchmark index	Difference	Portfolio	Benchmark index	Difference
Working capital	0,91	n.a.	n.a.	0,14	n.a.	n.a.
Investment tranche	2,16	2,07	0,09	0,27	0,12	0,15
Indexed tranche	1,74	1,77	(0,03)	(0,22)	(0,22)	0,01
Non-indexed tranche	2,23	2,46	0,23	0,27	0,62	0,35

n.a.: not applicable.

Source: Banco de la República.

GLOSSARY*

Asset backed securities (ABS): It is a security whose value and income payments are derived from and collateralized (or “backed”) by a specified pool of underlying assets.

Back office: It is an area that supports the trading of securities in an investment process, including record keeping, confirmation, conciliation, clearance and settlement of transactions, including the operational aspects of the relationship with counterparties.

Balance of payments: a record of all of a country’s economic transactions with the rest of the world; includes information on the value of trade in goods and services, as well as transfer payments.

Benchmark: a basket of assets or a theoretical portfolio with predetermined weights based on certain rules. In general, the benchmark is intended as a broad replica of the performance of a financial securities market and serves as an indicator of the performance of other investment portfolios in the same market.

Bond: is a formal contract to repay borrowed money with interest at fixed intervals. The issuer of a bond owes the holders a debt and, depending on the terms of the bond, is obliged to pay interest (the coupon) and/or to repay the principal at a later date, termed maturity.

Collateral: in lending agreements, collateral is a borrower’s pledge of specific property to a lender, to secure repayment of a loan. The collateral serves as protection for a lender against a borrower’s risk of default - that is, any borrower failing to pay the principal and interest under the terms of a loan obligation.

Commercial paper: Short term obligations (usually at 270 days or less) issued on capital markets by corporations and banks.

Contract interest rate (coupon rate): it is the interest rate that a bond issuer will pay to a bondholder on the due dates and with a predetermined frequency. It is expressed as a percentage of the face value of the bond.

Correspondent banks: banks that make or receive payments and provide other banking services for banks outside the country. They include treasury correspondents.

* The definitions in this glossary are intended to facilitate and add to an understanding of the concepts described in this publication, but are not all inclusive in a legal sense. Under no circumstance are they to be taken as the definitive technical or legal definition of each term.

Counterparty risk: risk arising from the possibility of non-compliance with obligations undertaken by counterpart in some financial operation.

Credit event: refers primarily to i) deterioration in the credit quality, and/or ii) default. According to the definitions used by the International Swaps and Derivatives Association (ISDA), any of the following may be regarded as a credit event i) bankruptcy of the reference entity; ii) obligation acceleration (a situation in which the relevant obligation becomes due and payable in advance, as a result of a credit event on the part of the reference entity); iii) default; iv) restructuring (covers events as a result of which the terms, as agreed by the issuer and the holders of the relevant security, have become less favorable to the holders than they otherwise would have been); v) repudiation, or vi) moratorium.

Credit risk rating (credit rating): a rating related to the ability of an issuer of debt securities to fulfill its obligations. It is issued by specialized international agencies (Standard & Poor's, Moody's and Fitch Ratings)

Credit risk: the risk posed by the possibility of credit events such as: i) deterioration in the credit quality of those who issue securities or the securities themselves, and/or ii) default.

Currency hedging: a technique used to reduce the exchange-rate risk on an investment through derivatives instruments.

Current account in the balance of payments: a portion of the balance of payments consisting of the sum of exports minus the sum of imports, plus net foreign factor income and net inward transfers.

Custodians: financial institutions, usually banks, that hold, safeguard and/or keep custody of financial assets belonging to their clients. Occasionally, this custody includes exercise of the rights pertaining to the maturities of the securities in question.

Embedded-option bonds: bonds that allow the issuer or the bondholder to redeem prior to maturity (callable or puttable, respectively).

Excess return: additional return on an investment portfolio compared to the return on a benchmark.

Exchange-rate risk (currency risk): it is a form of risk that arises from the change in price of one currency against another. An investment portfolio could suffer a loss due to fluctuations in the exchange rate.

Expected return: the profit or return an investment is most likely to produce within a specific period of time.

Floating exchange rate: an exchange arrangement that allows the market to determine the rates of national currencies in response to changes in the supply and

demand for foreign exchange (foreign currencies). The central bank does not intervene to control the price. As a result, the amount of pesos required to purchase a unit of foreign currency (e.g. U.S. dollar) can vary during the course of time.

Floating-rate notes: debt instruments that pay coupon rates indexed to a predetermined benchmark rate, which fluctuates constantly. For example, a debt instrument with a floating rate indexed to the DTF will pay coupon rates that will be determined in the future depending on the level of that benchmark rate at the time.

Foreign exchange market: the market where foreign exchange currency is bought and sold.

Front office: it is an area that implements investment decisions.

Gross return: the total return or income on an investment, before subtracting the cost of commissions, taxes and other expenses associated with the financial transaction.

Internal Rate of Return: the interest rate used to discount the current value of all future cash flows from a security (interest and amortization) so the sum of those discounted amounts is equivalent to the market price of the security. The annualized rate of return on an investment in a debt instrument is calculated under the assumption that the investment is held to maturity, that all contract payments are made, and that interest payments (coupons) are reinvested at that same rate of return.

Issuer: is a legal entity that develops, registers and sells securities for the purpose of financing its operations.

Legal risk: the risk that arises due to omissions or inaccuracies in the contracts for investment operations, or by the impossibility of legally enforcing such contracts.

Liquidity risk: the risk that an asset cannot be converted quickly into cash and at a minimum cost.

M1: a measure of a country's money supply that includes currency in circulation, deposits in current or checking accounts, and traveler's checks.

M2: a measure of a country's money supply that includes of M1, savings and time deposits (including certificates of deposit) with commercial banks, finance corporations, commercial finance companies and higher-order savings and loans cooperatives.

M3: a measure of a country's money supply that includes M2, fiduciary deposits in commercial banks and other sight deposits. It also is equivalent to the currency in circulation, plus financial system liabilities subject to reserve requirements.

Market risk (or interest rate risk): risk of losses of the investment portfolio arising from changes in interest rates in the economy.

Mark-to-market: an accounting practice that consists of recording the price or value of an asset or portfolio on a daily basis, at market prices.

Middle office: it is an area in a portfolio management operation that monitors all investments on a daily basis, in addition to measuring and controlling exposure to financial risk.

Modified duration: a measure for exposure to interest rate risk, since it measures a fixed yield instrument (bond) price sensitivity to changes in interest rates, that is, how much the instrument price changes in response to a 1% change in interest rate. This is applied analogically to a fixed income portfolio.

Money market: the market where highly liquid, short-term financial instruments (at less than 397 days) are bought and sold.

Money supply: the total stock of currency available in an economy. The principal measures of money supply are M1, M2 and M3.

Mortgage-backed security (MBS): financial instrument with a value and income payments derived from and guaranteed (or “backed”) by a basket or pool of underlying mortgages.

Net return: the total return or income on an investment, after subtracting the cost of commissions, taxes and other expenses associated with the financial transaction.

Operational risk: the risk of a loss on the investment portfolio due to deficient internal processes, personnel errors or systems or equipment failures.

Overnight: transactions and obligations that mature within one working day.

Primary market: the market where newly issued securities are offered for sale.

Repo market: the market where repurchase agreements (repos) are traded.

Repurchase agreement (repo): a financial contract in which one party sells a security to another party, with a commitment to repurchase the same security at a fixed price on a predetermined future date.

Reputational risk: the risk of damage or detriment to an organization owing to loss of its credibility or reputation.

Reset date: in the case of securities with a floating rate, it is the point in time when the coupon rate is set for the next interest payment date, pursuant to the level of the benchmark interest rate to which the coupon rate is indexed.

Reverse repo: a financial agreement in which one party buys a security from another party, at a specific price, with an agreement to resell the same security to the

seller at a fixed price at a predetermined date in the future. A reverse repo is the opposite of a repo operation.

Risk premium: added return an investor demands in compensation for holding a risky asset compared to a safe asset.

Risk: the possibility of incurring losses when investing in financial assets.

Risk-adjusted return: a measure of the income or return on an investment in relation to the amount of risk it assumed.

Secondary market: the market where financial instruments are bought and sold subsequent to original issuance on the primary market. The secondary market provides liquidity to previously issued securities.

Sovereign entities: generally refers to States (countries or nations) that enjoy sovereignty; in other words, States that hold and exercise supreme, independent authority to manage their internal relations autonomously and to determine their dealings with other States.

Special drawing rights (SDRs): it is a foreign exchange reserve asset created by the IMF in 1969 to complement reserve assets held by member countries. SDRs are assigned to each country by the International Monetary Fund, proportional to its quota with the IMF. SDR also is the unit of account of the IMF. Its value is determined according to the average value of a basket of internationally accepted currencies.

Supranational entities: bodies that are beyond the scope of governments and national institutions, and act independent of them. The term usually refers to multilateral organizations such as the World Bank, the Inter-American Development Bank (IDB), the Latin American Reserve Fund (FLAR, in Spanish) and the Andean Development Corporation (CAF, in Spanish).

Tax haven: a country with laws that grant tax advantages and privileges to investors, generally used by companies to secure tax exemptions.

U.S. Treasury bills: short-term debt securities (at less than a year) issued on capital markets by the United States Treasury.

Value at risk (VaR): method used to measure and control market risk, which consists of estimating the largest likely loss on an investment portfolio during a holding period, given a certain confidence level (usually a probability of 95%).

Volatility: a measure of risk of any asset. It reflects the price change of financial assets in a given period of time.

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