Management of Foreign Exchange Reserves at the Central Bank of Chile 2012

BANCO CENTRAL
DE CHILE

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*/ This is a translation of a document originally written in Spanish. In case of discrepancy or difference in interpretation the Spanish original prevails. Both versions are available at www.bcentral.cl.

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Management of Foreign Exchange Reserves at the Central Bank of Chile

Executive summary

Foreign exchange reserves are financial assets denominated in foreign currency that are held by the Central Bank of Chile (hereinafter the Bank). They are used to support monetary and exchange rate policy in compliance with the Central Bank's objective of safeguarding the stability of the currency and the normal functioning of the internal and external payment systems. Under the current floating exchange rate policy, their main function is to ensure access to liquidity in foreign currency in order to intervene in the foreign exchange market or to provide temporary liquidity in foreign currency in specific exceptional circumstances.

The objective of foreign exchange reserves management is to provide secure, efficient access to international liquidity so as to protect the Bank's financial equity. The reserves are managed under the legal framework set forth in the Basic Constitutional Act of the Central Bank of Chile, based on a set of practices and policies that are in line with international recommendations in this area.

The investment policy for foreign exchange reserves is subject to legal and liquidity requirements. With regard to the former, the law stipulates that foreign exchange reserves can only be invested in foreign currency, gold, negotiable instruments, and securities or commercial papers issued or guaranteed by foreign states, central banks or foreign or international banks or financial institutions. In line with the objectives described in the previous paragraph, foreign exchange reserves are primarily made up of liquid financial assets.

Subject to these restrictions, the investment policy for foreign exchange reserves is designed taking into account its impact on the financial results and associated risks within the Bank's balance sheet and the characteristics of potential foreign currency liquidity needs. For practical purposes, this policy is specified through the definition of a benchmark to guide and evaluate investments and through the establishment of limits on market and credit risk decisions around the benchmark.

Based on the recommendations that came out of the Workshop held by the Bank in 2010 and taking into account the increase in the foreign exchange reserve level as a result of the dollar purchase program implemented in 2011, the Bank Board approved a new investment policy in February 2012. The new policy continues to apply the traditional reserves management objectives, namely, ensuring the availability and liquidity of resources, protecting principal by investing in low-risk instruments and minimizing the volatility of the Bank's equity measured in local currency. Due to the increase in the investment portfolio, however, the policy explicitly incorporated an additional reserves management objective, which is to reduce the cost of holding the reserves by adding a portfolio oriented toward earning higher absolute returns in the long run.

Foreign exchange reserves are invested in two main asset portfolios, with a smaller share in a portfolio called other assets. At year-end 2012, the investment portfolio accounted for 86.2% of total reserves, including short- and long-term foreign-currency-denominated financial assets that are held to address the foreign currency financing needs of the Chilean economy. The investment portfolio benchmark currently

specifies a currency composition of 47.79% U.S. dollars, 21.96% euros, 9.15% Canadian dollars, 6.10% Australian dollars, 3.00% Japanese yen, 2.40% Swiss francs, 2.25% pounds sterling, 2.25% South Korean won, 1.80% New Zealand dollars, 1.05% Singapore dollars and 2.25% Chinese renminbi. The average duration of the investment portfolio is 23 months. The cash portfolio, in turn, is designed to cover expected funding requirements in the short term. The benchmark for this portfolio matches the currency and term structure of expected disbursements.

Risk management policy defines a set of permissible deviations from the benchmark in terms of duration, maturity, currency and limits on different types of investment. This policy limits liquidity, market and credit risk, including bank, sovereign, supranational, agency and counterparty risk. Operational risk is controlled by segregating internal functions and responsibilities, incorporating modern technological systems and applying internal and external controls and audits, which are carried out on a regular, ongoing basis.

To complement the internal management of foreign exchange reserves, since 1995 the Central Bank has also run an external management program for a portion of the reserves. The purpose of this program is to provide an active benchmark for assessing internal reserves management, contribute to enhancing returns on the investment portfolio and facilitate the transfer of knowledge and technology. There is currently a program of this nature, involving the management of a portion of the investment portfolio based on risk budgets. The program comprises two external managers, who manage 2.8% of Bank investment portfolio, equivalent to US$1.021 billion.

At the end of December 2012, total foreign exchange reserves stood at US$41.650 billion, of which US$35.896 billion were held in the investment portfolio, US$ 3.755 billion in the cash portfolio and US$1.998 billion in other assets. Of the total reserves, 50.3% were held in U.S. dollar instruments, 18.9% in euros and 30.8% in other currencies[1]/.

As of the end of December 2012, 92.0% of the internally managed investment portfolio was invested in securities with a AAA credit rating, issued by sovereign entities. The remaining 8.0% was invested in sovereign and bank risk from issuers with a credit rating of A+ to AA–. In the 2007–2012 period, the annual average returns from foreign exchange reserves management were 3.14% measured in U.S. dollars. For the same period, the excess returns obtained relative to the benchmark used to evaluate investment management averaged 0.07% per year.

The Central Bank's Board has established as an institutional policy the disclosure of information on foreign exchange reserves management to the President of the Republic, the Senate and the general public, through the publication of this information in the *Monetary Policy Report* (September), in the *Annual Report* and on the Central Bank website. This decision consolidates current practices, which are consistent with transparency guidelines issued by the International Monetary Fund (IMF) to ensure clarity and accountability of activities and results from foreign exchange reserves management.

[1]/ This currency composition differs from that of the investment portfolio, indicated above, because total reserves include the liquidity and other assets portfolios as well as the investment portfolio. The cash portfolio is invested in a high percentage in U.S. dollars, while other assets are primarily composed of IMF special drawing rights (SDRs).

Management of Foreign Exchange Reserves at the Central Bank of Chile

I. Introduction

Foreign exchange reserves are liquid assets in foreign currency that the Central Bank of Chile (hereinafter the Bank) holds to support its monetary and exchange rate policy. These reserves are one of the instruments available to the Bank for implementing its objective of safeguarding the stability of the currency and the normal functioning of the internal and external payments system. Under the current floating exchange rate policy, their main function is to ensure access to liquidity in foreign currency in order to intervene in the foreign exchange market or to provide temporary liquidity in foreign currency in specific exceptional circumstances. At year-end 2012, foreign exchange reserves were US$41.650 billion.

This report explains the objectives of foreign exchange reserves management, the institutional framework under which they are managed, the investment policies applied in decisionmaking, the composition and basic characteristics of the reserves, the external portfolio management programs and the Bank's risk management and profitability from these items. Information is also provided on the transparency practices that the Central Bank has adopted in recent years, in accordance with international standards. Finally, the report ends with a glossary of terms related to reserves management[2]/.

II. Institutional and organizational framework

The Basic Constitutional Act of the Central Bank of Chile (contained in Article One of Law 18,840, published in the *Official Gazette* on 10 October 1989) establishes that the "Central Bank of Chile is an autonomous institution of a technical nature in accordance with constitutional provisions, has full legal capacity, possesses its own assets and has an indefinite duration." Article 38 of the Act explicitly grants the Central Bank the authority to manage, maintain and dispose of its foreign exchange reserves.

This Article states that "With regard to international transactions, the Bank will have the authority as follows:
—To receive deposits from or open transactional accounts in domestic or foreign currency for foreign central banks, foreign or international banks or financial institutions and foreign states; and
—To hold, manage and use its international reserves, both within the country and abroad. These reserves may be composed of foreign currency, gold, negotiable instruments and securities or commercial papers issued or guaranteed by foreign states, central banks or foreign or international banks or financial institutions. The Bank will have the authority to pledge its reserves as collateral for its obligations."

[2]/ The information presented in this report is general and nonexhaustive. For more information on the provisions governing the policies, operations and instruments described herein, see the corresponding legal sources and regulatory guidelines, which are available on the Bank website.

Based on the mandate established in its Basic Constitutional Act and a set of practices and policies consistent with international recommendations in the field, responsibilities for managing reserves are distributed across different positions within the Bank's hierarchy. This includes a clear definition of the decisionmaking and management-assessment processes within the institution.

At the top is the Central Bank's Board, which is responsible for defining the objectives of reserves management and approving investment parameters. These are included in the *Current Policy Manual,* which establishes the guidelines for investing foreign exchange reserves, including currency composition and duration, and credit risk management. The Board also regularly evaluates the performance of foreign exchange reserves management, based on monthly reports and quarterly presentations.

The second level involves the Financial Operations Division (GDOF), whose Division Director has been specifically authorized by the Board to implement and execute the policies and operations described in this *Report*. In addition, this Division provides the Board with proposals on the general investment policy, the associated risk management and the benchmark for foreign exchange reserves management, which is reviewed annually. The Division also approves specific limits on investment exposure, based on general guidelines from the Board; reports to the Board twice a year on the actions delegated to it; and coordinates and supervises policy implementation.

The third decisionmaking level lies with the International Markets Management (GMI), which reports to the Financial Operations Division. This management proposes investment policies and their respective benchmarks, defines the strategy for implementing the Bank's investment policies and manages implementation. The International Trading Desk, under the International Markets Management, designs and proposes investment positioning in line with the benchmark defined for foreign exchange reserves management and implements investment decisions once they are approved. The Fiscal Agency Unit also reports to the GMI; the unit's responsibilities are related to the management of the State of Chile's sovereign funds, within the Central Bank's institutional framework and subject to its operational standards.

Parallel to the International Markets Management under the Financial Operations Division, the Financial Services Management (GSF) is in charge of the settlement, registration, accounting and processing of transactions carried out both by the Bank's international trading desk and by foreign currency traders who receive instructions directly from local banks and other authorized institutions (settlements and credits). This management is also responsible for the operations and settlement infrastructure, including market opening, the availability of correspondent banks, custody services and the operational management of the technological systems that support transactions.

In addition to its direct responsibilities for investment, the International Markets Management administers portfolio management and securities lending programs contracted with external counterparties. A resource volume of about 3% to 5% of the total Bank investment portfolio has been outsourced through the external portfolio management program since the program's inception. The program aims to provide an active benchmark for evaluating the direct management of reserves by the International Markets Management, facilitate the transfer of knowledge and technology in this field and add economic value to the reserves portfolio. At year-end 2012, around 3% of the investment portfolio was independently managed by two external managers (PIMCO and Goldman Sachs Asset Management). The securities lending program, in turn, is operated through a custodian; it provides an additional return on the investment instruments held by the Bank.

For evaluating and monitoring reserves management, the Central Bank's organizational structure includes a Financial Risk Assessment and Management Unit (GGERF). This unit is independent of the International Markets Management and reports administratively to the General Manager. This unit measures the reserve portfolio's performance both in absolute terms and relative to the benchmark established for foreign exchange reserves management; it also calculates the associated risk parameters and monitors compliance with the investment limits established by the International Markets Management. The GGERF reports on these matters to the Financial Operations Division and the General Manager. The Financial Operations Division reports quarterly to the Board on the management of the investment portfolio.

The General Auditor's Office of the Central Bank, which reports directly to the Board, evaluates the effectiveness and efficiency of internal control, risk management and governance of the integrated process of reserves management, given their critical nature. In particular, the General Auditor is responsible for the internal inspection and auditing of the Bank's accounts, operations and management standards. The Bank's financial statements, given their materiality level, include foreign exchange reserves management and are subject to an external audit every year. Finally, the Audit and Compliance Committee, which is an external advisor to the Board, reports on the effectiveness of the internal control procedures and systems used in foreign exchange reserves management; the Committee also assesses the reliability, integrity and timely delivery of information that goes into the financial statements.

In accordance with the Basic Constitutional Act, the General Counsel's Office, whose senior executives report directly to the Bank Board, is generally responsible for ensuring that all agreements, resolutions and contracts made or entered into by the Central Bank comply with the legal provisions in force, including agreements involving the investment, management or use of foreign exchange reserves. For this purpose, all agreements, resolutions and contracts must undergo a juridical study by the General Counsel's Office prior to their approval, to ensure that investments are made in securities that are legally eligible for this purpose, pursuant to the above legal provisions, and that contracts meet acceptable legal criteria, especially in terms of applicable legislation and jurisdiction, and any eventual waiver of the Bank's immunity, as per Article 85 of the Basic Constitutional Act.

Moreover, consulting services are regularly provided by other central banks and international institutions to evaluate and improve existing processes in accordance with international best practices. To this end, in recent years the investment area has received advice from the International Monetary Fund and the European Central Bank.

III. Objectives of foreign exchange reserves management

The floating exchange rate is an important component of the set of policies adopted by the Central Bank to fulfill its mission of safeguarding the stability of the currency and the normal functioning of the internal and external payment systems. This exchange rate regime is combined with an inflation-targeting scheme, prudent financial regulation and supervision and full international financial integration. Together with fiscal policy, this system provides a consistent framework for maintaining macroeconomic equilibrium and facing the different shocks that affect the economy, mitigating their effects.

A key element for meeting these objectives is that the country, through the Central Bank, holds a level of reserves that supports efficient economic policy decisions. Holding reserves can thus be justified for two reasons. First, reserves act as insurance against situations in which external financing sources are not fully available. This is called the precautionary motive. Foreign currency liquidity can thus be used in cases of emergency and contributes to alleviating the adverse effects of a balance-of-payments crisis. Second, an appropriate level of reserves could facilitate the reduction of sovereign spreads. When an economy holds an adequate level of reserves, it is providing the rest of the world with the assurance that it will honor its commitments even in exceptional situations and that the country is protected from adverse circumstances.

Within the framework of the floating exchange rate policy, the Central Bank reserves the right to intervene in the forex market under exceptional circumstances. This intervention is carried out through the accumulation or drawdown of foreign exchange reserves.

Any exceptional circumstances that could lead to an intervention are assessed by the Bank Board on a case-by-case basis. Sometimes these situations involve large or sudden changes in the exchange rate that could potentially have adverse effects on the economy. An overreaction of the exchange rate parity occurs when the exchange rate rises or falls sharply without any changes in its fundamentals, often followed by movements in the opposite direction in a short period of time. The adverse consequences of this type of event can be detected, for example, in a lack of confidence on the part of economic agents or increased volatility in financial markets.

Since the implementation of the floating exchange rate regime, the Central Bank has intervened in the market four times. In all four cases, the size of foreign exchange reserves changed as a result. In 2001 and 2002, the Bank announced the sale of reserves (U.S. dollars) for a specified amount and over a given period. In 2008 and 2011, the Bank purchased reserves (dollars) for a pre-established daily and total amount. In the last episode, in January 2011, the Board agreed to implement a foreign currency purchase program for US$12.00 billion, through the daily acquisition of US$50 million from the date of the announcement through December 2011. The Bank has also carried out policy actions that have temporarily affected the size of reserves. For example, in response to market tensions during the recent financial crisis, the Bank provided foreign currency liquidity to the local banking system through weekly auctions held between September and December 2008. These measures were maintained through mid-2010, with the full return of all the dollar resources borrowed from the Central Bank, once financial conditions normalized.

While holding foreign exchange reserves has benefits, it also involves financial costs that must be considered when defining the amount of reserves to be maintained. The return on the investments in which foreign exchange reserves are maintained is generally less than the cost of the liabilities that finance them, due to differences in credit risk, securities' liquidity and the maturity and denomination of the instruments. These differences tend to adversely affect the Central Bank's financial equity and are also sources of risk to its balance sheet.

Consistent with the role of foreign exchange reserves, as well as with their benefits and costs, the Central Bank's objective in managing its reserves is to provide secure, efficient access to international liquidity that safeguards the Bank's financial equity. Providing secure access implies managing reserves so that they are actually available to use quickly and expediently when required. Mitigating the costs of holding reserves requires optimizing their investment, diversifying investments by asset class and currency and pursuing a level of returns consistent with the credit risk profile to ensure the reasonable preservation of the capital managed. Finally, safeguarding financial equity involves limiting the risks from the reserves portfolio and its management in terms of the impact on the Central Bank's balance sheet.

To achieve these objectives, the Bank operates according to the established institutional framework, which is based on the provisions of its Basic Constitutional Act. Based on the above objectives, different general principles have been established within the Institution for managing the reserve portfolio, including the corresponding internal governance structure, which are presented in the next section.

In October 2010, the Central Bank of Chile organized a Workshop on Foreign Exchange Reserves, which sought to analyze the bases for defining reserves management objectives and policies. The event was attended by representatives from the central banks of Brazil, Canada, Finland and South Africa, as well as the BIS, the FLAR and two of the Bank's counterparty financial institutions, namely, PIMCO and Brown Brothers Harriman[3,4]/. The conclusions from the discussion were presented to the Bank Board, where they provided the basis for reviewing international reserve objectives. A new investment policy was then proposed in the second half of 2011 and approved in February 2012[5]/.

[3]/ BIS: Bank for International Settlement; FLAR: Latin American Reserve Fund.

[4]/ PIMCO: Pacific Investment Management Company.

[5]/ The main conclusions from Workshop that were presented to the Board are listed in appendix I.

IV. Investment policy

The investment policy governing foreign exchange reserves is defined by legal and liquidity requirements. With regard to the former, the law establishes that foreign exchange reserves can only be invested in foreign currency, gold, negotiable instruments and securities or commercial papers issued or guaranteed by foreign states, central banks or foreign or international banks or financial institutions. Moreover, foreign exchange reserves consist of mainly liquid financial assets.

Subject to the above restrictions, the foreign exchange reserves investment policy is designed in terms of its impact on the Central Bank's financial results and risks and the characteristics of potential foreign currency liquidity needs. In practice, this policy is specified through the definition of a benchmark to guide and evaluate investments and through the establishment of limits on market and credit risk decisions around the benchmark.

Based on the recommendations and conclusions from the 2010 Workshop and taking into account the increase in the level of foreign exchange reserves as a result of the dollar purchase program implemented by the Bank in 2011, the Financial Operations Division undertook a review of the investment policy, which was submitted for consideration by the Board and ultimately approved in February 2012.

The objectives of foreign exchange reserves management contained in the investment policy approved in February 2012 (the new policy) do not differ from the objectives of the policy in force until that date: namely to hold foreign exchange reserves in instruments (i) that can be redeemed in the shortest period possible, without incurring higher transaction costs (the liquidity objective, which is associated with covering the residual short-term external debt); (ii) that present limited financial risks (the principal preservation objective); and (iii) that have an asset composition that minimizes the volatility of the Bank's equity measured in local currency (the balance sheet coverage objective).

However, the new investment policy explicitly incorporates an additional reserves management objective, namely, to reduce the cost of holding reserves by incorporating a portfolio aimed at earning higher absolute returns in the long run (the profitability objective). The introduction of this new objective is consistent with the level of available reserves.

In line with these objectives, a new benchmark was defined for the foreign exchange reserves investment portfolio, which now comprises three subportfolios: (i) the short-term liquidity portfolio (24%), which is most directly associated with the liquidity and principal preservation objectives; (ii) the medium-term liquidity portfolio (61%), associated with the balance sheet coverage objective; and (iii) diversification portfolio (15%), associated with the objective of reducing the cost of holding reserves at the margin. Taken together, the resources held in these three portfolios alone can meet the policy objectives defined by the Board.

Under the new scheme, the former liquidity portfolio is now called the cash portfolio. This portfolio manages the balances held in the transaction accounts held by General Treasury, public enterprises and banks. Finally, the other assets portfolio includes special drawing rights (SDRs), certified gold and other assets.

The currency benchmark for the investment portfolio is defined as follows: U.S. dollars (47.79%), euros (21.96%), Canadian dollars (9.15%), Australian dollars (6.10%), yen (3.00%), Swiss francs (2.40%), pounds sterling (2.25%), South Korean won (2.25%), New Zealand dollars (1.80%), Singapore dollars (1.05%) and Chinese renminbi (2.25%).

The new benchmark for credit risk specifies mid-ranges of 97.75% in sovereign risk and 2.25% in bank risk. Here, bank exposure corresponds solely to renminbi-denominated off-shore deposits from China.

The new policy defines eligible sovereign issuers as countries that are included in the benchmark and restricts off-benchmark sovereign issuers, based on the credit risk rating criterion, to countries that have an average risk rating of AA– or higher (under the previous policy, the threshold was A–). The allocation of investment margins for eligible sovereign risk was also modified, so as to take into account the larger size of the reserve portfolio and to reflect the new relative share of sovereign risk in the benchmark. Given the importance of the United States in world GDP, and considering that the dollar is the main reserve currency, the investment ceiling for U.S. sovereign risk was set at US$25.0 billion.

The new investment policy reduced the ceiling on total exposure to bank risk from 15% to 10%. The maximum exposure limits were retained for sovereign risk (100%), supranational risk (US$2.5 billion) and external financial institution or agency risk (20%). No new types of risk or instrument were introduced.

The new benchmark indicates that the interest rate risk of the investment portfolio, measured by modified duration, is approximately 23 months. The previous policy specified a benchmark of approximately 17 months.

Since the new investment policy on foreign exchange reserves was approved in February 2012, it has undergone two adjustments. First, as a result of economic and financial developments in Europe, the total share of the euro in the investment portfolio was reduced from 31.95% to 21.96%. Most of these resources were allocated to U.S. dollars, and exposure to the currencies that make up the diversification portfolio increased at the margin. This adjustment was implemented throughout July.

Second, the criteria used to select custodians were redefined. The original investment policy specified a minimum average risk rating of AA– for any institution providing custody services, which was further restricted to banks, bank subsidiaries that meet certain requirements and specific central banks or other official institutions. However, given the nature of custody services, the key actors in the custody market, the operational management needs of the Bank's international investors, legal safeguards, and the generalized downgrading of the credit ratings of the main banking institutions, the new policy expanded the selection criteria to take into account variables such as the size of the firm (in terms of total assets held under custody, number of clients and markets covered), service quality, technology and, in general, any other characteristic required for the adequate functioning of the custody business. The new policy also established that the Bank would review the custodians of its foreign exchange reserves annually.

The rest of this report provides further details on the key aspects of the foreign exchange reserves investment policy. It describes the portfolios managed and their composition and explains the benchmark used in each case. It also addresses the criteria used to determine the parameters that guide the currency composition and duration of the foreign exchange reserves investment portfolio.

V. Main components of the foreign exchange reserve portfolio

For the purposes of management, the assets in which foreign exchange reserves are invested are grouped into two main portfolios: the investment portfolio and the cash portfolio. Total reserves are made up of these two portfolios plus a set of assets called other assets.

The investment portfolio, which is the largest of the portfolios, includes short- and long-term foreign currency financial assets. It is subdivided into the short-term liquidity portfolio, the medium-term liquidity portfolio and the diversification portfolio.

The main objective of the short-term liquidity portfolio is to guarantee coverage of a share of the residual short-term bank debt, which is largely expressed in U.S. dollars. Consequently, the portfolio duration is less than a year, and investment is restricted to highly liquid, dollar-denominated instruments. The size of the portfolio is based on the expected liquidity needs in case of a major market disruption (sudden stop). If necessary, the size can be increased via a transfer of resources from other portfolios, with a relatively low transaction cost.

The medium-term liquidity portfolio aims to cover the Central Bank's balance sheet. Its larger size is explained by the need to cover Bank liabilities, and its duration is related to the residual maturity of these liabilities. The currency composition is defined so as to minimize the volatility of the Bank's equity in local currency.

The purpose of the diversification portfolio is to increase the return on foreign exchange reserves at the margin. Consequently, the benchmark composition includes a total of seven currencies and a longer duration.

According to the currency benchmark, the four most important currencies in the investment portfolio are the U.S. dollar, the euro, the Canadian dollar and the Australian dollar, which represent 85% of the investment portfolio. The remaining 15% is invested in yen, Swiss francs, pounds sterling, South Korean won, New Zealand dollars, Singapore dollars and Chinese renminbi. The benchmark duration of the investment portfolio is almost 23 months, and the benchmark structure calls for 97.75% sovereign risk and the remaining 2.25% bank risk.

Commercial banks and the public sector hold deposits at the Central Bank, in both domestic and foreign currency. The cash portfolio is designed to cover expected funding requirements in the short term, deriving from the Bank's foreign currency liabilities with the public sector and commercial banks. The currency and maturity benchmark for this portfolio matches liabilities and expected disbursements. It is mainly composed of overnight and weekend bank deposits, although it can also include investments in deposits and negotiable instruments with terms up to 180 days. This portfolio can receive funds from or transfer funds to the investment portfolio.

The other assets in the foreign exchange reserves are primarily SDRs from the IMF, monetary gold and reciprocal credit agreements. The Bank's IMF reserve position grew US$87.6 million in 2012, as a result of a general allocation of SDRs by the Fund proportionally to all member countries.

Table V.1 shows the level and composition of foreign exchange reserves by portfolio and currency at the close of 2012. The level of foreign exchange reserves totaled US$41.650 billion, of which US$35.896 billion were in the investment portfolio and US$3.755 billion were in the cash portfolio. Of the total, 50.3% were held in U.S. dollar instruments, 18.9% in euros and 30.8% in other currencies.

Table V.1

Composition of foreign exchange reserves
(US$ billion)

Type of portfolio	Currency	December 2011		December 2012	
		Amount	Percent	Amount	Percent
Investment		**35.330**	**84.2**	**35.896**	**86.2**
Currency and deposits	U.S. dollar	0.808	1.9	0.003	0.0
	Euro	1.027	2.4	0.001	0.0
	Other	1.888	4.5	0.825	2.0
Securities	U.S. dollar	16.457	39.2	17.211	41.3
	Euro	11.629	27.7	7.870	18.9
	Other	3.521	8.4	9.987	24.0
Total	U.S. dollar	17.265	41.1	17.214	41.3
	Euro	12.656	30.1	7.870	18.9
	Other	5.409	12.9	10.812	26.0
Cash		**4.787**	**11.4**	**3.755**	**9.0**
Currency and deposits	U.S. dollar	4.787	11.4	3.755	9.0
	Euro	0.0	0.0	0.0	0.0
	Other	0.0	0.0	0.0	0.0
Securities	U.S. dollar	0.0	0.0	0.0	0.0
Total	U.S. dollar	4.787	11.4	3.755	9.0
	Euro	0.0	0.0	0.0	0.0
	Other	0.0	0.0	0.0	0.0
Other assets		**1.863**	**4.4**	**1.998**	**4.8**
Monetary gold	Other	0.012	0.0	0.013	0.0
IMF SDRs	Other	1.214	2.9	1.212	2.9
IMF reserves position	Other	0.601	1.4	0.692	1.7
Reciprocal credit agreements	U.S. dollar	0.035	0.1	0.082	0.2
TOTAL FOREIGN EXCHANGE RESERVES		**41.979**	**100.0**	**41.650**	**100.0**
Total	U.S. dollar	22.087	52.6	20.969	50.3
	Euro	12.656	30.1	7.870	18.9
	Other	7.237	17.2	12.810	30.8

Source: Central Bank of Chile.

V.1. Investment portfolio

The investment portfolio reference structure orients the investment decisions made for the portfolio and provides the basis for defining and measuring the risks that the Central Bank assumes in managing it. This benchmark establishes the basic parameters that guides the currency composition, duration, credit risk distribution by type of risk and instrument and the respective benchmarks.

The fundamental considerations underlying the specification of the investment portfolio reference structure are the characteristics of the foreign currency requirements that could arise in the future and the impact of investment decisions (based on the reference structure) on the financial results and risks on the Central Bank's balance sheet.

As discussed in the last section, the foreign exchange reserves investment portfolio has a new structure, comprising three subportfolios: (i) the short-term liquidity portfolio (24%), which is most directly associated with the liquidity and principal preservation objectives; (ii) the medium-term liquidity portfolio (61%), associated with the balance sheet coverage objective; and (iii) diversification portfolio (15%), associated with the objective of reducing the cost of holding reserves at the margin[6]/.

[6]/ The investment portfolio has mechanisms for rebalancing the subportfolios to ensure that their relative size remains in line with the benchmark.

The characteristics of each of these three subportfolios, including currency composition, instruments, investment maturities and objectives, are discussed below.

a. Short-term liquidity portfolio

The short-term liquidity portfolio is designated, first and foremost, to be available for the potential use of foreign exchange reserves to meet temporary liquidity requirements of the national financial system or the need to intervene in the forex market by selling foreign currency.

This portfolio accounts for 24% of the investment portfolio, and its reference structure is 100% U.S. dollars. This benchmark contemplates government money market securities issued by the United States, with a residual maturity of up to one year (government bills). The target duration is approximately three months. Interest rate risk is limited by an absolute deviation range, defined as a minimum of zero months and a maximum of three months above the benchmark duration. With regard to currency risk, investments in currencies other than the U.S. dollar are not allowed.

In addition to the instruments included in the benchmark, investments can be made in bills, bonds and discount notes, with a residual maturity of up to one year, from eligible issuers that represent sovereign, supranational and agency risk.

b. Medium-term liquidity portfolio

The main objective of the medium-term liquidity portfolio is to cover the Bank balance sheet. Consequently, its currency composition is reasonably well correlated with Bank liabilities, thereby minimizing the volatility of the Bank's equity measured in local currency. The portfolio also ensures market depth and limits credit risk through the securities in which it is invested.

This portfolio accounts for 61% of the investment portfolio, and its reference structure comprises 39% U.S. dollars, 36% euros, 15% Canadian dollars and 10% Australian dollars. This benchmark includes securities issued by the United States, Germany, Canada and Australia, with a residual maturity of one to five years. The target duration is approximately 24 months. Interest rate risk is limited by an absolute deviation range, defined as a minimum of zero months and a maximum of three months above the benchmark duration. With regard to currency risk, a deviation of +/– 2% is allowed for the Canadian dollar and the Australian dollar, relative to the midrange defined for these currencies. A deviation range of +/–16% is allowed for the U.S. dollar and the euro, relative to the midrange defined for these currencies. This latter range was designed to give reserves management some flexibility, should it become strictly necessary, to manage exposure to the euro vis-à-vis the U.S. dollar, in the context of a potential deterioration of the situation in Europe.

In addition to the instruments included in the benchmark, investments can be made in notes and bonds with a residual maturity between one and five years, from eligible issuers that represent sovereign, supranational and agency risk. Investments are not allowed in currencies that are not specified in the benchmark.

c. Diversification portfolio

The main objectives of the diversification portfolio are to diversify risks and to increase returns at the margin so as to reduce the existing gap between the cost of the Central Bank's liabilities and the returns on its investments.

This portfolio accounts for 15% of the investment portfolio, and its reference structure comprises 20% yen, 16% Swiss francs, 15% pounds sterling, 15% South Korean won, 15% Chinese renminbi, 12% New Zealand dollars and 7% Singapore dollars. With the exception of the renminbi, this benchmark includes securities issued by Japan, Switzerland, the United Kingdom, South Korea, New Zealand and Singapore, with a residual maturity of five to ten years. In the case of the renminbi, the benchmark is associated with the deposit rate on three-month bank deposits denominated in Chinese renminbi and traded offshore. The target duration of the portfolio is approximately 57 months.

In addition to the instruments included in the benchmark, investments can be made in any and all instruments approved under the most recent *Current Policy Manual* for the management of foreign exchange reserves, with no restrictions on terms (or residual maturity) or currencies. These include time deposits, certificates of deposit, bank acceptances, bills, discount notes, floating-rate notes, commercial papers, euro commercial papers, euro notes, notes, bonds, public mortgage-backed debt securities (*Jumbo Public Pfandbriefes*), mortgage-backed securities (MBS) and others to be announced (TBA). The diversification portfolio is managed on the basis of a risk budget.

Deviations from the benchmark are limited to an ex ante tracking error of 100 basis points per year. This risk budget controls exchange rate risk, interest rate risk and, partly, credit risk. Therefore, complementary limits and restrictions are defined to exercise strict control of exposure to the different types of credit risk allowed.

V.2. Cash portfolio

The investments in the cash portfolio match the currency and term structure of expected disbursements on the Central Bank balance sheet. The cash portfolio is currently composed of 100% short-term investments, mainly overnight and weekend deposits.

The currency composition of the cash portfolio is tied to the currency composition of expected disbursements and liabilities deriving from overnight deposits held at the Bank by authorized banks and financial institutions. At year-end 2012, the currency composition was 100% U.S. dollars.

Consistent with these characteristics, the benchmark for cash portfolio investments is calculated based on the overnight rates of the currencies in the portfolio.

VI. Risk management

Risk management policy is an integral part of foreign exchange reserves investment guidelines. These guidelines are approved by the Central Bank Board, which authorizes the Financial Operations Division to handle their implementation. These investment guidelines include the objectives of reserves management and thus reflect the philosophy governing reserves investment. This philosophy is defined in terms of the ranges of deviation from the reference portfolio and limits on different types of investment.

a. Liquidity risk

Liquidity risk involves the risk of not being able to sell an instrument or close a position when required, without incurring significant costs. To ensure the liquidity of the foreign currency investments that make up its foreign exchange reserves, the Central Bank manages a portfolio composed primarily of securities (government bills and notes) traded on deep and liquid secondary markets.

b. Credit risk

The current investment guidelines consider four basic sources of credit risk: bank risk, sovereign risk, supranational risk and external financial institution or agency risk.

The benchmark structure defines neutral exposure to bank risk as 2.25%, which corresponds to the share of the renminbi in the investment portfolio's currency composition. In general, exposure to bank risk can derive from the collection of fixed-term deposits, transaction accounts with correspondent and custodian banks, investment in certificates of deposit and foreign exchange transactions. This risk is managed in two ways. First, there is an overall ceiling on exposure to bank risk in the investment portfolio, which is currently set at 10% of the portfolio. Second, there are individual limits for each bank in terms of the maximum amount and maturity of investments. To qualify as an eligible counterparty, a bank must have a minimum equity of US$1.00 billion and a long-term debt rating of A or higher from at least two of the three designated international risk rating agencies (Fitch, Moody's and Standard & Poor's)[7/].

The eligibility of sovereign issuers is contingent on the relative size of the country's gross domestic product, the level of its public debt and its long-term debt rating. With regard to the latter, in addition to the countries included in the benchmark structure, countries are eligible for investment if, in the last 24 months, they have maintained a risk rating of AA– or higher from at least two of the three international risk rating agencies identified in the previous paragraph. There is no overall ceiling on exposure to sovereign risk (although there are limits by country), which implies that 100% of foreign exchange reserves could potentially be invested in this asset class.

Exposure to supranational risk is subject to an overall ceiling of US$2.5 billion. Limits on individual issuers depend on the credit rating of the given institution (a minimum of AA– from at least two of the three risk rating agencies) and its size as measured through equity.

Finally, exposure to external financial institutions, which currently correspond to agencies in the United States and Germany, is a function of the institution's risk rating (AAA from at least two of the three risk rating agencies cited earlier), minimum equity of US$1.0 billion, or binding clauses that secure the financial backing (sponsorship) of the United States government[8/].

7/ When appropriate, the standardization procedures used follow the conventions of the U.S. Securities Valuation Office.

8/ In the case of Fannie Mae and Freddie Mac, investments may not exceed 7.5% of the internally managed portfolio, which is the ceiling on single issuers. In the case of Ginnie Mae, which has always had the explicit guarantee of the United States government, the maximum limit is 10% of the internally managed portfolio. In the case of other institutions, investments may not exceed 1% of the portfolio, for reasons of market depth and the relative size of their debt instruments.

Table VI.1 shows the composition of the foreign exchange reserves investment portfolio by type of credit risk and credit rating. At year-end 2012, 92.0% of the reserves were invested in securities with a credit rating of AAA, issued by sovereign entities. Of the remaining 8.0%, 1.5% were invested in securities with a credit rating of AA, 6.1% in securities rated AA– and 0.4% in securities with an average rating of A+.

Table VI.1

Composition of foreign exchange reserves investment portfolio by credit risk (1) (2) (3)
(percent as of 31 December 2012)

	Credit rating						
Type of credit risk	AAA	AA+	AA	AA-	A+	A	Total
Agency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bank	0.0	0.0	0.0	1.8	0.4	0.0	2.2
Sovereign	92.0	0.0	1.5	4.3	0.0	0.0	97.8
Supranational	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	92.0	0.0	1.5	6.1	0.4	0.0	100.0

(1) Bank risk is related to investment in bank financial instruments (deposits, forex spots/forwards, pfandbriefes).Sovereign risk is related to investment in sovereign states' instruments (deposits, bills, floating-rate notes, indexed and nominal bonds). Agency risk is related to investment in external financial institutions' instruments (bills, nominal bonds). Supranational risk is related to investment in official multilateral instruments (deposits, bills, floating-rate notes, nominal bonds).
(2) The credit rating used is the average of the ratings awarded by Fitch, Moody's and Standard and Poor's.
(3) Excluding investments in the external management portfolios.

Source: Central Bank of Chile.

c. Counterparty risk

The eligibility of counterparties is also subject to objective selection parameters. Eligible counterparties are defined as institutions that are classified as primary dealers in the United States, the United Kingdom and France; brokers that have an approved risk rating; and subsidiaries that are at least 90% owned by the parent company and that have the same long-term credit rating required of banks to be eligible for investment.

d. Market risk

Market risk is contained through the diversification of investment currencies, instruments and maturities and through the measurement and monitoring of limits on exposure to currency and duration risk described above. Market risk is calculated based on the tracking error and value at risk (VaR), both in absolute terms and relative to the benchmark portfolio, using the parametric method, with a daily horizon, a 95% confidence level and a decay factor of 0.94.

e. Operational risk

Operational risk associated with the management of foreign exchange reserves is controlled by separating functions and responsibilities and applying internal and external controls. The International Trading Desk implements compulsory administrative procedures that stipulate the different stages of operations associated with reserves management, in order to minimize the operational risk inherent in transactions. It also has computer systems that make it possible to pre-enter and verify transactions before executing them. Similarly, the Financial Services Management (GSF) uses software, administrative procedures and cross-checking in the transaction registration processes. No operation can be completed without the respective approval of a trading desk dealer and three professionals in the Financial Services Management.

The Financial Risk Assessment and Management Unit (GGERF) is in charge of monitoring financial risks through an ongoing assessment of compliance with the investment guidelines established by the Central Bank Board, including compliance with the limits on exposure to institutions and margins, as well as the internal administrative procedures established for financial operations associated with reserves management.

VII. Historical returns from foreign exchange reserves management

The total annual average return from foreign exchange reserves management in 2007–2012 was 3.14% measured in dollars (table VII.1)[9]/. This is in line with the key interest rate dynamics of the last six years. The differential return relative to the benchmark used to evaluate investment performance was 0.07%, on average, for the same period.

Table VII.1

Total return on foreign exchange reserves, benchmark and differential return

(percent)

	Currencies		U.S. dollars		
Period	FX reserves	BMK	FX reserves	BMK	Differential
2012	0.66	1.01	1.43	1.77	-0.35
2011	2.43	2.41	1.22	1.20	0.02
2010*	2.10	2.19	-0.15	-0.06	-0.09
2009	2.15	1.65	3.34	2.85	0.50
2008	5.70	5.37	4.14	3.81	0.33
2007	4.81	4.78	8.86	8.83	0.03
2006	2.45	2.39	6.84	6.78	0.06
2005	2.90	2.85	-1.72	-1.77	0.05
2004	1.84	1.95	4.08	4.20	-0.11
2003	2.31	1.78	6.64	6.12	0.53
2002	5.25	4.69	9.34	8.78	0.57
2001	5.57	5.27	3.90	3.60	0.30
2000	6.88	6.65	4.84	4.61	0.22

(*) For 2010, the values in foreign currencies have been corrected relative to the previous publication.
Source: Central Bank of Chile.

[9]/ For more details, see the box on measuring returns.

Box: Calculating returns on foreign exchange reserves

The Central Bank of Chile's management of foreign exchange reserves must fulfill the objective of providing secure, efficient access to international liquidity so as to safeguard the Central Bank's financial equity, as mentioned earlier. A strategic benchmark is constructed to guide investments in terms of duration, currency composition and credit risk exposure (section IV, investment policy). Once the strategic decisions are made, possible tactical deviations from the benchmark are evaluated to increase the return on the foreign exchange reserve portfolio. The framework for these tactical decisions is established in the *Current Policy Manual*, which sets limits on deviations in terms of duration, currency composition and credit risk.

The total return on foreign exchange reserves, that is, the growth rate of the economic value of this portfolio, can be broken down into the benchmark return and the differential return relative to the benchmark. Total returns vary by the currency used for the measurement, due to the appreciation and depreciation of the currencies in the portfolio. In contrast, the differential return is independent of the currency used to measure either the total return or the benchmark return[10]/.

Measuring total returns in foreign currencies is preferable to using a single currency, such as the U.S. dollar. The multiple-currency measure has the advantage of being expressed in the basket of foreign currencies specified in the investment portfolio benchmark. Since it takes into account more than one currency, it is a much more stable indicator over time and is less volatile that returns measured in dollars.

The weighting of returns measured in foreign currency has changed over time, to reflect modifications in the investment policy. For the period from July to December 2012, the currency composition was 47.79% U.S. dollars, 21.96% euros, 9.15% Canadian dollars, 6.10% Australian dollars, 3.00% yen, 2.40% Swiss francs, 2.25% pounds sterling, 2.25% South Korean won, 1.80% New Zealand dollars, 1,05% Singapore dollars and 2.25% Chinese renminbi. Between March and June 2012, the currency composition was 39.9% U.S. dollars, 31.95% euros, 9.15% Canadian dollars, 6.10% Australian dollars, 2.55% yen, 2.10% Swiss francs, 1.95% pounds sterling, 1.95% South Korean won, 1.50% New Zealand dollars, 0.90% Singapore dollars and 1.95% Chinese renminbi[11]/.

[10]/ This is exact when total and benchmark returns are compounded continuously (logarithmic returns), and it is a good approximation when the returns are compounded discretely. In this section, returns are compounded continuously.

[11]/ From January 2010 to February 2012, the currency composition was 50% U.S. dollars, 40% euros and 10% Canadian dollars, Australia dollars and pounds sterling; from April 2005 to December 2009, it was 60% U.S. dollars and 40% euros; from February 2004 to March 2005, it was 75% U.S. dollars and 25% euros; and from January 2000 to January 2004, it was 72% U.S. dollars, 18% euros, 5% yen and 5% pounds sterling.

VIII. External management program and other services

In line with its commitment to manage its foreign exchange reserves efficiently, the Central Bank has maintained an investment portfolio for the past seventeen years. This section describes the main characteristics of the program and its key management processes.

a. Characteristics of the external management program

The Central Bank currently implements an external management program for a share of its foreign exchange reserves investment portfolio.

Started in 1995, the program consists in the contracting of foreign institutions that specialize in portfolio management, which then manage a share of the Bank's foreign currency assets in accordance with a previously approved mandate. Under the new investment policy, the external managers are assigned a share of the diversification portfolio resources, so their guidelines are the same as for the internally managed diversification portfolio.

The program currently pursues three objectives: to provide an active benchmark for the Central Bank portfolio, to facilitate technology and knowledge transfers, and to contribute economic value to the foreign exchange portfolio. The program is structured in two- or three-year periods, which start with the selection of managers and end with a performance evaluation and the possible extension of the mandate.

At year-end 2012, there were two external managers in the program, overseeing a portfolio of almost US$1.0 billion. In September 2012, the Central Bank's external managers were given a new mandate, which is identical to the internally managed diversification portfolio defined under the new investment policy.

b. Selection and evaluation of external managers

External managers are selected through a two-stage process. First, a "request for information" is sent to all the institutions that have expressed interest in taking part in the selection process. These institutions can be commercial banks, investment banks, or firms specializing in portfolio management. The information requested from the institutions is used to make a pre-assessment based on three basic criteria: the age of the institution and its experience with similar portfolios; the assignment of personnel to the Central Bank portfolio; and other characteristics such as cost, past performance, investment philosophy and the soundness of the different candidates. The pre-assessment methodology assigns a score for each of these variables, and based on the results, a few institutions are selected to advance to the next stage.

In the second stage, the pre-selected institutions are ranked in accordance with the objectives of the external portfolio management program, with input from a specialized external consultant. This ranking considers qualitative aspects of the firms, as well as more detailed information on the elements analyzed in the first stage. The ranking is then presented to the Central Bank Board, which makes the final decision on contracting external managers.

The performance evaluation is based on the external manager's results, with a comparison against the results of the internally managed portfolio, as well as the market risks taken and other variables such as management costs and contributions to knowledge transfer.

c. Custody and related services

With regard to its securities custody policy, the Bank uses two global custodians to date, which provide custody services for Central Bank portfolios denominated in dollars, euros and other currencies. In addition to these institutions, the Bank has the option of maintaining custody accounts with given central banks and the BIS.

Global custody services include securities lending programs, which allow the Central Bank to earn loan fees on the assets held under custody, receiving collateral in eligible instruments (bonds borrowed program), for amounts covering 100 to 105% of the value of the loaned security. The custodian bank, acting as agent, restricts its securities lending exclusively to overnight loans to authorized counterparties (primary dealers). The custodian provides the Bank with an explicit compensation guarantee in the event that the borrower fails to return the loaned security on time.

The global custodian institutions also provide middle-office services for the external management programs, consisting in a management evaluation and compliance control of these institution[12]/.

The criteria used to select custodians were redefined in August 2012. The original investment policy specified a minimum average risk rating of AA– for any institution providing custody services, which was further restricted to banks, bank subsidiaries that meet certain requirements and specific central banks or other official institutions. However, given the nature of custody services, the key actors in the custody market, the operational management needs of the Central Bank's international investors, legal safeguards and the generalized downgrading of the credit ratings of the main banking institutions, the new policy expanded the selection criteria to take into account variables such as the size of the firm (in terms of total assets held under custody, number of clients and markets covered), service quality, technology and, in general, any other characteristic required for the adequate functioning of the custody business. The new policy also established that the Financial Operations Division would annually submit for the consideration of the Board the renewal of the global custodians of Central Bank reserves.

[12]/ Middle-office services comprise the measuring of portfolio risk and returns and verifying compliance with the standards and policies established for a given portfolio. The front office is primarily responsible for making investments, while the back office provides the operations and settlement infrastructure and generally facilitates operations, that is, handling current accounts and custody and registering and controlling all operations.

IX. Transparency in foreign exchange reserves management

In 2006, the Central Bank's Board established as an institutional policy the disclosure of information regarding foreign exchange reserves management to the President of the Republic and the Senate, through the *Annual Report* and the *Monetary Policy Report* (September); and to the general public, through the publication of this information on the Central Bank website. These reports describe the objectives of foreign exchange reserves management, the institutional framework governing its administration, investment policies, the composition and basic characteristics of the reserves, and risk management and profitability obtained by the Bank on such accounts. In addition, since 2011, the present report on the Foreign Exchange Reserves Management of the Central Bank of Chile is published annually on the website, to provide more detailed information on the subject.

This decision by the Board consolidates the Bank's current practices in this area, which comply with all transparency guidelines recommended by the International Monetary Fund (IMF) to ensure the clarity and accountability of foreign exchange reserves management activities and results.

To strengthen the architecture of the international monetary and financial system and to promote policies and practices that contribute to the stability and transparency of the financial sector, in recent years international organizations have developed and disseminated practices to achieve a higher level of transparency in the design and implementation of the fiscal and monetary policy. In particular, the IMF released the document *Guidelines for Foreign Exchange Reserves Management, 2004,* which establishes standards for adequate transparency in the management of international reserves.

Listed below are the requirements that the Central Bank has established for foreign exchange reserves management, based on the IMF guidelines, and the way in which the Bank complies with them. This exercise illustrates that institutional practices are in line with international standards.

IMF requirement	Central Bank of Chile
1. The roles, responsibilities and objectives of the agency responsible for reserves management must be clearly defined. This should include the public disclosure of information on any arrangements between the agency and the government, and the governance criteria within the agency.	*Monetary Policy Report,* September 2012); Website; *Management of Foreign Exchange Reserves at the Central Bank of Chile.* A report on foreign exchange reserves management policy was published in 2006 and again in 2011, covering its objectives, the organizational framework, the allocation of responsibilities, and guidelines for investment decisions and the associated risk management. The report outlined the benchmark composition of assets by currency, maturity, duration and instruments, which guides investment. This information is currently available and regularly updated on the Bank's website.
2. The agreements regulating the agency's relationship with counterparties should be publicly disclosed. The general principles governing the relationship between the agency responsible for foreign exchange reserves management and its counterparties should be available to the public.	*Annual Report*; Website; *Management of Foreign Exchange Reserves at the Central Bank of Chile.* The external portfolio management program is published in the *Annual Report* each year. This information is currently available and regularly updated on the Bank's website.
3. There should be public access to statistical information on foreign exchange reserves. Information on official foreign exchange reserves should be publicly disclosed on a pre-set schedule.	*Monthly Bulletin* and *Weekly Current Report;* Website; *Management of Foreign Exchange Reserves at the Central Bank of Chile.* As part of the Bank's mechanisms for disseminating statistics, reserve levels are disclosed in the *Weekly Current Report* and the *Monthly Bulletin.* These are also available on the Bank's website and through the IMF's statistics release mechanism.
4. The integrity and accountability of the agency responsible for reserves management should be ensured. It is necessary to have independent external auditors audit the activities of the agency responsible for reserves management, and the audit results and the auditor's opinion on the agency's financial statements should be publicly disclosed. Similarly, the general principles for internal governance used to ensure the integrity of the reserves management agency's operations should be publicly disclosed.	*Official Gazette* (*Diario Oficial*), a nationally circulated newspaper; *Annual Report;* Website; *Monetary Policy Report*, September 2012. The Bank's balance sheets and financial statements are audited by independent external auditors and regularly published in the *Annual Report* and on the Bank's website. Additionally, the Audit and Compliance Committee, made up of leading independent professionals who consult to the Central Bank Board, reports on the efficacy of institution's internal control systems and procedures, evaluates and reports on the equity and reputational effects of compliance with the Bank's obligations, evaluates the reliability, integrity and timely delivery of the information that goes into the financial statements, coordinates with the Bank's General Auditor on the duties assigned by the Basic Constitutional Act and makes proposals on external auditors. General governance principles are included in the *Monetary Policy Report,* September 2012, on the Bank's website, and in the report *Management of Foreign Exchange Reserves at the Central Bank of Chile.*

Appendix I: Main conclusions of the foreign exchange reserves workshop

In October 2010, the Financial Operations Division (GDOF), through the International Markets Management (GM), organized and hosted a workshop on policy objectives in reserves management. The conference was attended by professionals from central banks, official institutions and international investment firms.

The Financial Operations Division presented the main conclusions from the conference to the Central Bank's Board, as follows. (i) Even in times of crisis, the core objectives of foreign exchange reserves management continue to be liquidity, preservation of principal, coverage and profitability. These objectives can be defined in terms of the level of available reserves and the necessary safeguards required by the economy given its external vulnerability. (ii) The segmentation of the reserves portfolio structure supports a more appropriate management of cash, liquidity and investment needs. (iii) The investment policy decision should take into account the degree of security desired, the cost of coverage and the cost of holding reserves, if any. (iv) A portfolio defined as a liquidity tranche must be diversified across currencies and instruments with deep markets, with issuers that have superior credit risk ratings and with short maturities that do not put the capital value of the assets at risk. Its design must ensure that no adjustment or intervention in the portfolio structure will be required in the event of market changes, to the extent that it is able to reasonably reflect the existence of normal and contingent liabilities. (v) Once the liquidity requirements have been identified, the remaining resources in the foreign exchange reserves portfolio are allocated to an investment tranche, whose objective can be defined in terms of a profitability level, subject to limits on the risks that can be assumed. (vi) Given the profitability objective of the investment tranche, there is room in this portfolio for other asset classes, markets, currencies, maturities and issuers. Because these investment options involve a higher level of both market and credit risk, they require a more dynamic, active risk management approach that incorporates the monitoring of early warning indicators and regular stress testing practices, as well as the use of traditional risk management and measurement tools such as the VaR and tracking error.

Appendix II: Main definitions of investment policy

a. Currency composition

The Central Bank maintains its investment portfolio in a diversified currency portfolio, made up of investments in U.S. dollars (47.79%), euros (21.96%) Canadian dollars (9.15%), Australian dollars (6.10%), yen (3.00%), Swiss francs (2.40%), pounds sterling (2.25%), South Korean won (2.25%), New Zealand dollars (1.80%), Singapore dollars (1.05%) and Chinese renminbi (2.25%)[13]/. The objectives of this portfolio composition are, first, to ensure an adequate supply of foreign currency liquidity, if needed; second, to reduce the impact on the Bank's balance sheet of changes in the main currency parities; and third, to achieve a reasonable diversification of resources.

[13]/ The composition of the investment portfolio differs from table V.1, because the table describes the composition of total foreign exchange reserves, which include the investment, cash and other assets portfolios.

With regard to the first objective, the characteristics of potential foreign currency liquidity needs suggest that the U.S. dollar should be the predominant currency in the investment portfolio. The current recommendation at the international level is that the main indicator for assessing potential foreign currency needs in emerging economies—like Chile—is the residual short-term external debt (that is, contractual short-term external debt plus the portion of long-term external debt that comes due in the next twelve months). In the case of Chile, this debt is essentially denominated in U.S. dollars, which is also the benchmark foreign currency for the national foreign exchange market and the currency in which interventions in the foreign exchange market have historically been made.

To achieve the second objective, the Central Bank must also consider the impact of the investment portfolio's currency structure on the risks on its balance sheet. The main channel through which the currency composition can affect the Bank's equity is through the effects of changes in international parities on the value of the Central Bank balance sheet measured in local currency. Since the adoption of the floating exchange rate regime, the volatility of the peso-dollar exchange rate has increased significantly relative to the volatility of the peso-euro, peso-Australian dollar and peso-Canadian dollar exchange rates. This has strengthened the arguments in favor of increasing the currency diversification of the investment portfolio.

The third objective, associated with reducing the cost of holding foreign exchange reserves at the margin, is based on the need to secure an adequate level of diversification via a currency composition that reflects countries with reasonably deep debt markets, immediate access to liquidity and a positive economic and financial outlook. This is consistent with the size of the reserves and compatible with the liquidity and coverage needs that are most directly associated with the short- and medium-term liquidity portfolios.

The currency composition specified in the current benchmark for the investment portfolio represents an intermediate solution to exercises carried out to apply the objectives described in the previous paragraphs. Technically, this solution was obtained from two exercises.

The first exercise consisted in minimizing the volatility of historical returns on bank assets measured using a basket of currencies[14]/[15]/. The final result is a portfolio that reduces fluctuations in asset value and, therefore, in equity. This result was assigned to two portfolios, in order to separate and specialize the management of the more liquid, more available assets, which are directly associated with the criterion of covering the residual short-term external debt (the short-term liquidity portfolio), and the assets that best serve the objective of covering the Bank's balance sheet (the medium-term liquidity portfolio)[16]/.

The second exercise aimed to maximize expected returns subject to a risk level based on the conditional value at risk (CVaR)[17]/. This exercise generated the currency composition of the diversification portfolio. The amount allocated to this portfolio equals the difference between the total foreign exchange reserves investment portfolio and the short- and medium-term liquidity portfolios. The above exercises consider restrictions related to market depth and credit risk.

In sum, the currency composition of the reserve assets aims to satisfy three simultaneous objectives, namely, to ensure adequate coverage of the residual short-term external debt, to minimize fluctuations on the Central Bank balance sheet measured in pesos and to reduce the financial cost of holding reserves, with an appropriate level of diversification.

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[14]/ Based on daily data with a five-year window.

[15]/ The currencies of Bank liabilities, namely, pesos and UFs (*unidades de fomento*, an inflation-indexed unit of account).

[16]/ The resources held in the two portfolios are equal to the amount of Bank liabilities. This exercise did not include the monetary base in liabilities, since it is not callable for the Cental Bank of Chile.

[17]/ The use of the CVaR (as a risk measure) allows returns to be corrected for tail risk. In general, the results based on this methodology tend to be more stable than results using the standard deviation of returns as the risk measure.

In addition to the currencies that make up the benchmarks described above, other internationally accepted currencies that are eligible for investment are the Danish krone, the Swedish krona and the Norwegian krone.

The investment portfolio can also invest in currency spots and forwards in accordance with the limits and restrictions applied to bank and supranational risk and the eligibility of the instrument.

b. Benchmark duration

The approach used to determine the benchmark duration of the investment portfolio takes into account the effects of related decisions on the total Central Bank balance sheet. Given the Bank's investment profile, potential liquidity needs are not considered to have important implications for the desired duration.

Changes in international interest rates affect the economic value of foreign exchange reserves, which are the Central Bank's main assets. These changes in external rates can partially pass through to internal rates, thus also generating effects on the economic value of the Central Bank's liabilities[18]/.

The current benchmark duration is a first-order approximation of the duration that neutralizes the effects of international rate fluctuations on the Central Bank's bottom line. This estimate takes into account not only the effects on the value of the assets in which foreign exchange reserves are invested, but also the impact on the value of the other Central Bank assets and liabilities. Technically, it is an estimate of the investment portfolio duration that zeroes out the duration gap on the Central Bank of Chile balance sheet deriving from changes in international interest rates.

Based on these criteria, the benchmark duration of the investment portfolio is currently 23 months. In the case of the short-term liquidity portfolio, the benchmark duration is on the order of three months, with a deviation range defined as a minimum of zero months and a maximum of three months above the benchmark duration. For the medium-term liquidity portfolio, the benchmark duration is approximately 24 months, with a deviation range defined as a minimum of zero months and a maximum of three months above the benchmark duration. Finally, the benchmark duration of the diversification portfolio is on the order of 57 months, and there is no absolute deviation range for this portfolio. Instead, the maximum deviation allowed is associated with an allocated risk budget of an ex ante tracking error of 100 basis points.

c. Benchmark

For practical purposes, the benchmark structure used to guide and evaluate investments is specified within the general currency and duration parameters described above, but with greater detail. Table A.II 1 shows the current benchmark composition of the internally managed investment portfolio, by maturity, risk and currency. The external portfolio managers use an identical benchmark structure to the diversification portfolio described in the table.

[18]/ This phenomenon is called the external-to-internal interest rate pass-through ratio. There is evidence that the two rates were close correlated in the first half of the last decade, especially in the case of medium- and long-term interest rates. The correlation was considerably less robust in the second half of the period. The latest estimate is 0.5; that is, for every 10-basis-point change in external rates, internal rates move 5 basis points in the same direction. See H. González, E. Jadresic and F. Jaque (2005), "Relación entre tasas de interés internas y externas," *Economía Chilena*, vol. 8, no. 2, August, pp. 91–4.

Table A.II 1

Currency, maturity and duration structure of the internally managed portfolio benchmark

Portfolio	Type of risk	USD Share %	USD Duration (mths)	EUR Share %	EUR Duration (mths)	AUD Share %	AUD Duration (mths)	CAD Share %	CAD Duration (mths)	CHF Share %	CHF Duration (mths)	GBP Share %	GBP Duration (mths)
Short-term liquidity portfolio (STL)	Sovereign												
	0-1 year	24.7	3.4										
	Subtotal STL	**24.7**	**3.4**										
Medium-term liquidity portfolio (MTL)	Sovereign												
	Maturity tranches												
	1-3 years	22.0	22.6	20.3	21.5	5.7	22.1	8.5	22.1				
	3-5 years	2.5	45.0	2.3	45.0	0.6	44.0	0.9	44.7				
	Subtotal MTL	**24.5**	**25.1**	**22.6**	**23.9**	**6.3**	**24.3**	**9.4**	**24.4**				
Subtotal MTL Diversification portfolio	Sovereign												
	Maturity tranches												
	5-7 years									1.8	65.9	1.7	63.3
	7-10 years									0.2	95.4	0.2	86.6
	Bank												
	0-1 year												
	Subtotal Diversification									**2.0**	**69.4**	**1.9**	**66.0**
Total investment portfolio		**49.2**	**14.2**	**22.6**	**23.9**	**6.3**	**24.3**	**9.4**	**24.4**	**2.0**	**69.4**	**1.9**	**66.0**

Portfolio	Type of risk	JPY Share %	JPY Duration (mths)	KRW Share %	KRW Duration (mths)	NZD Share %	NZD Duration (mths)	CNY Share %	CNY Duration (mths)	SGD Share %	SGD Duration (mths)	Total Share %	Total Duration (mths)
Short-term liquidity portfolio (STL)	Sovereign												
	0-1 year												
	Subtotal STL											**24.7**	**3.4**
Medium-term liquidity portfolio (MTL)	Sovereign												
	Maturity tranches												
	1-3 years												
	3-5 years												
	Subtotal MTL											**62.7**	**24.5**
Diversification portfolio	Sovereign												
	Maturity tranches												
	5-7 years	2.2	67.7	1.7	58.4	1.3	60.3			0.8	69.3		
	7-10 years	0.3	96.7	0.2	84.1	0.2	83.0			0.1	88.3		
	Bank												
	0-1 year							1.9	1.5				
	Subtotal Diversification	**2.5**	**71.1**	**1.9**	**61.4**	**1.5**	**63.0**	**1.9**	**1.5**	**0.9**	**71.5**	**12.6**	**57.2**
Total investment portfolio		**2.5**	**71.1**	**1.9**	**61.4**	**1.5**	**63.0**	**1.9**	**1.5**	**0.9**	**71.5**	**100.0**	**23.4**

Source: Central Bank of Chile.

Based on the characteristics of the benchmark structure, benchmarks were established for each component of the investment portfolio, given its duration and currencies. These benchmarks, which are summarized in table A.II 2, correspond to the standard benchmark indices and reference interest rates for the industry.

Tabla A.II 2

Benchmark structure of the foreign exchange reserves investment portfolio, by type of risk and benchmark

Portfolio	Credit risk	Share (%)	Benchmark
Short-term liquidity portfolio	Sovereign	24	Barclays Capital Global Aggregate Index: Treasury Bond Index (unhedged) Duration tranche: 0–1 year (USD)
Medium-term liquidity portfolio	Sovereign	61	Barclays Capital Global Aggregate Index: Treasury Bond Index (unhedged) Duration tranche: 1–3 years (90%) Duration tranche: 3–5 years (10%) (USD, EUR, CAD, AUD)
Diversification portfolio	Sovereign and bank	15	Barclays Capital Global Aggregate Index: Treasury Bond Index (unhedged) Duration tranche: 5–7 years (75%) Duration tranche: 7–10 years (10%) (JPY, KRW, SGD, CHF, NZD, GDP) Bloomberg index, DPZ 3M CNH (15%)
Total investment portfolio		**100**	

Source: Central Bank of Chile.

Glossary

Term	Definition
Accountability:	Term referring to “transparency duties” or an organization's ability to report its actions to the general public.
Bank risk:	Risk associated with investment in bank financial instruments. Refers to different risks faced by banks while carrying out their activities. This normally varies according to the type of business carried out by the institution. The risks involved include credit, liquidity, foreign exchange and interest rate risks.
Basis point:	One hundredth of a percentage point. The smallest measure for assigning value to the return on bonds or changes in interest rates.
Benchmark duration:	An index of duration constructed to guide and evaluate investment duration.
Benchmark/reference structure:	Reference portfolio that guides and permits the evaluation of foreign exchange reserves management.
Brokers:	Persons or firms that on occasion act as brokers for others or on their own account (main intermediary) in security operations. A broker is a firm that communicates to potential clients levels of buy and sell proposals and typically agrees on operations as an agent, for a commission or fees, without being involved as a counterpart in operations.
Cash portfolio:	Foreign exchange reserves portfolio held by the Central Bank of Chile to cover expected funding requirements in the short term.
Counterparty risk:	Risk arising from the possibility of non-compliance with obligations undertaken by the counterparty in some financial operation.
Credit risk:	Risk of one party not repaying the full value of an obligation, on maturity or at any other time. In securities exchange systems, the definition typically includes repositioning and replacement cost risk and principal risk.
Diversification:	Policy that involves investing in diverse assets to reduce non-systemic portfolio risk.
Duration:	A measure of exposure to interest rate risk, since it measures the price sensitivity of a fixed-income instrument (bond) to changes in interest rates, that is, how much the instrument price changes in response to interest rate changes. This is applied analogically to a fixed-income instrument portfolio.

External financial institutions (agencies): Institutions whose role of intermediation involves taking in and placing resources to finance different types of projects (including mortgages, foreign trade, infrastructure, etc.), which may or may not have the explicit or implicit guarantee of their governments.

Foreign exchange reserves: Liquid external assets in foreign currency held by the Central Bank of Chile, to support its monetary and foreign exchange policies.

Inflation-indexed bonds: Bonds whose value is adjusted according to a specific inflation index. Known as TIPS (Treasury inflation-protected securities) in the United States and E-Linkers in Europe.

International Monetary Fund (IMF): Founded in 1946 to assist nations with balance-of-payments problems.

Investment portfolio: Foreign exchange reserves portfolio held by the Central Bank of Chile to meet the financing needs of the Chilean economy and long-term requirements. Contains short- and long-term assets.

Investment guidelines: Criteria applied in managing the Central Bank's investments.

Libid rate: London interbank bid rate. The rate paid by one bank to another on a deposit.

Liquidity risk: Risk that a counterparty (or participant in a settlement system) will fail to repay the total value of an obligation when it comes due. Liquidity risk does not mean the counterpart or participant is insolvent, since obligations may be settled at an unspecified later date.

Market risk: Risk of losses to on- or off-balance-sheet positions, arising from changes in market prices.

Money market instruments: Tradable instruments maturing in one year or less.

Operational risk: Risk arising from deficiencies in information systems or internal controls that may lead to unexpected losses.

Overnight deposits: Deposits maturing in one day.

Portfolio: A combination of investment instruments held by any individual or institutional investors.

Residual short-term external debt: Contractual short-term external debt plus the portion of long-term external debt that comes due in the next twelve months.

Return differential:	The difference between the return on a portfolio and the return on its benchmark.
Risk rating:	The degree of credit risk associated with a financial instrument, institution or country, defined by any risk rating agency.
Risk:	The possibility of suffering damages or losses. Variability in the return on investment.
Secondary market:	Market in which a financial asset that has already been issued is traded. Each transaction involves a buy/sell operation among investors.
Securities lending:	The loan of a broker/dealer's asset to another, who must eventually return this same asset. The loan is often collateralized.
Sovereign risk:	Risk arising from investment in sovereign instruments. Usually refers to the risk rating assigned to a sovereign state by specialized rating agencies, to quantify the possibility of a state suitably complying with its financial obligations. The risk rating is based on factors such as payment history, political stability, economic conditions and the willingness to repay debt.
Special Drawing Rights (SDRs):	SDRs are foreign exchange reserve assets created by the IMF in 1969 to complement reserve assets held by member countries. SDRs are assigned to member countries in proportion to their IMF quotas. SDRs also serve as a unit of account for the IMF and other international agencies. Their value is based on a basket of the world's main currencies.
Supranational risk:	Risk of non-payment by an official multilateral issuer.
Tracking error (TE):	The estimated standard deviation of annual differential returns (portfolio-benchmark).
U.S. primary dealers:	Commercial banks and brokers/dealers that can carry out operations involving U.S. government financial instruments directly with the Federal Reserve system (the U.S. central bank). To be eligible to be a primary dealer, commercial banks are subject to official supervision by federal banking supervisors, while financial intermediation institutions must be registered with the Securities and Exchange Commission (SEC), and they must meet specific capital requirements and other specifications for participation in U.S. Treasury auctions.
U.S. Securities Valuation Office:	Office responsible for the daily assessment and valuation of the quality of credit securities belonging to state-regulated insurance companies.

Value at risk (VaR):	A portfolio risk measure that provides an estimate of portfolio losses over a given time horizon and for a given confidence level or probability.
Volatility:	A measure for risk of any asset. Reflects the price change in a given period of time. Securities can rise and fall with market fluctuations, due to events such as changes in interest rates, unemployment and general changes in the economy.
Weekend deposits:	Deposits maturing over the weekend.

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