Management of Foreign Exchange Reserves at the Central Bank of Chile 2011

BANCO CENTRAL
DE CHILE

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Executive summary

Foreign exchange reserves (FER) are liquid assets in foreign currency held by the Central Bank of Chile (hereinafter the Bank). They are instruments supporting monetary and foreign exchange policies, in order to meet the Bank's objective of safeguarding currency stability and the normal functioning of domestic and external payments. Under Chile's current floating exchange regime, the main role of reserves is to ensure access to liquidity in foreign currency to permit intervention in the foreign exchange market under exceptional and specific qualifying circumstances.

The purpose of foreign exchange reserves management is to provide secure and efficient access to international liquidity and safeguard Central Bank's equity. The management of foreign exchange reserves is defined by the legal framework embedded in the Central Bank's Basic Constitutional Act, based on a set of practices and policies in line with international recommendations in this field.

The investment policy for foreign exchange reserves is restricted by legal and liquidity requirements. Regarding the former, the Act establishes that foreign exchange reserves can only be invested in foreign currencies, gold or credit bills, securities or commercial papers issued or guaranteed by foreign States, central banks or foreign or international banks or financial institutions. Moreover, and consistent with the objectives described in the preceding paragraph, foreign exchange reserves are composed of mainly liquid financial assets.

Subject to these restrictions, the investment policy for foreign exchange reserves is designed taking into account its impact on 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 reference structure (benchmark) to guide and evaluate investments, and through the establishment of limits for the decisions of market and credit risk that can be taken around the reference structure.

Foreign exchange reserves are invested in assets under two main portfolios, and in another portion designated as other assets. The investment portfolio, which as of June 30, 2011 represented approximately 88% of total reserves, includes short- and long-term foreign currency assets used to respond to unforeseen contingencies. The benchmark for this portfolio in terms of currency composition is currently 50% U.S. dollars, 40% euros, and 10% other foreign currencies (Canadian dollars, Australian dollars and pounds sterling), and has a reference duration of 17 months. The liquidity portfolio, meanwhile, is designed to cover fund requirements foreseeable in the short term. The reference structure for this portfolio corresponds to the currencies and maturities of programmed disbursements.

Risk management policy defines a set of permissible deviations from the reference structure regarding duration, maturity, currency and limits applied to different types of investments. This policy limits liquidity, market and credit risk, including banking, sovereign, supranational, external financial institutions, and counterparty risk. Operational risk, meanwhile, is controlled by segregating internal functions and responsibilities, incorporating modern technological systems and by internal and external controls and audits, carried out on a regular, ongoing basis.

To complement the internal management of foreign exchange reserves, since 1995 the Central Bank has also run external management programs for a portion of the reserves. The purpose of these has been to provide an active benchmark to evaluate internal reserves management, contribute to enhancing returns on the investment portfolio, and facilitate the transfer of knowledge and technology. Currently a program of this nature exists, involving management of a general investment portfolio with long-term maturities, based on risk budgets. During the second half of 2011, a second external manager will be implemented, which along with the current one will manage an amount ranging from 3% to 5% of the Bank's investment portfolio.

On closing of the first half of 2011, total foreign exchange reserves stood at US$34,884 million, of which US$30,779 million were held in the investment portfolio; US$2,329 million in the liquidity portfolio, and US$1,776 million were part of other assets. Of total foreign exchange reserves, approximately 50% were held in U.S. dollar instruments, 35% in euros and 15% in other foreign currencies*/.

Similarly, as of 30 June, 2011, nearly 85% of reserves were invested in securities with AAA credit rating, issued by sovereign entities, banking or supranational external financial institutions. Meanwhile, the remaining 15% was invested primarily in securities with an A to AA+ rating, mainly in bank risk.

In the 2006-2011 period, annual average returns obtained from foreign exchange reserves management was 2.74% measured in foreign currency —that is, using the currency reference basket for the investment portfolio— and 5.27% measured in US dollars. For the same period, the excess returns obtained relative to the benchmark used to evaluate reserves investment management averaged 0.15 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 Bank's website. This decision consolidates current Bank's practices, which are consistent with transparency guidelines issued by the International Monetary Fund to ensure clarity and accountability of activities and results from foreign exchange reserves management.

*/ This currency composition differs from that of the investment portfolio, noted in the previous page, because total reserves also includes, in addition to the investment portfolio, the liquidity and other assets portfolios. The liquidity portfolio is invested in a high percentage in U.S. dollars, while other assets are primarily composed of the position in the IMF (SDRs).

Management of Foreign Exchange Reserves at the Central Bank of Chile

Introduction

Foreign exchange reserves are liquid assets in foreign currency held by the Central Bank of Chile to support its monetary and foreign exchange policy. They are one of the instruments available to the Central Bank to meet the objective of ensuring currency stability and the normal functioning of the internal and external payments. Under the existing floating exchange rate policy regime, its main function is to guarantee access to liquidity in foreign currency to permit intervention in the exchange market or to provide temporary liquidity in foreign currency under exceptional and specific qualifying circumstances. As of 30 June 2011, foreign exchange reserves reached US$34.884 million.

This document explains the objectives of foreign exchange reserves management, the institutional framework under which they are administered, the investment policies applied when making decisions, composition and basic characteristics of such reserves, external portfolio management programs, as well as risk management and profitability of the Bank for these items. It also reports on the transparency practices adopted by the Central Bank in recent years, according to international standards. Finally, it provides a glossary of terms associated with reserves management[1]/.

I. Foreign exchange reserves and their management objectives

The floating exchange rate is a distinctive component of the policy package adopted by the Central Bank to fulfill its mission of ensuring the stability of the currency and the normal functioning of internal and external payments. This exchange rate regime with an inflation targeting scheme, a prudent financial regulation and supervision, and full financial integration with the outside world, provide, along with the fiscal policy, a coherent framework that allows to maintain the essential macroeconomic equilibrium and to meet the different shocks that the economy faces, mitigating their effects.

A key element in meeting these objectives is that the country, through the Central Bank, maintains a level of reserves that would support efficient economic policy decisions. In this sense, the maintenance of FER can be justified for two reasons.

On one hand, reserves act as an insurance against situations where external funding sources are not widely available or are partially available, either due to endogenous or exogenous factors. This is called the precautionary motive. In this sense, the maintenance of liquidity in foreign currency allows using it in emergencies and helps to moderate the adverse effects of a balance of payments crisis. On

[1]/ It is put on record that this document contains general and not exhaustive information; therefore for a better understanding of the provisions applicable to the policies, operations and instruments described, reference should be made to the legal and regulatory sources that are available on the Bank's institutional website.

the other hand, an appropriate level of reserves could help to reduce premiums for country risk. An economy which maintains an adequate level of reserves gives the rest of the world the assurance that it will honor its commitments in exceptional situations, or likewise, that the country is protected against adverse situations.

Within its free floating exchange rate policy, the Central Bank reserves the option to intervene in the market in exceptional circumstances. Such intervention is through the accumulation or rundown of foreign exchange reserves.

Exceptional circumstances that may lead to intervention are assessed by the Bank's Board on a case by case basis. Sometimes they relate to situations where the exchange rate experiences sudden or considerable changes that could have potential adverse effects on the economy. An overreaction of the exchange rate parity occurs when, without much change in its fundamentals, there are sharp rises or declines in the exchange rate that may be followed by moves in the opposite direction, in a limited period. The adverse consequences of this type of phenomena can manifest in reductions in the confidence of economic agents or increased volatility in financial markets, among other effects.

Since the floating exchange rate was implemented, the Central Bank has intervened in the market four times. In 2001 and 2002, it announced the sale of reserves (dollars) for a pre-set amount and in a specified period. In 2008 and 2011, the intervention was through the purchase of reserves (dollars) for a pre-established daily and total amount. On this last episode, in January 2011 the Bank's Board resolved to implement a foreign currency purchase program for US$12,000 million by daily acquiring US$50 million since the announcement date until December 2011. As of the end of this *Report*, said program was still running, having materialized purchases of US$6,250 million, which represents 52% of the total announced.

While foreign exchange reserve holding has benefits, it also involves 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 liabilities that finance them, due to differences in credit risk, securities' liquidity, maturity and denomination of instruments. These differences tend to adversely affect the Central Bank's financial equity and are also sources of risk to its balance sheet.

In a manner consistent with the role of foreign exchange reserves, as well as with their benefits and costs, the objective of Central Bank's management of foreign exchange reserves is to provide an access to international liquidity that is safe, efficient, and which safeguards the Bank's financial equity. Providing secure access implies managing reserves so that they are actually available to act with diligence and timely where required. Efficient access to international liquidity is pursued through optimizing the return on foreign exchange reserves. Finally, safeguarding financial equity involves restricting the risks from the reserves portfolio and management thereof for the Central Bank's balance sheet.

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

II. Institutional and organizational framework

The Central Bank of Chile's Basic Constitutional Act (*Ley Orgánica Constitucional del Banco Central de Chile*) (contained in Article One of Law 18,840, published in the *Official Gazette* of 10 October 1989) states that the "Central Bank of Chile is an autonomous entity of technical nature created in accordance with constitutional provisions, has full legal capacity, possesses its own assets and has an indefinite duration." The Act explicitly provides in its Section 38 the Bank's power to manage, maintain and dispose of its foreign exchange reserves.

This Section states that "With regard to international transactions, the Bank shall have authority as follows:

6. To receive deposits from, or open checking accounts both in Chilean and foreign currency to foreign central banks or banking institutions or international financial entities, and foreign states;

7. To keep, manage and use its international reserves, both within the country and abroad. Such reserves may be composed of foreign currency, gold or debt securities, equity or other commercial paper issued or guaranteed by foreign states, foreign central banks or banking institutions or international financial entities. The Bank shall have the authority to pledge such reserves as security of compliance with its obligations."

Based on the mandate established in its Basic Constitutional Act and a set of practices and policies consistent with international recommendations on this matter, responsibilities for managing reserves are distributed across different positions within the Bank's hierarchy. Thus, the processes for decision-making and management evaluation are well defined.

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 Manager has been specifically empowered by the Board for an appropriate implementation and execution of the policies and operations described in this *Report*. In addition, this Division proposes to the Board the overall policy for investment and associated risk management, and the benchmark (reference structure) for foreign exchange reserves management, which is reviewed annually. Likewise, the Management of this Division approves specific limits to 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 decision-making level involves the International Markets Management (GMI), which reports to the Financial Operations Division. This body defines the strategy for implementing the Bank's investment policies, and manages implementation. The International Trading Desk department reports to the International Markets Management. The former designs and proposes investment positioning in line with the referential structure defined for management of foreign exchange reserves and implements investment decisions once they are approved.

Parallel to the International Markets Management, a second authority, the Financial Services Management, also reporting to the Financial Operations Division, among other things, settles, registers, manages the books, and processes transactions carried out both by operators of the Bank's international trading desk and those in foreign currency that are directly instructed by the local banking and other authorized institutions (settlements and credits). This Management is also responsible for the technological systems that support transactions.

In addition to its direct responsibilities for investment, the International Markets Management carries out portfolio management programs and securities-lending management programs contracted with external counterparts. The portfolio external management program has considered since its inception outsourcing in a resource volume of about 3% to 5% of the total reserve assets of the Bank, notwithstanding that at the end of the first half of 2011, this percentage reached only 1% due to its usual operators' rotation phase. The program aims to offer an active benchmark for evaluating the direct management of reserves made by the International Markets Management, facilitate the transfer of knowledge and technology in this field, and add economic value to the reserves portfolio. For its part, the Securities Lending program is materialized through a holding agent, and allows for an additional return on the Bank's investment instruments.

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

On the other hand, the General Auditor's Office of the Central Bank, which reports directly to the Board, evaluates the effectiveness and efficiency of internal monitoring, risk management and governance of the integrated process of reserves management. Likewise, the Bank's Financial Statements, which given their materiality level include foreign exchange reserves management, are subject to external audit every year. Finally, the Auditing and Compliance Committee, which is an external advisor to the Board has, among other duties, to report on the effectiveness of the internal control systems and procedures used by the foreign exchange reserves management and to evaluate reliability, integrity and timeliness of the disclosure of the information that is part of the financial statements.

The General Counsel's Office, whose senior executives report directly to the Bank's Board, is responsible in general and in accordance with the Basic Constitutional Act for ensuring that all agreements, resolutions and contracts made or entered into by the Central Bank comply with the legal provisions in force, which applies as well to those made or entered into in order to invest, manage or dispose 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 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 Section 85 of the Basic Constitutional Act.

Moreover, consultancy is provided by other central banks and international institutions on a regular basis in order 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.

In the same vein, the Central Bank of Chile held between 25 and 26 October, 2010 a Workshop on foreign exchange reserves, whose purpose was to examine the basis on which the Bank's foreign exchange reserves management objectives and policies are defined. Said workshop was attended by the central banks of Brazil, Canada, Finland and South Africa, as well as by the BIS, FLAR[2]/ and two

[2]/ BIS: Bank for International Settlement; FLAR: *Fondo Latinoamericano de Reservas.*

Bank's counterpart financial institutions, PIMCO[3]/ and Brown Brothers Harriman[4]/. The conclusions of that discussion were presented a couple of months later to the Bank's Board and will serve as a basis for re-discussing FER objectives and propose a new investment policy during the second half of 2011.

III. Investment policy

Investment policy governing foreign exchange reserves is defined by legal and liquidity requirements. On the former, the law establishes that foreign exchange reserves can only be invested in foreign currencies, gold or credit securities, securities or commercial papers, issued or guaranteed by foreign states, central banks or foreign or international banks or financial bodies. 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 the characteristics of potential foreign currency liquidity needs. In practice, this policy is specified though the definition of a benchmark to guide and evaluate investments, and limits for decisions regarding market and credit risk that may be made around such referential structure.

In what follows, this document presents the fundamentals of the foreign exchange reserves investment policy. To this end, it describes the main portfolios used in their management and their composition, and then explains the reference structure used in each case. It also addresses the criteria used to determine the parameters that guide currency composition and duration of the foreign exchange reserves portfolio.

Investment portfolio and liquidity portfolio

For management purposes, foreign exchange reserves are invested in assets included in two main portfolios: the investment portfolio and the liquidity portfolio. Reserves are composed of these two portfolios and a set of assets designated as other assets.

The investment portfolio, which is the largest, includes short- and long-term foreign currency held to deal with unforeseen contingencies. The benchmark for this portfolio currently considers a duration of 17 months and a currency composition of 50% U.S. dollars, 40% euros, and 10% other currencies (Canadian dollar, Australian dollar and pound sterling).

The short-term asset subportfolio is that which allows in the first place addressing possible uses of foreign exchange reserves, resulting from transitory liquidity requirements of the domestic financial system or from needs to intervene the exchange market by selling foreign currency. Investments of this portfolio include bank deposits and monetary market instruments with maturity of up to one year. Whereas, the long-term asset subportfolio includes nominal bonds with maturity between 1 and 10 years, and inflation-indexed bonds with maturity at the same terms[5]/. Transfers of funds from the long-term to the short-term asset portfolio, and vice versa, generally depend on financial considerations arising from the investment strategy, although occasionally this portfolio may absorb or provide extra liquidity.

The liquidity portfolio, in turn, is intended to cover fund requirements foreseeable in the short term. In particular, it is the preferred source of resources to deal with daily requirements arising from withdrawals from commercial banks' and the public sector's accounts with the Bank. The reference

[3]/ PIMCO: Pacific Investment Management Company.

[4]/ See the appendix for further information on this meeting and its conclusions.

[5]/ Inflation-indexed bonds are bonds in U.S. dollars, i.e., those designated as TIPS (Treasury inflation-protected securities), and inflation-indexed bonds en euros, i.e., E-Linkers.

structure of this portfolio involves currencies matched to the timing of scheduled disbursements. It consists mainly of banking overnight and weekend deposits, although it can also include investment in deposits and negotiable securities up to 180 days. When considered appropriate, this portfolio may receive funds from or transfer them to the short-term investment portfolio.

Other assets of international reserves consist mainly of special drawing rights (SDRs) in the International Monetary Fund, monetary gold and reciprocal credit agreements. In 2009, the position in the IMF in this portfolio increased by US$1,084.4 million as a result of the general allocation of SDRs provided by this institution to all member countries in proportion to their share. During 2010 and the first half of 2011, this set of assets increased by US$310 million as a result of new acquisitions of SDRs from the IMF.

Table III.1 shows the level and composition of foreign exchange reserves by portfolio and currency, as of 30 June, 2011. The level of international reserves stood at that date at US$34,884 million, of which US$30,779 million were part of the investment portfolio and US$2,329 million of the liquidity portfolio. Of the total international reserves, 49.9% was held in U.S. dollar instruments, 35% in euros and 15.1% in other currencies.

Table III.1

Composition of foreign exchange reserves
(US$ million)

Type of portfolio	Currency	Dec. 2010		Jun. 2011	
		Amount	%	Amount	%
Investment portfolio		**23,479.4**	**84.3**	**30,778.8**	**88.2**
Currencies and deposits	U.S. dollar	1,130.8	4.1	1,338.4	3.8
	Euro	1,272.8	4.6	1,793.2	5.1
	Other	747.1	2.7	1,321.9	3.8
Securities	U.S. dollar	10,505.7	37.7	13,716.3	39.3
	Euro	8,016.6	28.8	10,412.5	29.8
	Other	1,806.3	6.5	2,196.5	6.3
Total	U.S. dollar	11,636.6	41.8	15,054.7	43.2
	Euro	9,289.4	33.3	12,205.7	35.0
	Other	2,553.4	9.2	3,518.4	10.1
Liquidity portfolio		**2,838.4**	**10.2**	**2,329.4**	**6.7**
Currencies and deposits	U.S. dollar	2,838.4	10.2	2,329.4	6.7
	Euro	0.0	0.0	0.0	0.0
	Other	0.0	0.0	0.0	0.0
Securities	U.S. dollar				
Total	U.S. dollar	2,838.4	10.2	2,329.4	6.7
	Euro	0.0	0.0	0.0	0.0
	Other	0.0	0.0	0.0	0.0
Other assets		**1,545.9**	**5.5**	**1,775.7**	**5.1**
Monetary gold	Other	11.2	0.0	11.9	0.0
IMF SDRs	Other	1,217.3	4.4	1,265.9	3.6
IMF reserve position	Other	282.1	1.0	473.6	1.4
Reciprocal credit agreements	U.S. dollar	35.3	0.1	24.3	0.1
TOTAL FOREIGN EXCHANGE RESERVES		**27,863.7**	**100.0**	**34,883.9**	**100.0**
Total	U.S. dollar	14,510.3	52.1	17,408.3	49.9
	Euro	9,289.4	33.3	12,205.7	35.0
	Other	4,064.0	14.6	5,269.8	15.1

Source: Central Bank of Chile.

Reference structure for the investment portfolio

The benchmark for the investment portfolio guides investment decisions of this portfolio and makes it possible to define and measure the risks considered acceptable by the Central Bank. This structure sets the basic parameters for currency composition, duration and distribution of credit risk by type of risk and securities and their respective benchmarks.

Considerations basic to determining the investment portfolio's reference structure include foreign currency needs that may be faced in the future and the impact that investment decisions, based on the reference structure, may have on the Central Bank's results and balance of financial risks.

Currency composition

The Central Bank holds its investment portfolio in diverse currencies, mainly composed of U.S. dollars (50%), euros (40%) and a group of three additional currencies: Australian dollars (3.5%), Canadian dollars (3.5%) and pounds sterling (3%)[6]/. The composition of this portfolio is designed to ensure an adequate supply of foreign currency liquidity if needed and reduce the impact of shifts in the parities of the main currencies on the Bank's balance sheet.

Regarding the first objective, it should be noted that the U.S. dollar is typically the preferred currency to meet potential foreign currency liquidity needs. Currently, the predominant international view on this point is that the main indicator for evaluating potential foreign currency needs in the case of emerging economies, like the Chilean one, is the residual short-term external debt (i.e., the short-term external debt and the long-term that expires in the next twelve months). In the case of the Chilean economy, such debt is mainly denominated in U.S. dollars. Also, the U.S. dollar is the currency of reference for the domestic exchange market and the currency with which interventions have historically been conducted in said market in Chile.

To achieve the second purpose, the Central Bank must also consider the impact of the currency structure of the investment portfolio on the currency risk exposure in its balance sheet. In this sense, the main way this currency composition may affect the Bank's balance sheet is through shifts in international parities which affect the value of reserves when expressed in local currency. Following the adoption of the floating rate regime, the volatility of the peso-dollar exchange rate relative to the volatilities of the exchange rates peso-euro, peso-Australian dollar and peso-Canadian dollar has significantly increased, which has strengthened the arguments for a greater diversification of currencies in the investment portfolio.

The specific composition by currency for the current investment portfolio reference structure represents an intermediate solution to meet the requirements described in the above paragraphs[7]/. Technically, this solution reflects an effort to minimize the value at risk of the Bank's net foreign currency assets measured in pesos, subject to the requirement of covering certain parity risks to a predetermined level of liquidity in foreign currency.

In short, the currency composition of reserve assets seeks to meet two objectives simultaneously, i.e., minimize the variance of the Bank's balance sheet measured in pesos, and ensure appropriate coverage of the short-term residual debt.

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[6]/ This composition of the investment portfolio differs from Table III.1, because the latter refers to the total composition of FER, which in addition to the investment portfolio includes the liquidity portfolio and other assets.

[7]/ Composed in 50% of U.S. dollars, 40% euros and 10% for the other three currencies, with deviation margins of ± 5% with respect to these reference values for each major currency

In addition to the U.S. dollar, the euro and the currencies of the so-called Australia, Canada, and United Kingdom group (ACG), formed as all major currencies, the investment portfolio also considers as eligible, other internationally accepted currencies. These include the Japanese yen, the Swiss franc, New Zealand and Singapore dollars, the Swedish krona, the Danish and Norwegian kroner, and more recently, the Chinese renminbi, the Korean won and the Malaysian ringgit[8]/.

Reference duration

The approach used to determine the investment portfolio's benchmark duration is based on considering the effect of decisions regarding this variable on the Bank's overall balance sheet. Given the Bank's investment profile, potential liquidity needs are estimated to ensure they have no major effects within the desired duration.

Changes in international interest rates affect the economic value of foreign exchange reserves, which are the main assets of the Bank. These changes in external rates can be partly transferred to domestic rates[9]/, generating also effects on the economic value of the Central Banks' liabilities.

The reference duration currently used reflects an estimation of the duration required to neutralize, in a first order approach, the impacts of fluctuations in international rates on the Central Bank's general balance sheet. This estimation takes into consideration their effects on the value of assets in which foreign exchange reserves are invested and the value of the rest of the Bank's assets and liabilities. Technically speaking, this involves estimating the duration for the investment portfolio required to bring the gap in the duration of the Bank's balance sheet to zero, associated with shifts in international interest rates.

Based on the above criteria, the reference duration of the investment portfolio is currently set at 17 months, allowing a minimum of 0 months and a maximum deviation of 6 months around the reference duration mentioned above. In the case of the long-term investment portfolio, the reference duration is 30 months, allowing a minimum of 0 to a maximum of 8 months more than the reference duration for this portfolio.

Composition by maturity, currency, risk, instrument, and benchmarks

For practical purposes, the benchmark used to guide and evaluate investment is defined in terms of general parameters governing currencies and duration, as discussed above, but in more detail. Table III.2 shows the composition of the reference structure in effect for the investment portfolio that the Bank manages internally, making a distinction by instrument in terms of maturity, risk and currency. External managers with a mandate to manage long-term portfolios use a reference structure similar to that presented in said table.

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[8]/ The U.S. dollar, the Singapore dollar, the yen, won, the ringgit and the renminbi belong to the U.S. dollar area, the euro, the Swiss franc and the Danish kroner and the Swedish krona are part of the euro area, while the pound sterling, Canadian, Australian and New Zealand dollars and the Norwegian kroner belong to the other currencies area.

[9]/ It is called the transfer coefficient of external rates to domestic rates. There is evidence that during the first half of the previous decade there was a close relationship between external and domestic rates, especially in the case of medium- and long-term interest rates. This relationship becomes markedly less robust in the second half of the period considered. In this regard, the last record is estimated at 0.5; i.e., for every 10 basis points (bp) that external rates change, domestic interest rates change in the same direction by 5 bp (see H. González, E. and F. Jadresic and Jaque (2005). *"Relación entre Tasas de Interés Internas y Externas"*, Economía Chilena, Vol. 8 - No. 2, August, 91- 4).

Tabla III. 2

Currency and term structure of the internal management referential portfolio
(percent)

	Share	United States dollar	Euro	Australian dollar	Canadian dollar	Pound sterling
Short-term portfolio	**60.00**	**30.00**	**24.00**	**2.10**	**2.10**	**1.80**
Bank	10.00	5.00	4.00	0.35	0.35	0.30
Sovereign	50.00	25.00	20.00	1.75	1.75	1.50
Long-term portfolio	**40.00**	**20.00**	**16.00**	**1.40**	**1.40**	**1.20**
Nominal bonds	34.00	16.70	13.30	1.40	1.40	1.20
Indexed bonds	6.00	3.30	2.70			
Total	**100.00**	**50.00**	**40.00**	**3.50**	**3.50**	**3.00**

Source: Central Bank of Chile.

Based on the characteristics of said reference structure, separate benchmarks are established for each component of the investment portfolio, by duration and currency. These benchmarks are detailed in table III.3, and involve reference interest rates and indices that are standard throughout the industry.

Table III.3

Referential structure of the internal management investment portfolio according to the type of risk and benchmark
(percent)

Structure	Credit risk	Current share	Referential benchmark
Short-term portfolio	Bank	10.0	Merrill Lynch indices: Average 3-month Libid last 3 months (USD, EUR, AUD, CAD and GBP)
	Sovereign, agency and supranational	50.0	Merrill Lynch indices: U.S. Treasury Bills (USD) German Gov. Bill Index (EUR) Average 6-month Fixbis last 6 months (AUD, CAD and GBP)
Long-term portfolio	Sovereign, agency, supranational and bank	34.0	JP Morgan bond indices for different levels between 1 and 10 years in the U.S. and Germany. For Australia, Canada and the U.K., global level 1-10.
	Indexed bonds as per inflation	6.0	Barclays bonds indices for levels 1-10 in the U.S. and Europe.
Total portfolio		**100.0**	

Source: Central Bank of Chile.

Reference structure for the liquidity portfolio

This portfolio's investment involves matching currencies and maturities with the disbursements scheduled within the Bank's balance sheet. Regarding the composition by maturity and instrument of the liquidity portfolio, it is currently 100% short-term investments, mainly overnight and weekend deposits.

The composition of currencies of the liquidity portfolio is associated with the composition of currencies to be disbursed and obligations arising from overnight deposits by banking entities or authorized institutions in the Bank. As of the end of June 2011, this composition stood at 100% in U.S. dollars.

Consistent with the characteristics described above, the benchmark for investments of the liquidity portfolio is calculated on the basis of overnight rates of the currencies that make up this portfolio.

IV. Risk management

Risk management policy is an integral part of foreign exchange reserves investment guidelines. These guidelines are approved by the Central Bank's Board, which empowers the Financial Operations Division to handle their implementation. Said investment guidelines include the objectives associated with reserves management and, ultimately 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.

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 foreign currency investments making up its foreign exchange reserves, the Central Bank manages a portfolio composed solely of short-term deposits in international commercial banks, with a range of maturities, and fixed income instruments trading on highly liquid and deep secondary markets.

Credit risk

The current investment guidelines consider three fundamental sources of credit risk.

Bank risk:

Exposure to bank risk arises from time deposits, current accounts, investment in certificates of deposit, and foreign currency exchange operations. Management of this risk reflects two elements. The first involves setting an overall maximum exposure to bank risk for the investment portfolio, which is currently set at 15% of the portfolio. The second involves individual limits for each bank, referring to both maturity and the maximum investment amount. To meet eligibility requirements as a counterpart, a bank must have minimum equity of US$1 billion, and its long-term instruments must be rated "A" or better by at least two of the three international risk rating agencies selected (Fitch, Moody's and Standard & Poor's)[10]/.

Sovereign risk, supranational and external financial institution risk:

Countries eligibility as sovereign issuers depends on the relative GDP size, the level of their public debt, and the risk rating for their long-term debt. On this last point, countries that in the past 24 months have enjoyed a risk rating of "A-" or more from at least two of the three international risk rating agencies mentioned above, are eligible. There is no limit on overall sovereign risk exposure (although for individual countries it does exist), which means that 100% of foreign exchange reserves could be in this type of assets.

Supranational risk exposure is subject to an overall maximum limit of US$2.5 billion, while individual limits depend on the risk rating of each institution, with a minimum "AA-" rating, issued by at least two of the three risk rating agencies, is required, and its size is measured by capital. The exposure of external financial institutions, i.e., U.S. agencies, reflects their risk rating, which must be "AAA" in the case of

[10]/ It is used, where appropriate, the homologation of nomenclatures established by the Securities Valuation Office of the United States.

at least two of the three risk rating agencies mentioned above and minimum equity of US$1 billion, or binding clauses that ensure the financial support (sponsor) of the Government of the United States[11]/.

Counterpart risk:

Counterparts' eligibility is also subject to objective selection parameters. From the Bank's perspective, eligible counterparts are those institutions rated as primary dealers in the United States of America, the United Kingdom and France, as well as brokers with an approved risk rating and subsidiaries at least 90% owned by the head office, which enjoy the same long-term risk ratings required for banks eligible for investment.

Table IV.1 provides the makeup of foreign exchange reserves by type of credit risk and credit rating. As of 30 June 2011, 84.5% of reserves were invested in AAA rated instruments, issued by sovereign bodies, external financial institutions, banks or supranational agencies. Of the remaining 15.5%, 13.5% was invested in instruments with average risk rating AA, and 2% in instruments rated A or A+.

Table IV.1

Composition of foregin exchange reserves by credit risk (1) (2) (3)
(percent as at 30 June, 2011)

Type of credit risk	Credit rating						
	AAA	AA+	AA	AA-	A+	A	Total
Foreign financial institutions	6.0	0.0	0.0	0.0	0.0	0.0	6.0
Bank	2.9	0.0	3.2	6.3	1.9	0.1	14.5
Sovereign	72.2	1.6	0.9	1.5	0.0	0.0	76.2
Supranational	3.3	0.0	0.0	0.0	0.0	0.0	3.3
Total	84.5	1.6	4.1	7.8	1.9	0.1	100.0

(1) Bank risk relates to investment in banking financial instruments (Deposits, forex - spot/forward-, pfandbriefes).
Sovereign risk relates to the investment in sovereign states' instruments (Deposits, bills, floating rate notes, indexed and nominal bonds).
Agency risk relates to the investment in foreign financial agencies' instruments (Bills, nominal bonds).
Supranational risk relates to the investment in official multilateral instruments (Deposits, bills, floating rate notes, nominal bonds).
(2) Credit classification relates to the average ratings awarded by the agencies Fitch, Moody's and Standard and Poor's.
(3) Excluding investment in external managers, liquidity and other assets portfolios.

Source: Central Bank of Chile.

Market risk

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

Operational risk

Operational risk associated with foreign exchange reserves management is controlled by segregating functions and responsibilities, and applying internal and external monitoring and controls. The

[11]/ In the case of Fannie Mae, Freddie Mac and Federal Home Loan Bank, investments may not exceed 7.5% of the internal management portfolio regarding the same issuer. 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 same portfolio. In the case of other institutions, for reasons of market depth and relative size of their debt instruments, investments may not exceed 1% of the portfolio.

International Trading Desk department is subject to compulsory administrative procedures established for the different stages of operations associated with reserves management, to minimize operational risk inherent in transactions. It also has computer systems that make it possible to pre-enter and validate operations before actually carrying them out. Similarly, the Financial Services Management (GSF) has software and administrative procedures involving controls over the implementation and posting of operations. Likewise, no operation can be completed without the respective approval from a trading desk dealer and a professional of the Financial Services Management.

The Performance and Risk Assessment department, in turn, is the unit responsible for monitoring risk through an ongoing review of compliance with the investment guidelines defined by the Bank's Board, including monitoring compliance with institution exposure limits and margins, as well as the internal administrative procedures established for financial operations associated with reserves management. This scheme, along with regular, ongoing audits and evaluations, both internal and external, allows minimizing the area's operational risk.

V. Historical returns from foreign exchange reserves management

The total annual average return from foreign exchange management for 2006-2011 was 2.74% measured in foreign currency (table V.1). This measurement uses the currency basket composition defined in the benchmark for the investment portfolio[12]/. The evolution of said return is in line with the dynamic observed in the relevant interest rates over the last five years.

The differential return relative to the benchmark used to assess investment management averaged 0.15% for 2006-2011.

Table V.I

Total return and differential return on foreign exchange reserves
(percent)

	Currencies		U.S. dollars		Differential
Period	RRII	BMK	RRII	BMK	
2011(*)	0.96	0.89	8.62	8.56	0.07
2010	0.36	0.45	-0.15	-0.06	-0.09
2009	2.15	1.65	3.34	2.84	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

(*) Annual returns of the first half.

Source: Central Bank of Chile.

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

Calculating returns on foreign exchange reserves

The Central Bank of Chile's management of foreign exchange reserves must fulfill the purpose of providing access to foreign currency liquidity that is secure and efficient, and safeguards the Bank's financial equity, as mentioned above. Given these objectives, a strategic benchmark is constructed to guide investments in terms of duration, currency composition and credit risk exposure (section III, 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 to deviations in terms of duration, currency composition and credit risk.

In this context, the total return on foreign exchange reserves, that is, the rate of growth in economic value of this portfolio can be expressed as the return on the benchmark and the differential return in respect of it.

Total returns vary according to the currency used for their measurement, since they reflect appreciations or depreciations in the exchange rates involved. The differential return, in contrast, is independent of the currency in which total returns and the reference structure returns are made*/.

This document emphasizes the total return measured in foreign currency over the return measured in a single currency, as the US dollar. The total return measured in foreign currency has the advantage that it is expressed in the foreign currency basked established in the reference structure of the investment portfolio, and by considering more than one currency, it is a much more stable and less volatile indicator over time than return measured in U.S. dollars.

The weighting of returns measured in foreign currency has changed over time, as the investment policy has changed. For the period January 2010 to June 2011, currency composition was 50% in U.S. dollars, 40% in euros, and 10% in Canadian and Australian dollars, and pounds sterling. For April 2005 to December 2009, the currency composition was 60% dollar and 40 euro; for February 2004 - March 2005, the currency composition was 75% dollar and 25% euro. Between January 2000 and January 2004, the basket consisted of 72% dollar, 18% euro, 5% yen, and 5% pound sterling.

*/ This is exact when total returns and the reference structure are compounded continuously (logarithmic returns) and is a good approximation when returns are compounded discreetly. Returns in this section are compounded continuously.

VI. External managers program and other services

In line with its commitment to efficiently manage its foreign exchange reserves, for the past sixteen years the Bank has developed an external management program for a portion of its investment portfolio. This section describes the main characteristics of this program, as well as the central processes of its management.

Characteristics of the program

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

Started in 1995, this program consists of hiring foreign specialized institutions to manage on behalf of the Bank a percentage of its foreign currency assets, according to a previously approved mandate, which currently focuses on a portfolio similar to the long-term share of the investment portfolio.

The current objectives of this program are three: creating an active standard of comparison for the Bank's portfolio, ensuring knowledge and technology transfers, and adding economic value to the foreign currency portfolio. The program is structured into two- and three-year periods, which start with selection of administrators and end with an evaluation and the decision on whether to continue the mandate. As of June 2011, there is only one external manager involved in this program, handling a portfolio of around US$330 million[13]/.

During 2009-2010, the profitability of the existing external manager program was slightly higher than in the long-term investment portfolio, although the external manager performed its duty with a tracking error level slightly higher than that of the Bank. Discounted the tracking error level from excess return, a relatively similar return/risk indicator was obtained for both portfolios.

Selection and evaluation of external managers process

External managers are selected through a two-stage process. In the first stage, a "request for information" is sent to all institutions that have expressed an interest in participating in the process. These bodies may be commercial banks, investment banks or firms dedicated to portfolio management. The information requested is used in a pre-evaluation based on three main criteria: seniority of the institution and experience with similar portfolios, personnel assigned to the Bank's portfolio, and other characteristics such as costs, prior performance, investment philosophy and soundness of the different candidates. The pre-evaluation methodology involves assigning a score to each one of these variables. As a result of this stage, a reduced number of institutions are selected for the next stage.

The purpose of the second stage of the selection process is to generate a final ordering of pre-selected institutions, according to the objectives of the external portfolio management program, to which effect a specialized external consultant provides support. To complete this ranking, qualitative aspects of firms are identified, along with more details on elements evaluated in the first stage. The resulting score is presented to the Central Bank's Board, which ultimately selects the external managers.

[13]/ As noted above, during the second half of 2011, the Bank will hire a second manager who, along with the current one, will handle between 3% and 5% of the resources of the investment portfolio. In the last five years, external managers have managed a total of around US$1 billion.

The assessment of external managers' performance is based on their results and a comparison with internal management results, market risks assumed and other variables such as administrative costs, and contributions to knowledge transfer.

Custody and related services

With regard to its custody of securities policy, the Bank has to date two global custodian institutions that provide such services to their portfolios denominated in U.S. dollars, euros and other currencies. In addition to these institutions, there is the option to maintain custody accounts with central banks and the BIS.

As part of global custody services there are also securities lending programs that allow the Bank to obtain loan fees for asset custody, receiving collateral in eligible instruments (bonds borrowed program), and for amounts that cover 100 to 105 percent of the value lent. The custodian bank, acting as agent, restricts lending of securities to authorized counterparts (primary dealers) only, on a daily basis and also extends an explicit compensation guarantee to the Bank in the event that the borrower fails to concur with the timely return of the instrument provided.

Services provided by global custodian institutions also include, for the specific case of external management programs, providing middle office service [14]/, consisting of an assessment of compliance management and control of these institutions.

VII. 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, the Senate, and through the *Annual Report* and the *Monetary Policy Report*; and to the general public, through the publication of this information on the Bank's website. Said information is framed by the objectives of FER management, the institutional framework governing its administration, investment policies, the composition and basic characteristics of said reserves, and risk management and profitability obtained by the Bank on such accounts.

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

Indeed, in order to strengthen the architecture of the international monetary and financial system and promoting 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 International Monetary Fund (IMF) released through a document entitled "Guidelines for Foreign Exchange Reserves management, 2004", guidelines for adequate transparency in the management of international reserves.

[14]/ Middle office services are responsible for measuring the return and risk of a portfolio and verifying compliance with the rules and policies defined for the same portfolio. The front office is primarily responsible for making the investments, while the back office is responsible for completing them, i.e. management of current accounts and custody and recording of all operations.

Listed below are the requirements that —according to the Bank— must be met by the authorities responsible for management of reserves, according to the guidelines established by the IMF, and the way in which the Bank complies with them. This exercise evidences that institutional practices are in line with international standards.

IMF requirement	Central Bank of Chile
1. There must be adequate clarity in defining roles, responsibilities and objectives of financial agencies responsible for reserves management. This should include public information of any arrangements between the agency and the government, and the governance criteria within the agency. At the same time, the definition of the broad objectives of reserve management and the key elements adopted to achieve them should be publicly disclosed.	*Monetary Policy Report* (Ipom), September 2011. Website, Management of Foreign Exchange Reserves. A report on foreign exchange reserves management policy was published in 2006, covering its objectives, the organization of institutions and responsibilities, and guidelines for investment decisions and managing associated risks. The referential composition of assets by currency, maturity, duration and instruments was established, to guide investment. Currently, this information is available and updated on the Bank's website.
2. The agreements regulating the agency relationship with counterparts should be publicly disclosed. The general principles governing the relationship between the agency responsible for foreign exchange reserves management and its counterparts should be available to the public.	*Annual Report 2010*. Website, Management of Foreign Exchange Reserves. The external portfolio management program was published in the Annual Report 2010. This information is currently available and updated on the Bank's website.
3. There should be public access to information on statistics on foreign exchange reserves. Information on official foreign exchange reserves should be publicly disclosed on a pre-announced schedule.	*Monthly Bulletin* and Weekly Report. Website, Management of Foreign Exchange Reserves. As part of the Bank's mechanisms for dissemination of statistics, reserves levels are disclosed in the Weekly Situation Report and the Monthly Bulletin. Moreover, these are available on the Bank's website and through the IMF's statistics release mechanism.
4. - Integrity and accountability of the agency responsible for reserves management should be ensured. It is necessary that external and independent auditors audit the activities of the agency responsible for reserves management, and that the results of audits and the opinion regarding the financial statements of the agency are 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* and website. *Monetary Policy Report* (Ipom), September 2011. Balance sheets and statements for the Bank are audited by external, independent auditors and regularly published in the *Annual Report* and on the Bank's website. General governance principles are included in the *Monetary Policy Report* (Ipom), September 2011, and on the Bank's website, Management of Foreign Exchange Reserves.

Appendix

Workshop on foreign exchange reserves

The Central Bank of Chile organized a Workshop on foreign exchange reserves, held on 25 and 26 October, 2010, with the purpose to examine the bases for defining the Bank's foreign exchange reserves management objectives and policies.

The Workshop was attended by the central banks of Brazil, Canada, Finland and South Africa, as well as the BIS, FLAR and two Bank's counterpart financial institutions, PIMCO and Brown Brothers Harriman.

Each participant contributed with presentations that addressed different management options, considering its own experience and that of other relevant industry stakeholders. Thus, the objectives of liquidity, capital preservation, profitability and coverage were examined in the context of reserves portfolio management, reviewing also the scope of the Asset Liability Management (ALM) schemes.

Presentations and subsequent discussions acknowledged the impact of the financial crisis on investment decisions of central banks and sovereign funds. It was noted that the overall level of foreign exchange reserves held by central banks and sovereign funds exceeds the liquidity needs of the international financial system, forcing portfolio managers to look for positions with more aggressive return profiles to validate these higher risk holdings of resources, thus generating increased mobility of these.

The analysis allowed to conclude that the liquidity observed in the structure of these portfolios has proven to be appropriate to deal with sudden reductions in capital flows, and to intervene to stabilize exchange markets and ensure a smooth flow of external payments. The recent crisis has showed that most countries have been able to meet the financial imbalances, without incurring costs in terms of severe contraction in their economic activity levels.

The exercise confirmed the perception of rising levels of global liquidity, while recognizing that the specific circumstances of each bank or sovereign fund may be different. In practical terms, the manner in which the industry seeks to solve the balance of objectives with the level of resources available, involves actively considering the segmentation of portfolio by tranches, assigning different targets to each of them:

a. Cash and operations: designed to meet operation and/or cash, needs with a very short-term horizon. Mostly overnight and, above all, highly liquid.
b. Liquidity tranche: oriented to cover any requirements for intervention and/or provision of last resort, which means assessing and reconciling FER level with the various measures of external vulnerability of the country. It involves portfolios of limited maturities but highly liquid and denominated in the currencies of intervention and/or external payments.
c. Investment tranche: profit-oriented goals, with longer investment horizons and greater tolerance for market and credit risks. It contemplates currency and asset family diversification with higher investment horizons and risk and return profiles.

In the workshop of international reserves there was discussion on existing FER management objectives and ALM approaches. Also, there was a panel section devoted to the effects of economic recovery on FER management.

FER management objectives

The capital preservation objective is widely present in reserves and sovereign funds management, even if it allows interpretations in terms of the priority objective defined and the term or maturity for evaluating its achievement. For example, negative capital variations due to changes in rates or parities in the short term are narrowed down and eventually reversible in the medium and long term. They are also usually mitigated if losses are acceptable (or even in some cases will never be realized) and if they can shift resources to other investment alternatives. Investment horizons are crucial to the definition of this goal.

Diversification by currency and asset types not correlated with each other in theory can reduce the risk of decline in the value of portfolios. The evidence shows, however, that this diversification is limited and may mean eventually assuming more credit risk. Lessons of the current financial crisis show a high correlation between the so-called traditional assets and lower performance.

As part of a pure currency composition or structure of a portfolio, we see that gold has maintained, particularly against the U.S. dollar, a coverage function beyond the price cycle of commodities. In other words, the increases observed in the price of gold, exceeding the average increase of other commodities, are attributable in part to its demand as a protective financial asset.

As a policy objective, profitability is seen as relevant where the reserves level exceeds liquidity needs of the economy and where there is a cost to maintain them. This implies conducting measuring exercises for the degree of external vulnerability of the economy, as well as the optimal reserves level that allows mitigating it.

Profitability is a priority goal in managing investment tranches of reserves and relies on diversification arguments. It implies greater tolerance to credit risk and volatility of returns in the short term. The definition of risk tolerance is a policy decision and not the result of a financial modeling exercise. Recent developments show that the search for greater profitability has been accompanied by taking more credit risk. As ultimate goal, profitability is subject to the achievement of priority objectives of liquidity and capital preservation.

Asset liability management (ALM) approaches

ALM approaches seek to establish an “insurance” on the assets liabilities position balance, either of an institution (central bank) or of countries.

In the first meaning, a central bank considers its liabilities structure of the moment and from this, takes such composition of currencies and maturities in its assets (minimum-variance portfolio) that will protect the balance sheet from variations that may occur among its assets and liabilities. In the second sense, also called alternative ALM or LDI (liability driven investments), it considers the dynamic behavior of liabilities and gives flexibility degrees over time. The concept of contingent liability has more to do with the occurrence of future requirements than with the stock of liabilities currently existing. Indeed, liquidity provision, intervention needs and current outstanding liabilities define the liabilities to be covered, but considering their dynamic behavior.

Under conditions of uncertainty, characteristic of the existence of contingencies, the revelation of coverage preferences is easier if the desired level of protection is set and a return target defined. Knowing the level of reserves, the degree of coverage required and of resources committed may be reduced, lowering the coverage cost.

The application of ALM can be adjusted to specific objectives, such as stability of a currency. If the objective is to contribute to the control and protection of its value (principle of equality in the value of assets and liabilities), any foreign exchange intervention will alter that balance.

The capacity to intervene is limited by the gross amount of liquid assets and the amount of liabilities maturing in the intervening period. For countries with high currency convertibility, disposition of assets can be supplemented with debt in local currency and the use of swap transactions and/or issue in other currencies in international markets. In this context, balance sheet positions that remain balanced are easy to measure and the criteria for allocation of the assets portfolio are more evident because they reflect more accurately the profile of liabilities covered by them.

How does the global economic recovery process affect FER management?

The macroeconomic and financial pre-crisis environment can be characterized by increasing levels of deregulation, financial innovation and globalization.

Economic and financial recovery is expected to be slow in the developed world and somewhat more accelerated in emerging economies, defining a scenario with distributions relative to the behavior of macroeconomic and financial variables that are flatter and with broader tails, which results in greater uncertainty about their likely developments.

The greater probability of events occurring in distribution tails requires continuous reassessment of existing correlations between different assets considered in a portfolio, with their consequent effect on the definition of benchmarks and investment policies.

Benchmarks and strategies should be devised now in a space of factors rather than in one of "asset class", incorporating as relevant variables the cost of coverage of events in tails and current volatility, in the understanding that said risk is macroeconomic and correlated with monetary policies; i.e., susceptible of coverage at the portfolio level. Strategies should give more space to the portfolio manager decision to actively implement forward looking "factor visions".

It is noted that the basic objectives of reserves management remain the same, even in periods of volatility: liquidity, capital preservation, profitability and coverage. The relative weight of each factor depends on the size (level) of portfolios and on how appropriate it is with respect to the “insurance” requirements of the economy (external vulnerability).

Establishing different tranches in the reserves portfolios’ structure makes it possible to more adequately handle the cash, liquidity as such, and investment needs.

If this method is followed, the below considerations should be taken into account:

a. Liquidity requirements must meet potential demands for funds in normal and contingency situations.
b. Within these, one must consider intervention needs, balance between Bank’s assets and liabilities, residual short-term debt level, and any possible sudden stops in external flows.
c. Policy decision has to do with the desired insurance degree (particularly concerning contingent liabilities), the cost of coverage and the cost of holding reserves, if any.
d. A portfolio defined as "liquidity tranche" must be diversified across currencies and instruments with deep markets, with issuers having high credit ratings and maturity terms short enough to not jeopardize the value of assets. It is essential to consider a design that ensures no change or intervention of the structure of this portfolio against market changes, to the extent that it is be able to reasonably reflect the existence of normal and contingent liabilities.

e. Once the liquidity requirements are defined, the remaining resources of the reserve portfolio can be tailored to the investment tranche, whose purpose may be a certain level of profitability always providing a risk limit one is willing to assume.
f. This tranche has room for other families of assets, markets, currencies, maturities and issuers. They have a higher level of risk, both of market and credit, and require an active and dynamic risk management (management of factors and analysis of events —coverage— in distributions tails), including monitoring early warning indicators and regular stress testing practices, while not waiving the use of traditional measurement and risk management tools (VaR, TE).
g. This investment tranche includes space for greater diversification of currencies and instruments based on the associated profitability objective, with longer-term investment horizons and access to non-traditional markets.
h. Greater margins for investment in assets with higher returns or investment in physical or other potentially eligible assets can also be considered.

Glossary

Term	Definition
Accountability	Term referring to "transparency duties" or organizations' ability to report their 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. Normally, this varies according to the type of business carried out by the institution. Some risks involved are: credit, liquidity, foreign exchange and interest rate.
Basis point	One hundredth of a percentage point. The smallest measure for assigning value to the return on bonds or changes in interest rates.
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.
Counterpart risk	Risk arising from the possibility of non-compliance with obligations undertaken by the counterpart in some financial operation.
Credit risk	Risk of one party not repaying the full value of an obligation, upon maturity or 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 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 interest rate changes. This is applied analogically to a fixed income instrument portfolio.
External debt by residual maturity	External debt by original short-term maturity plus long term external debt maturing in the next 12 months.
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 or other), which may or may not have explicit or implicit coverage of their governments.
Fixbis rate	Interest rate set for Bank of International Settlement (BIS) securities for maturities ranging from one week to one year.

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 corrected according to a specific inflation index, in the case of the U.S. known as TIPS (treasury inflation-protected securities), while in Europe known as E-Linkers.
International Monetary Fund (IMF)	International Monetary Fund (www.imf.org). Founded in 1946 to assist nations with balance of payment problems.
Investment guidelines	Criteria applied in managing Bank's investments.
Investment portfolio	Bank's foreign exchange reserves portfolio, held to deal with contingencies and long-term requirements, containing short- and long-term assets.
Libid rate	London Interbank Bid Rate. The rate paid by one bank to another on a deposit.
Liquidity portfolio	Bank's foreign exchange reserves portfolio to cover short-term requirements.
Liquidity risk	Risk of a counterpart (or participant in a settlement system) failing to repay the total value of an obligation when it falls due. Liquidity risk does not mean the counterpart or participant is insolvent, since obligations may be settled at an undetermined later date.
Market risk	Risk of losses to positions included in or external to the immediate situation, arising from changes in market prices.
Monetary 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.
Reference duration	An index of duration constructed to guide and evaluate investment duration.
Reference structure/benchmark	Reference portfolio that guides and permits the evaluation of foreign exchange reserves management.
Return differential	The difference between the return on a portfolio and the return on its reference structure.
Risk	The possibility of suffering damages or losses. Variability in the return on investment.
Risk rating	Refers to the degree of credit risk associated with a financial instrument, institution or country, defined by any risk rating agency.

Secondary market	Market in which an already issued financial asset is traded. Each transaction involves a buy/sell operation among investors.
Securities lending	Loan of a broker/dealer's asset to another, who must eventually return this same asset, often collateralized.
Sovereign risk	Risk arising from investment in sovereign instruments. Typically used to refer to estimation of risk assigned to a sovereign state. This is a rating estimated by specialized agencies, of the possibilities of a state suitably complying with financial obligations. This is based on a background of payments, political stability, economic conditions and the willingness to repay debt.
Special drawing rights (SDRs)	SDRs involve foreign exchange reserves assets created by the IMF in 1969 to complement reserves assets held by member countries. SDRs are assigned to member countries in proportion to their IMF quotas. SDRs also service as a unit of account of 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 standard deviation estimate of annual differential returns (portfolio-benchmark).
U.S. primary dealers	Commercial banks and brokers/dealers that can carry out operations involving US government financial instruments directly with the Federal Reserve system (U.S. central bank). To be eligible to be a primary dealer, commercial banks are subject to official supervision by federal banking supervisors and financial intermediation institutions registered with the SEC (Securities and Exchange Commission), and meet specific requirements for capital and participation in U.S. Treasury auctions.
U.S. Securities Valuation Office	Office responsible for the daily evaluation 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 estimation of the amount of portfolio losses for a given time horizon and level of confidence 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, reflecting 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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BANCO CENTRAL DE CHILE
October 2011

ISBN: 956-7421-24-2
Intellectual property registration 157.850

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