

Reserves management and FX intervention: Chile's experience

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Abstract

The paper reviews the impact of Chile's reserves policies and intervention on the country since it moved into a free floating scheme in 2001. During this period, there have been just a few interventions, with all but one focusing on building up reserves, characterized by preannounced targets, duration, frequency and amounts of purchases. The one exception was an intervention to provide liquidity in US dollars to the banking system in 2008–09.

Reserves adequacy is evaluated periodically using standard models such as the International Monetary Fund's Assessing Reserve Adequacy, and the latest exercise conducted in 2018 concluded that the current level of reserves (about 14% of GDP) is adequate. This figure does not include the sovereign wealth fund managed by the government.

Finally, the paper describes the governance structure within the central bank to define and manage international reserves.

JEL classification: F31, E52, N26

Keywords: international reserves, Chile, exchange rate markets, central bank interventions, central bank governance

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1. Introduction

During the second half of the 20th century, Chilean authorities experimented with many alternatives to manage the exchange rate and international reserves (IRs). Almost all of the alternatives included some form of exchange rate controls (fixed, crawling peg, multiple rates, intervention bands with crawling peg etc) and the use or accumulation of reserves, which impacted monetary policy given the limited scope for sterilization prior to the late 1980s. All of them ended badly, in most cases due to a balance of payments crisis and/or rising inflation. In the late 1980s and 1990s, some measure of stability was gained, with a combination of restricted floatation within an adjustable band, combined with capital controls on short-term capital inflows. The creation of a Copper Stabilization Fund (CSF) helped to reduce the volatility of public expenditures and also to build IRs and reduce public external debt. Unfortunately, the Asian/Russian crisis of the late 1990s made evident how difficult it was for the central bank to tackle the dilemma of fighting inflation and “defending” a value for the real exchange rate with just one instrument (capital controls had been phased out at that time, in part because they had lost effectiveness).

After a very painful monetary adjustment and recession in 1998–99, the central bank liberalized the exchange rate and introduced full-fledged inflation targeting in September 1999. In April 2001, all capital controls were abolished, while regulations were adapted to support the development of derivatives markets. Coincidentally, the government moved towards an explicit structural balance rule more or less at the same time. This regime has been in place since then. We will concentrate on the effects of the central bank’s reserves management and FX interventions in Chile during these last two decades.

2. FX interventions and the evolution of IR

During the period covered in this note, there have been only two major interventions by the central bank in an effort to accumulate reserves: the first was in 2008 from April to September (it was cut short due to the global financial crisis); and the second was in 2011 and covered the entire year². Both were very similar in terms of their rationale and implementation; ie they were (i) preannounced, with a given amount of reserves accumulation (USD 8 billion in 2008 and USD 12 billion in 2011; (ii) gradual (with daily purchases of USD 50 million through competitive auctions); and (iii) sterilized and justified by the need to increase FX reserves. In both cases, the real effective exchange rate was significantly below the historical average.

In addition to these two major interventions, which explicitly aimed at building up FX liquidity in the central bank, there were also interventions to provide FX liquidity through swap lines to the local banks during the global financial crisis in 2008–09. These were very important at a time when access to credit lines with US banks was interrupted by the crisis and some key banks for this market (Wachovia, for instance) faced government intervention and/or were sold. Beginning in October 2008, the central bank began auctioning up to USD 500 million per week with repurchase agreements at 60 and 90 days (swaps). It initially was designed to last one month but

² There were two additional interventions, selling USD 2 billion in August 2001 and June 2002.

was later extended until the end of 2009. The initial commitment was for USD 5 billion (about 20% of total IRs) but, in fact, the total amount of operations reached just USD 1.1 billion. That same month, the central bank also allowed Chilean pesos and other currencies to replace US dollars to fulfil reserves requirements for currency operations within its banking system. This was a transitory measure that lasted for six months. The impact on the local financial market was very quick; after a few weeks the situation reverted to pre-September conditions (García, 2009).

In addition to these interventions, during this period there were smaller changes in the value of IRs in the central bank, due to a number of reasons, but mostly as a result of fluctuations of the value of the US dollar vis a vis other currencies eligible for investments of Chilean reserves. In addition to these valuation issues, commercial banks were also facing fluctuations in liquidity (sometimes due to regulatory issues), which provoked large (transitory) changes in their deposit levels. These eventually ended up as US dollar-denominated short-term deposits in the central bank.

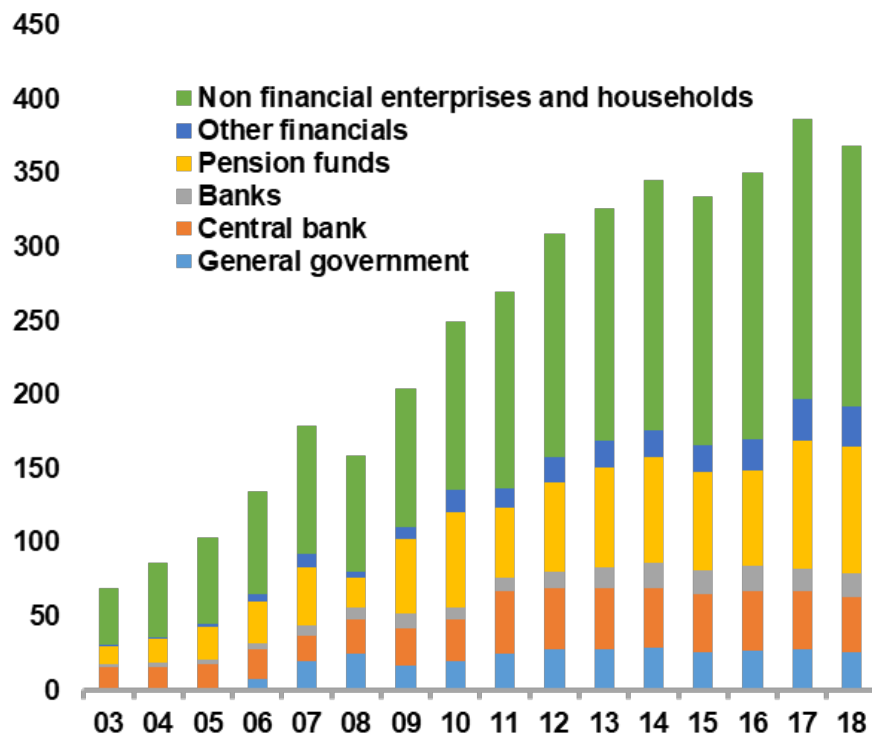
There were also some parallel developments in financial markets during this period that had a significant impact in this area. First, the pension reform of 1981 replaced the fragmented “pay as you go” system built up over the previous decades with a fully funded privately managed system of individual mandatory savings. As the new system began accumulating sizable savings, the need to open the borders to allow for investments of these funds abroad increased. Beginning in 1993, pension funds were allowed to invest a fraction of their portfolio abroad, starting with a very low limit (5%). Initially, these pension funds invested very little abroad, but that changed in 1999 after the Asian financial crisis when the FX market was liberalized. Second, the development of a derivatives market (following changes in regulations) allowed pension funds to hedge the FX risks associated with their funds when investing abroad.

A final element to consider is the role of the government’s sovereign wealth funds (SWFs) – most of which had been invested abroad – which provided the government with a form of self-insurance against FX liquidity problems. This started with the establishment of the CSF in 1987, the resources of which were initially used to repay foreign currency debt obligations of the Chilean government. Following the repayment of all outstanding foreign currency-denominated debt, funds began to accumulate and were invested abroad, using the central bank as the agent to do so. With the replacement of the CSF for a structural balance rule in 2002, the investment agent role for the central bank was formalized and greatly expanded during the commodity boom, when the accumulated resources by these government SWFs reached almost 14% of GDP³.

³ The Chilean fiscal rule introduced a cyclical adjustment to government copper revenues (along similar lines to that of the CSF) in addition to the traditional cyclical correction of domestic revenues.

Chile: Foreign assets position by institutional sectors (in million USD)

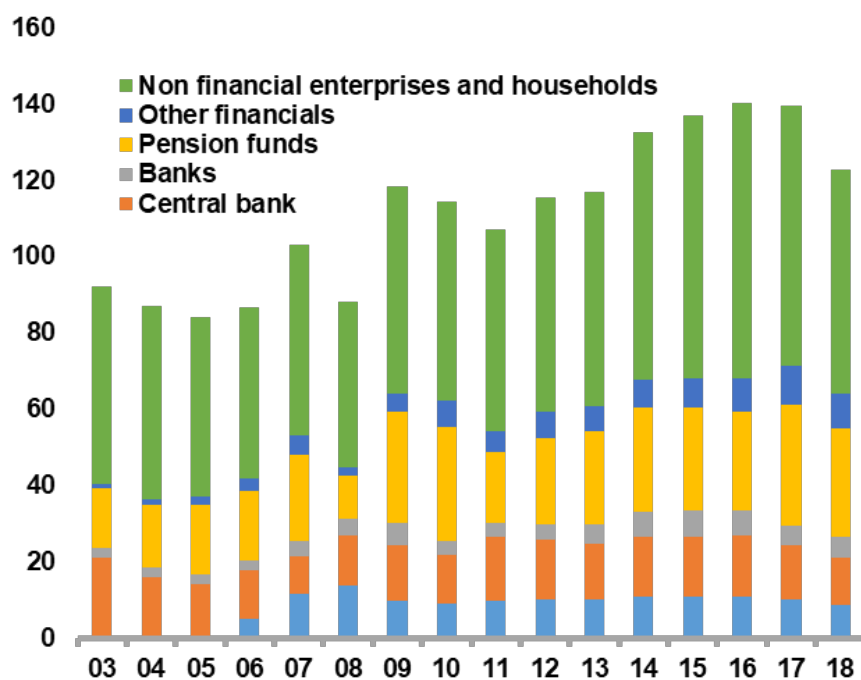
Graph 1

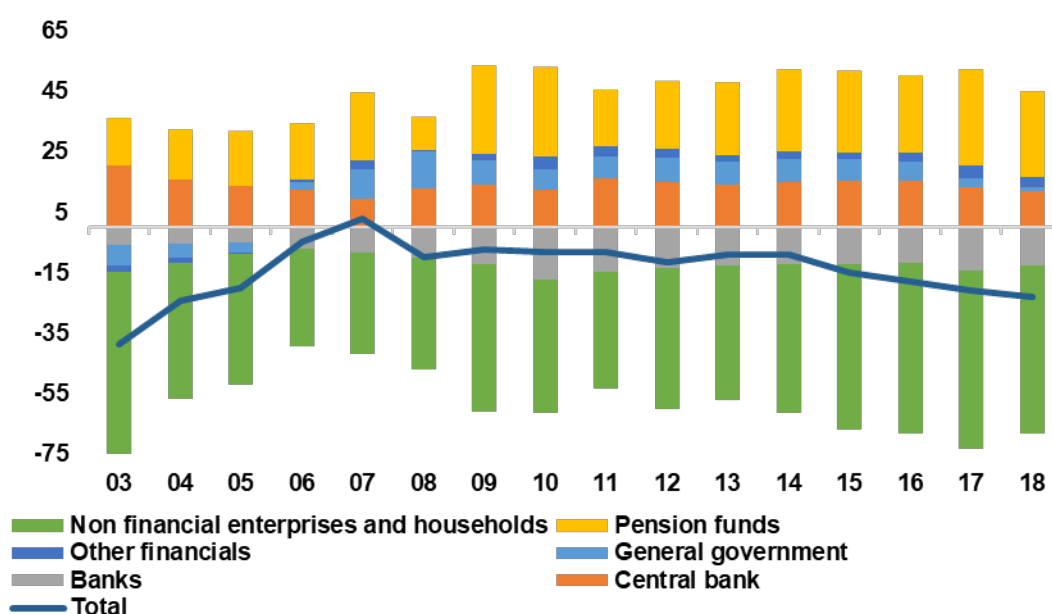


Chile: Foreign assets position by institutional sectors

Graph 2

(% of nominal GDP in USD)





In summary, during this period a number of major developments led to a reduction in the central bank's role as a provider of FX liquidity to the Chilean economy in the event of a crisis. Before the opening of the capital account in the late 1970s, the central bank was almost the exclusive provider of this form of insurance through its holdings of international reserves. In the 1980s, the domestic banking system began accumulating international assets, given their growing role in the intermediation of foreign resources in the Chilean economy. In the 1990s and 2000s, we saw the development of government self-insurance against foreign shocks, as well as the growing amount of households' mandatory savings invested abroad by pension funds and, more recently, insurance companies. On the other hand, the internationalization of the Chilean economy (Vial, 2018) also meant larger flows of trade and capital (in and out) of the country, raising the demand for FX liquidity. By the end of 2017, the main domestic holders of foreign financial assets in Chile were the institutional investors (61% of GDP), the central bank (14%), the government (10%) and the banks (5%).

3. Governance and management of international reserves

IRs are among several policy tools the Board of the Central Bank of Chile uses to achieve its main objectives, namely safeguarding the stability of the currency and the normal functioning of internal and external payment systems. In floating exchange rate regimes like Chile's, IRs are used exceptionally to limit unwanted parity fluctuations beyond their fundamentals (as part of the currency stability objective) and/or to intervene during periods of market malfunction or turmoil (as part of the financial stability objective). In accordance with the powers assigned to it by the central bank's Constitutional Act, the board determines the bank's general policies,

establishing the administrative structure of the institution and dictating the norms to which it must adjust its operations.

The ultimate decision-making authority is the Central Bank of Chile's Board of Governors, who define the objectives for reserves management and risk tolerance levels, and approve the parameters of the reserves investment policy (IP). Said IP sets the guidelines for reserves administration – including those concerning their composition of currencies and maturities – and credit risk management. The first line of reporting to the board is responsible for implementing the bank's general strategy and providing timely information and advice to the board on economic, financial and other administrative matters. This hierarchical level of the administrative structure is in charge of proposing to the board the investment and financial risk management policy, including the proposal of the benchmark comparator contained in the IP. This level also proposes to the board an overall strategy for the bank's balance sheet and assesses its expected effects on its net worth.

To ensure a proper level of control of operational and financial risks, functions must be handled separately. These include investment strategy design and implementation, risk management and performance measurement, investment payment, recording and reconciliation of operations, and compliance activities. On another level, the central bank's comptroller, who reports directly to the board, periodically evaluates the effectiveness and efficiency of internal controls, the management of operational and financial risks and the governance of the integrated reserves management process. In addition, the bank's financial statements, which because of their level of materiality include the administration of IRs, are audited by independent firms on an annual basis. The Audit and Compliance Committee (CAC) provides advice to the board and is made up entirely of professionals external to the bank. Among other functions, the CAC issues a report on the effectiveness of the internal control systems and procedures used by IR management, and evaluates the reliability, integrity and timeliness of the information included in the financial statements. The legal department, whose senior leadership reports to the board, in general and under the Basic Constitutional Act, is responsible for ensuring that all agreements, resolutions and contracts of the bank comply with the legal regulations in force, which applies to any agreements adopted or entered into with the purpose of investing, managing and disposing of IRs. To this end, the legal department oversees all agreements, resolutions and contracts, as well as any other actions requiring legal analysis in the field of IRs.

Upon establishing the level of reserves, the board approves an IP that defines the strategic framework that is used for its management process. The law provides that IRs can only be invested in foreign currencies, gold or credit instruments, securities or bills of exchange, issued or guaranteed by foreign governments, central banks or foreign or international banking or financial entities. The IP defines the desired return and risk profile and is designed, mainly, to meet the potential needs for liquidity in foreign currency and its impact on the results and risks of the bank's financial balance sheet.

IR management requires investing in assets of high credit quality, and the portfolio must have sufficient liquidity to allow the bank to achieve its policy objectives⁴. The main risks for the balance sheet are mitigated by having a diversified

⁴ The constitutional chart of the central bank limits eligible instruments to government guaranteed debt, and financial institutions debt.

composition of loans, rates and currencies. Specifically, two reserves portfolios are defined: one with the purpose of ensuring an adequate level of liquidity, the other to diversify risks and yield profits. The process of investing IRs is governed by a benchmark structure, which represents the bank's best estimate of the combination of investments in foreign currency that maximizes long-term yield, subject to having an acceptable risk level the general requisites of safety and liquidity. In this context, the IP defines the composition of currencies, asset categories, eligible operations and the size of each subportfolio, among other relevant parameters. Additionally, the IP contemplates eligibility criteria and maximum exposure limits to countries, currencies, issuers, instruments and others necessary to rein in exposure to the investments' inherent risks. These criteria and limits are established within the context of a general benchmark framework, to maintain a comprehensive, watchful eye on financial and operational risks.

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

Table B1

Structure	Credit risk	Share	Benchmark
Short-term liquidity portfolio	Sovereign	24%	ICE BofA Merrill Lynch Index: Treasury Bills Index (unhedged) 0-1 year duration (100%) (USD)
Medium-term liquidity portfolio	Sovereign	61%	Bloomberg Barclays Capital Global Aggregate Index: Treasury Bond Index (unhedged) 1-3 year duration (90%) 3-5 year duration (10%) (USD, EUR, CAD, AUD)
Diversification portfolio	Sovereign and bank	15%	Bloomberg Barclays Capital Global Aggregate Index: Treasury Bond Index (unhedged) 5-7 year duration (70.6%) 7-10 year duration (9.4%) (USD, EUR, JPY, KRW, CHF, NZD, GBP) Bloomberg CGDRC Index: Customized for deposits in CNH (20%)
Total portfolio	Sovereign and bank	100%	

Source: Central Bank of Chile.

The risks relating to financial intermediation services, custodies and clearing houses, among others, are protected in the IP through minimum requirements defined according to the quality of the required services, operating and financial risk considerations, and legal aspects. Every year, the board evaluates the performance of the benchmark comparator from the perspective of achievement of the bank's more general objectives.

To facilitate and expedite the decision-making process, the IP specifies the powers that the board will delegate on management and the particulars of the reporting procedures. The use of the delegated powers is periodically reported to the board.

In an effort to add value to internal management and serve as an active comparator for the central bank's management, the investment process includes

bringing in external portfolio administrators. For these purposes, the board approves the program's goals, the number of administrators and the amount to be outsourced.

Furthermore, with the purpose of adding economic value to the management of reserves, the investment process contemplates securities loan programs (PPV), which are implemented with custodian institutions acting as brokers of the securities that are loaned and the guarantees that are received in exchange. In general, the board approves the PPV's operating policy, ensuring that they contribute to reserves management objectives, properly balancing the expected benefits with the associated risks.

In general, the central bank makes a continuous effort to be aligned with international best practices. In matters of reserves management, it regularly submits its practices to peer review, and these exercises are generally carried out by other central banks or multilateral organizations.

The board periodically assesses the performance of reserves management based on different reporting instances. In this way, the board knows in detail the evolution of absolute and relative returns, compliance with the rules, and the different investment strategies and related risk parameters.

In addition, the board has established as part of the bank's policies to present information on the administration of IRs to the President of the Republic, the Senate and the general public, by including this information in each September's Monetary Policy Report, in its Annual Report and on the bank's website⁵. This decision consolidates the current practices of the central bank on the matter, which comply with the transparency guidelines recommended by the International Monetary Fund (IMF).

4. Determinants of the level and composition of IRs

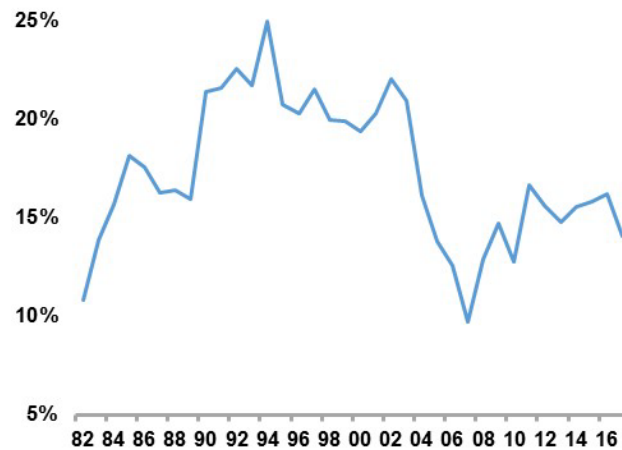
The traditional practice in Chile has been to use standard metrics of coverage of liquidity risks to assess the adequacy of IRs. The main risks to cover were funding of imports and short-term debt payments, and the specific metrics to determine the level of reserves were coverage of three months of imports and of the size of the banks' foreign debt maturing within one year. This led to an estimate of the adequate size of reserves of about 15% of GDP. This reasoning informed the decision to increase the size of IRs in 2008 and 2011. As Chart 4 shows, IRs fluctuated around 20% of GDP in the 1990s up to the mid-2000s, when their ratio to GDP began falling steadily, to a minimum of 10% in 2007. In addition to the USD 4 billion sale of IRs in 2001 and 2002, this trend resulted mostly from nominal GDP growth and the appreciation of the currency during the "super cycle" of commodity prices. After the latest two periods of IR accumulation, the reserves came back to about 15% of GDP.

⁵ The latest report on IR management can be found as Annex B in the Monetary Policy Report published in September 2018 (<http://www.bcentral.cl/en/web/central-bank-of-chile/-/monetary-policy-report-september-2018-summary>).

One additional consideration for the decision to intervene in the FX market to adjust the level of IRs is the impact on the central bank's net worth⁶. Chile is a peculiar case since its net worth has been negative for several decades. Since the sterilization of IR accumulation entails issuing central bank debt at a loss, given interest rates spreads between the local market and the returns on IR, this has to be evaluated carefully.

Chile: International reserves (in % of GDP)

Graph 4



The composition of the IRs and their investment guidelines were based on both liquidity considerations as well as the protection of the capital of the bank (denominated in pesos). With this in mind, the stock of IRs was divided into three portfolios: short term (15% of the total, minimum risk), medium term (61%, highly liquid, very low risk) and diversification portfolio (24%, longer maturity, low risk).

Beginning in 2017, in the context of the five-year Strategic Planning process, there has been a major revision of the above mentioned criteria. The resulting proposals were presented to the board and approved last June. The size and composition of IRs were defined in terms of the contributions to the Constitutional Charter of the bank and the adequacy of reserves was measured according to different criteria proposed in the literature. The models based on trade risks for liquidity gave results in the range of 5–10% of GDP; those based on coverage of debt payments were in the range between 15–20% of GDP⁷. Three different variants of the Assessing Reserve Adequacy model proposed by the IMF⁸ showed results in the range between 10–15% of GDP. On the basis of these estimates, it was decided that the current level of IRs was adequate.

⁶ In accordance with international accounting standards "seigniorage" cannot be included in the official balance sheet of the bank. The central bank publishes short-term projections of its balance sheet (see Annex A of the Monetary Policy Report) and also regularly performs internal long-term projections of its balance in order to assess economic solvency.

⁷ On this group, the estimate based in Jeanne and Ranciere (2006) gave a number of 37% of GDP.

⁸ See IMF 2014 and IMF 2016.

Composition of IRs

Table B4

Portfolio	Currency	2017		2018	
		Dec.	%	Jun.	%
Investment portfolio		35,071.0	90.0	34,759.6	94.0
Currencies and deposits	US dollar	23.3	0.1	15.9	0.0
	Euro	0.3	0.0	4.2	0.0
	Canadian dollar	0.2	0.0	0.3	0.0
	Australian dollar	1.2	0.0	0.1	0.0
	Other currencies	810.7	2.1	772.3	2.1
Securities	US dollar	22,260.3	57.1	22,055.6	59.6
	Euro	5,832.8	15.0	5,860.1	15.8
	Canadian dollar	1,662.1	4.3	1,661.4	4.5
	Australian dollar	1,679.9	4.3	1,497.3	4.0
	Other currencies	2,800.2	7.2	2,892.5	7.8
Total	US dollar	22,283.6	57.2	22,071.5	59.7
	Euro	5,833.2	15.0	5,864.3	15.9
	Canadian dollar	1,662.2	4.3	1,661.7	4.5
	Australian dollar	1,681.0	4.3	1,497.4	4.0
	Other currencies	3,610.9	9.3	3,664.8	9.9
Cash portfolio		2,877.0	7.4	1,152.3	3.1
Currencies and deposits	US dollar	2,877.0	7.4	1,152.3	3.1
Other assets		1,034.6	2.7	1,074.9	2.9
Monetary gold	Other currencies	10.2	0.0	9.9	0.0
IMF SDRs	Other currencies	770.3	2.0	760.2	2.1
IMF reserves position	Other currencies	251.1	0.6	304.8	0.8
Reciprocal credit agreements	US dollar	2.1	0.0	0.0	0.0
Currencies and deposits	US dollar	0.9	0.0	0.0	0.0
Total international reserves		38,982.6	100.0	36,986.9	100.0
	US dollar	25,163.6	64.6	23,223.8	62.8
	Euro	5,833.2	15.0	5,864.3	15.9
	Canadian dollar	1,662.2	4.3	1,661.7	4.5
	Australian dollar	1,681.0	4.3	1,497.4	4.0
	Other currencies	4,642.6	11.9	4,739.7	12.8

Source: Central Bank of Chile.

One important point to take into consideration to evaluate the size of the IRs in Chile, which is rather exceptional in the case of emerging markets, is the fact that both the government and the households (through their pensions savings) hold positive net international assets positions, which could shift in the event of major external shocks. In the case of the government, its main external exposure comes

from copper export revenues (directly through profits in CODELCO and indirectly from the taxation of private miners' profits) and they are covered by the sovereign wealth funds. The case of households is more complicated, since their pension savings cannot be used to cover short-term liquidity problems given they are managed by privately operated Pension Fund Administrators (AFPs) with a clear mandate to maximize the value of pensions. However, the evidence of the actual portfolio shifts in the event of external shocks, suggesting that they tend to behave countercyclically, at least during the period of a free floating currency. This is something that should be brought into consideration in future evaluations of adequate IR levels.

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