

Integrated Compilation of Financial and Non-financial Accounts: The Chilean Experience

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ABSTRACT

The Central Bank of Chile has prepared and disseminated the yearly financial flow of funds (excluding balance sheets) since the early 1990s. In addition, the annual non-financial accounts have been compiled since 2000. In general terms, these accounts are compiled for institutional units or their groups, based on their respective balance sheets and profit-and-loss statements. They integrate production, income and expenditure, accumulation, and financial accounts. The ending balances of the accounts, which are also the opening balances of the next accounts, are then reconciled. In this context, this document describes recent work to increase the frequency of compilation from yearly to quarterly financial and non-financial accounts of the Chilean economy and to incorporate the financial balance sheets.

1. Introduction

The compilation of the national accounts by institutional sector (NAIS) in Chile has historically been implemented at an annual frequency. In the late 1960s, the financial sources and uses of funds accounts were published for the period 1960–70; these estimates were discontinued, and then, reinitiated in the early 1990s. The 1996 benchmark compilation established the construction of an integrated economic table with a more detailed breakdown by institutional unit, considering the full sequence from the current account to the capital account. Currently, the NAIS is released with a lag of 15 months relative to the reference year.

However, in the developed countries, there is a trend toward quarterly measures with publication lags of around three months. This is the case, for example, of the quarterly accounts of the euro area institutional sectors, compiled by the European Central Bank based on data provided by the member central banks¹ and the flow-of-funds accounts of the United States Federal Reserve.² The aforementioned highlights the importance of quarterly NAIS results, especially for the non-financial corporations and household sectors. Such results would be very valuable for forecasting and economic analysis.

The quarterly NAIS can also be used for analyzing issues related to financial stability for which

¹ <http://www.ecb.int/stats/acc/html/index.en.html#data>

² <http://www.federalreserve.gov/releases/z1/>

requires data on the transactions and balances of the financial accounts of the different economic sectors. This was clearly illustrated during the last international financial crisis when it was possible to closely monitor the processes of asset and liability movement, together with the evolution of income and expenses, both for the economy as a whole and for individual sectors.

Finally, the quarterly NAIS offer a framework for assessing the consistency of the available data at the same or shorter frequency, specifically with regard to monetary statistics, the balance of payments, the issue of securities and the finances of government.

For these reasons, in 2008, the Central Bank of Chile launched a project to compile quarterly national accounts by institutional sector (QNA-IS). This initiative rests on the past experience of the Central Bank with annual measures carried out to date by its National Accounts Department. This project benefited from knowledge on the methods and data sources used by the Bank of Spain for calculating the financial accounts. The project covers the period from 2004q1 to 2010q4. These series will be published for the first time in the middle of this year. They will be published with a lag of 120 days from the close of the reference quarter and will be press released. The objective of the present paper is to report on the experience of compiling the quarterly financial and non-financial accounts in Chile. For these purposes, the next section describes the methodology used, while section 3 presents the main results obtained to date. Finally, section 4 concludes by highlighting some future challenges.

2. Methodology for compiling the Quarterly National Accounts by Institutional Sector (QNA-IS)

The QNA-IS are compiled in two stages. The first stage (vertical) is based on individual financial statements or groups of institutional unit's financial statements, while the second (horizontal) involves inter-sectoral reconciliation.

With regard to the first stage, the methodology considers the analysis and classification of every balance sheet and income statement item in accordance with national account concepts and definitions, which implies affecting the accounting items to determine the national account flows or transactions as established in the System of National Accounts (SNA) recommendations. This process is used to compile the production, income, expenditure, accumulation and balance sheet accounts, ensuring that the ending balances of the various accounts—which are also the opening balance of the next account—are consistent.

The process ends with the inter-sectoral reconciliation of all the transcribed records with the national account definitions and classifications. This task permits the achievement of a unified view of the compiled information, without altering the vertical equilibrium previously constructed.

A data source hierarchy is defined for the reconciliation, both within each group of institutional units and among the different groups. The primary focus of the QNA-IS starts from the reconciled balance of the income generation account (operating surplus/mixed income). This balance is the opening balance of the allocation of primary income account which is the first account in the system calculated exclusively for the institutional sectors.

2.1 Vertical methodology: Use of financial statements

The compilation of the QNA-IS starts with the use of individual financial statements considering the groups of institutional units defined in table 1.

Table 1. Groups of institutional units³

<i>Breakdown by sector to disseminate non-financial accounts</i>	<i>Breakdown by sector to disseminate-financial accounts</i>	<i>Breakdown by sector to compile financial and non-financial accounts</i>
Financial sector	Central Bank	Central Bank
	Banks and cooperatives	Commercial banks
		Saving and loan cooperatives
	Other financial intermediaries (OFIs)	National Development Corporation (CORFO)
		Retail credit cards
		Leasing companies
		Factoring companies
		Securitization companies
		Mutual funds
		Investment funds
	Pension funds	Pension funds
		Unemployment funds
	Insurance companies	Life insurance companies
		General insurance companies
		Health insurance companies (Isapres)
Financial auxiliaries	Pension fund administrators	
	Stock brokers	
	Securities agents	
	Investment fund administrators	
	Securities exchanges	
	Banking support services	
General government	Financial consulting services	
	General government	Central government
		Local government
		Family compensation funds
		Mutual insurance funds
Non-financial corporations		Public non-financial corporation
	Supervised private non-financial corporations	
	Rest of non-financial corporations	
Households and NPISHs	Households and NPISHs	Households and NPISHs

Source: Authors' elaboration.

In the case of institutional sectors that are supervised, such as financial corporations and public and private non-financial corporations, data from the balance sheets and financial statements are used to achieve an integrated compilation of the QNA-IS, which implies that the net lending/net borrowing determined in the financial and capital accumulation accounts is the same. In addition, quarterly integrated account estimates are made for unsupervised non-financial corporations based on administrative records from tax declarations. This has generated a full overview of the non-financial corporations.

Given that the accounting statements of businesses or entities do not always provide the data necessary for a detailed breakdown of counterpart instruments or sectors, the financial statements are complemented with data that the supervisory organizations regularly prepare. Examples include statistics from the Superintendence of Securities and Insurance (SVS) on the breakdown of assets held by the mutual and investment funds, statistics from the Superintendence of Pensions on the breakdown of assets held by the pension and unemployment funds, SVS statistics on financial investments for the insurance companies, and so forth.

The current and capital accumulation accounts of the general government sector are compiled using detailed budget performance data, while the financial account and balance sheets are based on financial statements. The compilation process is not integrated, this leads to differences in the balances of net lending/net borrowing determined in the financial and capital accumulation accounts.

³ The data sources available for each sector are listed in the appendix 1.

In relation to the household sector, efforts are made to carry out quarterly estimates of the current and capital accumulation accounts. This efforts support the estimation of the main variables such as property income, consumption and saving. The financial account, in turn, integrates counterpart information.

Finally, the Rest of the World account is fully equivalent to the balance of payments and international investment position statistics prepared by the Balance of Payments Department in the Central Bank of Chile.

2.2 Horizontal reconciliation methodology

The system is closed by reconciling every transaction in the current, capital accumulation, and balance sheet accounts, both within each group of institutional units and among the different groups. This process is carried out independently in two separate stages: the first involves the financial account and balance sheets, while the second concerns the current and capital accumulation accounts.

The reconciliation of the financial accounts and their respective balances is based on “from-whom-to-whom” matrices framework. These involve a disaggregation of nine institutional sectors for each financial instrument,⁴ with the exception of shares and other equity as well as other accounts (receivable/payable) for which counterpart information is not yet considered for publication. The asset and liability values for each instrument/sector cell are reconciled based on a data source hierarchy. In general, the hierarchy criteria consider households and non-financial corporations as residual sectors. At the instrument level, some of the criteria are as follows:

- *Currency and deposits (AF.21 and AF.22)*: includes liabilities of the Central Bank, commercial banks, and the Rest of the World; savings accounts are allocated as a household asset, while the remaining instruments in this category are determined based on the value of the asset and considering the non-financial sector as the residual sector.
- *Short- and long-term securities other than shares (AF.31 and AF.32)*: In general, balance sheet information is sufficient for determining the total issued by each sector, but the classification between short and long term is not very precise for either assets or liabilities. Therefore, as a support, the reconciliation process for this instrument is drawn from a security-by-security data base, an administrative record provided by the Central Securities Depository. This information allowed the construction of “from-whom-to-whom” matrices for balances (at market value), financial transactions and revaluation.
- *Short- and long-term loans (AF.41 and AF.42)*: the counterparty for long-term loans in foreign currency is assumed to be the Rest of the World. Mortgage and consumer loans are allocated to households and commercial loans to non-financial firms.
- *Pension funds (AF.61) and insurance technical reserves (AF.62)*: accounted as a liability for the pension funds and insurance companies, while it is an asset to households.

The reconciliation of the current accounts begins with the income-generation account balance, continues with the rest of the current accounts and ends with the determination of saving. The reconciliation process is analogous to that of the financial accounts. However, for this type of

⁴ A breakdown of the financial instruments considered in the published financial accounts is provided in appendix 2.

transaction, there is less counterpart data on institutional sectors. Consequently, sectors with no direct data are frequently assigned residual values, so the work on economic consistency in this stage is especially important for guaranteeing the quality of the results.

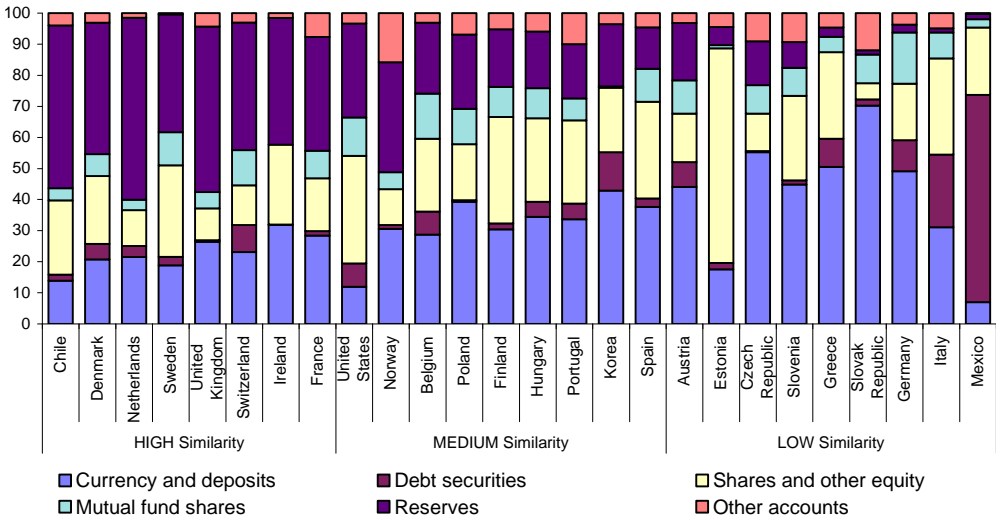
The reconciliation process is simpler for the capital accumulation account since data on total gross fixed capital formation, fixed capital consumption and changes in inventories are available for the economy as a whole from the quarterly national accounts, while data are also supplied by each institutional sector. By convention, any difference between the sum of the institutional sectors and the value for the total economy is allocated to non-financial corporations.

3. Preliminary Results

Preliminary results for the **household** institutional sector⁵ show that their main assets are life insurance technical reserves and pensions, followed by shares and other equity, and deposit holdings.

Based on an international comparison,⁶ figure 1 shows that the composition of assets on the financial balance sheet of Chilean households is quite similar to the composition found in countries like Denmark, Holland, Sweden, United Kingdom, Switzerland, Ireland and France. All of which have a high share of pensions and insurance reserves in total financial assets.⁷ In contrast, there is little similarity between the structure of the balance sheet of Chilean households and that of countries like Austria, the Czech Republic, Slovenia, Greece and so on, which have a high share of cash and deposits in their asset portfolios.

Figure 1
Comparison of household sector balance sheets of OECD countries
Asset breakdown. Percentage structure.



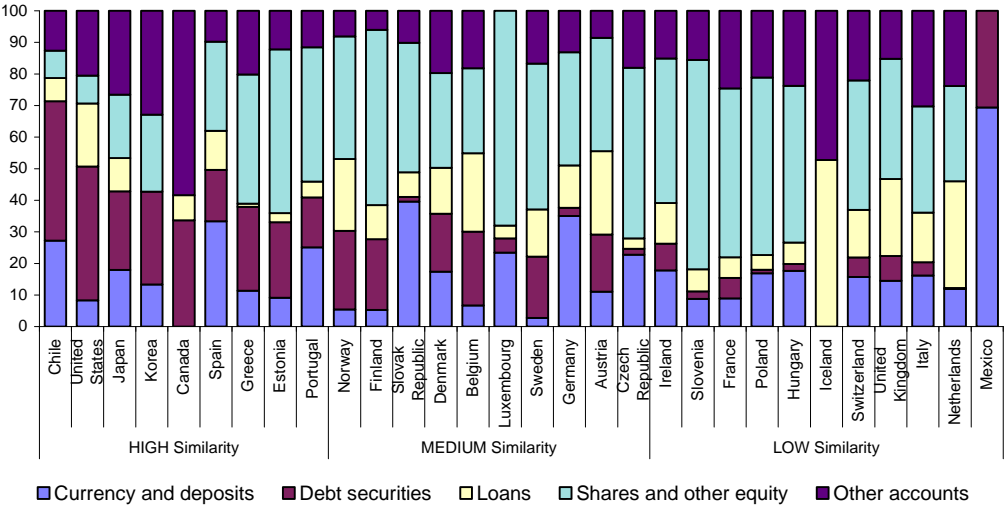
Source: Own calculations based on data obtained from the OECD and the Central Bank of Chile.

⁵ It includes non-profit private institutions serving households (NPISHs).
⁶ Source of data: http://stats.oecd.org/Index.aspx?DatasetCode=SNA_TABLE710.
⁷ The similarity degree was determined by correlating percentage structures in the asset portfolio of each country with respect to that of Chilean households.

The Chilean **General Government** sector balance sheet shows a significant holding of securities and deposits, consistent with the information available on sovereign funds held abroad, which are disclosed within the International Investment Position of Chile.

As compared with the OECD countries, the financial asset composition of the general Government sector is similar to that of countries such as the United States, Japan and South Korea. In general, the rest of the OECD countries show a higher share of the “shares and other equity” in their assets. This fact is probably due to the higher contribution of the general Government to productive activities via the ownership of public companies.

Figure 2
Comparison of general government sector balance sheets of OECD countries
Asset breakdown. Percentage structure.

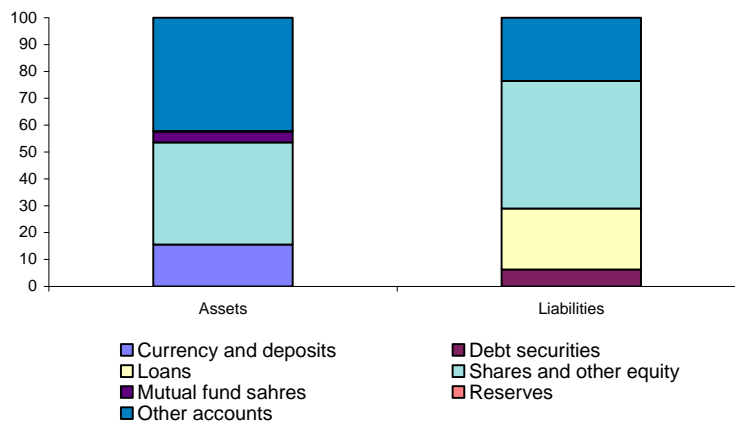


Source: Own calculations based on data obtained from the OECD and the Central Bank of Chile.

With regard to the liabilities of the general government, the issue of securities other than shares represents a larger fraction of financing as supposed to that of loans. The most notable aspect of the debt of general government in Chile is its low share of GDP, equivalent to just 15% in 2008.

The assets of the **non-financial corporate sector**, in turn, are dominated by other accounts receivable, and shares and other equity (which together represent 80% of total financial assets). On the liability side, the main items are financial equity (47% of total liabilities), other accounts payable (24%) and financing mainly through loans (23%).

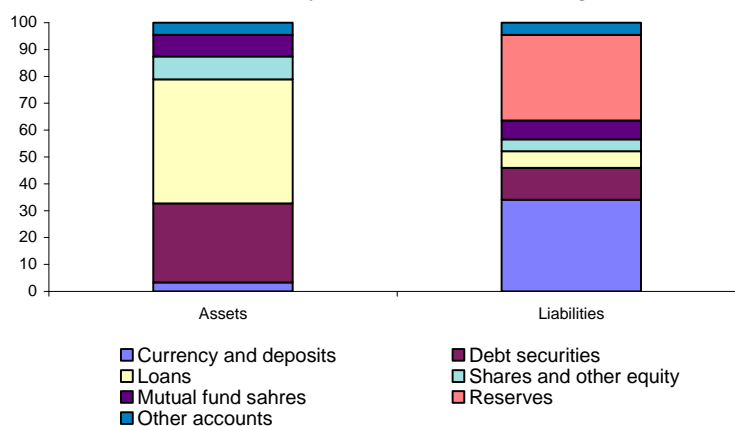
Figure 3
Balance sheets of the non-financial corporations in Chile
Asset and liability breakdown. Percentage structure.



Source: Central Bank of Chile.

In the case of **financial corporations**, the balance sheet statistics for the various sub-sectors, including the Central Bank, financial intermediaries, auxiliaries, insurance companies and pension funds, provide data that can be used to estimate currency and deposit holdings, as well as financial investment in securities, and shares and other equity. The preliminary results reveal that the financial sector's asset portfolio is mainly concentrated in loans (46%) and securities other than shares (29%), while liabilities are largely made up of currency and deposits, and insurance reserves.

Figure 4
Balance sheets of financial corporations in Chile.
Asset and liability breakdown. Percentage structure.

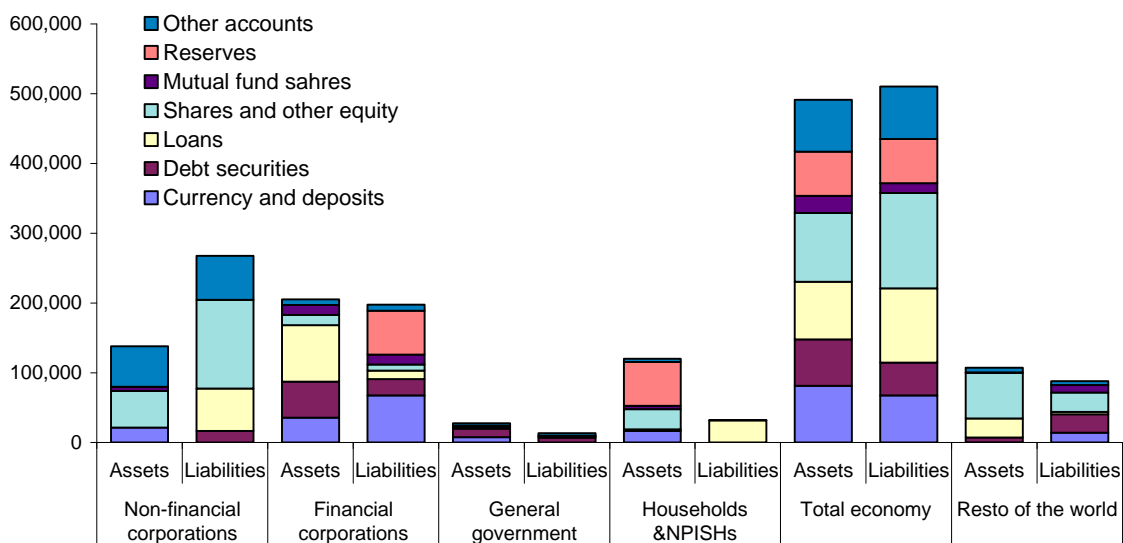


Source: Central Bank of Chile.

When the asset and liability positions of each of the resident institutional sectors are summed horizontally, without consolidating, the asset position is equivalent to 5.5 times GDP and liabilities to 5.7 times. The difference is consistent with the estimated net international investment position in December 2008.

Figure 5 summarizes the composition of financial assets and liabilities by institutional sector.

Figure 5
 Financial balance by institutional sector, December 2008.
 Billions of pesos.



Source: Central Bank of Chile.

4. Future challenges

One of the main challenges in the compilation of the QNA-IS is to complete the first publication which is scheduled for mid-2011. This requires closing the series reconciliation process, in particular with regard to developing the “whom-to-whom” matrices of the long-term securities other than shares which are still being compiled. In addition, the market valuation of unlisted shares is expected to be incorporated in the medium term. Efforts are being made to obtain the counterpart sectors of this instrument and of the other accounts.

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Appendix 1

Data sources by institutional sector

<i>Sector</i>	<i>Subsector</i>	<i>Source</i>	<i>Frequency/Lag</i>
S.12 Financial sector			
S.121 Central Bank	Central Bank	Central Bank of Chile	Monthly/30 days
S.122 Banks and cooperatives	Commercial banks	Superintendence of Banks and Financial Institutions (SBIF)	Monthly/30 days
	Saving and loan cooperatives	SBIF	Monthly/60 days
S.123 Other financial intermediaries	Leasing, factoring, and securitization companies	SBIF	Quarterly/60 days
	Retail credit cards	SBIF	Quarterly/60 days
S.126 Pension funds	Pension funds	Superintendence of Pensions (SP)	Quarterly/90 days
S.125 Insurance companies	Life insurance companies	Superintendence of Securities and Insurance (SVS)	Quarterly/45 days
	General insurance companies	SVS	Quarterly/60 days
	Health insurance companies (Isapres)	Superintendence of Health	Annual
S.124 Financial auxiliaries	Financial consulting and support services	SBIF	Quarterly/60 days
	Pension fund administrators	SP	Quarterly/90 days
	Investment fund managers	SVS	
	Stock brokers and securities agents	SVS	Quarterly/60 days
S.13 General government	General government	General Comptroller Office	Monthly/60 days
	Family compensation funds and mutual insurance funds	Superintendence of Social Security (SuSeSo)	Annual/6 months
S.11 Non-financial corporations	Open corporations and public companies	SVS	Quarterly/60-75-60-90 for IFRS/45 days for FECU
	Other corporations and firms	Internal Revenue Service (SII)	Annual/8 months

Appendix 2

Breakdown of published financial instruments

<i>Financial instruments QNA-IS</i>	
AF.1	Monetary gold and SDRs
AF.21/2	Currency and deposits
AF.29	Other deposits
AF.31	Short-term securities other than shares
AF.32	Long-term securities other than shares
AF.34	Financial derivatives
AF.41	Short-term loans
AF.42	Long-term loans
AF.51	Quoted and unquoted shares
AF.52	Mutual fund shares
AF.61	Pension funds
AF.62	Insurance technical reserves
AF.7	Other accounts receivable/payable
AF.9	Adjustments and discrepancies