

Securities by securities database and the Chilean financial accounts

*Fuentes G., Alfredo
Central Bank of Chile
E-mail: lfuenteg@bcentral.cl*

Abstract

Depósito Central de Valores (DCV) is the company that provides most of the services of custody, administration, clearing and liquidation of values in the Chilean capital market and the exclusiveness of these services for new issues of securities. DCV belongs to main agents of the Chilean stock market; stock exchanges, banks, insurance companies and managers of pension funds. The information of the DCV about balance in custody of different values from shares - value to value and identifying the holder sector - is supplied to the Central Bank of Chile for the elaboration of the financial accounts and balances of the economy. The first section of this document describes the information supplied by DCV, quantifying and characterizing the different instruments. The second section details the methodology of setting market prices and the last section explains the insertion of the results in the financial accounts and balances.

1 Introduction

The Central Bank of Chile has the function of compilation and publishing of the main national macroeconomic figures, including those of a monetary and foreign exchange nature, the balance of payments and national accounts or other global systems of social and economic accounting.

In this context, the financial accounts and balance sheets from the different sectors of the economy are published, where the transactions and the stocks of assets and liabilities are shown with detail of financial instruments and by institutional sector. These statistics are useful to improve macroeconomic analysis of the different institutional sectors, integrating the point of view of financial and real effects.

In search of the necessary information for the elaboration of the financial accounts and balances, Depósito Central de Valores (DCV), Chilean Custody Service, provides us with registrations weekly of value to value data, available from June 2008. With this data, Chilean statistics of the assets have breakdown of holders' position according to the type of financial instrument. In addition, these statistics include financial transactions (net purchases), exchange rate valuation adjustment or UF¹ (inflation) and price valuation adjustment.

Subsequently, this document describes the different debt securities and the methodologies utilized in the compilations of the financial accounts of Chile since the year 2008.

2 Backgrounds

2.1 Concepts

The national accounts of the Chilean economy are made with the guidelines of the System of National Accounts 1993 in all their concepts, including the measurement of debt securities in the financial accounts.

The system of national accounts includes the opening and closing balance sheets of the accounting period. Besides, a complete registration illustrates the changes of assets and liabilities between the beginning and the end of a period. Schematically, the difference between both balances is explained in the following way:

Table 1. Balances, transactions and other adjustments

(1)	(2)	(3)	(4)	(5)= (1)+(2)+(3)+ (4)
Balance inicial	Net transactions	Other adjustments	Exchange rate valuation and price valuation adjustment	Outstanding amounts at the end of period

The column (2) of the table 1 represents the transaction of financial and non financial assets. If it is non a financial asset, the operation is registered in the capital account. While, the financial account contains transactions relating to the financial assets that take place between the institutional units or the rest of the world, whose resulting surplus is the net lending or the net borrowing. This way, the following categories of assets are distinguished:

¹ Unidad de Fomento (UF) is a index used in Chile, adjusted according to inflation. The ISO code is CLF. It was created on January 20, 1968, for the use in determining principal (monetary item) and interest (constant real value non-monetary item) in international secured loans (monetary items) for development, subject to revaluation according to the variations of inflation.

- F.1 Monetary gold and special drawing rights (SDRs)
- F.2 Currency and deposits
- F.3 Debt securities, excluding financial derivatives**
- F.4 Loans
- F.5 Shares and other equity
- F.6 Insurance technical reserves
- F.7 Other accounts receivable/payable

The instructions of SNA² manual indicates that the transactions of financial assets are registered according to the price in which the operation was arranged. Excluding the costs of the service, fees, commissions and other payments for the services given to carry out the transactions. Regarding the time of the registration, this is carried out when the transaction takes place.

According to what was mentioned previously, the main focus of this paper is to value debt securities. In this category, we included: bonds, certificates of deposit, commercial papers, debentures, and other instruments in the financial markets.

The capital gains (column (4)) are represented by the changes in the price of assets. They can be of two types: profit by neutral possessions, that reflect variations in the general level of prices; and profits by real possession that reflect variations in the relative prices of assets.

2.2 Depósito Central de Valores

Depósito Central de Valores³ S.A., (DCV) is a corporation established in accordance with Chilean Law in 1993. Its regulations and rules depend on the Superintendence of Securities and Insurance (SVS, Chilean supervisor). DCV's purpose is to electronically process and register transfer transactions in stock exchange and the over-the-counter market, and coordinate and provide the necessary information for financial settlement of such transactions.

About ownership, DCV belongs to the main agents of the Chilean capital market; stock exchanges, insurance companies, managers of pension funds, banks and broker-dealers, and since 2010 the foreign custody companies have also been incorporated to DCV.

In relation to market share, DCV is a monopoly in custody service of electronic securities for the Chilean financial market, being a product of a gradual process (1993 to 2001). The first step was to hold all paper stock certificates in one centralized location, and automate the process by keeping electronic records of all certificates and securities clearing and settlement (changes of ownership and other securities transactions). These securities include time deposits, stocks, and bonds –public and private-, among others. In general terms, the value of fixed income securities held at DCV was 115.316 million dollars at the end of the year 2011, 95.7% of them has been dematerialized. This amount represents 96.5% of the total debt securities issued in the Chilean market. Likewise, for the year 2011, 99% of total transactions were of clearing and settlement performed by DCV.

2.3 Financial accounts in the Chilean statistics context

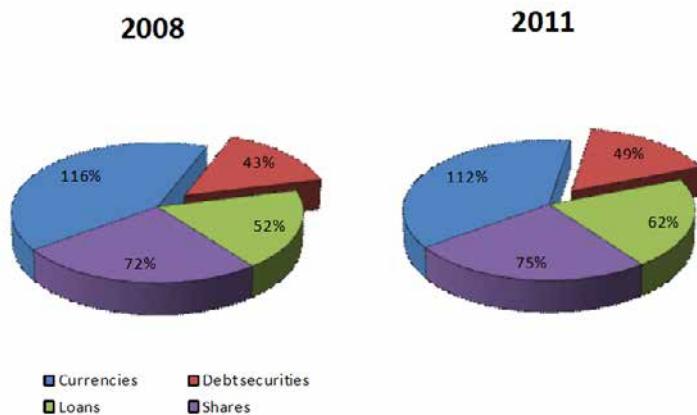
To contextualize the present paper, figure1 show the size of Chilean market as percentage of GDP and breakdown with several instruments for the years 2008 and 2011, where the relevance of the capitalization of bonds can be observed. Chilean bonds market is raised on 51% of GDP, high value relating to medium-high income economies or the rest of Latin-American economies. This relative importance of fixed income market possibly is in line with other characteristics of

² System of National Accounts

³ Depósito Central de Valores – Annual Report 2011(www.dcv.cl)

the Chilean economy as the opening to the international trade, liberalization of the capital flows or private pension funds.

Figure 1. Capitalization by Security (2008-2011)
(Percentage of GDP)

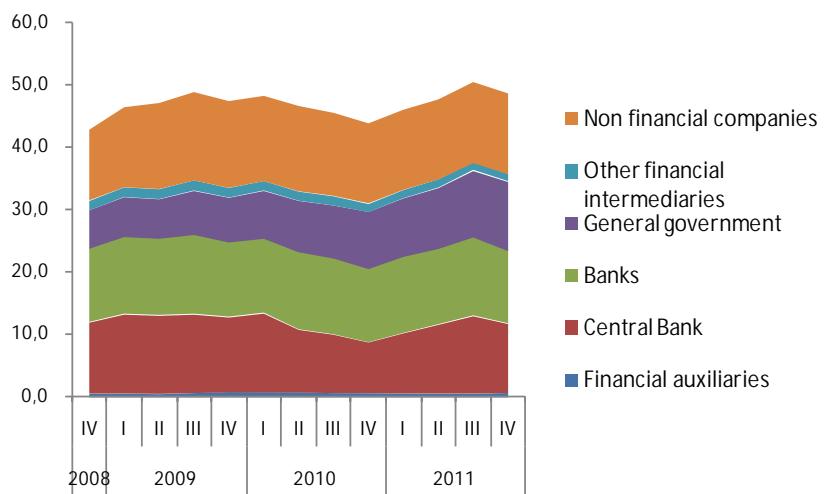


Source: Central Bank of Chile

Upon analyzing for issuer sectors of bonds (figure 2). It can be observed the most important issuer sector is Non financial companies, followed by Banks and *Saving and loans associations*.

Likewise it emphasizes the General government and Central Bank that as a group add issues by the 22% of GDP. Finally, another characteristic of the Chilean market is the not authorization of issue to the rest of the public sector except the General government and the small relative size of other financial intermediaries, financial auxiliaries and Special purpose vehicle.

Figure 2. Issuer of the debt securities of the Chilean economy
(Percentage of GDP)



Source: Central Bank of Chile

3 General Methodology

3.1 Estimation of Market Prices

The objective of the methodology is to determine the opening and closing balances to market price, transactions and the gains by nominal possession according to the definitions given in the point 2 of this paper.

The first step of the methodology is to value to market prices, the balance to the start and closing dates from all debt securities reported by the DCV. With the objective of this calculation, the daily listing of prices published by the Chilean Superintendence of Pensions (SP) are utilized, these prices are expressed as percentage of the face value.

Nevertheless, the information of the securities of DCV can be to face value or to par value that means the face value more interests. For the instruments, where their price are at face value, the market values are obtained applying directly the price from SP with exception of the bond of the old security social system for which a new price is estimated. While those instruments that are called to par value, the face value are calculated with aid of complementary information to be able to apply the prices of the SP.

An additional way, prior to the calculations of balance to market value, transactions and variations of price; are carried out estimations of the full interests by each type of instrument. For this, the weekly balance to par value is multiplied for the weekly rate of issue of the instrument and by the index of currency depends on every case. Continuing the classification carried out in the table 2, the securities at face value were estimated at par value using payments flows information from the cash flows schedule. On the other hand, the securities without rate of issue are attributed them the median of the rates categorized by type of instrument considering the residual time.

These complementary sources are where to be able to obtain the face value of every instrument or cash flows schedule in order to obtaining the face value. This information is the monthly report with issues and settlement of bonds recorded in the registration of the SBIF, corporate bonds and debentures issues statistics of the SVS. To obtain the active positions of every instrument, the information of the available holder in the base of the DCV is utilized.

Table 2. Source of information

Information	Frecuency	Source
Securities by securities database	Weekly	Depósito Central de Valores (DCV)
Listing of prices	Daily	Superintendence of Pensions (SP) www.spensiones.cl
Cash flows schedule		Risk América
Monthly report with issued bonds	Monthly	Superintendence of Banks (Sbif) www.sbif.cl
Statistics of issued debentures	Monthly	Superintendence of Securities and Insurances (SVS) www.svs.cl

3.2 Estimation of Transactions

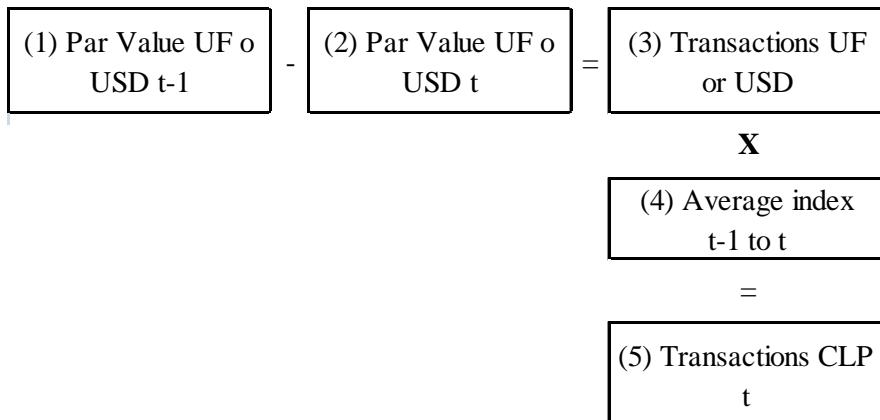
After estimation of the market value, the financial operation is projected as the outcome of the issue of new debt minus payments of capital as well as interest yielded in a period of time. Likewise, the definition mentioned can be expressed like the remainder of the par value at the end of a period and the par value at the start of the period.

Nevertheless, the simple subtraction between par values in securities with nominal values different from Chilean pesos (CLP) incorporates the fluctuation between the unit of emission and CLP. Due to this, the kind of nominal denomination should be distinguished among Chilean pesos, American dollars, UF's or others.

Whether you consider an issued bond in UF or dollars, the difference between the par values shows the financial operations of the period in the currency of issue (3), this is the payment of coupons or interest, including the effect of fluctuation against the Chilean peso.

At the end, the result of the financial operation in Chilean pesos for securities not issued in CLP is obtained from the difference of the par values (1) and (2), that multiplied by the average (4) of the monetary index that convert the unit of issue in Chilean pesos (value of the UF or the exchange rate between Chilean peso and American dollar) obtaining the financial operation in Chilean pesos (5).

Figure 3.



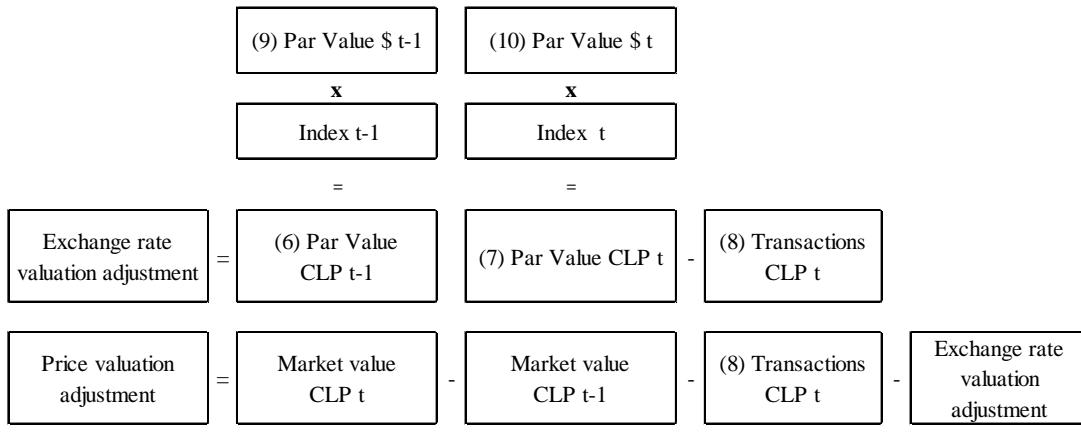
Source: Central Bank of Chile

On the other hand, in figure 4, the calculation of the financial operation for bonds issued in Chilean pesos, it is observed that there is not fluctuation of the value of the currency, being the financial operation difference between par values (10)-(9).

3.3 Estimation of price valuation adjustment and exchange rate valuation adjustment

The calculation of the rest of effects is basically the difference between the adjustment to market prices and the financial operation. The exchange rate valuation adjustment is the difference between the subtractions of par values in Chilean pesos and the financial operation mentioned, in the case of debt securities issued in UF this value will be zero.

Figure 4.



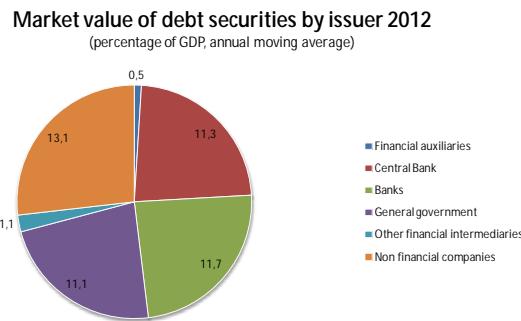
Source: Central Bank of Chile

4 Results

The product obtained from the DCV base, for the period 2008-2011, is worthy because it contains different glances for the analysis. Besides par values mentioned, market prices and financial operations, these figures can be seen from the point of view of issuing sectors, holders, currencies and maturities.

The results detailed by issuers (figure 5) show Non financial companies sector as the main issuer sector, with emissions of debt securities of 13.1% of GDP that represents 27% of the total fixed income market to December 2011. Non financial companies sector is followed by Banking sector with issues of 11.7% of GDP, nevertheless since this sector has decreased in the relative weight of the issues, representing 28% of the total at the end of 2008 as well as 24% at the end of 2011. Likewise, among the issuers such as the Central Bank and the General Government with issues of 11.7% and 11.1% of GDP to December 2011 are outstanding.

Figure 5.

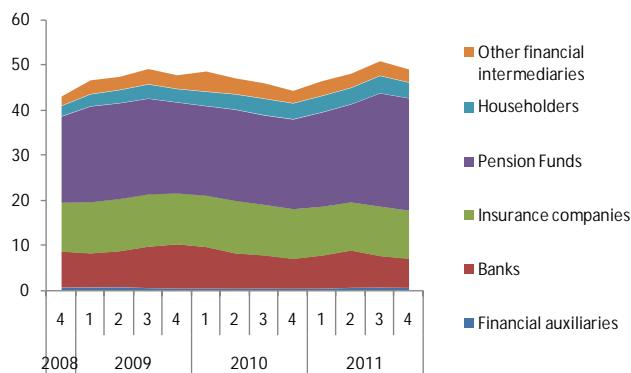


Source: Central Bank of Chile

The results detailed by holders (figure 6) show that Chilean pension funds are the most important debt securities holders of the local market with an asset under management close to 25% of GDP, being 51% of the total market to December 2011. Subsequently, insurance companies and the commercial banks are observed with 21% and 13% of the total of debt securities market.

Likewise, as the supervisor of the Chilean pension funds publishes the value of portfolio, is an important source of validation of the results obtained. As it is observed in the second graph of figure 6, the values published by the Superintendence of Pensions (SP) are closed to our value, on average these results are around 98% of the ones obtained with the DCV base.

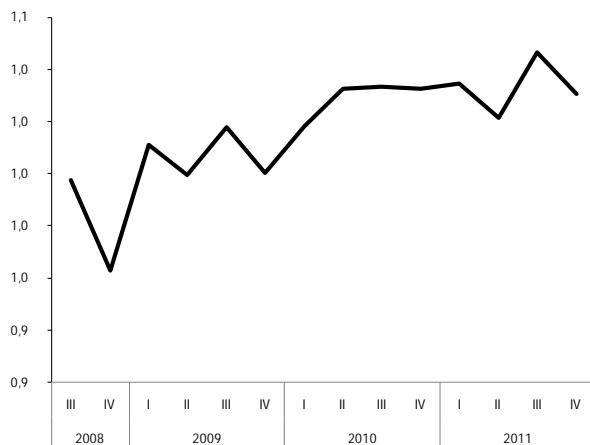
Figure 6. Holders of the debt securities of the Chilean economy
(Percentage of GDP)



Source: Central Bank of Chile

In figure 7, another product of the DCV base can be observed, the explanation of the variations of the final balance. In the first graph, it is observed as the second half of 2009 and the beginning of 2011, net issues were increased and the deceleration of these subsequently, and the institutional sectors that are behind these operations. In graph 2 of figure 7, the behavior of general prices of market against par value of debt securities is detailed, this information can be related to the operations or the preferences by other assets such as shares or real assets.

Figure 7. Evolution of Par Value

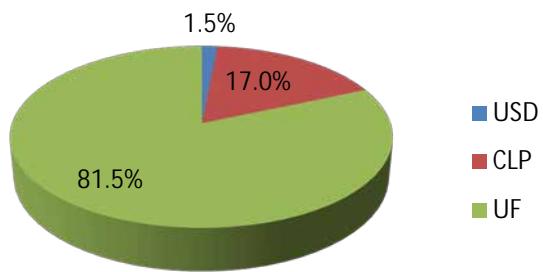


Source: Central Bank of Chile

In addition, breakdown by currency for each kind of instrument, the DCV reports also its currency denomination. The alternatives are: i) domestic currency in nominal terms (17%), ii) foreign currency (1.5% US dollars), and iii) domestic currency and UF linked (81.5%) Figure 8.

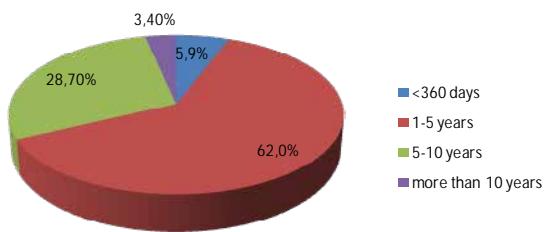
Finally, DCV base gives us the point of view by maturity. The DCV provides information with respect to the residual term of the outstanding instruments. Figure 9 presents the outstanding bonds' allocate by maturity term. This figure suggests that the composition of bonds by maturity is distributed homogeneously across categories. In effect, the shortest term instruments (<360 days) accounts for 6% of total assets, the category between 1 and 5 years also represents 62%, the category between 5 and 10 years is equal to 28%, and finally the assets with maturity over 10 years corresponds to 4%.

Figure 8. Breakdown by Currencies



Source: Central Bank of Chile

Figure 9. Breakdown by Maturity



Source: Central Bank of Chile

5 Summary

The function of this article was to explain the use of the DCV database as a complementary source of information to compiling the Chilean financial accounts. This dataset contains information on asset holdings that accounts for 98% of total fixed income market, providing detailed information about the issuer, nominal value of each issue, maturity and class of agent that holds each asset (Bank, Mutual Fund, Pension Fund, Insurance Company, etc.). This information is available since June 2008 on a weekly basis.

In this sense, this article gives details about the calculation of concepts used in National Accounts. Given the above, the estimate depends on currency denomination mainly.

Finally, this paper shows main results detailed by issuers, holders, currencies and maturities. These different glances help to improve the analysis, above all to monitoring the financial stability of the Chilean market.

6 Reference

- Central Bank of Chile (2011). National Accounts by Institutional Sectors, NA-IS. http://www.bcentral.cl/estudios/estudios-economicos-estadisticos/pdf/see87_Eng.pdf
- Central Bank of Chile (2005). *Características de los Instrumentos del Mercado Financiero Nacional*.
- Superintendencia de Bancos e Instituciones Financieras (2008). *Recopilación actualizada de normas, Capítulo 9-6, Bonos Subordinados*
- Superintendencia de Fondo de Pensiones. *Rule N° 1216* <http://www.spensiones.cl/files/normativa/circulares/CAFP1216.pdf>
- National System Accounts 2003