Methodology for Measuring Derivatives at the Central Bank of Chile

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Paulina Rodriguez

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Methodology for Measuring Derivatives
at the Central Bank of Chile (*)

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Resumen
El uso de derivados financieros por parte de compañías chilenas ha mostrado un rápido aumento en los últimos años. Es por esto que conocer cómo se miden los derivados financieros es un tema de sumo interés. Este documento describe el sistema de recopilación, validación y compilación de los derivados de monedas en el Banco Central de Chile. Se presentan el marco legal, que respalda los requerimientos de información, las fuentes, una caracterización de los datos obtenidos, la metodología usada en los procesos de valoración y las diferentes agregaciones realizadas para las publicaciones, entre otros elementos. Adicionalmente, este documento presenta las ventajas y desventajas del sistema chileno.

Abstract
The use of derivatives by Chilean companies has increased rapidly in recent years. Therefore, exploring how financial derivatives are measured is a subject of considerable interest. This working paper describes the collection system, and the validation and compilation processes of this instrument at the Central Bank of Chile. It includes the legal framework governing the information requirements, the sources, characterization of data collected, methodology used in the valuation process, and the different breakdowns for publishing, among others. In addition, the paper analyses the advantages and disadvantages of the Chilean system.

(*) The views and conclusions expressed in this paper are those of the author and do not necessarily represent the views of the Central Bank of Chile. E-mails: vorellan@bcentral.cl, prodrigu@bcentral.cl
1. Introduction

Nowadays, derivatives are increasingly being used in the financial markets throughout the world and Chile is no exception. Economic agents use these instruments to improve resource allocation and risk management, given the fact that derivatives can reduce costs, enhance returns, and help maintain the financial stability of the economy.

The Central Bank of Chile is responsible for ensuring that inflation remains low and stable. Since 1999, the Chilean economy moved to a floating exchange rate system which fosters the development of the hedge market that helps protect the companies from exchange rate fluctuations. As mentioned before, through hedge operations companies can set exchange rate levels and therefore limit uncertainty and volatility until the transaction takes place.

Even though the development of the derivatives market in Chile still falls short of the level of advanced economies, it has steadily grown into a reasonably active market in the past decade, considering the size of our economy.

As a result, it is necessary to support the economic agents that participate in this process by providing statistical publications of the most commonly used underlying assets such as interest rates, commodities and foreign exchange.

Therefore, the purpose of this document is to describe the Chilean compilation process. The second section presents a brief overview of the evolution of the derivatives market worldwide and specifically in the Chilean economy. It also compares our country's activity with other economies. The third section describes the legal framework underlying the information requirements. Sections four to six analyze the Chilean derivatives system, starting from data collection to current publications, and its subsequent application in the Central Bank. It also reviews some of their pros and cons. The last section presents the conclusions.
2. Evolution of the Derivatives Markets

2.1 Global market

The Bank for International Settlements (BIS) is the centre of global activity in the derivatives market. It publishes figures semiannually on derivatives traded in the organized exchange markets, and every three years a worldwide survey is conducted to measure foreign exchange and derivatives activity carried out in the over-the-counter (OTC) market. In the 2007 version, 54 countries and jurisdictions participated.

According to the latest survey, in 2007 global OTC derivatives turnover rose to an average of $2,319 billion traded daily with a 78% increase between 2004 and 2007 (See Graph 1). Some reasons identified by the BIS for this were the diversification strategies of long-term investors such as pension funds, and the growth in international trade in goods and services during the period. Another factor is the increasing importance of electronic brokering platforms, which have added efficiency to the trading process.

In terms of currency pairs, the US dollar continued to be the most traded currency, with the euro following at a far second place; 89% of transactions had one leg denominated in US dollars and 35% in euros.

The survey data was classified into three different groups in order to identify the Chilean FX derivatives market in the international context (see Appendix 1). The criterion used in this document for comparing information across countries is depth, which is associated with the frequency of FX transactions in an economy. The ratio normalizes annual FX derivatives activity (OTC) using GDP. Although Chile has a lower FX activity than advanced economies, the ratio showed in graph 2 is better than emerging economies and Latin American countries.
2.2 Derivatives in the Chilean market

Currently, the derivatives supply in Chile offers as underlying assets: commodities, interest rates and foreign exchanges. According to the data collected by the Central Bank of Chile, roughly $726 billion were traded in 2007. Ninety one percent (91%) of them correspond to foreign exchange derivatives, seven percent (7%) to commodities, and the rest is allocated to interest rates. For this reason, this document will focus on foreign exchange derivatives.

Domestic and cross-border market

Banks are the main operators of the derivatives market in Chile. They are the counterparties to agents seeking to hedge against exchange rate fluctuations, and risk-prone speculators betting on future price movements, or who look for arbitrage opportunities in order to benefit from changes in local interest rates relative to foreign ones.

The volume of transactions has grown even faster in recent years, mainly because of the adoption of a floating exchange rate system, and the hedging strategies of Chilean pension funds. The total foreign exchange turnover increased 300% between 2001 and 2007, from $165 billion to $695 billion. It is worth noting that cross-border transactions raised 48% between 2006 and 2007, which is explained by the turbulence in international financial markets, the appreciation of the Chilean peso and the interest rate spread between US and Chilean economies. As a result, the total foreign exchange turnover (local + cross-border) rose 31% in 2007 (Graph 3).

Moreover, the amount traded by pension funds in the local market skyrocketed from $7 billion in 2001 to $72 billion in 2007. The notable increase of 72% in transactions of the year 2007 is a result of the foreign investment limit being lifted from 30% in 2006 to 40% in 2007 (Graph 4). In addition, the pension funds raised their total share from 7% in 2001 to 36% in 2007, without considering interbank transactions.

Although it is difficult to figure out the purpose of each operation in the derivatives market, it is useful to monitor the outstanding positions of resident companies compared to cross-border counterparties, in order to observe how the interest rate differential causes them to vary. Between 2006 and 2007, the decrease in the seller’s position in the cross-border market was due to an
increase in the purchase contracts outstanding at the end of 2007, which in turn was mainly caused by the interest rate spread between Chile and United States (Graph 5).

Graph 5
Bank FX Notional Amounts Outstanding
(billions of US dollars)

Graph 6
Type of Traded Instrument in 2007
(percent)

In Chile, outright forward contracts are the most traded financial instruments, although the share of FX swaps has increased in the last four years (Graph 6). It should be noted that currently all reported foreign exchange transactions are OTC.

3 Compilation System

Derivatives are measured at both market value and notional amounts. This section explains the process of derivatives compilation, including reporting institutions, collected data, validation and the valuation methodology utilized to calculate market value (Figure 1).

Figure 1: Data Collection Process

The Central Bank of Chile (CBC) has a mixed data collection system which combines indirect reporting (e.g., banks reporting data from third parties, usually known as the International Transactional Reporting System (ITRS)), and direct reporting, such as surveys. The latter has gained importance due to new statistical requirements. The Statistics Collection Department is in charge of gathering these data.1

1 The requirement forms are available at http://www.bcentral.cl
Derivatives information is collected under a direct reporting system and it is done on a transaction-by-transaction basis. The current collection system was inherited, from when controls and restrictions on foreign capital flows existed. At that time, reporters had to fulfill several information requirements, so reporting institutions have got used to reporting data to the Central Bank of Chile.

Studies about the possibility of changing the current collecting system to one with aggregate information have been done, but the conclusions are clear about an increase in the reporting burden since they would have to invest in new technology to adapt their systems to the new requirements.

3.1 Reporting Institutions

Banks or companies that carry out transactions with derivatives such as forwards, FX swaps, options, cross-currency swaps and futures, must report their transactions if they involve a foreign currency or if the cash settlement is made in a foreign currency.

Banks report data with both local counterparties (residents) and cross-border (with non-residents) counterparties. Conversely, other reporting entities only report cross-border transactions, therefore avoiding double reporting (Figure 2).

Currently, there are twenty-five banks reporting foreign exchange derivatives. Twelve of them are branches of non-resident banks and the rest are local institutions. The frequency of reporting is daily until 11:00 am. The contracts reported are those traded on the previous day.

Local counterparties of banks can be classified into institutional, non-financial, and financial sector excluding banks (Appendix 2, Table 2). The number of counterparties has risen during the last six years, going from 750 in 2001 to 2,094 in 2007. This is mostly explained by the increase in the non-financial sector that rose from 877 in 2004 to 2,030 in 2007 (Appendix 2, Table 3).

On the other hand, cross-border counterparties of banks were 59 in 2007, mainly banks and their branches (Appendix 2, table 3). The number of this type of counterparties has been increasing since 2004, revealing greater access to the cross-border market. Moreover, the internationalization of Chilean fixed- and variable-income instruments encourages the use of FX derivatives.

Other companies reporting derivatives data (transactions with cross-border counterparties) can be classified into three groups: insurance companies, non-financial entities and investment banks.
Monthly reports must be submitted to the Central Bank of Chile no later than the tenth of the month following the date of transaction.

### 3.2 Collected data

All the information required from the reporting entities is in the terms of the contract, and therefore it is easy to report. The data requested in the reporting form includes: trade date, forward rate, currency buyer, currency seller, settlement currency, settlement date, valuation date and settlement, among others (Appendix 2, Table 4).

At present, an average of 8,495 contracts are received monthly from banks, which include both local and cross-border market transactions, whereas 56 are received monthly from other entities with cross-border counterparties (Graph 7). Banks’ share of total turnover has increased from 91% in 2001 to 96% in 2007, mainly due to the rise in cross-border operations. In the local market, most bank transactions in terms of amounts are done with other entities.

![Graph 7](image)

**Average Monthly Received Contracts**

<table>
<thead>
<tr>
<th>Year</th>
<th>Contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>2,429</td>
</tr>
<tr>
<td>2002</td>
<td>3,422</td>
</tr>
<tr>
<td>2003</td>
<td>4,469</td>
</tr>
<tr>
<td>2004</td>
<td>5,932</td>
</tr>
<tr>
<td>2005</td>
<td>7,613</td>
</tr>
<tr>
<td>2006</td>
<td>8,495</td>
</tr>
</tbody>
</table>

Source: Central Bank of Chile

![Graph 8](image)

**Most Traded Currency Pair**

- Usd-Cop: 95.5%
- Usd-Eur: 2.1%
- Usd-Yen: 1.9%
- Others: 0.5%

Source: Central Bank of Chile

With respect to currency distribution, the US dollar – Chilean peso is the most traded currency pair, accounting for 95% of the total, followed by US dollar – euro and US dollar – yen with a 2.1% and a 1.9% share, respectively (Graph 8).

### 3.3 Validation

The reporting form on the Internet has data-entry validations that ensure that reporting entities do not enter incorrect data.

Interbank transactions have a special validation. The system checks that data reported by a bank is the same as the data reported by its counterparty, according to the contract. For example, the amount purchased by a bank must be the same as the amount sold by the counterparty. Reporting banks can be contacted and told to amend the reported data.
Other validation tools are cross-checking data reported by the International Transactional Reporting System and the derivatives reporting forms, which are usually reported by different areas of the banks. This ensures that all operations are informed and classified under the correct transaction codes in the ITRS system; the type of settlement is also verified.

Furthermore, as daily data is published, consistency with the previous day is checked for anomalies.

3.4 Valuation Methodology

The Central Bank of Chile collects notional amounts. Therefore, and in order to compile derivatives statistics for the Balance of Payments (BOP) and for the International Investment Position (IIP), the market value of contracts must be calculated.

The value of a forward-type contract derives from the difference between the agreed contract (strike) price(s) and the prevailing, or expected, market price(s) on the day of the settlement, times the principal amount, appropriately discounted.

The market value of the contracts is calculated by the software database using the net present value technique. To create an interest rate curve, the system needs to input the risk-free interest rate of the different currencies and maturities for effective contracts at the valuation date, which are obtained from Bloomberg. To determine the value of missing interest rates, the Linear Interpolation method is used. The market value is calculated with the exchange rate and the interest rate of the selected date.

4. Data Uses and Statistics

The data on derivatives is used to help authorities to design financial and monetary policies and to assist market players to better monitor activity patterns in the financial system.

Exchange-rate volatility in particular can affect the financial stability of economies in several ways. These effects can be observed on the balance sheets of companies through the currency denomination of assets and liabilities, as well as on the competitiveness of companies engaged in external markets. In this context, financial derivatives are instruments available for economic agents to help them reduce their exposure to currency risk.

In order to analyze the impact on the exchange rate, outstanding positions (asset or liability) taken by the different economic agents are monitored (e.g. the impact of raising the foreign investment limits of pension funds on the exchange rate).

Derivatives figures can also be used to analyze if arbitrage by cross-border agents is taking place. Given the current difference between domestic and foreign interest rates, the Central Bank of Chile and the market keep a close eye on local outstanding positions with non residents.
Graph 9 shows the evolution of the net balance of the total operations of the foreign exchange derivatives market, that is, the difference between the buying and selling positions, broken down by the residence of bank counterparties. It is the national agents that have been selling rather than buying dollars. An example of this is institutional investors that have been protecting themselves from exchange rate risks. On the other hand, foreign agents have been buying those dollars in the forward market. This fact would indicate that foreign agents are incurring debts in Chilean pesos at lower interest rates than they could invest in, to take advantage of the exchange rate differential, and carry trade with other countries of the region (Graph 9 and Graph 10).

Graph 10 was published in the article “Pension Funds’ Exchange Rate Hedging Risk and its Effect on Local Banking,” in the Financial Stability Report of the first half of 2008.

As a result of the hedging needs of institutional investors, the graph shows that banks offer exchange rate risk hedging to other agents that have foreign currency selling positions, and that do not have natural hedging against that risk (importers or other companies having debts in foreign currencies) in order to hedge their foreign currency buying positions. In addition, banks also offer risk hedging to non-resident investors that need to have a selling position in Chilean pesos. On average, these types of investors have bought US$7 billion in forward dollars. As a result, the difference between buying and selling positions has increased steadily since September 2007, reaching US$6,790 million in April 2008.

4.1 Statistics

The purpose of publishing derivatives statistics by the Central Bank of Chile is to increase market transparency.

Derivatives statistics are published monthly in the Balance of Payments and quarterly in the International Investment Position at market value (Appendix 3). Likewise, it is used in semiannual financial stability reports, BIS reports, working papers and occasionally upon public requests.

Alternatively, turnover data and outstanding positions are published monthly in the Monthly Bulletin with the following breakdowns:
a) Banking statistics

Turnover notional amounts are broken down by maturity, by prices and by average daily turnover between banks and third parties as well as interbank operations. In addition, outstanding positions are broken down between local and cross-border market and by purchases and sales to third parties (Appendix 3).

b) Bank and company statistics

Turnover notional amounts are broken down by currency pair (domestic currency with U.S. dollar), between local and cross-border market, and by counterpart (banks or companies).

Daily bank turnover data is also published in the Daily Bulletin, specifically the purchases and sales to third parties (meaning no banks), net amounts (purchases minus sales) and operations between banks (Appendix 3). It is important to mention that the Central Bank of Chile publishes only aggregate data because individual institutional data must remain confidential under the Bank’s legal obligations.

5. Advantages and Disadvantages of the Chilean System

This section reviews the main advantages and disadvantages of the Chilean derivatives data collection system.

Advantages:

- Electronic receipt and automatic data downloading into the database minimize operational errors and reporting lag.
- High quality of the data available. The fact that the information provided is well known by the reporting entities, since it is the same as in the contracts, ensures integrity, accuracy and reliability of the data.
- Low reporting burden considering that data providers just send the contract information without any changes. They are not required to make any special calculation such as aggregating data or obtaining market value for reporting.
- Daily publication periodicity: Thanks to daily reporting by banks, total derivatives FX turnover can be published on a daily basis. It thus provides useful information for market participants.
- Detailed information received enables the provision and dissemination of information using several breakdowns.

Disadvantages:

- The system requires constant efforts in order to ensure good coverage and scope with non-commercial banks. Checks from different sources are done to verify that all companies that have derivatives abroad are reporting, because the derivatives that they make in the local
market are reported by commercial banks. For instance, notes to the financial statements of the supervised companies are reviewed. Furthermore, as companies report to the Central Bank of Chile, other financial data such as foreign loans, and those institutions having a strong likelihood to hedge currency risk, they are contacted also.

- Transactions between two Chilean entities, when neither is a bank, are not recorded in the same way and frequency as the other operations previously described. Annual surveys have been implemented to measure this gap. Aggregate results have shown that the missing information accounts for only 7% of the information already collected.
- Also the system lacks information on those transactions related to the Chilean peso, involving two foreign entities interacting abroad. In this case, the CBC cannot legally demand the data, but international experiences have been reviewed, in order to survey international brokers.

6. Conclusions

In recent years, derivatives information has become an important variable for tracking Chilean FX markets, for analyzing domestic financial stability and for helping policy makers. Therefore, the accuracy and quality of information collected is of great importance.

Chile has developed an efficient system for measuring derivatives statistics using detailed daily data from banks and monthly data from non-commercial banks. This information is available in “Over the Counter” (OTC) contracts and is also received electronically through the Internet.

The quality of the information collected is high, and allows the CBC to publish reliable statistics. The detailed derivatives data collected by the CBC covers its information needs for policy decisions and for the analysis of financial stability.

Regarding the challenges facing the CBC, further work is required in the future to collect data which is not currently available. In this sense, international experience in collecting derivatives data from non residents needs to be reviewed. Furthermore, it is important to develop better coordination with supervising authorities in order to improve the derivatives data quality.

The impact of the international financial reporting standards (IFRS) on the data collection must be taken into account, in order to verify if those standards will imply changes in the way data is collected currently.

Finally, a closer relationship with the main actors in the market and constant learning are needed as the derivatives market is growing very rapidly, in order to be aware of the new financial innovations and understand them.
Bibliography


<table>
<thead>
<tr>
<th>Glossary</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross border</td>
<td>Derivatives transaction traded across borders</td>
</tr>
<tr>
<td>Currency swap</td>
<td>Contract which commits two counterparties to exchange streams of interest payments in different currencies for an agreed period of time and to exchange principal amounts in different currencies at a pre-agreed exchange rate at maturity.</td>
</tr>
<tr>
<td>Exchange-traded derivatives (ETD)</td>
<td>are those derivatives products that are traded via specialized derivatives exchanges or other exchanges. A derivatives exchange acts as an intermediary to all related transactions, and takes Initial margin from both sides of the trade to act as a guarantee.</td>
</tr>
<tr>
<td>Foreign exchange swap:</td>
<td>Transaction, which involves the actual exchange of two currencies (principal amount only) on a specific date at a rate agreed at the time of the conclusion of the contract (the short leg), and a reverse exchange of the same two currencies at a date further in the future at a rate (generally different from the rate applied to the short leg) agreed at the time of the contract (the long leg). Both spot/forward and forward/forward swaps should be included. For turnover, only the forward leg should be reported as such. The spot leg should not be reported at all, ie neither as spot nor as foreign exchange swap transactions. Short-term swaps carried out as “tomorrow/next day” transactions should also be included in this category.</td>
</tr>
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<td>Notional amount</td>
<td>Notional amount of a derivative contract is a hypothetical underlying quantity upon which interest rate or other payment obligations are computed.</td>
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<tr>
<td>Outright forward:</td>
<td>Transaction involving the exchange of two currencies at a rate agreed on the date of the contract for value or delivery (cash settlement) at some time in the future (more than two business days later). This category also includes forward foreign exchange agreement transactions (FXA), non-deliverable forwards and other forward contracts for differences.</td>
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<td>Over-the-counter (OTC) derivatives</td>
<td>are contracts that are traded (and privately negotiated) directly between two parties, without going through an exchange or other intermediary. Products such as swaps, forward rate agreements, and exotic options are almost always traded in this way.</td>
</tr>
<tr>
<td>Trade date</td>
<td>It is the date on which the parties agree to the terms of a contract.</td>
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## Appendix 1

### Table 1: Country Group List

<table>
<thead>
<tr>
<th>Advanced Economies</th>
<th>Emerging Economies</th>
<th>Latin Economies</th>
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<td>Australia</td>
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<td>Argentina</td>
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<tr>
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<td>Netherlands</td>
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Appendix 2

Table 2: Economic Sectors

<table>
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<th>Insitutioonal Sector</th>
<th>Non Financial Sector</th>
<th>Financial sector excluding banks</th>
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<tbody>
<tr>
<td>Pension Funds</td>
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<td>Investment Banks</td>
</tr>
<tr>
<td>Insurance Companies</td>
<td></td>
<td>Stockbrokers</td>
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<tr>
<td>Mutual Funds</td>
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<td>Securities Agents</td>
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<td></td>
<td>Construction</td>
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</tr>
<tr>
<td></td>
<td>Transportation and communications</td>
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<tr>
<td></td>
<td>Mining</td>
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<td></td>
<td>Manufacturing</td>
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<td></td>
<td>Electricity, gas and water</td>
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<tr>
<td></td>
<td>Wholesale and retail trade, hotels and restaurants</td>
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<tr>
<td></td>
<td>Financial intermediation and business services</td>
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<tr>
<td></td>
<td>Others</td>
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Table 3: Bank Counterparties

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<td></td>
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<tr>
<td>Institutional Sector</td>
<td>Non Financial Sector</td>
<td>Financial Sector excluding banks</td>
<td>Total</td>
</tr>
<tr>
<td>2001</td>
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<td>695</td>
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<td>22</td>
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<td>34</td>
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Table 4: Foreign Exchange Derivative Reporting Form

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<th>COUNTERPART DATA</th>
<th>Contract Number</th>
<th>Trade Date</th>
<th>Settlement Date</th>
<th>Number of days</th>
<th>Settlement</th>
<th>Instrument</th>
<th>PURCHASES</th>
<th>SALES</th>
<th>FORWARD RATE</th>
<th>OPTION PREMIUM</th>
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<td>Name</td>
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<td>Currency buyer</td>
<td>Amount Purchased</td>
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Appendix 3

1.- Balance of payments and international investment position

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>BALANCE OF PAYMENTS (D) (1) (US$ million)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

II. Capital and financial account

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Capital account</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct investment</td>
<td>2,206.8</td>
<td>2,701.2</td>
<td>5,609.6</td>
<td>4,750.6</td>
<td>5,076.1</td>
</tr>
<tr>
<td>Direct investment abroad (assets)</td>
<td>-343.2</td>
<td>-1,606.3</td>
<td>-1,563.1</td>
<td>-2,209.0</td>
<td>-2,875.6</td>
</tr>
<tr>
<td>Equity capital</td>
<td>309.6</td>
<td>-587.8</td>
<td>-506.5</td>
<td>-790.1</td>
<td>-1,006.9</td>
</tr>
<tr>
<td>Profits reinvestment</td>
<td>-231.3</td>
<td>-546.8</td>
<td>-824.3</td>
<td>-945.7</td>
<td>-956.3</td>
</tr>
<tr>
<td>Other capital</td>
<td>-421.4</td>
<td>-471.6</td>
<td>-232.3</td>
<td>-473.2</td>
<td>-912.4</td>
</tr>
<tr>
<td>Direct investment in Chile</td>
<td>2,549.9</td>
<td>4,307.4</td>
<td>7,172.7</td>
<td>6,959.6</td>
<td>7,951.7</td>
</tr>
<tr>
<td>Equity capital</td>
<td>1,309.2</td>
<td>1,546.4</td>
<td>1,242.9</td>
<td>796.2</td>
<td>1,957.5</td>
</tr>
<tr>
<td>Profits reinvestment</td>
<td>1,366.6</td>
<td>3,335.2</td>
<td>5,951.6</td>
<td>6,539.0</td>
<td>7,457.3</td>
</tr>
<tr>
<td>Other capital</td>
<td>-125.9</td>
<td>-574.2</td>
<td>-21.8</td>
<td>-375.6</td>
<td>-1,463.2</td>
</tr>
<tr>
<td>Portfolio investment</td>
<td>-2,317.3</td>
<td>-2,645.3</td>
<td>-3,308.5</td>
<td>-2,624.0</td>
<td>-10,008.2</td>
</tr>
<tr>
<td>Assets</td>
<td>-3,315.8</td>
<td>-4,699.0</td>
<td>-4,430.2</td>
<td>-4,218.4</td>
<td>-10,850.9</td>
</tr>
<tr>
<td>Liabilities</td>
<td>998.3</td>
<td>2,093.7</td>
<td>1,121.8</td>
<td>1,994.3</td>
<td>842.7</td>
</tr>
<tr>
<td>Financial derivatives</td>
<td>-123.7</td>
<td>117.8</td>
<td>-64.0</td>
<td>-62.5</td>
<td>303.8</td>
</tr>
<tr>
<td>Assets</td>
<td>1,788.4</td>
<td>1,840.2</td>
<td>638.9</td>
<td>1,244.4</td>
<td>1,500.8</td>
</tr>
<tr>
<td>Liabilities</td>
<td>-1,912.1</td>
<td>-1,722.4</td>
<td>-722.9</td>
<td>-1,307.0</td>
<td>-1,196.9</td>
</tr>
<tr>
<td>Other investment</td>
<td>1,866.5</td>
<td>971.8</td>
<td>-4,217.9</td>
<td>-441.1</td>
<td>-179.6</td>
</tr>
<tr>
<td>Assets</td>
<td>1,140.6</td>
<td>-571.4</td>
<td>-3,388.6</td>
<td>-2,399.4</td>
<td>-3,675.2</td>
</tr>
<tr>
<td>Commercial credits</td>
<td>685.5</td>
<td>-996.0</td>
<td>-1,600.5</td>
<td>-1,599.3</td>
<td>-1,080.6</td>
</tr>
<tr>
<td>Loans</td>
<td>427.0</td>
<td>43.6</td>
<td>0.4</td>
<td>-4.8</td>
<td>-243.0</td>
</tr>
<tr>
<td>Currency and deposits</td>
<td>28.1</td>
<td>441.1</td>
<td>-1,788.5</td>
<td>-795.4</td>
<td>-2,351.5</td>
</tr>
<tr>
<td>Other assets</td>
<td>0.0</td>
<td>-60.1</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Liabilities</td>
<td>727.9</td>
<td>1,543.2</td>
<td>-829.3</td>
<td>1,958.3</td>
<td>3,495.5</td>
</tr>
<tr>
<td>Commercial credits</td>
<td>-59.6</td>
<td>-34.9</td>
<td>831.2</td>
<td>436.3</td>
<td>1,188.4</td>
</tr>
<tr>
<td>Loans</td>
<td>777.1</td>
<td>1,459.5</td>
<td>-1,576.4</td>
<td>1,547.8</td>
<td>2,283.3</td>
</tr>
<tr>
<td>Currency and deposits</td>
<td>12.3</td>
<td>120.8</td>
<td>-90.8</td>
<td>-26.4</td>
<td>26.7</td>
</tr>
<tr>
<td>Other liabilities</td>
<td>-1.9</td>
<td>-2.2</td>
<td>6.7</td>
<td>0.6</td>
<td>-2.9</td>
</tr>
<tr>
<td>Reserves assets</td>
<td>-198.6</td>
<td>365.6</td>
<td>190.8</td>
<td>-1,715.7</td>
<td>-1,997.4</td>
</tr>
</tbody>
</table>
2. - Monthly bulletin tables

Spot Position and Banks Outright Forward Position
(Million U.S. dollar)

<table>
<thead>
<tr>
<th>Period</th>
<th>Spot Position</th>
<th>Outright Forward positions by counterparty</th>
<th>Outright Forward Positions by Market</th>
<th>Total Position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>*Purchases to third parties</td>
<td>*Sales to third parties</td>
<td>Interbank (only Local Market)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Local Market)</td>
<td>(Cross-Border Market)</td>
<td>(Local Market)</td>
</tr>
<tr>
<td>January</td>
<td>-5,988</td>
<td>30,212</td>
<td>21,292</td>
<td>18,886</td>
</tr>
<tr>
<td>February</td>
<td>-6,475</td>
<td>30,610</td>
<td>19,029</td>
<td>20,166</td>
</tr>
<tr>
<td>March</td>
<td>-7,128</td>
<td>34,122</td>
<td>17,517</td>
<td>19,922</td>
</tr>
<tr>
<td>April</td>
<td>-7,337</td>
<td>34,276</td>
<td>13,280</td>
<td>19,838</td>
</tr>
<tr>
<td>May</td>
<td>-9,077</td>
<td>35,660</td>
<td>12,640</td>
<td>19,285</td>
</tr>
</tbody>
</table>

* Purchases of banks to non commercial banks

Bank’s outright forward turnover (CLP-USD)*
(Million U.S. dollar)

<table>
<thead>
<tr>
<th>Period</th>
<th>Total turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 7 days</td>
<td></td>
</tr>
<tr>
<td>8 - 30 days</td>
<td></td>
</tr>
<tr>
<td>31 - 42 days</td>
<td></td>
</tr>
<tr>
<td>Over 42 days</td>
<td></td>
</tr>
<tr>
<td>Total turnover</td>
<td></td>
</tr>
</tbody>
</table>

* For obtaining the amounts, interbank trading is divided by two to eliminate double-counting.
### Bank’s Transactions
(Million U.S dollar)

<table>
<thead>
<tr>
<th>Period</th>
<th>Daily average derivatives turnover</th>
<th>Daily average spot turnover</th>
<th>Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Third Parties</td>
<td>Interbank</td>
<td>Total</td>
</tr>
<tr>
<td>January</td>
<td>2,187</td>
<td>530</td>
<td>2,718</td>
</tr>
<tr>
<td>February</td>
<td>1,759</td>
<td>526</td>
<td>2,285</td>
</tr>
<tr>
<td>March</td>
<td>2,405</td>
<td>705</td>
<td>3,109</td>
</tr>
<tr>
<td>April</td>
<td>2,053</td>
<td>649</td>
<td>2,702</td>
</tr>
<tr>
<td>May</td>
<td>1,937</td>
<td>608</td>
<td>2,545</td>
</tr>
</tbody>
</table>

### FX transactions with local and cross-border market
(Million U.S dollar)

<table>
<thead>
<tr>
<th>Period</th>
<th>Turnover in CLP/USD</th>
<th>Percentage of the total</th>
<th>Turnover in CLF/USD</th>
<th>Percentage of the total</th>
<th>Local market</th>
<th>Cross-border market</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>63,110</td>
<td>100</td>
<td>177</td>
<td>0</td>
<td>33,856</td>
<td>29,431</td>
<td>63,287</td>
</tr>
<tr>
<td>February</td>
<td>49,594</td>
<td>98</td>
<td>993</td>
<td>2</td>
<td>31,335</td>
<td>19,252</td>
<td>50,587</td>
</tr>
<tr>
<td>March</td>
<td>63,230</td>
<td>99</td>
<td>748</td>
<td>1</td>
<td>38,640</td>
<td>25,338</td>
<td>63,978</td>
</tr>
<tr>
<td>April</td>
<td>61,411</td>
<td>99</td>
<td>583</td>
<td>1</td>
<td>37,638</td>
<td>24,356</td>
<td>61,994</td>
</tr>
<tr>
<td>May</td>
<td>52,458</td>
<td>99</td>
<td>303</td>
<td>1</td>
<td>33,826</td>
<td>18,935</td>
<td>52,760</td>
</tr>
</tbody>
</table>

### FX transactions with cross-border market
(Million U.S dollar)

<table>
<thead>
<tr>
<th>Local currency against foreign currency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outstanding Position</strong></td>
</tr>
<tr>
<td>Banks</td>
</tr>
<tr>
<td>January</td>
</tr>
<tr>
<td>February</td>
</tr>
<tr>
<td>March</td>
</tr>
<tr>
<td>April</td>
</tr>
<tr>
<td>May</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Foreign currency against foreign currency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outstanding Position</strong></td>
</tr>
<tr>
<td>Banks</td>
</tr>
<tr>
<td>January</td>
</tr>
<tr>
<td>February</td>
</tr>
<tr>
<td>March</td>
</tr>
<tr>
<td>April</td>
</tr>
<tr>
<td>May</td>
</tr>
</tbody>
</table>
3. - Daily bulletin table

<table>
<thead>
<tr>
<th></th>
<th>SPOT MARKET</th>
<th>FORWARD MARKET</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LOCAL MARKET</td>
<td>CROSS-BORDER MARKET</td>
</tr>
<tr>
<td>Purchases to third parties</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales to third parties</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interbank operations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Position</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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