

Methodology for measuring derivatives at the Central Bank of Chile¹

Valeria Orellana and Paulina Rodríguez²

1. Introduction

Derivatives are increasingly being used in financial markets throughout the world, and Chile is no exception. Economic agents use these instruments to improve the allocation of resources and to better manage risks given the fact that derivatives can reduce costs, enhance returns, and therefore 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 has moved to a floating exchange rate system, which fosters the development of hedge markets that help protect companies from exchange rate fluctuations. Companies use hedging operations to fix exchange rate levels and therefore limit uncertainty and volatility until the real transaction takes place.

Even though the development level of the derivatives market in Chile still falls short of that in advanced economies, it has steadily grown into a reasonably active market over the last decade, given 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.

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 activity with the situation in other economies. The third section describes the legal framework underlying the information requirements. Sections four to six analyze the Chilean derivatives system, from data collection to current publications, and its subsequent application in the Central Bank. It also reviews some of their advantages and disadvantages. The last section presents the conclusions of this paper.

2. Evolution of the derivatives markets

2.1 Global market

The Bank for International Settlements (BIS) is the centre of global statistical 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 survey, 54 countries and jurisdictions participated.

¹ 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.

² Statistical Information Division, Central Bank of Chile.

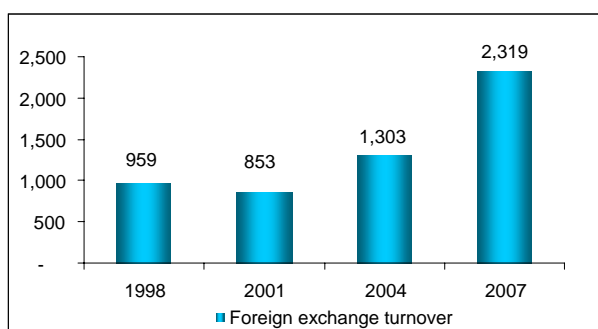
According to the latest survey, in 2007 global OTC derivatives turnover rose to an average of US\$ 2,319 billion traded daily, with a 78% increase between 2004 and 2007 (See Graph 1). Some reasons identified by the BIS for this were the diversification strategies made by long-term investors such as pension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

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

Graph 1

Global OTC derivatives market turnover

Daily averages in April, billions of US dollars

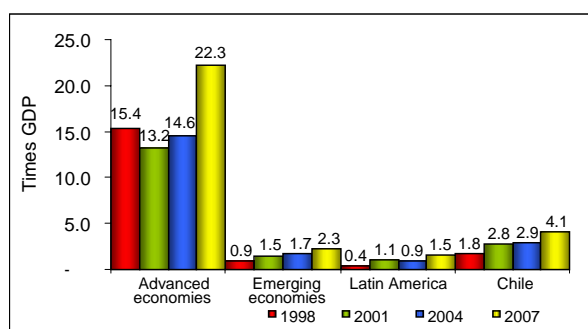


Source: BIS

Graph 2

FX derivatives activity OTC / GDP

Times GDP



Source: BIS and World Bank

The survey data were 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 among 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. The results show that Chile lies between the level of the advanced economies and the emerging economies, and ranks highly compared to Latin American countries. The ratio for all groups is increasing. The main reason for this is the exceptional global growth in FX derivatives transactions shown by the BIS data (Graph 2).

2.2 Derivatives in the Chilean market

The underlying assets traded in Chile are commodities, interest rates and foreign exchanges. According to the data collected by the Central Bank of Chile, approximately US\$ 726 billion were traded in 2007, of which 91% correspond to foreign exchange derivatives, 7% to commodities, and the rest is allocated to interest rate derivatives. This document will therefore focus on foreign exchange derivatives.

Banks are the main operators of the derivatives market in Chile. They are the counterparties of agents looking to hedge against exchange rate fluctuations, and speculators who take large risks, especially in anticipating future price movements, or who look for arbitrage opportunities in order to benefit from changes in local interest rates relative to foreign interest rates.

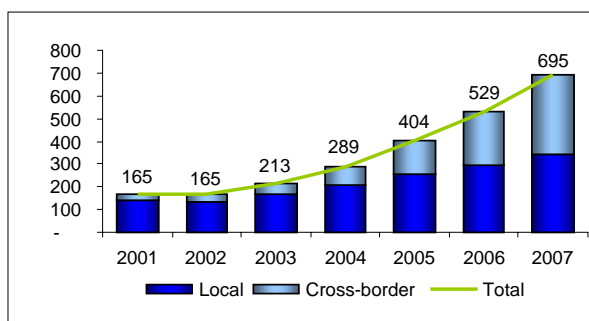
The volume of transactions has grown even faster in recent years, mainly because of the floating exchange rate system, and the hedging strategies of Chilean pension funds. The total foreign exchange turnover increased by 300% between 2001 and 2007, from US\$ 165 billion to US\$ 695 billion. It is worth noting that cross-border transactions increased

by 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 the US and Chilean economies. As a result the total foreign exchange turnover (local plus cross-border) rose by 31% in 2007 (Graph 4).

Moreover, the amount traded in the local market by pension funds increased from US\$ 7 billion in 2001 to US\$ 72 billion in 2007. The notable increase of 72% of transactions for the year 2007 is a result of the increase in the foreign investment limit from 30% in 2006 to 40% in 2007 (Graph 5). In addition, the pension funds raised their total share from 7% in 2001 to 36% in 2007, without considering interbank transactions.

Graph 4
Annual FX derivatives turnover

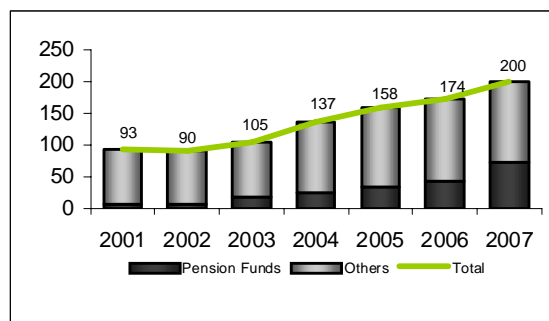
Billions of US dollars



Source: Central Bank of Chile

Graph 5
Annual FX derivatives turnover in local market

Billions of US dollars

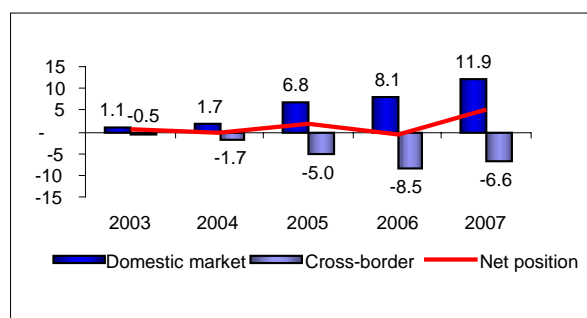


Source: Central Bank of Chile

Even though it is difficult to know 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 outstanding purchase contracts at the end of 2007, which in turn was mainly caused by the interest rate spread between Chile and United States (Graph 6).

Graph 6
Bank FX notional amounts outstanding

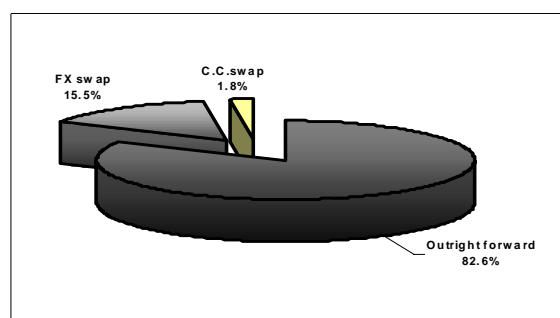
Billions of US dollars



Source: Central Bank of Chile

Graph 7
Type of traded instrument in 2007

Per cent



Source: Central Bank of Chile.

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 7). It should be noted that currently all foreign exchange transactions reported are OTC.

3. Legal framework

The Basic Constitutional Act of the Central Bank of Chile empowers it to define the foreign exchange market regulations and to demand statistical data from the various economic agents that participate in this market. This information is used for financial stability analysis, to track foreign exchange market activity and to compile the balance of payments and international investment position.

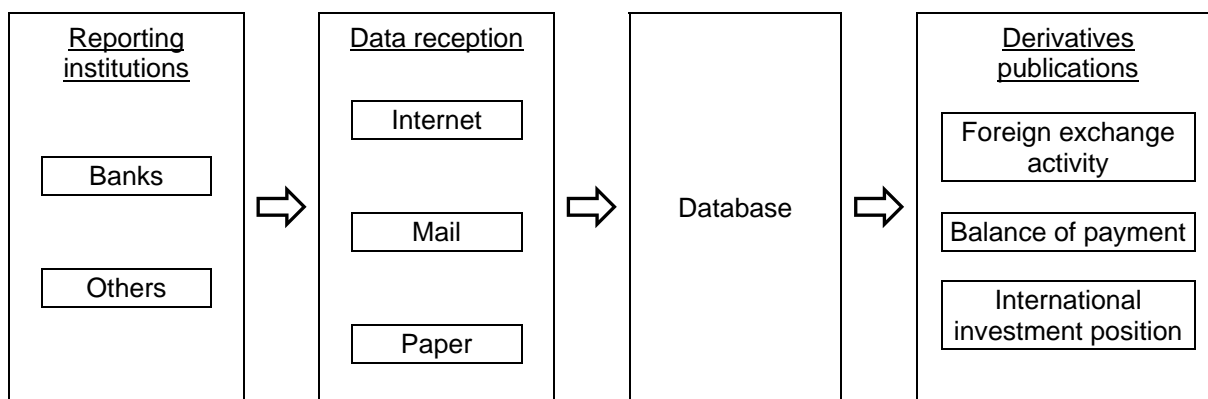
The statistical requirements are defined in the Compendium of Foreign Exchange Regulations, which establishes the standards applicable to foreign exchange transactions. Chapter IX of the Compendium defines the information requirements for Chilean entities regarding derivatives in the local and cross-border markets, for any underlying assets.

4. Compilation system

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

Figure 1

Data collection process



4.1 Data collection system

The Central Bank of Chile (CBCh) has a mixed data collection system that combines indirect reporting (eg banks reporting data from third parties, usually known as the International Transactional Reporting System (ITRS)), and direct reporting, such as surveys. The latter has increased its relevance due to new statistical requirements.

The Statistics Collection Department is in charge of gathering these data and the requirement forms are available at <http://www.bcentral.cl>.

Derivatives information is collected under a direct reporting system, transaction by transaction. The current collection system was inherited, when there were controls and

restrictions on foreign capital flows. At that time, reporters had to fulfill several requirements of providing information, which has resulted in reporting institutions have become used to reporting data to the Central Bank of Chile.

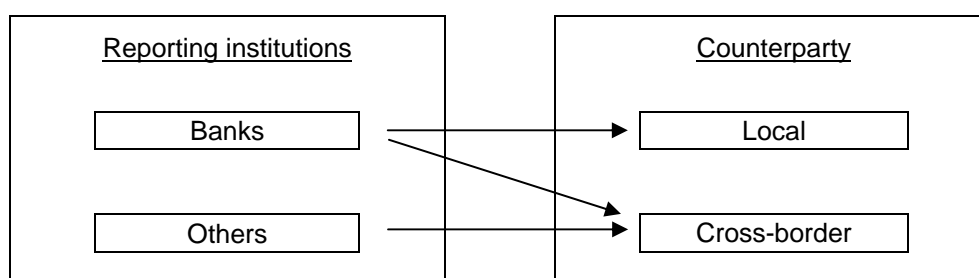
Studies of the possibility of changing the current collecting system to one with aggregated information have been made, but the conclusions are clear about an increase on the reporting burden given the fact that they would have to invest in new technology for adapting their systems to the new requirements.

4.1.1 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 are made in foreign currencies or if the cash settlement is made in a foreign currency.

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

Figure 2
Reported data



Currently, there are 25 banks reporting foreign exchange derivatives. Twelve of them are branches of non-resident banks and the rest are local institutions. Reports are made daily by 11:00. 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, from 750 in 2001 to 2,094 in 2007. This is mostly explained by the increase in the non-financial sector, from 877 in 2004 to 2,030 in 2007 (Appendix 2, Table 3).

On the other hand, there were 59 cross-border counterparties of banks in 2007, mainly banks and their branches (Appendix 2, Table 3). The number of this type of counterparties has been increasing since 2004, revealing a greater access to the cross-border market. Moreover, the internationalization of Chilean fixed and variable income instruments encourages the uses 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 not later than the 10th of the month following the date of transaction.

4.1.2 Data collected

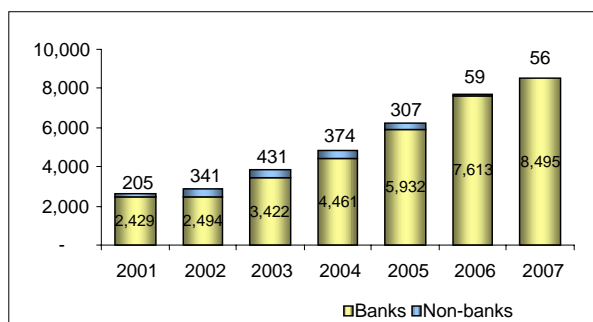
All the information required from the reporting entities is contained in the terms of the contract, and therefore it is easy to report. The data requested in the reporting form include:

trade date, forward rate, currency buyer, currency seller, settlement currency, settlement date, valuation date and settlement (Appendix 2, Table 4).

At present, on average 8,495 contracts are received monthly from banks, which include both local and cross-border market transactions, whereas 56 are received monthly in the case of others entities with cross-border counterparties (Graph 8). Banks' share of total turnover increased from 91% in 2001 to 96% in 2007, mainly explained by the rise in cross-border operations. In the local market, bank transactions – in terms of amounts – are mostly with other entities.

Graph 8
Average monthly received contracts

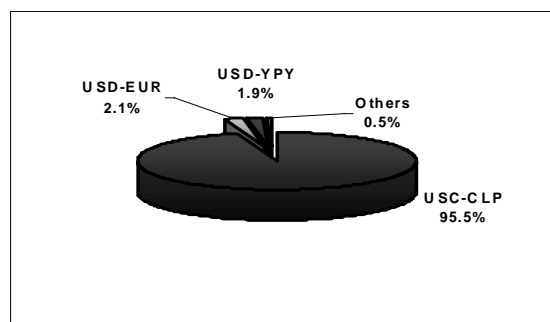
Contract units



Source: Central Bank of Chile

Graph 9
Most traded currency pair

Per cent



Source: Central Bank of Chile.

With respect to currency distribution, US dollars – Chilean peso are the most traded currency pair, accounting for 95% of the total. Next are US dollars–euro, and US dollar–yen, with 2.1% and 1.9% shares, respectively (Graph 9).

4.2 Validation

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

Interbank transactions have a special validation. The system checks that data reported by a bank must be 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 in order to amend the reported data.

Another validation tool is 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 data are published daily, consistency with the previous day is checked so that there are no anomalies.

4.3 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 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 as inputs the risk-free interest rate of the different currencies and maturities for effective contracts at the valuation date, which are obtained from Bloomberg. The linear interpolation method is used to determine the value of missing interest rates. The market value is calculated using the exchange rate and interest rates for the selected date.

4.3.1 *International investment position and balance of payments*

The requirement to include statistical data on financial derivatives was first incorporated in the international manual of the System of National Accounts released in 1993 (SNA93) and the 5th Balance of Payments Manual (BPM5). These data were formerly classified within a portfolio investment subcategory. Since the financial derivatives market has grown in recent years, the International Monetary Fund established the treatment of financial derivatives as a separate functional category in 2000 to reflect its increasing importance.

The standard components of the international investment position are established in BPM5 (Figure 3).

Figure 3

Standard components of the international investment position

	Changes in position reflecting					Position at end of period
	Position at beginning of period	Transactions	Price changes	Exchange rate changes	Other adjustments	
Financial derivatives:						
1. Monetary authorities						
2. General government						
3. Banks						
4. Other sectors						

Source: IMF.

The derivatives system retrieves all the contracts at market value, so they have to be broken down by the institutional sectors that are required to publish the BOP and the IIP (Figure 3). The next step is to add up all the contract values that are positive on one side, and all the negatives on the other, to obtain the asset and liability positions. This is because if the net present value of a contract is positive (that is, the present value of future amounts receivable is greater than the present value of future amounts payable), the contract is a financial asset and has to be classified in the asset position. Conversely, if the net present value is negative (that is, the present value of future amounts receivable is less than the present value of future amounts payable), the contract is a financial liability and has to be classified in the liability position.

5. Data uses and statistics

The data on derivatives are used to help authorities to design financial and monetary policies and to assist market participants 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 dedicated to 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 followed (eg the impact of raising the foreign investment limits of pension funds on the exchange rate).

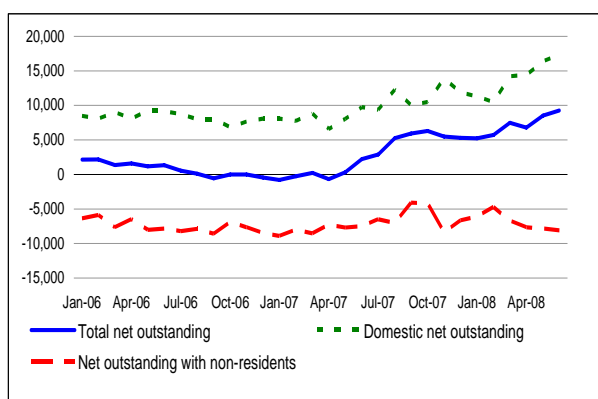
Derivatives figures can also be used to analyze whether arbitrage by cross-border agents is taking place. Given the current difference between local and foreign interest rates, the Central Bank of Chile and the market are closely following local outstanding positions with non-residents.

Graph 11 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. The national agents have been selling rather than buying dollars. An example of this is institutional investors, who have been protecting themselves from exchange rate risks. On the other hand, foreign agents have been buying those dollars in the forward market. This would indicate that foreign agents are incurring debts in Chilean pesos at lower interest rates than they could obtain by investing, to take advantage of the exchange rate differential and carry trade with other countries of the region (Graphs 11 and 12).

Graph 11

Bank FX notional amounts outstanding

Millions of US dollars

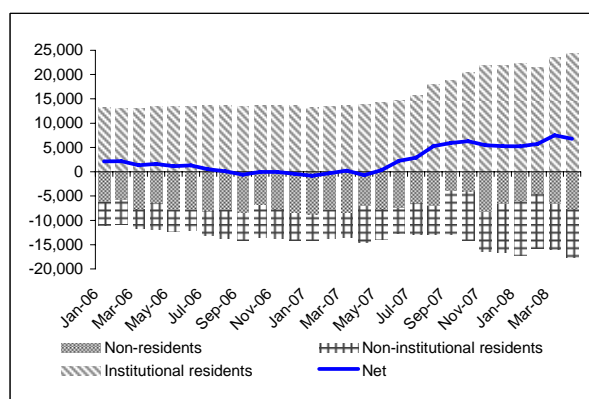


Source: Central Bank of Chile.

Graph 12

Local banking net outstanding position broken down by sectors

Millions of US dollars



Source: Central Bank of Chile.

Graph 12 was published in the article “Pension funds exchange rate hedging risk and its effect on local banking”, of the Financial Stability Report for the first semester of 2008.

As a result of the hedging needs of institutional investors, banks offer exchange rate risk hedging to other agents with foreign currency selling positions, but without natural hedging

against that risk (import companies or companies that have debts in foreign currencies) in order to hedge their foreign currency buying positions. In addition, banks also offer risk hedging to non-resident investors who need to have a selling position in Chilean pesos. On average, these investors have bought US\$ 7 billion in forward dollars. As a result, the difference between buying and selling positions has increased since September 2007, reaching US\$ 6,790 million in April 2008.

5.1 Statistics

The Central Bank of Chile publishes derivatives statistics 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, they are used in semiannual financial stability reports, BIS reports, working papers, and are occasionally requested by members of the public.

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, price, and average daily turnover between banks and third parties, as well as interbank operations. In addition, outstanding positions are broken down by 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 US dollar), local and cross-border market, and counterparty (banks or companies).

Daily bank turnover data are 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 aggregated data because individual institutional data must remain confidential according to the Bank's legal obligations.

6. 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 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 as 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 values for reporting.

- Daily publication periodicity. Thanks to daily reporting by banks, total derivatives FX turnover can be published on a daily basis. It thereby provides useful information for market participants.
- Detailed information received enables the provision and dissemination of information using different breakdowns.

Disadvantages:

- The system requires constant efforts in order to ensure a good coverage and scope with non-commercial banks. Checks are made by different sources to verify that all companies with derivatives abroad are reporting, because the derivatives deals 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 other financial data such as foreign loans to the Central Bank of Chile, and those institutions have a strong likelihood to hedge currency risk, they are contacted as well.
- Transactions between two Chilean entities, when neither is a bank, are not recorded in the same way and frequency that 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.
- The system lacks information on those transactions related to the Chilean peso, involving two foreign entities interacting abroad. In this case, the Central Bank of Chile cannot legally demand the data, but international experiences have been reviewed, in order to survey international brokers.

7. Conclusions

In recent years, derivatives information has become an important variable for tracking Chilean FX markets, analyzing domestic financial stability, and helping policymakers. 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 Central Bank of Chile to publish reliable statistics. The detailed derivatives data collected by the Central Bank of Chile covers its information needs for policy decisions and for the analysis of financial stability.

Regarding the challenges facing the Central Bank of Chile, further work is required in the future to collect data that are not currently available. In this sense, international experience in collecting derivatives data for transactions between non-residents needs to be reviewed. Furthermore, it is important to develop a better coordination with supervising authorities in order to improve the quality of data on derivatives.

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

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

Appendix 1

Table 1
Country group list

Advanced economies	Emerging economies	Latin economies
Australia	Argentina	Argentina
Austria	Brazil	Brazil
Belgium	Bulgaria	Colombia
Canada	Chile	Mexico
Denmark	China	Peru
Finland	Colombia	
France	Hungary	
Germany	Indonesia	
Greece	Malaysia	
Ireland	Mexico	
Israel	Peru	
Italy	Philippines	
Hong Kong SAR	Poland	
Japan	Russia	
Luxembourg	South Africa	
Korea	Turkey	
Netherlands		

Appendix 2

Table 2
Economic sectors

Institutional sector	Non-financial sector	Financial sector excluding banks
Pension funds Insurance companies Mutual funds	Agriculture Construction Transportation and communications Mining Manufacturing Electricity, gas and water Wholesale and retail trade, hotels and restaurants Financial intermediation and business services Others	Investment banks Stockbrokers Securities agents

Table 3
Bank counterparties

	Local				Cross-border
	Institutional sector	No-financial sector	Financial sector excluding banks	Total	
2001	27	695	28	750	19
2002	22	723	29	774	20
2003	28	955	29	1,012	28
2004	21	877	26	924	40
2005	34	1,591	29	1,654	40
2006	37	1,593	30	1,660	48
2007	34	2,030	30	2,094	59

Table 4
Foreign exchange derivative reporting form

Counterparty data		Contract number	Trade date	Settlement date	Number of days	Settlement	Instrument	Purchases		Sales		Forward rate	Option premium
Name	Country							Currency buyer	Amount purchased	Currency seller	Amount sold		
Bank	USA	12345	02/07/2008	06/08/2008	35	Non-deliverable	outright forward	US dollar	30,000,000	CLP	5,540,000,000	518	0

Appendix 3

1. Balance of payments and international investment position

Central Bank of Chile

	2002	2003	2004	2005	2006
BALANCE OF PAYMENTS (D) (1) (US\$ million)					
II. Capital and financial account	1,518.7	1,511.1	-1,804.9	-51.4	-6,792.1
A. Capital account	83.0	0.0	5.1	41.2	13.3
B. Financial account	1,435.7	1,511.1	-1,810.0	-92.7	-6,805.4
Direct investment	2,206.8	2,701.2	5,609.6	4,750.6	5,076.1
Direct investment abroad (assets)	-343.2	-1,606.3	-1,563.1	-2,209.0	-2,875.6
Equity capital	309.6	-587.8	-506.5	-790.1	-1,006.9
Profits reinvestment	-231.3	-546.8	-824.3	-945.7	-956.3
Other capital	-421.4	-471.6	-232.3	-473.2	-912.4
Direct investment in Chile	2,549.9	4,307.4	7,172.7	6,959.6	7,951.7
Equity capital	1,309.2	1,546.4	1,242.9	796.2	1,957.5
Profits reinvestment	1,366.6	3,335.2	5,951.6	6,539.0	7,457.3
Other capital	-125.9	-574.2	-21.8	-375.6	-1,463.2
Portfolio investment	-2,317.3	-2,645.3	-3,308.5	-2,624.0	-10,008.2
Assets	-3,315.8	-4,699.0	-4,430.2	-4,218.4	-10,850.9
Liabilities	998.5	2,053.7	1,121.8	1,594.5	842.7
Financial derivatives	-123.7	117.8	-84.0	-62.5	303.8
Assets	1,788.4	1,840.2	638.9	1,244.4	1,500.8
Liabilities	-1,912.1	-1,722.4	-722.9	-1,307.0	-1,196.9
Other investment	1,868.5	971.8	-4,217.9	-441.1	-179.6
Assets	1,140.6	-571.4	-3,388.6	-2,399.4	-3,675.2
Commercial credits	685.5	-996.0	-1,600.5	-1,599.3	-1,080.6
Loans	427.0	43.6	0.4	-4.8	-243.0
Currency and deposits	28.1	441.1	-1,788.5	-795.4	-2,351.5
Other assets	0.0	-60.1	0.0	0.0	0.0
Liabilities	727.9	1,543.2	-829.3	1,958.3	3,495.5
Commercial credits	-59.6	-34.9	831.2	436.3	1,188.4
Loans	777.1	1,459.5	-1,576.4	1,547.8	2,283.3
Currency and deposits	12.3	120.8	-90.8	-26.4	26.7
Other liabilities	-1.9	-2.2	6.7	0.6	-2.9
Reserves assets	-198.6	365.6	190.8	-1,715.7	-1,997.4

International investment position (1) (Millions of US dollars)

Años 1997 a 2007

Para más información, haga clic sobre el número ubicado a la derecha de la casilla de verificación.

Para obtener los datos en forma de gráfico, marque las casillas de verificación que desee y luego haga clic sobre "Gráficos".

	00	01	02	03	04	05	06	07
2.2.2.4 Otros sectores	-	-	-	0.0	0.0	0.0	0.0	0.0
3. Instrumentos Financieros Derivados	-	363.2	102.1	222.3	695.2	954.0	938.1	1,755.1
3.1 Autoridades monetarias	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2 Gobierno general	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.3 Bancos	-	145.4	72.7	83.7	224.0	470.4	506.1	1,170.4
3.4 Otros sectores	-	217.8	29.3	138.6	471.2	483.6	432.0	574.7

2. Monthly bulletin tables

Spot position and banks' outright forward position

Millions of US dollars

Period	Spot position	Outright forward positions by counterparty					Outright forward positions by market		Outright forward position	Total position
		*Purchases to third parties		*Sales to third parties		Interbank (only local market)	Local market	Cross-border market		
		Local market	Cross-border market	Local market	Cross-border market					
2008										
January	-5,988	30,212	21,292	18,886	27,378	22,577	11,326	-6,086	5,240	-749
February	-6,475	30,610	19,029	20,166	23,760	22,994	10,444	-4,731	5,714	-761
March	-7,128	34,122	17,517	19,922	24,225	25,614	14,200	-6,708	7,492	364
April	-7,337	34,276	13,280	19,838	20,926	25,918	14,438	-7,646	6,792	-545
May	-9,077	35,660	12,640	19,285	20,479	24,270	16,375	-7,839	8,536	-540

* Purchases of banks to non-commercial banks

Banks' outright forward turnover (CLP-USD)*

Millions of US dollars

Period	Contract maturity period											Total turnover		
	Up to 7 days			8-30 days			31-42 days			Over 42 days		Amount	Price CLP/USD	
	Amount	% of the total	Price CLP/USD	Amount	% of the total	Price CLP/USD	Amount	% of the total	Price CLP/USD	Amount	% of the total			Price CLP/USD
2008														
January	12,019	20.1	480.67	15,949	26.7	481.01	14,088	23.6	480.06	17,614	29.5	483.99	59,670	481.60
February	12,127	20.3	466.45	16,816	28.2	467.57	7,505	12.6	466.45	10,541	17.7	473.17	46,989	468.36
March	13,737	23.0	442.48	17,854	29.9	441.60	14,671	24.6	442.56	15,162	25.4	447.97	61,425	443.60
April	14,721	24.7	447.55	16,401	27.5	447.59	13,859	23.2	449.63	13,881	23.3	449.10	58,862	448.42
May	12,719	21.3	470.97	13,497	22.6	472.25	13,864	23.2	472.39	10,494	17.6	476.25	50,574	472.80

* For obtaining the amounts, interbank trading is divided by two to eliminate double-counting.

Banks' transactions

Millions of US dollars

Period	Daily average derivatives turnover				Daily average spot turnover			Prices	
	Third parties	Interbank	Total	%(CLP/USD)	Third parties	Interbank	Total	Outright forward	
								CLP/USD	Spot
2008									
January	2,187	530	2,718	99.81	1,297	1,604	2,901	481.01	479.46
February	1,759	526	2,285	97.93	1,001	1,606	2,607	467.57	466.67
March	2,405	705	3,109	98.77	1,326	2,671	3,996	441.60	442.13
April	2,053	649	2,702	99.02	1,362	1,830	3,192	447.59	447.51
May	1,937	608	2,545	100.00	1,351	1,645	2,996	472.25	471.00

FX transactions with local and cross-border market
Millions of US dollars

Period	Turnover in CLP/USD	Percentage of the total	Turnover in CLF/USD	Percentage of the total	Turnover		
					Local market	Cross-border market	Total
2008							
January	63,110	100	177	0	33,856	29,431	63,287
February	49,594	98	993	2	31,335	19,252	50,587
March	63,230	99	748	1	38,640	25,338	63,978
April	61,411	99	583	1	37,638	24,356	61,994
May	52,458	99	303	1	33,826	18,935	52,760

FX transactions with cross-border market
Millions of US dollars

Period	Local currency against foreign currency									
	Outstanding position					Turnover				
	Banks	Percentage	Others	Percentage	Total	Banks	Percentage	Others	Percentage	Total
2008										
January	48,589	90.7	5,009	9.3	53,597	25,993	88.3	3,438	11.7	29,431
February	42,706	91.2	4,136	8.8	46,842	16,686	86.7	2,565	13.3	19,252
March	41,742	92.6	3,354	7.4	45,096	23,569	93.0	1,770	7.0	25,338
April	34,228	92.6	2,723	7.4	36,951	21,805	89.5	2,551	10.5	24,356
May	33,057	92.7	2,592	7.3	35,649	17,077	90.2	1,858	9.8	18,935

Period	Foreign currency against foreign currency									
	Outstanding position					Turnover				
	Banks	Percentage	Others	Percentage	Total	Banks	Percentage	Others	Percentage	Total
2008										
January	5,092	59.4	3,480	40.6	8,572	1,423	90.5	149	9.5	1,572
February	5,180	59.0	3,604	41.0	8,784	846	60.2	558	39.8	1,404
March	5,123	44.9	6,288	55.1	11,411	1,698	36.2	2,987	63.8	4,685
April	5,187	44.1	6,578	55.9	11,765	1,576	62.3	954	37.7	2,531
May	5,594	47.3	6,241	52.7	11,835	1,772	69.8	768	30.2	2,540

3. Daily bulletin table

	Spot market	Forward market	
		Local market	Cross-border market
Purchases from third parties			
Sales to third parties			
Interbank operations			
Net Position			

References

Bank for International Settlements (1998, 2001, 2004 and 2007): *Triennial central bank survey: foreign exchange and derivatives market activity*.

Alarcón, F, Selaive, J and JM Villena (2004): "Mercado Chileno de Derivados Cambiarios", *Serie de Estudios Económicos 44*, Banco Central de Chile.

Alarcón, F and JM Villena (2004): "El Mercado Cambiario Chileno", *Serie de Estudios Económicos 43*, Banco Central de Chile.

Zurita, S and L Gómez (2003): "Normativa de los Mercados Derivados en Chile", *Estudios Públicos 89*, summer.

Ochoa, F and C Bentjerodt (1996): "El Mercado de Derivados Financieros en Chile: Regulaciones Vigentes, Evolución Reciente y Perspectivas", *Serie de Estudios Económicos 40*, Banco Central de Chile.