REPUBLIC OF CHILE
Ministry of Finance

# ECONOMIC AND SOCIAL STABILIZATION FUND

First Quarter, 2009

CONTENTS

I.   BACKGROUND

The Economic and Social Stabilization Fund (ESSF) was established under the Finance Ministry's Decree with Force of Law (DFL) N°1 (2006) which merged in this fund the assets saved under Decree Law N° 3,653 (1981) with those of the Copper Income Compensation Fund. The first contribution into the ESSF was made on March 6, 2007.

The fund's management was entrusted to the Central Bank of Chile (CBC) which acts as Fiscal Agent[1,2] and invests its assets according to instructions given by the Finance Ministry.[3] Under the ESSF's current investment policy, its assets are held exclusively as international fixed-income instruments with credit ratings as set out in Appendix VI.2.

II.   SUMMARY OF THE QUARTER

At the close of the first quarter, the ESSF had assets worth US$19,618.15 million. The change in its value as compared to December 31, 2008 was explained by withdrawals for US$200 million, accrued interest of US$128.30 million and a US$520.82 million drop in the market value of its assets (including management and custody fees).

Figure 1: Market Value (2007-2009)
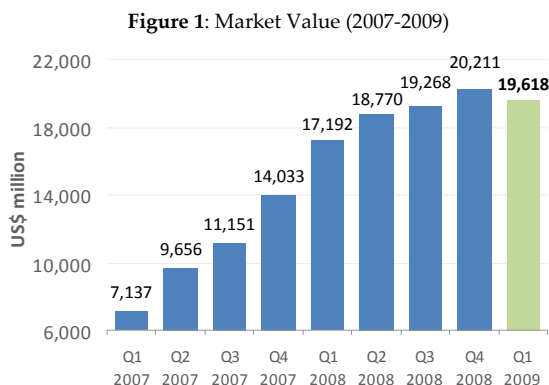
Source: Dipres

The impact of international market volatility was reflected in an increase in risk level as shown by the VIX[4] which peaked in 2008.

International financial volatility (Figure 2) affected the confidence of investors around the world increasing their demand for less risky assets increased in a bid to mitigate the negative impact of uncertainty through a flight to quality.

Figure 2: VIX, 2007 - end-March 2009
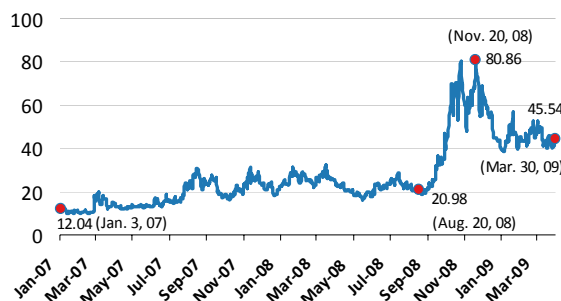
In this context, international interest rates dropped in response to higher demand for fixed-income assets. In addition, the dollar showed signs of strengthening during the same period, reflecting increased demand for this currency.

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[1] Acceptation Agreement adopted by the Central Bank Board in Ordinary Meeting N° 1,321, held on February 22, 2007.

[2] Under the Finance Ministry's Supreme Decree N° 1,383.

[3] The Finance Minister determines the ESSF's investment policy with the advice of an external Financial Committee.

[4] The VIX is a financial indicator used to measure market risk. By definition, it measures the implicit volatility of a group of S&P options.

III. MARKET VALUE OF THE FUND

As of March 31st, the ESSF held assets worth US$19,618.15 million, down by US$592.52 million with respect to the last quarter of 2008. This represented an Internal Rate of Return (IRR)[5] in US dollars of -1.94%, due mainly to a negative exchange-rate effect (-2.53%).

The change in the ESSF's value was explained by withdrawals for US$200.00 million,[6] accrued interest for US$128.30 million and a drop of US$520.52 million in the market price of its investments (including management and custody fees).

The drop in the market price was mainly the result of the negative impact of a weakening of the euro, which fell by 4.49% from the levels of the previous quarter. Mixed movements in international interest rates, however, positively affected the return on the ESSF's investments, partly offsetting the exchange-rate effect.

The latter affected returns in January and February when the fund's value dropped by US$877.01 million (equivalent to an IRR of -4.34%). This was explained by a negative exchange-rate effect of US$814.56 million and a negative variation of US$142.00 million in market prices while the remainder of the change corresponded to accrued interest and cost flows.

In March, signs of recovery were apparent and were reflected in a US$484.48 million increase in the value of the fund (equivalent to an IRR of 2.51%). This was the result of an exchange-rate effect of US$320.67 million and a positive variation in market prices of US$115.55 million.

Since its inception, the value of the ESSF at market prices has shown a net increase of US$1,718.15 in capital gains and interest income. Taking into account total withdrawals, this is equivalent to an IRR in dollars of 5.92%.

Table 1: Historical Summary of ESSF
(Since inception)

US$ million	2007	2008	1st Quarter 2009				Summary Total
			Jan	Feb	Mar	Summary 1Q	
Starting Value	0.00	14,032.61	20,210.68	19,540.80	19,333.67	20,210.68	0.00
Contributions	13,100.00	5,000.00	0.00	0.00	0.00	0.00	18,100.00
Withdrawals	0.00	0.00	0.00	0.00	-200.00	-200.00	-200.00
*Interest Income**	326.15	623.95	41.10	39.86	47.34	128.30	1,078.40
Change in value	606.46	554.11	-710.97	-246.99	437.14	-520.82	639.75
Final Value	14,032.61	20,210.68	19,540.80	19,333.67	19,618.15	19,618.15	19,618.15

* includes interest from the securities lending program.   Source: Dipres
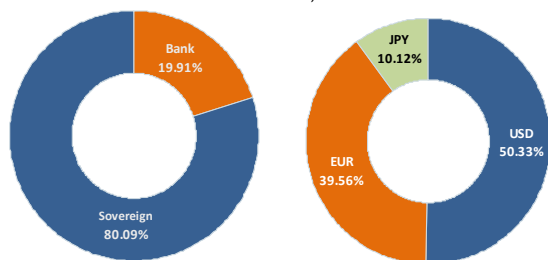
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[5] See Glossary.

[6] Withdrawals began on March 25, 2009.

IV. INVESTMENT PORTFOLIO

Under the ESSF's present investment guidelines, 100% of its assets can be held as sovereign-risk instruments, 60% as multilateral instruments, 50% in banking institutions and up to 30% in agencies (Appendix VI.2). In addition, the guidelines establish a currency allocation[7] of 50% in US dollars, 40% in euros and 10% in yens.

At the close of the first quarter, 80.09% of the ESSF's portfolio was invested in sovereign bonds while 19.91% was held as bank deposits. In the case of its currency composition, 50.33% corresponded to dollars, 39.56% to euros and 10.12% to yens.

As shown in Table 2, the duration of the fund's financial investments was 2.43 years, equivalent to an average duration of 887 days.

Table 2: Summary of ESSF Investments

Assets	Original currency	1st Quarter 2009 US$ million		
		Jan	Feb	Mar
Sovereign	USD	8,156.93	8,072.72	8,160.10
	EUR	6,262.05	6,274.15	6,185.82
	YEN	1,444.15	1,312.17	1,366.75
Agencies	USD	0.00	0.00	0.00
	EUR	0.00	0.00	0.00
	YEN	0.00	0.00	0.00
Banks	USD	1,647.48	1,663.63	1,712.79
	EUR	1,411.36	1,401.60	1,574.99
	YEN	618.83	609.39	617.71
Total		19,540.80	19,333.67	19,618.15
Duration (years)		2.48	2.34	2.43

Source: Dipres based on data provided by JP Morgan.

Figure 3: Investment Portfolio by Asset Class and Currency
March 31, 2009

Source: Dipres based on data provided by JP Morgan.

At the end of the quarter, the ESSF's holdings of sovereign instruments amounted to US$15,712.66 million and its bank instruments to US$3,905.49 million. The currency distribution was US$9,872.85 million in dollars, US$7,760.86 million in euros and US$1,984.44 million in yens.

In addition, the ESSF's investment guidelines allow it to maintain up to 100% of its assets in instruments with an AAA credit rating. As shown in Figure 4, 70.63% of its assets were invested in this category as of March 31, 2009 while 1.83% corresponded to an A rating.

Figure 4: Investment Portfolio by Risk Classification
March 31, 2009

■	A	1.83%
■	A+	6.81%
■	AA	8.30%
■	AA-	12.43%
■	AAA	70.63%
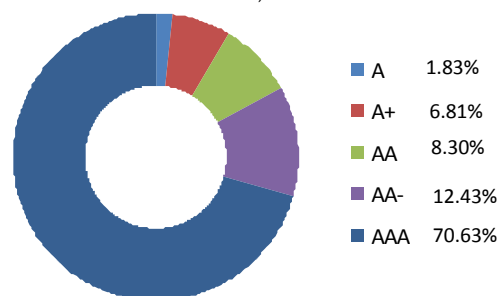
Source: Dipres based on data provided by JP Morgan.

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[7] A variation of +/- 5% is permitted in currency allocation.

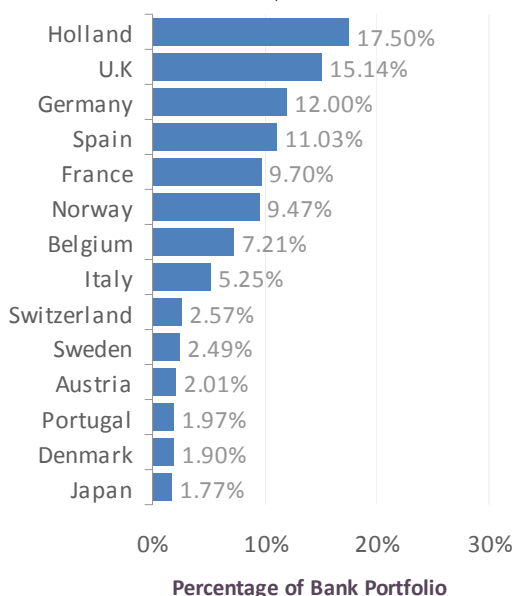Bank-risk investments by country were held principally in Holland and the United Kingdom (Figure 5). The resources allocated to these countries totaled US$1,274.75 million while Denmark, Portugal and Japan accounted for a total of US$220.27 million.

Figure 5: Investment Portfolio by Bank Risk
March 31, 2009

Percentage of Bank Portfolio

Source: Dipres based on data provided by CBC.

IV.1. Investment Portfolio Returns

The indicator used to measure the return on the ESSF's portfolio is the Internal Rate of Return (IRR).[8] This represents the effective return received by investors and takes account of all cash flows during the period.

In the first quarter, the IRR on the ESSF, measured in dollars, was -1.94%. This was explained mainly by a weakening of the euro while the drop in interest rates contributed to the yield in the form of capital gains, helping to offset the negative exchange-rate effect.

[8] See Glossary.

 The exchange-rate and interest-rate effects meant a return of -2.53% and 0.59%, respectively.

Since its inception, the ESSF's IRR in dollars is 5.92%, explained principally by returns in the third and last quarter of 2007 and the first and last quarter of 2008.

Figure 6: [9] Quarterly IRR in Dollars and Local Currency[10]
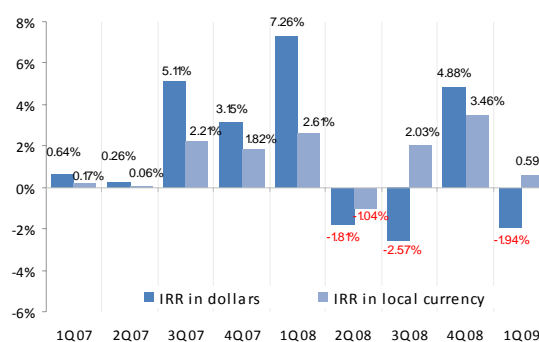
Source: Dipres based on data provided by JP Morgan and CBC.

International market volatility was reflected in an increase in risk level as shown by the VIX which, in 2008, reached its record level. In 2008, the IRR also dropped to its lowest level ever, with negative results in two consecutive quarters. This coincided with the deepening of the sub-prime crisis.

IV.2. Investment Portfolio Performance

The Time-Weighted Rate of Return (TWRR)[11] is used to measure the ESSF's performance. This permits comparison of its return with its benchmark.

[9] Data on returns may differ from previous reports since, as from 2009, these were recalculated to include cost flows.
[10] The Internal Rate of Return (IRR) is the compound non-annualized rate for the quarter and considers all flows. The IRR in local currency is the result of excluding the exchange-rate effect.
[11] See Glossary.

In order to measure its performance over a period of time, an index is calculated based on daily variations in the portfolio's market value in dollars. The base value is 100 as of March 31, 2007, the date established to start comparisons with the benchmark.

Figure 7: TWRR on the ESSF vs. Benchmark
(March 31, 2007 = 100)
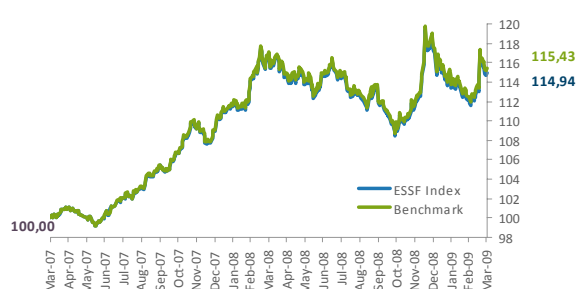
Source: Dipres based on data provided by JP Morgan and CBC.

In the first quarter of 2009, the index showed a return of -1.94% in comparison to -1.85% for the benchmark. In relative terms, this meant that the ESSF's performance was 9 basis points (bps) below its benchmark.

Since the ESSF's inception, the TWRR has been 7.20% or 23 bps short of the benchmark. This difference is explained mainly by the returns in local currency[12] (Table 3).

Table 3: Returns

Return indicators	1Q 09	Since inception[1]
IRR[2]	-1.94%	5.92%
TWRR	-1.94%	7.20%
Benchmark	-1.85%	7.43%
Differential	-0.09%	-0.23%
ESSF Local currency	0.59%	6.01%
BMK Local currency	0.68%	6.24%

Risk-adjusted return	1Q 09	Since inception[1]
TWRR ESSF	-0.46	1.0
Benchmark	-0.43	1.1

[1] March 31, 2007   Source: Dipres

[2] March 6, 2007

The ex-post tracking error (TE$_{ep}$)[13] is an indicator that provides information about the risk level of investments as compared to the benchmark. For portfolios that comprise exclusively fixed-income instruments, it can run at between 50 and 70 bps. In the case of the ESSF, the TE$_{ep}$, measured in annual terms since the fund's inception, reached 0.19% or 19 bps. This low TE$_{ep}$ is consistent with a passive investment strategy.

A summary of the main risk indicators is shown in Table 4.

Table 4: Risk Indicators

Risk indicators	1Q 09[2]	Since inception[1]
Standard deviation ESSF	4.26%	7.00%
Standard deviation BMK	4.29%	7.02%
Ex-post tracking error	-	0.19%
Information ratio	-	-1.21

[1] March 31, 2007   Source: Dipres

[2] Last 12 months expressed in quarterly terms

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[12] See Glossary.

[13] The TE considers the return differential since the fund's inception expressed in annual terms.

V. OTHER FLOWS

V.1. Securities Lending

The securities lending program consists in the temporary loan of financial instruments under which the lender and borrower establish the conditions and/or collateral with which the latter undertakes to comply.

The ESSF's securities lending program is managed by the custodian institution (JP Morgan), using the financial instruments held in the fund's portfolio as established in the Custody Contract with JP Morgan. In the first quarter, operations of this type generated additional income of US$157,041 for the ESSF.

V.2. Costs

In the first quarter, management and custody costs totaled US$509,108, of which US$213,600 corresponded to the management services provided by the CBC and US$295,558 to custody fees paid to JP Morgan.

Table 5: Summary of Other Quarterly Flows

Other Flows (US$)	Q1
Management (CBC)	-213,600
Custody (JP Morgan)	-295,558
Other costs	0
Total costs	-509,158
Securities Lending	157,041
Total other Flows	-352,117

Source: Dipres based on data provided by JP Morgan and CBC.

VI. APPENDIX

VI.1.   Positions with Sovereign Issuers and Financial Institutions

The fund has investments in **Sovereign Bonds** of the United States, Germany, France and Japan.

ESSF and PRF
Banks with Deposits, March 31, 2009

1	ABN AMOR BANK NV, AMSTERDAM
2	BARCLAYS BANK PLC, LONDON
3	CALYON CORPORATE AND INVESTMENT BANK, LONDON
4	CREDIT INDUSTRIEL ET COMMERCIAL (CIC), LONDON
5	DANSKE BANK AKTIESELSKAB, COPENHAGEN
6	DEXIA BANK BELGIUM SA, BRUSSELS
7	DNB NOR BANK ASA, OSLO
8	ING BANK NV, AMSTERDAM
9	ING BELGIUM SA/NV, BRUSSELS
10	BANCO SANTANDER CENTRAL HISPANO SA, N.YORK
11	BAYERISCHE HYPO-UND VEREINSBANK AG, MUNICH
12	BAYERISCHE LANDESBANK, MUNICH
13	CAIXA GERAL DE DEPOSITOS SA, N.YO
14	KBC BANK NV, BRUSSELS
15	MIZUHO CORPORATE BANK LTD, LONDON
16	BANCO SANTANDER CENTRAL HISPANO SA, MADRID
17	BANK OF SCOTLAND PLC, LONDON
18	CAJA DE AH. Y MONTE DE PIEDAD DE MADRID, MADRID
19	DEKABANK DEUTSCHE GIROZENTRALE, FRANKFURT
20	INTESA SANPAOLO SPA, MILANO
21	LANDESBANK BADEN-WÜRTTEMBERG, STUTTGART
22	THE ROYAL BANK OF SCOTLAND PLC TCM, LONDON
23	UNICREDIT SPA, LONDON
24	ZURCHER KANTONALBANK, ZURICH
25	BANCA MONTE DEI PASCHI DI S., LONDON
26	BANCO ESPIRITO SANTO SA, LONDON
27	ERSTE GROUP BANK AG, VIENA
28	LANDESBANK HESSEN-THÜRINGEN GIROZENTRALE, FRANKFURT
29	NORDDEUTSCHE LANDESBANK GIROZENTRALE, LONDON
30	RAIFFEISEN ZENTRALBANK ÖSTERREICH AG (RZB), VIENNA
31	SKANDINAVISKA ENSKBANKEN AB (PUBL)(SEB), STOCKHOLM

VI.2.   Investment Limits

A.   Credit Risk

The ESSF's investments must fulfill the following credit-risk conditions and requirements:

The eligible issuers are:

Asset Class (Risk)	Upper Limit
Sovereigns	100%
Multilaterals	60%
Banks	50%
Agencies	30%

A.1   Sovereign Risk

The eligible countries are those, other than Chile, that over the previous 24 months have held a long-term risk classification equivalent to **A-** or higher issued at least by two of the following international credit rating agencies: Fitch, Moody's and Standard & Poor's.

Investment limits for eligible sovereign risk (between **AAA** and **A-**) are:

Risk Classification	Upper Limit
AAA	100%
AA+ AA AA-	90%
A+ A A-	30%

A.2   Supranational or Multilateral Risk

The eligible international organizations are those with a long-term risk classification equivalent to **AA-** or higher issued at least by two of the following international credit rating agencies: Fitch, Moody's and Standard & Poor's.

Investment limits for eligible multilateral risk (between **AAA** and **AA-)** are:

Risk Classification	Upper Limit (US$ million)
AAA Aaa	800
AA+ Aa1	
AA Aa2	600
AA- Aa3	

A.3 Bank Risk

The methodology for selecting banking institutions and assigning limits is based on international risk classifications and the size of the institutions.

Eligible institutions are those that have a long-term risk classification of A- or higher issued at least by two of the following international credit rating agencies: Fitch, Moody's and Standard & Poor's, and a minimum shareholders' equity equivalent to **US$1,000 million**.

Investment limits by institution are expressed in discrete intervals according to the table below:

Risk Classification	Upper Limit (US$ million)
AAA Aaa	600
AA+ Aa1	
AA Aa2	400
AA- Aa3	
A+ A1	
A A2	300
A- A3	

A.4 Agency Risk

The eligible agencies are those in the United States with a long-term risk classification equivalent to **AAA** issued at least by two of the following international credit rating agencies: Fitch, Moody's and Standard & Poor's, and a minimum shareholders' equity equivalent to **US$1,000 million**. Investment in any one agency may not exceed **US$800 million.**

VI.3. Methods of Calculating Estimated Returns

The method used to calculate the return on a portfolio depends on the nature of the fund and on whether the return to the investor or the performance of the portfolio manager is being evaluated.

In the Quarterly Report, two main methods are used: the **Time-Weighted Rate of Return (TWRR)** and the **Internal Rate of Return (IRR)**, with the latter serving as a measure of money-weighted return. While the

TWRR is used to analyze the performance of the fund's management relative to the chosen benchmark, the IRR is used to determine the effective fund's return to the Republic.

A conceptual description of each of these methods is provided below, along with a discussion of their general use in the financial market and their application to Chile's sovereign wealth funds, followed by some brief final comments.

VI.3.1   Internal Rate of Return (IRR)

The Internal Rate of Return (IRR) on the net flows of a given period is the rate of return actually received by an investor.

The Association for Investment Management and Research (AIMR) recommends using the IRR to measure return on investments in instruments that are not publicly traded (property, private equity, etc.) since, in these cases, the portfolio manager has greater control over the amount and timing of cash flows.

The IRR is the implicit return at which the initial investment equals the present value of flows and interest or, in other words, the discount rate at which the present value of all cash flows equals zero. This is equivalent to resolving the following equation:

$$\sum_{i=0}^{i=T} \frac{CF_i}{(1+r)^i} = 0 \text{, with } CF_i = \text{net flow of day } i.$$

Rates of return calculated using the iterative IRR method are affected by the timing and size of net cash flows during the period.[14]

VI.3.2   Time-Weighted Rate of Return (TWRR)

This method is used by market participants to measure the performance of funds invested in publicly-traded instruments. In the case of these instruments, fund managers tend not to control investors' cash flows because they are constantly buying and selling.

The TWRR[15] is the rate of growth measured as a percentage of the change in the value of an asset over a given period without considering the effect of cash flows. In order to obtain the TWRR for the period, the

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[14] Alternatively, the IRR can be calculated using the Modified Dietz Method (MDM):

$$MDM \text{ Re} turn = \frac{EMV - BMV - CF}{BMV + Net\ Adjusted\ Cash\ Flow}$$

where:
- *EMV* is the market value at the end of the period plus accrued interest.
- *BMV* is the market value at the beginning of the period plus accrued interest.
- *CF* is net cash flow during the period.

Net Adjusted Cash Flow is the average of each individual cash flow weighted by the length of time (as a percentage of the total period) during which the flow affected the portfolio.

[15] Fabozzi and Frank, *Investment Management*, © 1995, pgs 611-618.

daily returns are net of contributions and withdrawals as well as costs[16] and income from the securities lending program.

$$TWRR_{period} = \prod_{i}^{period}(1 + r_i) - 1$$

where:

$$r_i = \frac{value\_assets_i - \text{contributions} + \text{withdrawals} + \text{costs} - \text{securities\_lending}}{value\_assets_{i-1}}$$

The TWRR measures the ability of a fund manager to generate value through a defined investment policy, independently of the contributions and/or withdrawals made during the period analyzed.

In the case of Chile's sovereign wealth funds, it allows their performance to be compared with the benchmark. This is achieved by converting daily returns (measured as the difference in market value from one day to another, excluding cash flows during the latter) into an index.

VI.3.3 TWRR vs. IRR

The TWRR is utilized to measure the performance of a fund manager or managers against the chosen benchmark. An alternative method of measurement is to assume that the resources are permanently invested in a portfolio that generates the same daily return as the benchmark and to compare the value of this hypothetical portfolio with that of the actual portfolio. However, under this latter method, it is more difficult to build the benchmark and verify its results.

The usual practice in financial markets is, therefore, to use the TWRR to measure a fund manager's performance and to be able to compare this with a benchmark that it is easily constructed by an external party.

The IRR, on the other hand, serves to measure a fund's performance from the point of view of the investor, in this case the State of Chile.

Although the two indicators measure different aspects of an investment, both are considered necessary in order to properly evaluate performance.

VI.4. Calculation of ESSF Benchmark

The reference portfolio (benchmark) has three main components:

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[16] Only includes custody and advisory costs.

- ✓ **Short-term money market instruments**: 6-month LIBID and 6-month T-bill rates in dollars, euros and yens are used, with a 90-day lag to simulate a portfolio of 3-month deposits.

- ✓ **Nominal bonds**: JP Morgan GBIs for sovereign bonds of 1-3 years, 3-5 years, 5-7 years and 7-10 years in the three currencies are used.

- ✓ **Inflation-linked bonds:** Barclays US Govt. Inflation-Linked Bond Index (US TIPS) is used. This index monitors sovereign bonds with a duration between 1 and 10 years.

The weight of each of these components is as follows:

Composition	USD	EUR	JPY	Total
Money Market (*)	*15.0%*	*12.0%*	*3.0%*	*30.0%*
6-month LIBID	7.5%	6.0%	1.5%	15.0%
6-month T-bill rate	7.5%	6.0%	1.5%	15.0%
Nominal Sovereign Bonds	*31.5%*	*28.0%*	*7.0%*	*66.5%*
JP Morgan GBI 1-3 years	14.2%	12.6%	3.2%	29.9%
JP Morgan GBI 3-4 years	9.5%	8.4%	2.1%	20.0%
JP Morgan GBI 5-7 years	3.9%	3.5%	0.9%	8.3%
JP Morgan GBI 7-10 years	3.9%	3.5%	0.9%	8.3%
Inflation-Indexed Sovereign Bonds	*3.5%*			*3.5%*
Barclays US Govt. Inflation-Linked Bond Index	3.5%			3.5%
TOTAL	*50.0%*	*40.0%*	*10.0%*	*100.0%*

VI.4.1 Calculation of LIBID and T-Bill Benchmark

Data on LIBID[17] rates is obtained from Bloomberg. Daily returns are calculated with a lag of 90 days as follows:

$$\mathrm{Re}\, t\_Libid_t^{USD} = \frac{Libid_{t-90}^{USD}}{360} \qquad \mathrm{Re}\, t\_Libid_t^{EUR} = \frac{Libid_{t-90}^{EUR}}{360} \qquad \mathrm{Re}\, t\_Libid_t^{JPY} = \frac{Libid_{t-90}^{JPY}}{360}$$

LIBID rates in euros and yens are adjusted by the exchange rate in order to express them in dollars. The daily return of the LIBID benchmark is:

$$\mathrm{Re}\, t\_Libid_t = 7.5\% \cdot \mathrm{Re}\, t\_Libid_t^{USD} + 6.0\% \cdot \left[\left(1 + \mathrm{Re}\, t\_Libid_t^{EUR}\right) \cdot \frac{EUR_t}{EUR_{t-1}} - 1 \right] + 1.5\% \cdot \left[\left(1 + \mathrm{Re}\, t\_Libid_t^{JPY}\right) \cdot \frac{JPY_t}{JPY_{t-1}} - 1 \right]$$

The rates are adjusted using the same day's exchange rate (without a lag).

Similarly, for T-bills, the daily return of each index is:

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[17] According to convention, the LIBID rate is equal to LIBOR less 1/8 o 0.125.

$$\mathrm{Re}t\_TBill_t^{USD} = \frac{TBill_{t-90}^{USD}}{360} \qquad \mathrm{Re}t\_TBill_t^{EUR} = \frac{TBill_{t-90}^{EUR}}{360} \qquad \mathrm{Re}t\_TBill_t^{JPY} = \frac{TBill_{t-90}^{JPY}}{360}$$

$$\mathrm{Re}t\_TBill_t = 7.5\% \cdot \mathrm{Re}t\_TBill_t^{USD} + 6.0\% \cdot \left[\left(1 + \mathrm{Re}t\_TBill_t^{EUR}\right) \cdot \frac{EUR_t}{EUR_{t-1}} - 1\right] + 1.5\% \cdot \left[\left(1 + \mathrm{Re}t\_TBill_t^{JPY}\right) \cdot \frac{JPY_t}{JPY_{t-1}} - 1\right]$$

VI.4.2 Calculation of Nominal Bond Benchmark

The benchmark for sovereign bonds is calculated using the different JP Morgan GBI[18] indexes, with durations of 1 to 3 years, 3 to 5 years, 5 to 7 years and 7 to 10 years for the United States (USD), Germany (EUR) and Japan (JPY). The daily return of each index in its local currency is:

$$\mathrm{Re}t\_JPM_t = \frac{Idx\_JPM_t}{Idx\_JPM_{t-1}} - 1$$

The benchmark's daily return in dollars for each country is:

$$\mathrm{Re}t\_BNom\_USD_t = \sum_{duration} \mathrm{Re}t\_Idx\_USD_t^{duration} \cdot w_{USD}^{duration}$$

$$\mathrm{Re}t\_BNom\_EUR_t = \sum_{duration} \left[(1 + \mathrm{Re}t\_Idx\_EUR_t^{duration}) \cdot \frac{EUR_t}{EUR_{t-1}} - 1\right] \cdot w_{EUR}^{duration}$$

$$\mathrm{Re}t\_BNom\_JPY_t = \sum_{duration} \left[(1 + \mathrm{Re}t\_Idx\_JPY_t^{duration}) \cdot \frac{JPY_t}{JPY_{t-1}} - 1\right] \cdot w_{JPY}^{duration}$$

where:

$$w_{USD} = \begin{cases} \text{duration } 1\text{-}3 \text{ years} = 14.1750\% \\ \text{duration } 3\text{-}5 \text{ years} = 9.4500\% \\ \text{duration } 5\text{-}7 \text{ years} = 3.9375\% \\ \text{duration } 7\text{-}10 \text{ years} = 3.9375\% \end{cases} \qquad w_{EUR} = \begin{cases} \text{duration } 1\text{-}3 \text{ years} = 12.6000\% \\ \text{duration } 3\text{-}5 \text{ years} = 8.4000\% \\ \text{duration } 5\text{-}7 \text{ years} = 3.5000\% \\ \text{duration } 7\text{-}10 \text{ years} = 3.5000\% \end{cases}$$

$$w_{JPY} = \begin{cases} \text{duration } 1\text{-}3 \text{ years} = 3.1500\% \\ \text{duration } 3\text{-}5 \text{ years} = 2.1000\% \\ \text{duration } 5\text{-}7 \text{ years} = 0.8750\% \\ \text{duration } 7\text{-}10 \text{ years} = 0.8750\% \end{cases}$$

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[18] Government Bond Indexes.

The indexes are expressed in their local currency and adjusted by the exchange rate to obtain the return in dollars.

Finally, the benchmark for nominal bonds in USD is:

$$\mathrm{Re}t\_BNom_t = \mathrm{Re}t\_BNom\_USD_t + \mathrm{Re}t\_BNom\_EUR_t + \mathrm{Re}t\_BNom\_JPY_t$$

VI.4.3   Calculation of Inflation-Linked Bond Benchmark

The benchmark for inflation-linked bonds is simply:

$$\mathrm{Re}t\_TIPS_t = 3.5\% \cdot \left(\frac{Idx\_TIPS_t}{Idx\_TIPS_{t-1}} - 1 \right)$$

VI.4.4   Calculation of Benchmark for the Funds

The daily return on the benchmark for the funds is:

$$Ret\_Libid_t + Ret\_TBill_t + Ret\_BNom_t + Ret\_TIPS_t$$

VI.4.5   Formula for Exchange-Rate Adjustment

Exchange-rate adjustment follows from:

$$asset\_return_t^{EUR}[EUR] = \frac{asset\_price_t^{EUR}}{asset\_price_{t-1}^{EUR}} - 1 \tag{1}$$

$$EUR\_return_t = \frac{EUR_t}{EUR_{t-1}} - 1 \tag{2}$$

$$asset\_return_t^{EUR}[USD] = \frac{asset\_price_t^{EUR} \cdot EUR_t}{asset\_price_{t-1}^{EUR} \cdot EUR_{t-1}} - 1 = \frac{asset\_price_t^{EUR}}{asset\_price_{t-1}^{EUR}} \cdot \frac{EUR_t}{EUR_{t-1}} - 1 \tag{3}$$

Replacing (1) in (3):

$$asset\_return_t^{EUR}[USD] = \left(1 + asset\_return_t^{EUR}[EUR]\right) \cdot \frac{EUR_t}{EUR_{t-1}} - 1 \tag{4}$$

Y, finally, replacing (2) in (4):

$$asset\_return_t^{EUR}[USD] = \left(1 + asset\_return_t^{EUR}[EUR]\right) \cdot \left(1 + EUR\_return_t\right) - 1 \tag{5}$$

VII.   GLOSSARY[19]

Accrued interest: Interest earned in a given period that has yet to be withdrawn or paid.

Bank risk: The risk associated to an investment in bank financial instruments; refers to the different risks faced by banking institutions in the course of their activities. This normally varies in line with the institution's line of business. These risks include credit, liquidity, exchange-rate and interest-rate risk.

Basis point: One hundredth of a percentage point; the smallest unit for measuring the return on a bond or a change in interest rates.

Benchmark: A portfolio used for the purposes of comparison; permits evaluation of a fund manager's performance. For an investor in fixed-income instruments, benchmarks are, in general, optimum portfolios with clearly defined investment parameters such as the relative weight of the portfolio's components, currency allocation and credit risk.

Carry trade: A financial strategy that consists in borrowing in one currency in order to invest the resources in instruments denominated in another currency with an expected rate of return that is relatively higher than the cost of borrowing in the first currency. Under this strategy, there is no coverage against exchange-rate risk.

Commercial paper: A debt security in local or foreign currency, with a maturity of between 90 days and 1 year, issued by governments, financial institutions and large companies to cover short-term financing needs. A trade bill's yield depends on the issuer's risk rating; maturities, interest rates, repayment terms, currency and expiry vary.

Counterpart risk: The risk arising from the possibility of default on the financial obligations of the counterpart in a financial operation.

Credit risk: The risk that an issuer may not fully comply with a financial liability either at the time it falls due or at some subsequent time. In systems for the exchange of securities, this definition in general includes replacement and principal risks.

Duration: A measure of exposure to interest-rate risk that measures the sensitivity of the price of a fixed-income instrument (bond) to changes in interest rates or, in other words, how much the instrument's price changes in response to a change in interest rates.

Financial agencies in the US: Mortgage lenders in the United States with explicit or implicit government backing.

Flight to quality: Investors' movement of funds to assets of better credit quality and, therefore, lower risk during periods of uncertainty or great volatility.

Inflation-linked bonds: Bonds whose value is adjusted in accordance with an inflation index; in the US, these bonds are known as TIPS.

Information ratio: A measure of the risk-adjusted return on financial securities or a portfolio; defined as the difference between the return on the security or portfolio and the benchmark divided by the TE. It can be interpreted as the ability of the manager to generate returns in excess of the benchmark for each unit of relative risk.

Internal Rate of Return (IRR): The rate of return actually perceived by an investor; corresponds to the internal rate of return on net flows during a given period.

Investment guidelines: Criteria under which investments are managed.

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[19] Sources: Central Bank of Chile (CBC) and Bloomberg.

LIBID: London Interbank Bid Rate, the interest rate paid on interbank deposits; by definition, it is equal to LIBOR (offered rate) minus 0.00125 or 0.125%.

LIBOR: London Interbank Offered Rate, the interest rate charged on interbank borrowing.

Local Currency: Denomination currency of financial instruments.

Market risk: The risk that the value of an investment may be reduced by changes in market factors.

Money market instruments: Financial instruments with a maturity of up to a year.

Multilateral risk: The risk of default by an official multilateral issuer.

Operational risk: The risk that deficiencies in internal information systems or controls may result in unexpected losses.

Overnight deposits: Deposits with a maturity of one day.

Portfolio: A combination of investment instruments held by an individual or institutional investor.

Reference duration: Benchmark duration devised to guide and evaluate the duration of investments.

Reference structure: A reference portfolio used to guide and evaluate portfolio management.

Return differential: A measure of the performance of a portfolio compared to its benchmark.

Risk: The possibility of suffering damage or losses; the variability of the return on an investment.

Risk classification: The level of credit risk associated with a financial instrument, institution or country as defined by a risk rating agency.

Secondary market: The market in which financial assets that have already been issued are traded. Each transaction involves a sale/purchase between investors.

Sovereign risk: The risk arising from investment in sovereign instruments; generally used to refer to the risk classification of a sovereign state. This classification corresponds to the opinion issued by bodies specialized in risk evaluation as to the possibility that a state will properly comply with its financial obligations, taking into account factors that include its payment record, political stability, economic situation and willingness to repay borrowing.

Spread: The difference between yield-to-maturity on fixed-income securities; used to evaluate the relative performance of different instruments.

Subprime mortgages: Loans for house purchase granted to persons whose credit profile excludes them from access to standard financing. These mortgages are relatively more risky.

Time-Weighted Rate of Return (TWRR): Rate of growth measured as a percentage of the change in a financial instrument's value over a period of time without taking account of the effect of cash flows.

Total return: Annualized rate of growth of the economic value of an instrument or portfolio considering all the potential sources of income such as capital gains or losses, coupons and their reinvestment.

Tracking Error (TE): An indicator of the risk arising from active positions taken by a portfolio manager as compared to its benchmark.

Value at risk (VaR): An indicator of the risk of a portfolio that provides an estimate of the amount that could be lost over a given period of time with a given level of probability.

Volatility: A measure of an asset's risk, representing the variation in its price over a period of time. Values can fluctuate with market swings due to events such as variations in interest rates, unemployment and economic changes in general.

Waiver: Explicit and voluntary authorization for non-compliance during a certain period of time with certain rules, parameters and/or procedures established in specific investment guidelines.

Weekend deposits: Deposits with a maturity of a weekend.