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Annual Report Financial Committee

Advisory Committee to the Ministry of Finance for Chile's Sovereign Wealth Funds

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This publication corresponds to the 2017 Annual Report of the Ministry of Finance's Financial Committee.

The electronic version of this document is available on the Ministry of Finance website:
http://www.hacienda.cl/english/sovereign-wealth-funds/financial-committee.html

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ISSN: 0718-5790

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Annual Report Financial Committee

Advisory Committee to the Ministry of Finance for Chile's Sovereign Wealth Funds

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Preface

As stipulated in the Fiscal Responsibility Law of 2006, the Financial Committee was created in 2007 to advise the Finance Minister on the investment of Chile's two sovereign wealth funds: the Economic and Social Stabilization Fund (ESSF) and the Pension Reserve Fund (PRF). The Financial Committee is an independent external advisory board, whose members have a vast experience in economic and financial areas. The Committee meets periodically to analyze matters relating to the investment of the funds. This Report—the eleventh prepared by the Committee—describes its work and activities in 2017.

The publication of this Report fulfills the requirement established under Decree N° 621, issued by the Ministry of Finance in 2007, which stipulates that the Committee must present an annual report on its work to the Finance Minister and submit a copy of this report to the Finance Commissions of the Senate and the House of Representatives and to the Joint Budget Commission.

The Committee

Executive summary

At the close of 2017, the market value of the funds was US$ 24,750 million, of which US$ 14,739 million was in the Economic and Social Stabilization Fund (ESSF) and US$ 10,011 million was in the Pension Reserve Fund (PRF). The net return in dollars in the year was 7.00% for the ESSF and 10.63% for the PRF, while the net return in pesos was -1.35% and 2.00%, respectively. In the case of the ESSF, the strategic asset allocation was 15% in bank deposits, 74% in sovereign bills and bonds, 3.5% in inflation-indexed sovereign bonds and 7.5% in equities. For the PRF, the portfolio allocation was 48% in sovereign and government-related bonds, 17% in inflation-indexed sovereign bonds, 20% in corporate bonds and 15% in equities.

Members of the Financial Committee

President José De Gregorio Rebeco

Mr. De Gregorio holds a Ph.D. in Economics from the Massachusetts Institute of Technology, a Master's degree in Industrial Engineering and a degree in Civil Industrial Engineering, both from Universidad de Chile. Currently, he is Professor at the Faculty of Economics and Business of Universidad de Chile, and Nonresident Senior Fellow at the Peterson Institute of International Economics. He has been President, Vice-President and Counselor of the Central Bank of Chile, Minister of Economics, Mining and Energy for the Chilean Government, and Economist at the International Monetary Fund. He joined the Committee in September 2014.

Vice President Cristián Eyzaguirre Johnston

Mr. Eyzaguirre holds a MA in Economics from University of California, Berkeley, and a degree in Business Administration from Universidad de Chile. He was CEO at Banco Bice and CFO at CMPC Enterprises. He has been Deputy Director of Chile's Tax Service (SII for its acronym in Spanish), advisor at Federation of Chilean Industry (SOFOFA for its acronym in Spanish) and Professor at Universidad de Chile. He currently participates in the Board of Directors of several companies, and is a Member of the Investment Committee of Hogar de Cristo. He joined the Committee in March 2010.

Member Ricardo Budinich Diez

Mr. Budinich holds a degree in Industrial Civil Engineering and a Bachelor's degree in Engineering Science, both from Universidad de Chile and holds a diploma in corporate governance from Universidad Católica. Currently, he serves on the Board of Directors of several companies and is member of Vigilance Committees of foreign private equity, global debt, small-mid cap equities and real estate funds. He was Chief Financial Officer of Copec, Director of Sonacol and many subsidiaries from the same company, Chief Financial Officer of Casaideas and advisor to its Board of Directors, member of the Consultative Counsel of Fundación Copec-UC, member of the Investment Committee of Compañía de Seguros Cruz del Sur and assistant professor of Universidad de Chile. He also performed several executive positions in companies from the financial sector. He joined the Committee in September 2016.

Member Jaime Casassus Vargas

Mr. Casassus holds a Ph.D. in Finance from Carnegie Mellon University and a degree in Civil Industrial Engineering from Universidad Católica de Chile. Currently, he is Professor at the Institute of Economics of Universidad Católica de Chile, Managing Editor at the journal "Quantitative Finance", Deputy Director at FinanceUC, and Director of the Economics Society of Chile. He was Visiting Professor at University of California, Berkeley. His research has been published in Journal of Finance, Review of Financial Studies, and Journal of Banking & Finance. He joined the Committee in September 2014.

Member Martín Costabal Llona

Mr. Costabal holds an MBA from the University of Chicago and a degree in Business Administration from Universidad Católica de Chile. He has performed as Finance Minister and Budget Director, executive of Empresas Pizarreño and Infraestructura Dos Mil, CEO of AFP Habitat and Member of the Technical Advisory Committee of Investment established by the Pension Reform. Currently he serves on the Boards of Directors of private companies. He joined the Committee in January 2007.

Member Igal Magendzo Weinberger

Mr. Magendzo holds a Ph.D. in Economics from University of California, Los Angeles, and a Bachelor's degree in Arts from the Hebrew University of Jerusalem. Currently, he is Chief Economist at Pacífico, Macroeconomía y Finanzas. He was Chief Economist for Hispanic America at Itaú, Manager of Macroeconomic Analysis at the Central Bank of Chile, Member of the Technical Advisory Committee of Investment established by the Pension Reform, Macroeconomic Advisor at the Ministry of Finance, and Professor at Universidad Adolfo Ibáñez and Universidad de Chile. Mr. Magendzo has published his work in specialized financial journals. He joined the Committee in September 2014.

CHAPTER 1

Fiscal policy and the funds' objectives, institutional framework and investment policy

A. Fiscal policy

Chile's fiscal policy is aimed at contributing to macroeconomic stability and providing public goods that increase opportunities and social protection for Chilean citizens.[1]

Since 2001, Chile's fiscal policy is guided by a structural balance rule or, more precisely, a cyclically adjusted balance rule,[2] which mitigates the effect on public finances of fluctuations in economic activity, the copper price and other secondary factors. This implies saving in boom times and being able to use those savings during cyclical downturns. As a result, the fiscal rule has a stabilizing effect on public finances and the economic cycle and improves access to financing for both the public and private sectors.

B. Objectives and rules on the use of the funds

To ensure the sustainability of public spending over time and contribute to the competitiveness of the economy, Law 20,128 on Fiscal Responsibility was passed in September 2006. This law created the Pension Reserve Fund (PRF) and authorized the President of the Republic to create the Economic and Social Stabilization Fund (ESSF), which was then officially established in February 2007. These two funds accumulate the resources resulting from the application of the structural balance rule as detailed below.

Objectives

The funds created by the Fiscal Responsibility Law (henceforth, the sovereign wealth funds) have specific objectives. In the case of the ESSF, the objectives are to accumulate resources to finance potential fiscal deficits and to amortize public debt, thereby contributing to cushioning fiscal spending against fluctuations in the world economy and the volatility of revenues from taxes, copper and other sources. The ESSF resources can also be used to finance the PRF if necessary. In the case of the PRF, the objective is to support the financing of fiscal liabilities deriving from the state pension guarantee for old-age and disability solidarity pension benefits, as well as old-age and disability solidarity pension contributions established by the Pension Reform. The PRF thus complements the financing of future pension-related contingencies.

Rules on fund contributions

The rules on establishing the funds and accumulating resources therein are established by law (see *Figure 1*).[3]

The PRF is increased each year by a minimum of 0.2% of the previous year's gross domestic product (GDP). If the effective fiscal surplus exceeds 0.2% of GDP, the PRF receives a contribution equivalent to the surplus, up to 0.5% of GDP. PRF contributions only have to be made until the fund reaches UF 900 million (unidad de fomento, UF).

1 Decree N° 892 de 2014, which establishes the basis of fiscal policy, in accordance with the provisions of Article 1° of Law N° 20,128.

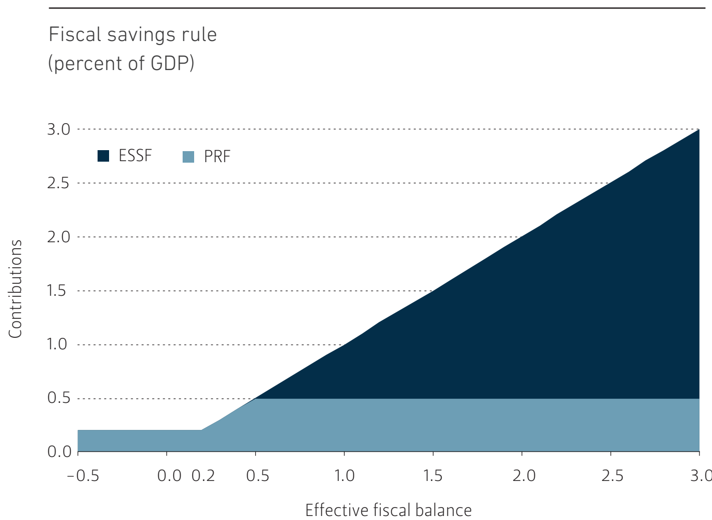
2 The structural balance rule (or cyclically adjusted balance rule) has undergone some changes since it was first implemented. For a detailed discussion of its design, modifications, application and results, see Marcel, Tokman, Valdés and Benavides (2001); García, García and Piedrabuena (2005); Rodríguez, Tokman, and Vega (2006); Velasco, Arenas, Rodríguez, Jorratt and Gamboni (2010); Comité Asesor para el diseño de una política fiscal de balance estructural de segunda generación para Chile (2011); Larraín, Costa, Cerda, Villena and Tomaselli (2011); Schmidt Hebbel (2012); and Velasco and Parrado (2012); Budget Office (2013, 2014, 2015 y 2016).

3 For the PRF, the Fiscal Responsibility Law; for the ESSF, Statutory Decree (DFL) N° 1, issued by the Ministry of Finance in 2006.

The yearly contribution to the ESSF corresponds to the balance of the effective fiscal surplus (if positive) after subtracting the PRF contribution, less public debt pay downs and any advance contributions to the fund.[4] Additionally the fund can receive extraordinary contributions from the sale of assets or debt issue.

FIGURE 1

Fiscal savings rule
(percent of GDP)



SOURCE: Ministry of Finance of Chile

Rules on the use of the funds

Starting in 2016, the PRF resources can be used to complement the financing of fiscal liabilities deriving from the state guarantee for old-age and disability solidarity pension benefits, as well as old-age and disability solidarity pension contributions. The annual withdrawal of PRF resources cannot exceed one-third of the difference between expenditures on pension liabilities in the current year and the pension expenditure in 2008, adjusted for inflation. Prior to 2016, withdrawals from the PRF were allowed equivalent to the returns generated in the previous year.

As of 2021, the PRF will cease to exist if the withdrawals in a calendar year do not exceed 5% of the fiscal pension expenditure established in that year's budget. When the PRF is eliminated, the remaining balance will be transferred to the ESSF.

The ESSF resources can be used at any time to complement fiscal revenues as needed to finance authorized public spending in the event of a fiscal deficit. These resources can also be used for the regular or extraordinary pay down of public debt (including Recognition Bonds) and for financing the annual contribution to the PRF, as per a decision by the Finance Minister.

Withdrawals from the ESSF and the PRF are effectuated through a decree from the Ministry of Finance.

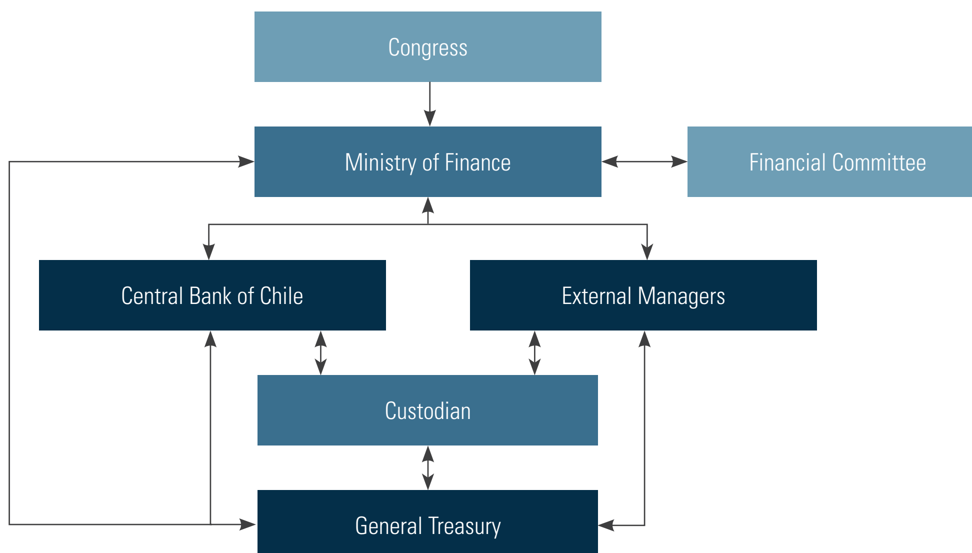
4 The current legislation allows the pay down of public debt and advance contributions to the ESSF using resources from the fiscal surplus of the current year, which must be deposited into the fund in the current or subsequent years.

C. Institutional framework

The legal framework establishes a clear division of roles and responsibilities in order to ensure accountability and operational independence in the management of the funds. This section provides a brief description of the roles of each of the bodies involved in fund management (see *Diagram 1*).

DIAGRAM 1

Institutional framework for Chile's sovereign wealth funds



SOURCE: Ministry of Finance of Chile

Ministry of Finance and dependent bodies

The Fiscal Responsibility Law establishes that the funds are the property of the Fisco of Chile and that the General Treasury holds the legal title to the resources. The law authorizes the Finance Minister to make decisions on how the funds are managed and to dictate their investment policies. To this end, the Ministry of Finance draws up the investment guidelines, which define the criteria that must be followed by the funds' managers. The Ministry monitors the managers' performance and compliance with the investment guidelines and issues monthly, quarterly and annual reports on the state of the funds.

The General Treasury is responsible for the funds' accounting and the preparation of their audited financial statements, for monitoring compliance with the investment limits, for reconciling information on the portfolios from the managers and the custodian and for approving payments to the managers. The Budget Office is responsible for budgetary issues related to the funds.

Central Bank of Chile

Executive Decree N° 1,383 (the Agency Decree), issued by the Ministry of Finance in 2006, appoints the Central Bank of Chile (CBC) to act as fiscal agent in the management and investment of the resources in both funds. In carrying

out these functions, the CBC must strictly follow the investment guidelines issued by the Finance Minister. The CBC is authorized to delegate part of the management of the sovereign wealth funds to external managers.

Following a careful selection process carried out in 2011, the CBC contracted BlackRock Institutional Trust Company N.A. (BlackRock), Mellon Capital Management Corporation (Mellon) and Rogge Global Partners PLC (Rogge), which was acquired by Allianz Global Investors (Allianz)[5] in 2016, as external managers delegated to the equity and corporate fixed income portfolios which represent 35% of the PRF portfolio, since January 2012. In 2013, based on the recommendation of the Financial Committee, the Ministry of Finance instructed the CBC to contract BlackRock and Mellon to manage the ESSF equity portfolio, equivalent to 7.5% of the fund, taking into account that their mandate would be identical to the PRF's and that they were recently chosen from the selection process carried out for that fund.

Decree N° 1,618 of 2012 modified the Agency Decree to relieve the CBC of the management of the corporate fixed-income and equity portfolios of the ESSF and the PRF, whose management had been delegated by the CBC, in representation of the Fisco, to the aforementioned companies. In accordance with Decree N° 1,618 of 2012, the CBC's responsibilities with regard to the externally managed portfolios were significantly reduced as of 1 January 2014, being mainly limited to reconciling daily positions. With these changes, the contractual relationship with the external managers and other tasks previously carried out by the CBC were transferred to the Ministry of Finance and the General Treasury.

Financial Committee

The Fiscal Responsibility Law stipulates that the Ministry of Finance must establish an Advisory Committee to give advice to the Finance Minister on the sovereign wealth funds (henceforth, the Financial Committee). This Committee monitors the investment of the funds' resources and advises the Minister on the definition of the investment policies consistent with the funds' objectives. In compliance with these provisions, on 23 December 2006, the Finance Minister announced the establishment of both the sovereign wealth funds and the Financial Committee. The Committee was then officially created through Decree N° 621, issued by the Ministry of Finance in 2007. In accordance with that decree, the Committee must be made up of six members who have experience in investment portfolio management, have held an executive position in a financial institution or have held or currently hold an academic post. The six Committee members are appointed for two years, with half the seats being renewed each year. The Committee's president receives a fee per session of 25.5 UTMs (unidades tributarias mensuales, UTM), with an annual cap of 127.5 UTMs. The remaining members receive a fee of 17 UTMs per session, with an annual cap of 85 UTMs. The Committee must meet at least once every six months, but in practice it has met at least five times a year.

Decree N° 621 also stipulated the Financial Committee's functions and the rules of procedure for its proper functioning. Thus, the duties and powers of the Committee are as follows:

- To advise the Finance Minister, when requested, on key issues related to the funds' investment policy, such as the distribution of investments by asset class (asset allocation), the incorporation of new investment alternatives, the specification of portfolio benchmarks (see *Box 1*), the permissible range of deviation from the asset allocation and the limits on the funds' investment possibilities;

5 From now on, Allianz will be used to refer the company.

- To submit recommendations to the Finance Minister, when requested, on custody and investment instructions and on the tender and selection processes for the management of the funds' portfolios;
- To express an opinion at the request of the Finance Minister about the structure and content of the annual reports on the funds' portfolio management that are presented to the Ministry of Finance by the institution(s) responsible for their management or custody and, on the basis of these reports, to express an opinion about the funds' management and, particularly, its consistency with their investment policies;
- To express an opinion about the structure and content of the reports on the funds prepared quarterly by the Ministry of Finance;
- To advise the Finance Minister, when requested, on any matter related to the funds' investment;
- To express its views and recommendations regarding other matters related to the funds' investment policies, taking into account the principles, objectives and rules that govern the funds.

In order to promote transparency, the Financial Committee decided that the decree regulating its activities, the minutes of its meetings and the corresponding press releases should be publicly disclosed. The Ministry of Finance's website thus includes a special section containing all information on these issues.[6]

BOX 1: Portfolio benchmarks

Portfolio benchmarks are representative market indexes for the different asset classes. In principle, they represent the passive investment performance of diversified portfolios invested in certain asset classes, where the return of each instrument is typically weighted by its relative share of market capitalization. The indexes are used as a reference for measuring the performance of the managers in charge of investing the funds.

Each asset class in an investment portfolio is associated with a benchmark. The benchmark for the total portfolio is thus constructed by weighting the selected indexes by the percentage allocation of each class, as defined in the investment policy.

Both the ESSF and the PRF have passive investment policies. That is, their investment strategy aims to achieve the benchmark return.

6 http://www.hacienda.cl/fondos-soberanos.html

D. Investment policy

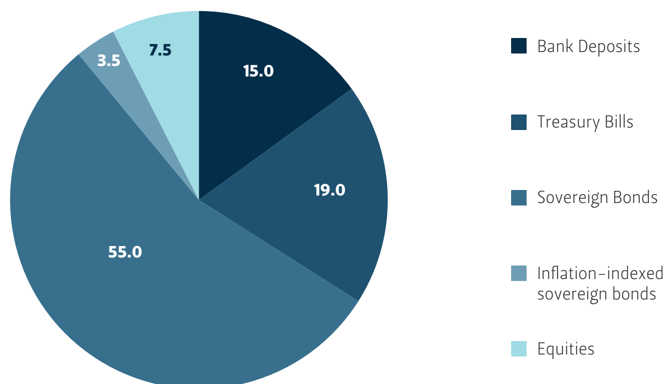
Economic and Social Stabilization Fund

In line with the objectives described above, the main goal of the ESSF investment policy is to maximize the fund's accumulated value in order to partially cover cyclical reductions in fiscal revenues while maintaining a low level of risk. Its aversion to risk is reflected in the choice of an investment portfolio with a high level of liquidity and low credit risk and volatility, thereby ensuring the availability of the resources to cover fiscal deficits and avoiding significant losses in the fund's value. It is important to mention that the Ministry of Finance estabilished that the resources of the fund ought be invested abroad in order to do not damage the competitiveness of the Chilean economy

From its inception through July 2013, the ESSF investment policy centered on investment in fixed-income instruments denominated in reserve currencies, which typically perform well in times of crisis. However, a new investment policy was implemented in August 2013, which was defined by the Ministry of Finance on the basis of the Financial Committee's recommendations in 2012.[7] This investment policy establishes a portfolio allocation of 15% in bank deposits, 74% in sovereign bills and bonds, 3.5% in inflation-indexed sovereign bonds and 7.5% in equities (see *Figure 2*). For the fixed-income portfolio, the currency allocation is defined as 40% in U.S. dollars (USD), 25% in euros (EUR), 20% in yen (JPY) and 7.5% in Swiss francs (CHF), expressed as a percentage of the total portfolio. The new policy also increases the duration of the fixed-income portfolio to approximately 4.8 years (see *Box 2*).

FIGURE 2

ESSF: Strategic asset allocation
(percent of portfolio)



SOURCE: Ministry of Finance of Chile

7 The Financial Committee's recommendation was founded on the review and analysis of different sources, including Eduardo Walker's study on portfolio allocation commissioned by the Ministry of Finance, comments on the study contained in three external peer reviews and additional simulations using market data from the last 20 years, carried out by the Ministry of Finance's International Finance team. For more information, see Chapter 3 of the Financial Committee's 2012 Annual Report.

BOX 2: Main elements of the Economic and Social Stabilization Fund (ESSF) investment policy

Investment objectives: Consistent with the ESSF objectives, the investment policy aims to maximize the fund's accumulated value in order to partially cover cyclical reductions in fiscal revenues while maintaining a low level of risk. Its aversion to risk is reflected in the choice of an investment portfolio with a high level of liquidity and low credit risk and volatility, thereby ensuring the availability of the resources to cover fiscal deficits and avoiding significant losses in the fund's value.

Strategic asset allocation: The ESSF investment policy stipulates a strategic asset allocation of 15% in bank deposits, 74% in sovereign bills and bonds, 3.5% in inflation-indexed sovereign bonds and 7.5% in equities. The fixed-income portfolio has a currency allocation of 40% in USD, 25% in EUR, 20% in JPY and 7.5% in CHF, expressed as a percentage of the total portfolio.

Portfolio benchmarks*:* A benchmark has been defined for each component of the strategic asset allocation, using a representative market index:

Asset class		Percent of portfolio	Benchmark
1. Bank deposits		5	Merrill Lynch LIBID 3 Month Average USD
		6	Merrill Lynch LIBID 3 Month Average EUR
		4	Merrill Lynch LIBID 3 Month Average JPY
		15	**Subtotal bank deposits**
2. Treasury bills and sovereign bonds	2.1. Treasury bills	6	Merrill Lynch Treasury Bills Index USD
		7	Merrill Lynch Treasury Bills Index EUR
		6	Merrill Lynch Treasury Bills Index JPY
		19	**Subtotal Treasury bills**
	2.2. Sovereign bonds	26.5	Barclays Capital Global Treasury: U.S. 7-10 Yrs
		11	Barclays Capital Global Treasury: Germany 7-10 Yrs
		10	Barclays Capital Global Treasury: Japan 7-10 Yrs
		7.5	Barclays Capital Global Treasury: Switzerland 5-10 Yrs
		55	**Subtotal sovereign bonds**
		74	**Subtotal Treasury bills and sovereign bonds**
3. Inflation-indexed sovereign bonds		2.5	Barclays Capital Global Inflation-Linked: U.S. TIPS 1-10 Yrs
		1	Barclays Capital Global Inflation-Linked: Germany 1-10 Yrs
		3.5	**Subtotal inflation-indexed sovereign bonds**
4. Equities		**7.5**	**MSCI All Country World Index ex Chile (unhedged with reinvested dividends)**

The ESSF has implemented a passive management strategy since May 2011, allowing only marginal deviations from the strategic asset allocation.

Management: The ESSF is largely managed by the CBC, which, acting as fiscal agent, manages the fixed-income portfolio (92.5% of total assets). The equities portfolio is managed by external management companies contracted by the CBC following a tender process.

Ex ante tracking error:[1] The ex ante tracking error is capped at 50 basis points for the fixed-income portfolio and 60 basis points for the equities portfolio.

Eligible currencies and issuers: Only currencies in the benchmark are eligible for investment. In the case of sovereign exposure, the issuers that make up the corresponding benchmark, supranational institutions, agencies and eligible entities with an explicit government guarantee according the elegibility criterias used by the CBC in order to invest the internacional reserves and according the pre-established limits set in the investment guidelines. With regard to bank exposure, the fund can only be invested in banks with a risk rating of A-/A3 or higher (Standard & Poor's, Moody's and Fitch) and in accordance with the limits stipulated in the investment guidelines. For exposure to equities, only the issuers that make up the corresponding benchmark are eligible for investment, however the investment in Exchange Traded Funds (ETFs), mutual funds, American Depositary Receipts (ADRs), Global Depositary Receipts (GDRs), and futures is also allowed.

Leveraging and the use of derivatives: Leveraging is not allowed.[2] The use of derivatives is defined according to the type of portfolio:

- Fixed-income portfolio: The use of forwards and swaps is only allowed for foreign currency hedging. The total notional amount cannot exceed 4% of the fixed-income portfolio.
- Equity portfolio: The use of forwards and swaps is only allowed for foreign currency hedging. In addition, the use of equities futures is allowed for hedging purposes or to gain exposure to part of the benchmark. The aggregate notional amount of the futures, forwards and swaps cannot exceed 10% of the portfolio of each external manager.

Rebalancing policy: The rebalancing policy consists in restoring the strategic allocation once a year and whenever the share of equities exceeds the range of 5.5% to 9.5% of the total portfolio. The annual rebalancing is coordinated with fund contributions, to the extent possible.

Investment guidelines: The investment guidelines, which are published in Spanish and available online at the Ministry of Finance website,[3] provide additional information on the ESSF investment policy, such as special restriction on investment in specific countries and other relevant limits, as well as other aspects of portfolio management.

1 The ex ante tracking error is an estimate of the standard deviation of the difference between the portfolio and benchmark returns. The lower the ex ante tracking error, the more passive the portfolio management.

2 Leveraging is the purchase of assets through debt.

3 http://www.hacienda.cl/fondos-soberanos/fondo-de-estabilizacion-economica-y/politica-de-inversion.html.

Pension Reserve Fund

The main objective of the PRF is to complement the financing of fiscal pension obligations. To this end, the Finance Minister implemented the fund's current investment policy in early 2011, based on the Financial Committee's recommendations in 2010. The portfolio allocation proposed by the Committee at that time was based on a study commissioned from Mercer

Investment Consulting (Mercer) in 2008.[8] In accordance with instructions from the Finance Ministry, the parameters of the study were to maximize the fund's value in dollars, given that it would still be several years before the first withdrawals from the fund, and to hold the fund's resources overseas, so as not to affect the competitiveness of the Chilean economy. This investment policy was implemented in early 2012. [9]

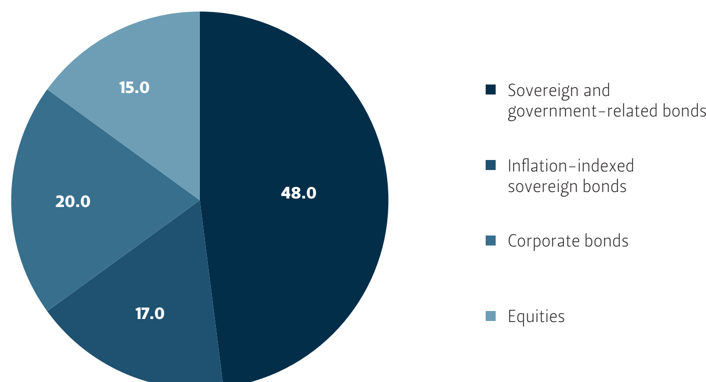
For the current investment policy, the PRF investment objective is to maximize the expected return, subject to a risk tolerance defined as a 95% probability that in a given year, the fund would not suffer losses exceeding 10% of its value in dollars. The investment horizon is medium to long term, based on the size and timing of the liabilities to be financed.

This investment policy (see *Box 3*) establishes a portfolio composition of 48% in sovereign and government-related bonds, 17% in inflation-indexed sovereign bonds, 20% in corporate bonds, and 15% in equities (see *Figure 3*).

In November 2017, the Finance Minister approved a new PRF investment policy, based on recommendations from the Financial Committee. The new policy put forth by the Committee was defined based on the conclusions of a new study commissioned to Mercer, which was finalized in mid-2017. The implementation of the new investment policy will begin in 2018 to as to gradually converge to the new strategic asset allocation (see *Chapter 3,* which provides details on the Mercer study, the new investment policy, and its implementation).

FIGURE 3

PRF: Current strategic asset allocation
(percent of portfolio)



SOURCE: Ministry of Finance of Chile

8 The Financial Committee's recommendation was based on a study carried out by Mercer Investment Consulting in 2008 (Strategic Asset Allocation Analysis), which is available online at http://www.hacienda.cl/fondos-soberanos/estudios-relevantes.html.

9 From their inception through year-end 2011, the PRF and the ESSF had similar investment policies.

BOX 3: Main elements of the current Pension Reserve Fund (PRF) investment policy

Investment objectives: The investment objective of the PRF is to maximize the expected returns while keeping risk within a 95% probability that the fund will not lose more than 10% of its value in dollars in a given year. The investment horizon is medium to long term, given the size and timeline of the liabilities that the fund has to finance.

Strategic asset allocation: The current PRF investment policy, which was implemented in January 2012, stipulates a portfolio allocation of 48% in sovereign and government-related bonds, 17% in inflation-indexed sovereign bonds, 20% in corporate bonds and, 15% in equities.

Portfolio benchmarks: A benchmark has been defined for each component of the strategic asset allocation, using a representative market index.

Asset class	Percent of portfolio	Benchmarks
Sovereign and government-related bonds [(a)]	48	Barclays Capital Global Aggregate: Treasury Bond Index (unhedged)
		Barclays Capital Global Aggregate: Government-Related (unhedged)
Inflation-indexed sovereign bonds	17	Barclays Capital Global Inflation-Linked Index (unhedged)
Corporate bonds	20	Barclays Capital Global Aggregate: Corporates Bond Index (unhedged)
Equities	15	MSCI All Country World Index ex Chile (unhedged with reinvested dividends)

(a) Each subindex of this asset class is added in accordance with its relative capitalization.

Management: The sovereign and government-related bonds and inflation-indexed sovereign bond portfolios are managed directly by the CBC, acting as fiscal agent. The equity and corporate bond portfolios are managed by external management companies contracted by the CBC following a tender process.

Ex ante tracking error: The ex ante tracking error is capped at 50 basis points for the aggregate portfolio of sovereign and government-related bonds and inflation-indexed sovereign bonds; 60 basis points for the equity portfolio; and 50 basis points for the corporate bond portfolio.

Eligible currencies and issuers: For each asset class, only currencies and issuers that make up the benchmark are eligible for investment. In the case of issuers, only those that make up the corresponding benchmark are allowed. However, for exposure to equities, the investment in exchange traded funds, mutual funds, American depositary receipts, global depositary receipts, and futures is also permited.

Leveraging and the use of derivatives: Leveraging is not allowed. Derivatives use is differentiated by portfolio:

- Portfolio managed by the CBC: Forwards and swaps can only be contracted for foreign currency hedging. The nominal value of the forwards or swaps contracted with a given eligible counterparty cannot exceed 1% of the market value of the portfolio if the counterparty has a credit rating of at least AA- and 0.5% if it is between A- and A+. The notional amount of all current forward or swap contracts, in sum, can not exceed 4% of the portfolio managed by the Bank.
- Equity and corporate bond portfolios: Each external manager can only contract forwards or swaps for foreign currency hedging, and equities or fixed-income futures for hedging purposes or to gain exposure to part of the

benchmark. The nominal value of the forwards or swaps contracted by an external manager with a given eligible counterparty cannot exceed 1% of the market value of the portfolio managed by that external manager. The aggregate nominal amount of futures, forwards and swaps cannot exceed 10% of the portfolio managed by a given external manager.

Rebalancing policy: The rebalancing policy consists in restoring the strategic allocation whenever contributions are received by the fund and whenever any of the asset classes exceeds the following shares of the total portfolio: 45–51% for sovereign and government-related bonds, 14–20% for inflation-indexed sovereign bonds, 17–23% for corporate bonds and 12–18% for equities.

Investment guidelines: The investment guidelines, which are published and available online at the Ministry of Finance website,[1] provide additional information on the PRF investment policy, such as the rebalancing policy, the permissible range of deviation, eligible instruments and other relevant limits, as well as other aspects of portfolio management.

1 http://www.hacienda.cl/fondos-soberanos/fondo-de-reserva-de-pensiones/politica-de-inversion.html

CHAPTER 2

State of the Sovereign Wealth Funds

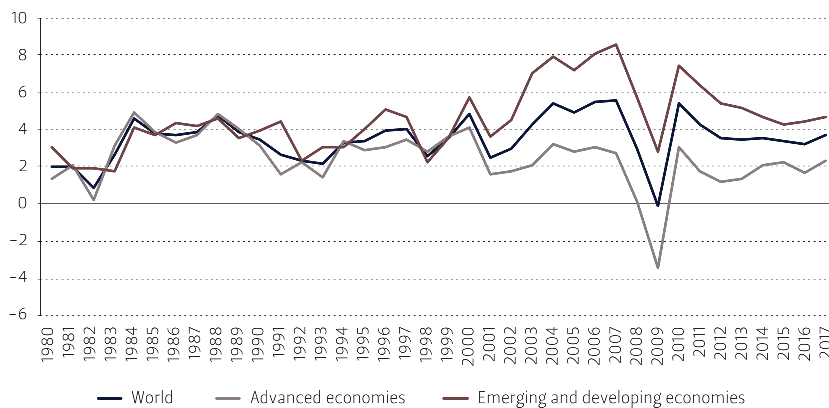
A. Market analysis

Main developments

According to estimates by the International Monetary Fund (IMF), the gross domestic product (GDP) of the world economy grew 3.7% in 2017, up from 3.2% in 2016.[10] For emerging and developing economies, GDP growth was around 4.7% in 2017, versus 4.4% in 2016. The advanced economies, in turn, recorded expected growth of approximately 2.3%, versus 1.7% the previous year (see *Figure 4*). By region, growth was higher in 2017 than in 2016 in the United States, the Eurozone, Latin America and the Caribbean, China, and Japan, whereas it was lower in India and the United Kingdom (see *Figure 5*).

FIGURE 4

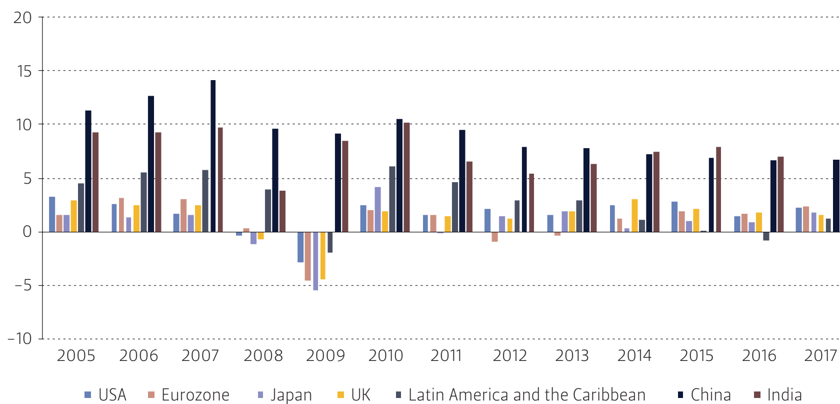
Real GDP growth, 1980 – 2017
(percent)



SOURCE: International Monetary Fund

FIGURE 5

Real GDP growth in selected economies, 2005–2017
(percent)



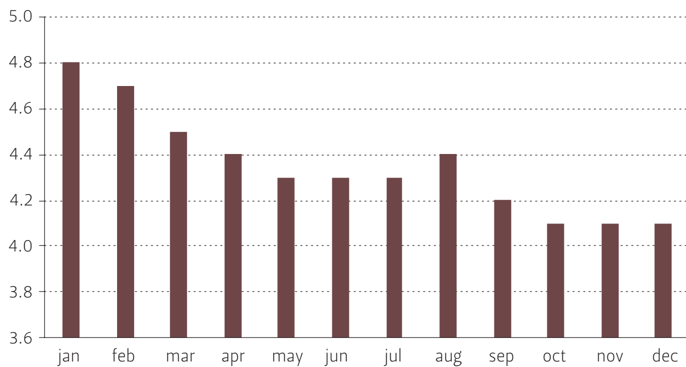
SOURCE: International Monetary Fund.

10 The growth data presented in this section are from the October 2017 IMF World Economic Outlook database and the January 2018 update.

The U.S. economy grew 2.3% in 2017. Unemployment decreased to 4.1% in December 2017 (see *Figure 6*), while hourly wages grew 2.7% at year-end relative to one year previous (see *Figure 7*). The general price index finished the year with 2.1% inflation relative to 2016, which is right around the target of 2% annual inflation set by the U.S. Federal Reserve (Fed). Core inflation, which excludes food and energy prices, was 1.8% in the year (see *Figure 8*). In this scenario, the Fed increased its monetary policy rate (the federal funds rate) by 25 basis points three times over the course of 2017.[11] These increases are consistent with the Fed's objective of normalizing U.S. monetary policy, a process that began in December 2015.

FIGURE 6

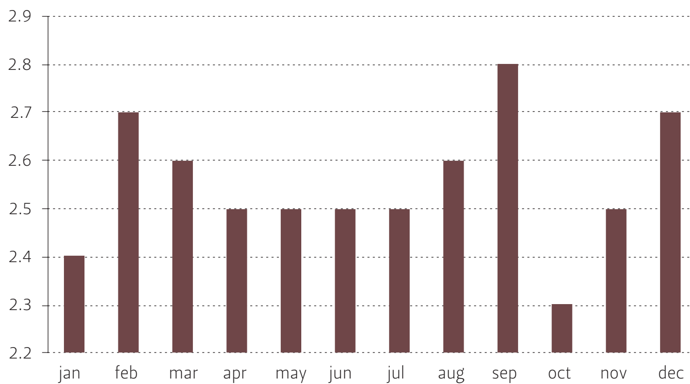
U.S. unemployment rate in 2017
(percent)



SOURCE: Bureau of Labor Statistics.

FIGURE 7

U.S. wage growth in 2017
(year-on-year change, percent)

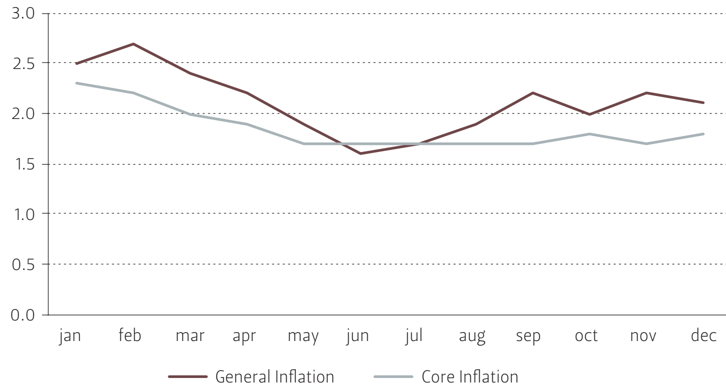


SOURCE: Bloomberg

11 The Fed increased its target range from 0.50–0.75% to 0.75–1.00% at the March meeting, to 1.00–1.25% in June, and to 1.25–1.50% in December.

FIGURE 8

U.S. consumer price index in 2017
(year-on-year change, percent)

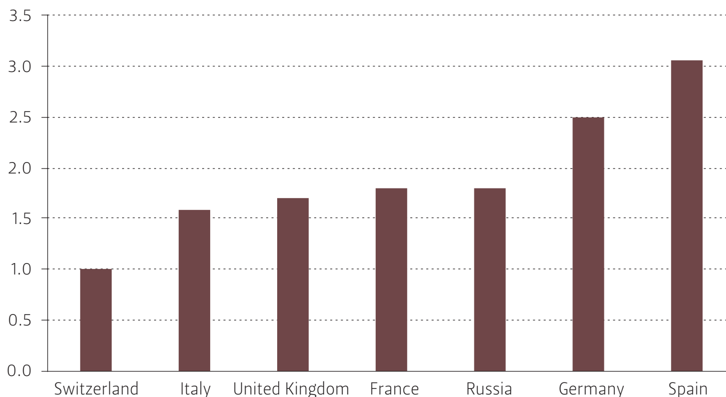


SOURCE: Bloomberg

The Eurozone grew 2.4% in the year. Germany and France, the largest economies in the Eurozone, recorded GDP growth of 2.5% and 1.8%, respectively. GDP growth varied among other European countries: Spain, 3.1%; Russia, 1.8%; United Kingdom, 1.7%; Italy, 1.6%; and Switzerland, 1.0% (see *Figure 9*). Eurozone inflation ended the year at 1.4% (see *Figure 10*). Unemployment decreased over the course of the year, finishing at 8.6% (see *Figure 11*). In this scenario, the ECB maintained its quantitative easing program in 2017. In October, however, the authorities announced that the ECB will begin to reduce its monthly asset purchases from 60 billion euros to 30 billion euros starting in January 2018 and will continue the program through September 2018—or longer if deemed necessary.

FIGURE 9

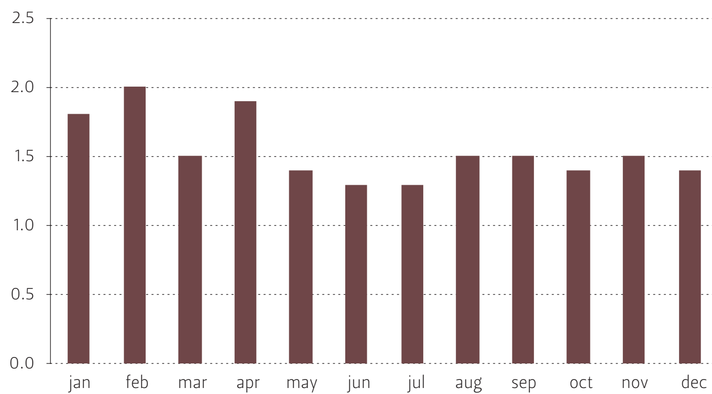
Real GDP growth in selected Eurozone countries in 2017
(year-on-year change, percent)



SOURCE: International Monetary Fund. Estimates

FIGURE 10

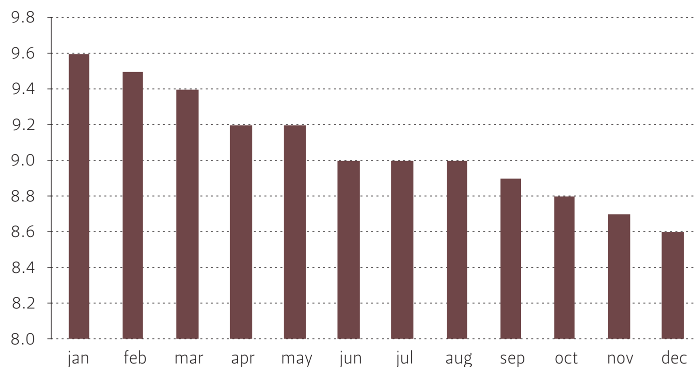
Eurozone annual inflation in 2017
(percent)



SOURCE: Bloomberg

FIGURE 11

Eurozone unemployment rate in 2017
(percent)



SOURCE: Bloomberg

Japan grew 1.8% in 2017. The Central Bank of Japan maintained its monetary stimulus plan throughout the year, with the objective of bringing inflation up over the 2% target. Thus, the Central Bank kept its short-term interest rate target at 0.1% and continued its ten-year bond purchase program, with the aim of holding ten-year rates around 0%.

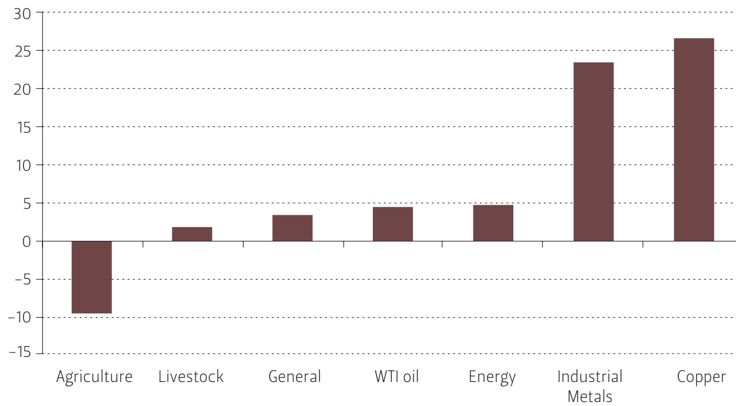
The Chinese economy grew 6.8% in 2017, up slightly from 6.7% in 2016. This improvement marks a change in trend, as growth has been slowing since 2010.

A comparison of average commodity prices in 2017 and 2016 shows an increase in all sectors. The one exception was the agricultural sector, which fell 9.6%. The average copper price,[12] which is crucial for the Chilean economy, rose 26.8% relative to last year (see *Figure 12*).

12 Metal prices, Chilean Copper Commission.

FIGURE 12

Standard & Poor's commodity index in 2017
(year-on-year change, percent)

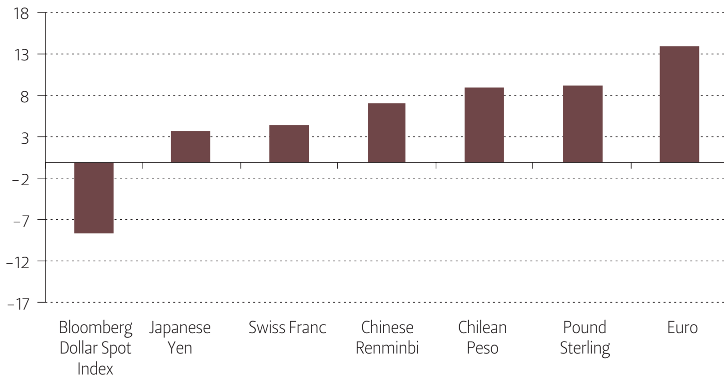


SOURCE: Bloomberg

In this global context, the U.S. dollar weakened against the main world currencies (see *Figure 13*). Among the main investment currencies of the sovereign wealth funds, the euro appreciated the most in the year (14.1%).

FIGURE 13

Selected currencies against the dollar in 2017[13]
(year-on-year change, percent)



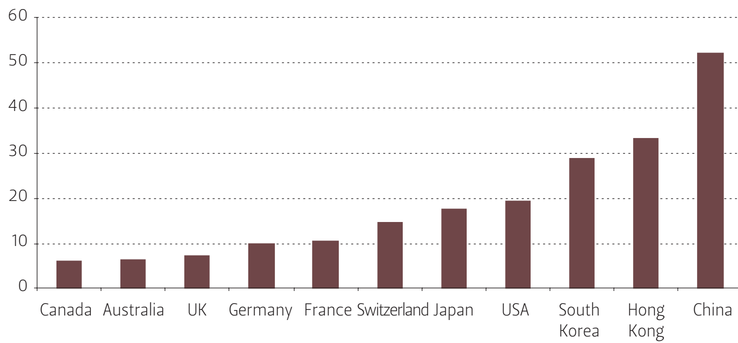
SOURCE: Bloomberg

13 The Bloomberg Dollar Spot Index is a traded index that tracks the value of the dollar against the ten leading global currencies. Index returns over zero indicate appreciation of the dollar against the basket of currencies, while negative returns indicate dollar depreciation.

In 2017, share prices increased strongly in most markets. In a selected sample (see *Figure 14*), Canada and Australia had the lowest equity market performance in the period, with returns of 6.1% and 6.4%, respectively, measured in local currency. China and Hong Kong recorded the strongest performances, with returns in local currency of 52.3% and 33.3%, respectively.

FIGURE 14

MSCI equity index returns in 2017
(percent, measured in local currency)

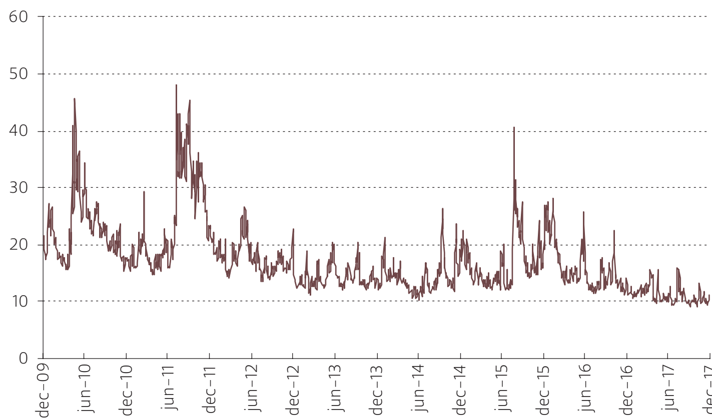


SOURCE: Bloomberg

Equity market volatility (S&P 500), measured by the Chicago Board Options Exchange (CBOE) Volatility Index (VIX), was lower, on average, in 2017 than in the previous year. The index peaked in August (16.4) and troughed in November (9.14), the lowest level since the financial crisis (see *Figure 15*).

FIGURE 15

Equity market volatility (VIX): S&P 500, 2009–2017
(in levels)

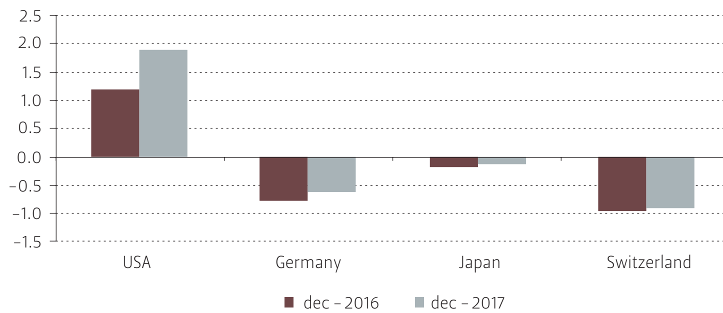


SOURCE: Bloomberg

At year-end, two-year nominal sovereign interest rates had increased in the United States, Germany, Japan, and Switzerland relative to year-end 2016 (see *Figure 16*). The last three of these countries continued to record negative two-year nominal rates in the period under analysis. Ten-year nominal interest rates decreased in the United States, increased in Germany and Switzerland, and were stable in Japan (see *Figure 17*).

FIGURE 16

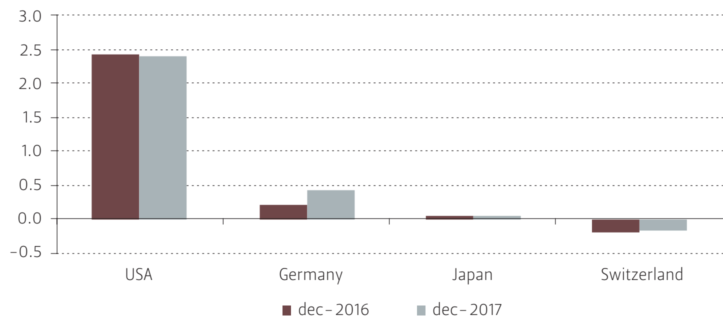
Internal rate of return (IRR) on two-year bonds in selected countries, 2016–2017 (percent)



SOURCE: Bloomberg

FIGURE 17

Internal rate of return (IRR) on ten-year bonds in selected countries, 2016–2017 (percent)



SOURCE: Bloomberg

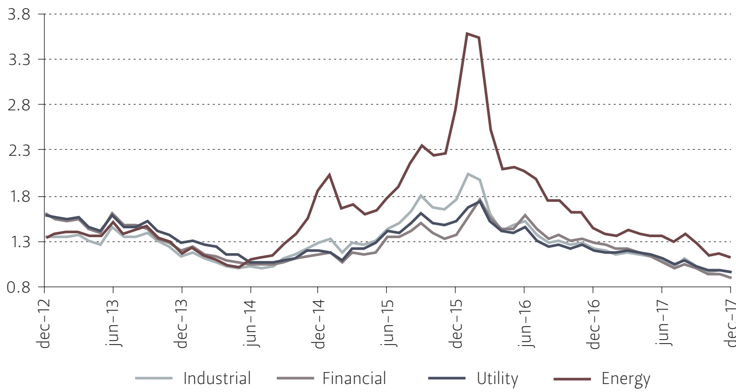
In the corporate market, spreads decreased in all sectors of the Bloomberg Barclays Global Aggregate Corporate[14] index in 2017 vis-à-vis 2016 In the industrial, financial, and utility sectors, spreads fell 22%, 30%, and 20%, respectively. Within the industrial sector, the energy subsector, in particular, fell 22% relative to 2016 (see *Figure 18*).[15]

14 The Bloomberg Barclays Global Aggregate Corporate Index comprises global investment-grade fixed-income corporate bonds. It covers 54 countries, including both developed and developing economies. The index is subdivided into three sectors: namely, the industrial, financial, and utility sectors. At year-end 2017, the index measured 10,913 issues, of which 54% were in the industrial sector, 35% in the financial sector, and 11% in the utility sector.

15 The industrial sector includes commodities, capital goods, communications, cyclical consumption, noncyclical consumption, energy, technology, transport, and other.

FIGURE 18

Corporate spreads by industry, 2012–2017
(percent)

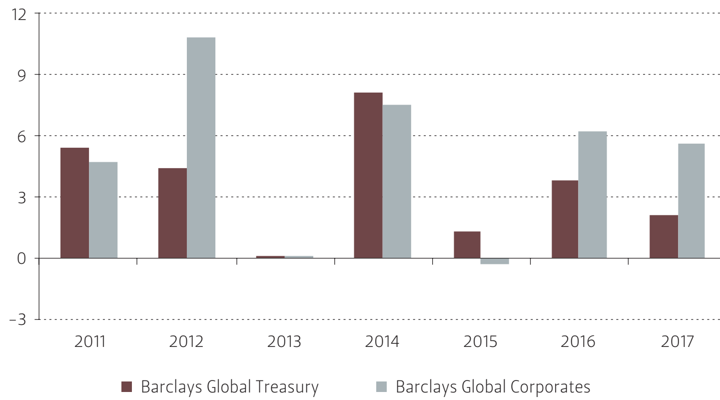


SOURCE: Barclays

In 2017, sovereign and corporate bonds recorded positive returns in local currency in almost all the countries in which the sovereign wealth funds are invested. The Barclays Capital Global Aggregate: Treasury Bond Index (hedged) and the Barclays Capital Global Aggregate: Corporate Bond Index (hedged) closed the year with returns of 2.14% and 5.70%, respectively (see *Figure 19*).

FIGURE 19

Barclays Capital Global Aggregate: Treasury Bond Index and Corporate Bond Index (hedged), 2011–2017
(percent, measured in local currency)



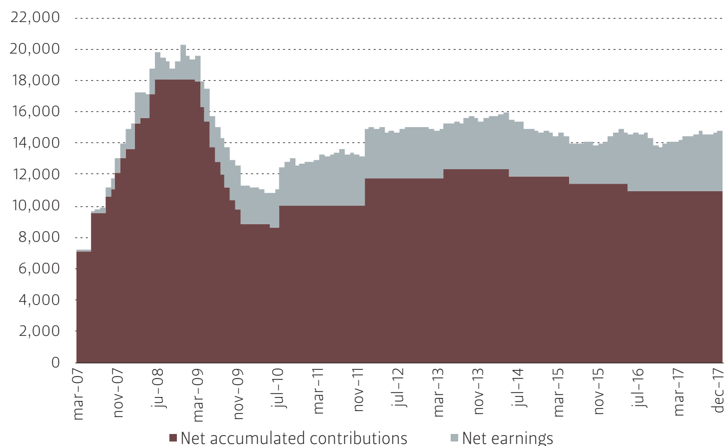
SOURCE: Barclays

B. Market value

At the close of 2017, the market value of the ESSF was US$ 14,739 million, versus US$ 13,772 million at year-end 2016, while the PRF had a market value of US$ 10,011 million, versus US$ 8,862 million in 2016. The decrease in the ESSF was due mainly to net investment gains of US$ 967 million (see *Figure 20*). The PRF, in turn, received the net contribution of US$ 191 million[16] and also recorded net gains of US$ 958 million (see *Figure 21*).

FIGURE 20

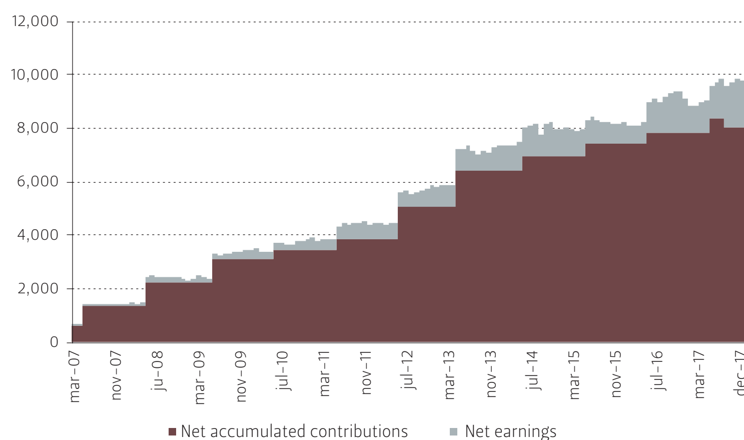
ESSF: Evolution of market value, March 2007 to December 2017
(millions of dollars)



SOURCE: Ministry of Finance of Chile

FIGURE 21

PRF: Evolution of market value, March 2007 to December 2017
(millions of dollars)



SOURCE: Ministry of Finance of Chile

16 The PRF received a contribution of US$ 505 million in June. A withdrawal of US$ 314 million was made in September.

C. Returns

In 2017, the net return in dollars (see *Box 4*), measured by the time-weighted rate of return (TWR), was 7.00% in the ESSF and 10.63% in the PRF (see *Table 1*). Using the internal rate of return (IRR), the yield was 7.03% for the ESSF and 10.65% for the PRF.

For the ESSF, the positive return breaks down into a 5.59% return on the fixed-income portfolio and an 24.21% return on the equity portfolio. The fixed-income return is the sum of 0.70% yields on instruments in local currency and 4.86% due to exchange rate fluctuations against the dollar of the currencies in which these instruments are denominated.

In the case of the PRF, the return in dollars is mainly explained by the positive returns on all asset classes. In fixed income, the returns were 7.67% for sovereign and government-related bonds, 8.75% for inflation-indexed bonds, and 8.95% for corporate bonds. As in the ESSF, the PRF equity portfolio, yielded 24.25% in the year.

TABLE 1

ESSF and PRF: Determinants of returns (TWR) in dollars, 2017
(percent)

Fund	Component	Quarter				2017
			II	III	IV	
ESSF	Fixed-income[a]	1.72	2.16	1.18	0.43	5.59
	Local currency	0.20	0.18	0.31	0.08	0.70
	Exchange rate fluctuations	1.51	1.97	0.86	0.35	4.86
	Equities	7.03	4.26	5.25	5.75	24.21
	Total return (USD)	**2.16**	**2.35**	**1.48**	**0.84**	**7.00**
	Total return (CLP)	1.45	2.43	-2.55	-2.58	-1.35
PRF	Sovereign and government-related bonds	2.12	2.54	1.71	1.10	7.67
	Inflation-indexed bonds	1.33	2.02	2.43	2.70	8.75
	Corporate bonds	1.48	3.53	2.22	1.45	8.95
	Equities	7.03	4.31	5.25	5.75	24.25
	Total return (USD)	**2.65**	**2.96**	**2.46**	**2.16**	**10.63**
	Total return (CLP)	1.94	3.04	-1.61	-1.31	2.00

(a) For the ESSF fixed-income portfolio, the table presents an estimate of the return in local currency and the return deriving from exchange rate fluctuations affecting the portfolio. The impact of exchange rate fluctuations is approximated and calculated using the benchmark currency allocation, taking into account that the ESSF is invested under a passive mandate. The return in local currency is calculated by subtracting that estimate from the fixed-income return.

SOURCE: Ministry of Finance of Chile

BOX 4: Factors affecting returns in the sovereign wealth funds

The investment returns in the sovereign wealth funds depends on a number of factors that affect the different types of instruments included in the different fund portfolios.

For the fixed-income portfolios, the main factors are interest rate levels, the credit quality of the issuers, and exchange rate movements. Market interest rates directly affect the interest rate offered on time deposits in financial institutions and sovereign debt securities at issuance. Changes in interest rates further affect the price of fixed-income instruments that are traded in the secondary market, especially for medium- and long-term securities, where an increase has a negative effect and a decrease has a positive effect. The issuer's credit quality further affects the price at which a fixed-income instrument is traded in the market: a deterioration in credit quality will cause a reduction in the price; an improvement, an increase.[1] Finally, because the funds' performance is measured in dollars while a large share of the portfolio is invested in instruments denominated in other currencies, exchange rate movements against the dollar have an effect on returns.

For the equity portfolio, returns will largely depend on the market's perception of the issuing corporation's income generation capacity and the risks associated with the company, as well as market financial conditions.

1 In the case of corporate bonds, credit quality is generally measured through the spread, that is, the difference between the bond's interest rate and the benchmark sovereign interest rate. An increase (decrease) in the spread on a corporate bond is associated with a reduction (increase) in the bond's value.

Returns in Chilean pesos depend on the peso-dollar exchange rate: the value of the portfolio expressed in pesos increases (decreases) when the peso depreciates (appreciates) against the dollar. In 2017, the peso appreciated against the dollar, which explains the lower returns in national currency of -1.35% in the ESSF and 2.00% in the PRF.

Since the inception of the funds, the annual return in dollars as of year-end 2017 was 2.67% for the ESSF and 3.87% for the PRF. Expressed in Chilean pesos, the annual return for this full period was de 3.94% for the ESSF and 5.15% for the PRF.

In 2017, the return for the ESSF was 12 basis points higher than its benchmark. For the PRF the return was 7 basis points higher than its benchmark.. Since 31 March 2007, the difference between the average annual return of the ESSF and PRF and their benchmarks was -5 basis points and -27 basis points, respectively.[17]

17 This means that the manager's portfolio generated lower returns, on average, than the implicit benchmark portfolio in the full period (2007–2017).

Figure 22 shows the evolution of the index of accumulated returns for each fund. For the ESSF, the index increased 32.8% between 31 March 2007 and year-end 2017; for the PRF, the increase was 50.4% in the same period. The figure illustrates how the evolution of the two funds' returns began to differentiate in 2012, when the PRF investment policy was changed. The higher return of the PRF, relative to the ESSF, is mainly due to the strong performance of the asset classes that were incorporated into the PRF in early 2012, in particular equities and corporate bonds, which have recorded annualized returns of around 11.57% and 3.58%, respectively.[18]

FIGURE 22

ESSF and PRF: Accumulated returns index, in dollars
(31 March 2007 = 100)

SOURCE: Ministry of Finance of Chile

18 Although the ESSF also invests in equities, they were only incorporated in August 2013 and represent 7.5% of the total portfolio, versus 15% in the PRF.

CHAPTER 3

Activities and recommendations of the Financial Committee

A. Review on the PRF investment policy

The Financial Committee was involved in a number of activities that culminated with the Finance Minister's approval of the new PRF investment policy in November 2017 (see *Section B* of this chapter). In particular, the Financial Committee played a central role in the study carried out by Mercer. The consulting firm was contracted based on the Committee's recommendations, following a selection process executed by the Finance Ministry in 2016.[19]

The study was carried out in four phases, according to a schedule established by the Finance Ministry. In the first three phases, Mercer prepared a report whose content, conclusions, and recommendations were presented by the consultant team directly to the Financial Committee, following analysis by the Finance Ministry. In the final phase, Mercer trained the Finance Ministry team on the theoretical framework of the model used and provided a simplified version of the model, so that the Ministry will be able to undertake additional analysis and updates in the future.

Phase 1 – First report

Mercer presented its first report to the Committee at the December 2016 meeting. The report included the following:

- A general description of the main characteristics of other institutional investors, to provide a point of reference for the PRF. The report compared factors such as the size of the funds, their strategic asset allocation, the way their investment objectives are defined, the share invested domestically versus internationally, the distribution of passive and active investments, the incorporation of responsible investment practices, and so forth.
- A recommendation for defining the fund's investment objective in pesos and in real terms, including several alternatives for defining risk tolerance. The report also suggested using the peso to measure investment management.
- A description of the theoretical framework that would be used to model the different asset classes, forecast fund contributions and withdrawals, and obtain the strategic asset allocation.

Following the presentation of the first report, the Committee made the following observations:

a. It accepted Mercer's recommendation to define a PRF investment objective in real terms and in pesos.

b. It recommended that the strategic asset allocation analysis be in real terms.

c. It agreed with the universe of asset classes recommended by Mercer, which would be used in the optimization model. Specifically, the following asset classes were approved: equities, sovereign and government-related bonds, inflation-indexed sovereign bonds, corporate bonds, high-yield bonds, U.S. agency mortgage-backed securities (MBSs), and infrastructure and real estate investments (see *Box 5*).[20] Additional information was requested on the investment vehicles, necessary institutional structure, and costs associated with investing in the new asset classes, in particular, infrastructure and the real estate sector.

19 For more information, see the Financial Committee's 2016 Annual Report.

20 Equities, sovereign and government-related bonds, inflation-indexed sovereign bonds, and corporate bonds are included in the current PRF investment policy.

BOX 5: New asset classes considered in the PRF asset allocation study

1. U.S. agency mortgage-backed securities.

A securitized instrument issued by an entity that backs the issue with a pool of individual instruments. The entity uses the flows from the underlying instruments to pay the interest and principal associated with the securitized instrument. This category includes mortgage-backed securities (MBSs).

MBSs can be divided into two broad categories: residential mortgage-backed securities (RMBSs) and commercial mortgage-backed securities (CMBSs).

Residential mortgage-backed securities: RMBSs are created by pooling mortgages associated with the purchase of residential property. In the United States, this category is subdivided into three sectors: (i) RMBSs guaranteed by a U.S. federal agency;[1] (ii) RMBSs guaranteed by government-sponsored enterprises (GSE);[2,3] and (iii) RMBSs issued by private entities that are not guaranteed by either a federal agency or a GSE. The first two subcategories are typically known as agency RMBSs and the third as non-agency RMBSs. A big difference between agency and non-agency RMBSs is that the flows (capital and interest) from the former are guaranteed by the agencies. With non-agency RMBSs, there is no guarantee, and the issuers distribute flows in different subportfolios (or tranches), which are considered independent debt instruments, in order to subordinate the risk of nonpayment among them. In addition, agency RMBSs are broken down into mortgage pass-through securities (MPTS) and collateralized mortgage obligations (CMOs). Given the guarantee, the main risk with agency RMBSs is the prepayment of the debt, which is assumed evenly in the case of MPTSs and redistributed in tranches with different risk profiles in the case of CMOs. In general, the CMOs use MPTS as collateral (not mortgages).

Commercial mortgage-backed securities: CMBSs are backed by a pool of income-generating commercial property mortgages such as apartment buildings, offices, industrial properties, shopping centers, hotels, etc. CMBSs can be exposed to higher credit risk than RMBSs, but it is mitigated by subdividing the instruments into different tranches with different payment priorities. CMBSs generally have a lower risk of prepayment (which is usually not allowed in the first 10 years), so they tend to behave more like corporate bonds than like RMBSs.

For the PRF, the Committee recommended using the Bloomberg Barclays U.S. Mortgage-Backed Securities (MBS) Index, which includes U.S. agency RMBSs such as MPTSs issued by Ginnie Mae, Fannie Mae, and Freddie Mac. For simplicity, this asset class is called U.S. agency MBSs in the report.

2. High-yield bonds

High-yield bonds are fixed-income financial instruments issued by firms or governments with a credit rating below investment grade (that is, a rating of BB+/Ba1 or less). These include instruments that had and lost investment grade (fallen angels), as well as companies that have never had an investment-grade rating. This category is considered a hybrid of fixed-income instruments and equity because, although the assets are fixed-income, their behavior depends to a large degree on the company's performance and key aspects of the business. The are also very illiquid.

For the PRF, the Committee recommended using the Bloomberg Barclays Global High-Yield Index as a benchmark. This global index comprises sub-investment-grade bonds from companies in the United States, Europe, and emerging markets, as well as sovereign, agency, and local government bonds from emerging countries. The consultant that is contracted to support the implementation of the new PRF investment policy will assess whether this benchmark is appropriate in the context of the PRF (see *Chapter 3, Section B*).

3. Real estate investment[4]

Real estate investments can be made either directly or indirectly in either the public or private market. Direct investment includes the purchase of land, houses, and commercial properties or buildings. Making direct investments in commercial real estate requires highly specialized personnel to identify and implement this type of investment. Furthermore, due to the large amounts necessary and the degree of illiquidity relative to traditional asset classes, direct commercial real estate investment is generally the purview of institutional investors or high-net-worth individuals with a long investment horizon and limited liquidity needs. Indirect investment, in turn, can be made by investing in companies in the real estate sector or in other investment vehicles, such as real estate investment trusts (REITs), commingled real estate funds (CREFs), and separately managed accounts.

Companies in the real estate sector include companies that own, manage, or develop real estate properties, such as construction companies or realtors. Their shares are usually publicly traded, so an investor can gain exposure to this segment by buying equities. REITs are publicly traded investment companies dedicated to buying real estate properties, through which small investors can gain exposure to the real estate sector. The benefits to the company's shareholders derive from the rental income generated by the underlying assets and possible capital gains on those assets. The regulation of REITs varies from country to country, but they are generally required to distribute the majority of their income (at least 90%) to their shareholders.

CREFs are funds that raise and manage resources for institutional and high-net-worth investors with the objective of buying real estate properties. The funds are invested by specialists, and investors seek to benefit from their expertise. This class of funds includes open-end and closed-end funds.[5] The latter generally use leveraging and have higher return objectives.

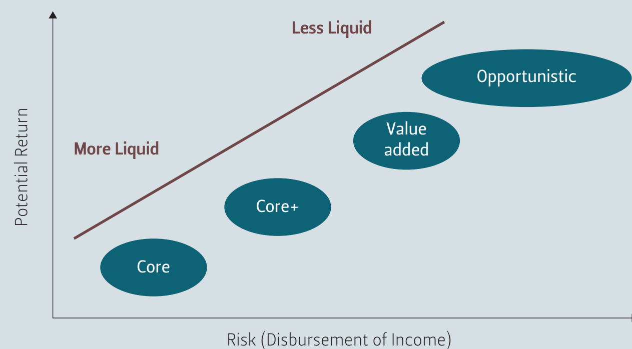
Finally, separately managed accounts are individual real estate investment accounts that are usually managed by the same firms that offer CREFs. They are characterized by customized portfolio management and thus give the investor much more flexibility. However, they require significant investment to achieve adequate diversification.

Investments in the private market are generally classified as core, core plus, value-added and opportunistic (see *Figure B5.1*). The core segment is the most conservative, with assets that are already built and in good shape, high occupancy, and a stable flow of rental income. In general, generating capital gains in this segment is secondary, and leverage is under 40%. Examples of assets in this segment include rental apartment buildings, shopping centers, and warehouses. The core plus segment has a higher risk-return than core, with slightly higher leverage (30–50% range), medium- to high-quality assets, and an open-end fund structure (like the core structure). The value-added segment has moderate-to-high risk and higher potential returns. Leverage is typically in the range of 50–65%, with medium-quality assets that require some degree of enhancement or improvement. In contrast to the first two segments, these are closed-end investment funds. Finally, the opportunistic segment is similar to the value-added segment, but riskier. This type of pro-

perty tends to need significant improvement to achieve potential. This segment also includes ground-up developments, which offer high returns if the business plan is successful, but also have the highest risk since the properties have little or no cash flow at the time of purchase. These projects are highly leveraged, usually over 65%.

FIGURE B5.1

Private market real estate investments



SOURCE: Ministry of Finance of Chile

For the PRF, the Committee recommended a global exposure to the most conservative private market segment, that is, the core segment. Work will be done in 2018 and 2019 to define the most appropriate investment vehicle and how to measure the performance of the person or entity responsible for investing in this asset class.

4. Infrastructure[6]

Infrastructure is defined as long-term, large-scale, public structures and facilities that provide essential services for society and the economy, including both economic and social infrastructure. Economic infrastructure is divided into four categories: (i) transportation (roads, tunnels, bridges, airports, etc.); (ii) utilities (gas systems, water treatment and distribution, and electricity); (iii) energy assets (extraction, energy generation, oil pipelines, natural gas pipelines, and renewable energy); and (iv) communications (from cable connections to satellite transmissions). Social infrastructure provides structures for social services, such as schools, universities, hospitals, prisons, administrative buildings, and so forth.

As with other asset classes, investment in infrastructure can be direct or indirect. Direct investment consists in investing directly in an infrastructure project. This mechanism is generally used by large-scale investors with specialized personnel to evaluate infrastructure projects. Direct investment can also be made through joint ventures, in the form of an association between investors and an infrastructure fund or just between investors, for the purpose of directly investing in infrastructure. Indirect investment includes investment in companies that are highly exposed to infrastructure, exchange-traded funds (ETFs), private equity funds, and infrastructure investment funds, which can be publicly traded or private.

Infrastructure investors should bear in mind that the chosen investment mechanism will affect the liquidity, capital flows, and income of the investment.

For the PRF, infrastructure investments were not in the optimal portfolios recommended by Mercer, and they are therefore not included in the new PRF investment policy.

1 For example, Ginnie Mae.
2 Fannie Mae and Freddie Mac.
3 Government Sponsored Enterprises (GSE).
4 This section is base on material provided by the CFA Institute for level 1 and 3 exams: "Introduction to Alternative Investments" and "Alternative Investments Portfolio Management."
5 An open-end fund does not limit the number of shares issued; a closed-end fund raises a specified amount of capital through a single initial public offering.
6 This section is based on the article, "Infrastructure: An Emerging Global Asset Class" (http://www.cfapubs.org/doi/pdf/10.2469/cfm.v24.n6.6).

d. It recommended that Mercer's proposal should contain optimal portfolios from a risk-return perspective and that Mercer should provide information for understanding the risks involved in each.

e. It asked Mercer to make a comparison of the returns that would be obtained with the current PRF strategic allocation PRF versus the study's conclusions.

Phase 2 – Second report

Mercer presented its second report to the Financial Committee at the March 2017 meeting. The report included the following:

- A description of the optimization model for obtaining the strategic asset allocation, expected returns, volatilities, and correlations of the different asset classes considered, together with a general explanation of the methodology used to estimate the latter.
- Estimates of several efficient frontiers obtained under different restrictions.[21] Based on the results, Mercer presented a small selection of strategic asset allocations for achieving different expected returns. A series of stress tests were applied to the allocations, as follows: (i) the behavior of the PRF at different investment horizons; (ii) the probability of not achieving different return objectives (for example, 2%, 2.5%, 3%, etc.); (iii) the ratio between the worst loss the fund could suffer in any given year and its expected value after 20 years; and (iv) the fund's performance under different macroeconomic scenarios. Based on this analysis, Mercer recommended the strategic asset allocations that, in the team's opinion, were the most appropriate for the fund and would achieve the target real returns in pesos in ten years, with an appropriate level of risk.[22]

21 For example, efficient frontiers limiting the aggregate share of infrastructure and real estate investments to 5% and 0% of the portfolio.
22 Mercer presented recommendations for a real objective of 2%, 2.5%, and 3%.

- An analysis of how to build the portfolio. The assessment included a discussion of passive versus active management strategies, a proposal on the number of managers by asset class, and whether to incorporate strategies used by other investors in the market, such as low-volatility equity strategies. The team also presented a conceptual framework to use if the Finance Ministry decides to incorporate environmental, social, and governance (ESG) criteria in the fund's management.

- A draft investment policy statement (IPS) that could be used for the PRF in the future.[23]

After the presentation of the second report, el the Committee made the following observations:

a. It asked the consultant to undertake a study for hedging part of the PRF portfolio in pesos and then compare the optimal hedged portfolios with the unhedged alternative.

b. It required Mercer to limit the equity share to 30% and 40% of the total PRF portfolio and to present the optimization exercise both including and excluding alternative investments.

c. It recommended that the consultant carry out a sensitivity analysis for different investment horizons, a review of the historical performance of the proposed portfolios over at least the past 15 or 20 years, and the inclusion in the final report of an appendix with the recommendations expressed in dollars.

d. It asked the consultant to formulate an implementation plan for converging from the current strategic asset allocation to the final recommendation.

Phase 3 –Final report

Mercer presented the final report to the Financial Committee at the June 2017 meeting. The report included the following:

- A review of the main elements covered in the first two reports, including an international comparison of relevant funds, the justification for changing the definition of the investment objective from dollars to Chilean pesos and real terms, a description of the theoretical framework and asset classes considered, and the estimation of portfolio returns, volatilities, and correlations used in the model.

- A demonstration of how the combination of an international fixed-income portfolio that hedges its currency exposure to pesos and an unhedged equity portfolio can have a less risky efficient frontier than a fully unhedged portfolio of the same asset classes.

- Efficient frontiers obtained under different restrictions, as in the second report.[24] This time, however, the exercise incorporated hedging the currency exposure of 50% and 100% of the fixed-income portfolio. Based on these frontiers, Mercer chose some of the portfolios to apply similar stress tests as in the second report, plus a historical analysis of the portfolios.[25]

23 The investment policy statement establishes the policies and procedures associated with a fund's investment. In general, it clearly outlines the investment objectives, restrictions, and responsibilities of the fund managers.

24 For example, equity can account for up to 30% or 40% of the fund, or real estate up to 5% or 0% of the fund.

25 A comparison was made of the volatilities, returns, and historical evolution of the fund if it had been invested in the chosen portfolios for a period of twelve years.

- A recommendation of strategic asset allocations that were consistent with the different return objectives and that incorporated the restrictions imposed by the Committee following the presentation of the second report.
- Examples of how the fund's investment objective and risk tolerance could be defined based on the expected return and risk characteristics of the recommended strategic asset allocations.
- A proposal for converging to the new strategic asset allocation.
- An analysis, as in the prior report, of issues to take into account in deciding how to build the portfolio (for example, passive versus active management, number of managers, etc.), the conceptual framework for analyzing the incorporation of ESG criteria, and PRF investment policy statement.

After the presentation of the final report,[26] the Financial Committee thanked the Mercer team for the quality of their work. Subsequently, at the July meeting, the Committee analyzed a proposal from the Technical Secretariat and agreed on the new PRF investment policy to recommend to the Finance Minister (see *Section B* of this chapter).

Phase 4 – Optimal allocation model

On completion of the study, Mercer trained the Finance Ministry staff in the use of a simplified version of the model employed in the study, which can be used to evaluate optimal portfolios as market conditions change. The training was carried out in three sessions and covered issues such as the different methodologies for estimating returns, volatilities, and correlations; how the model incorporates simulations of the different asset classes; a demonstration of its use; and an explanation of the necessary parameters for carrying out new optimizations.

B. New PRF investment policy recommendation

As mentioned, the Finance Minister has decided to modify the PRF investment policy, based on recommendations from the Financial Committee. The Committee's proposals address three issues: the investment objective and risk tolerance of the fund; the strategic allocation; and the implementation process.

Investment objective and risk tolerance

After analyzing Mercer's recommendations, examining a range of international experiences, and taking into account the nature of the liabilities the fund must finance, the Committee recommended changing both the investment objective and the risk tolerance of the fund. In particular, the Committee proposed changing the investment objective, which is currently to maximize the fund's value in dollars, to a real return defined in Chilean pesos. Specifically, the Committee recommended that the new objective be to obtain an expected annualized return in pesos of at least 2% over Chilean inflation in a ten-year period, with a probability of at least 60%. At the same time, the Committee suggested reformulating the risk tolerance, which is currently defined as a 95% probability that the fund will not suffer losses exceeding 10% of its value in dollars in any given year. The new risk tolerance establishes that the probability that the fund's real return will be less than –12%, expressed in pesos, must not be over 5% in any given year (See *Table 2*).

26 The report is available online at http://www.hacienda.cl/fondos-soberanos/estudios-relvantes/pension-reserve-fund-asset-allocation.html.

TABLE 2

Comparison of investment objectives and risk tolerance

	Current	Committee's recommendation
Objective	Maximize the expected return in **dollars.**	Expected annualized return in **pesos** of at least 2% over Chilean inflation in a period of 10 years, with a probability of at least 60%.
Risk tolerance	A 95% probability that the fund will not have losses exceeding 10% of its value in dollars.	A probability of 5% or less that the real return in pesos will be under –12% in any given year.

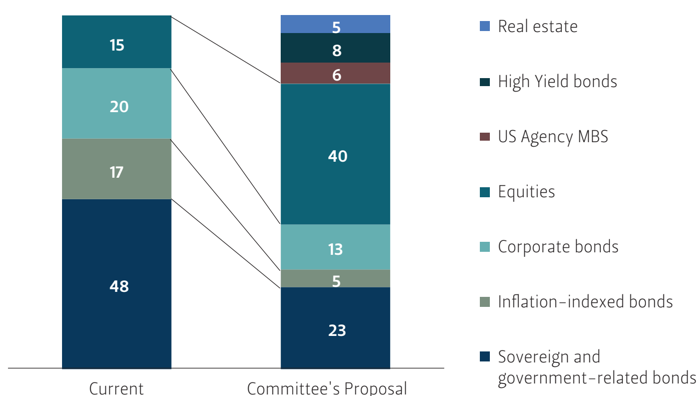
SOURCE: Ministry of Finance of Chile

Strategic asset allocation

The Committee submitted a proposal to the Finance Minister on a strategic asset allocation consistent with the defined objectives and risk tolerance. Specifically, the Committee recommended gradually modifying the fund's strategic asset allocation as follows: (1) increase the equity share from 15% to 40%; (2) decrease the shares of sovereign and government-related bonds from 48% to 23%, inflation-indexed bonds from 17% to 5%, and corporate bonds from 20% to 13%; and (3) incorporate three new asset classes with the following shares: U.S. agency MBSs, 6%; high-yield bonds, 8%; and unlisted real estate assets, 5% (see *Figure 23*). All asset classes will be invested globally, with the exception of U.S. agency MBSs. The Committee also suggested gradually hedging the exposure of the fixed-income portfolios to Chilean pesos.

FIGURE 23

Current investment policy versus the Committee's recommendation
(percent of portfolio)



SOURCE: Ministry of Finance of Chile

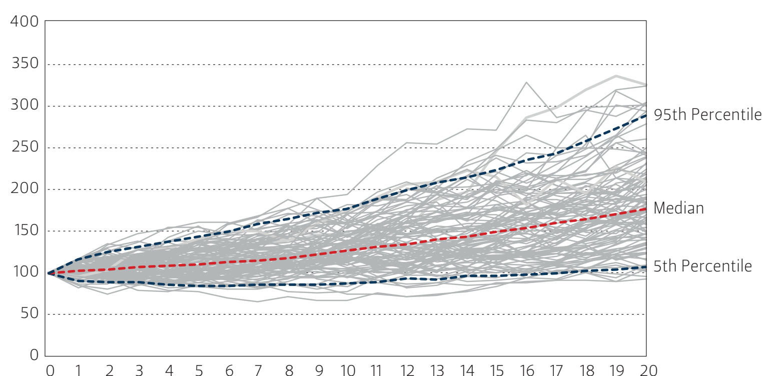
To illustrate the expected performance of the strategic asset allocation recommended by the Committee, *Figure 24* presents 100 simulations of an index that adjusts its value according to the simulated real return of the recommended allocation. The red line graphs the median of the index, while the blue lines mark the 5th and 95th percentiles of the distribution for each year.[27] According to Mercer's estimates, the new PRF investment policy will allow the fund to obtain an expected annualized real return in pesos of 2.8%, versus just 0.1% in pesos under the current policy. The risk level of the policy suggested by the Committee, measured as the standard deviation of the real return, is 8%,

27 The estimated median and percentiles are based on 1,000 simulations, carried out by Mercer.

which is lower than the current policy (10.7%). Because the current investment policy, defined in 2008, was designed to maximize the value of the fund in dollars, it is neither optimal nor consistent with the definition of the new investment policy´s objective, and thus offers a lower expected return when measured in pesos. Furthermore, the probability that the Committee's recommendation does not achieve an annualized return of 1.0%, 1.5%, and 2.0% in ten years is 21%, 28%, and 36%, respectively, which is consistent with the investment objective of obtaining an expected annualized real return in pesos of at least 2.0% in a ten-year period with a probability of at least 60%. The probability that the new policy will have losses greater than –9.8% in a given year is 5%, which is within the established risk tolerance limit.[28] Finally, the expected value of losses with a probability of occurrence of less than 5% in a given year is –12.9% (see *Table 3*).[29]

FIGURE 24

Simulations of the real return index of the strategic asset allocation recommended by the Committee
(year 0 = 100)



SOURCE: Ministry of Finance, based on simulations provided by Mercer Investment Consulting.

TABLE 3

Relevant indicators
(percent)

Indicator	Current	Recommendation
Expected real return in CLP	0.1	2.8
Standard deviation in CLP	10.7	8.0
Probability of not earning 1.0% in 10 years	54	21
Probability of not earning 1.5% in 10 years	60	28
Probability of not earning 2.0% in 10 years	66	36
Value-at-risk (VaR) at 5% confidence level	-15.5	-9.8
Conditional value-at-risk (C-VaR) at 5% confidence level	-19.3	-12.9

SOURCE: Mercer Investment Consulting

28 This is due to the fact that the probability of having a more negative return than established in the risk tolerance parameter (–12%) would be less than 5% because the more negative results have lower probabilities (assuming a normal distribution).

29 See the conditional value–at–risk (C–VaR) Table 3.

Implementation

The Committee recommended a gradual convergence to the new asset allocation. In the first phase, projected for 2018, external managers will be contracted to invest the U.S. agency MBS and high-yield bond portfolios. Exposure to equities will be gradually increased, with a corresponding reduction in exposure to corporate and sovereign fixed-income, so as to converge to the new strategic asset allocation. In the second phase, beginning in 2019, a selection process will be held for the management of exposure to the real estate sector and for implementing the currency hedging strategy. There will also be a new selection process for the management of the corporate bond and equity portfolios, given the length of time since the current contracts were signed. This second phase will also continue the process of increasing equities exposure and adjusting the other shares to reach the new PRF strategic asset allocation.

The Central Bank will be in charge of selecting the managers of the new PRF asset classes. Given the importance of employing the highest standards of quality and transparency in the management of the Chilean sovereign wealth funds, the Committee proposed that the CBC follow the same procedures defined for selecting external portfolio managers for investing international reserves, which include contracting a consulting firm to advise on the process.

C. Counterparty limits in the securities lending program

The Financial Committee recommended that with regard to the securities lending program, no more than 10% of the total should be loaned to companies related to the custodian bank. The purpose of this recommendation is to limit credit risk exposure to the custodian bank if the amount loaned were to exceed that percentage (see *Box 6*).

BOX 6: Securities custody and the securities lending program

The securities custodian is the institution responsible for safekeeping an investor's financial assets. The custodian's main role is to hold and protect the securities that have been entrusted to the institution, and to return the assets when the owner so requires. The custodian is also charged with facilitating securities transfers related to sale and purchase instructions issued by the investor and enforcing all rights associated with the securities, such as collecting interest or dividend payments. The custodian may also represent the investor at shareholder or bondholder meetings.

To maximize the return on their resources, many investors use securities lending programs, a service typically offered by custodians. In a securities lending program, the custodian, acting in the name of the owner of the securities in question, loans the instruments held in custody to a third party (the counterparty). These loans are usually guaranteed by the counterparty through the delivery of cash or other financial instruments that are held as collateral. The custodian often provides a second guarantee, as well. When financial instruments are used as collateral, the counterparty is obligated to pay a fee to the owner of the loaned securities, through the custodian, and to return the borrowed securities when requested or at the end of the established loan period. When the collateral is cash, the securities owner invests the money to generate income, through the custodian, and must pay interest to the counterparty on the cash received as collateral. In both cases, the custodian receives part of the earnings as compensation for managing the program.

In the case of the Chilean funds, the custodian is J.P. Morgan Chase Bank N.A., and the securities lending program only accepts fixed-income financial instruments as collateral.

D. Monitoring of the sovereign wealth funds managers

The Financial Committee received delegations from the Central Bank of Chile, Mellon, BlackRock, and Allianz, which are required to report annually on their portfolio management to the members of the Committee and the Finance Ministry. The CBC discussed the main market developments in 2016 and described its portfolio performance and investment methodologies. Mellon, BlackRock, and Allianz also reviewed the main market events in the year, as well as their portfolio allocation and performance, their investment strategies, and some institutional investment trends. Allianz gave a report on the acquisition of Rogge Global Partners in 2016, describing the main highlights of the merger and emphasizing that there were no changes in the PRF investment team or process. These presentations are part of the reporting requirements for all portfolio managers.

E. Responsible investment practices

During the year, the Financial Committee analyzed how environmental, social, and governance (ESG) criteria and responsible investment practices could be applied to the management of the Chilean sovereign wealth funds. After analyzing the experience of other sovereign wealth funds and institutional investors, international standards in the industry, Mercer's recommendations in the study commissioned for the PRF, and some legal considerations applicable to the Chilean funds, the Committee recommended that, given the legal nature of the funds and their direct relationship with the Finance Ministry, it is not feasible to directly adhere to the international framework promoting these practices. However, the Committee suggested that in order to advance in the area of responsible investment standards, any external managers contracted for the sovereign wealth funds should be required to comply with the Principles for Responsible Investment (PRI),[30] which are supported by the United Nations.[31]

30 Principles for Responsible Investment.

31 The PRI works with its international network of signatories to put into practice a series of Principles for Responsible Investment, which have the support of the United Nations. The objective of the principles is to understand the impact that environmental, social, and governance issues have on investment and advise signatories on how to integrate these issues into their investment and ownership decisions.

APPENDIX **SUMMARY OF MEETINGS IN 2017**

MEETING 1 | 12 JANUARY 2017

In the first meeting of the year, the Committee received delegations from Mellon, BlackRock, and the Central Bank of Chile, who reported on their portfolio management. Mellon presented its 2016 results, its investment processes, and some issues related to responsible investment. The CBC reported on its management in the year and reviewed the main market developments that affected performance. Finally, BlackRock described its results and investment processes and gave a brief presentation on alternative investments and its experience incorporating responsible investment practices in investment strategies for other clients. The Committee expressed its satisfaction with the performance of all the managers and recommended meeting with Allianz in the second quarter of the year in order to focus on Mercer's study of the PRF investment policy.

MEETING 2 | 10 MARCH 2017

The Committee received the delegation from Mercer, which was commissioned to undertake a study of the PRF investment policy. The presentation included preliminary recommendations on possible strategic asset allocations for the fund. For each asset class, the team presented several risk indicators, simulations of future behavior, and stress test results. Additionally, the team advised the Committee on some considerations for building portfolios for the proposed asset classes and provided an initial draft of the PRF investment policy statement. The Committee assessed Mercer's recommendations and suggested incorporating some additional aspects, such as hedging the currency exposure to pesos, presenting investment proposals with equity exposure limited to 30% and 40%, and including and excluding alternative investments. In other business, the Committee addressed issues related to the publication of the Financial Committee's 2016 Annual Report.

MEETING 3 | 11 APRIL 2017

At the April meeting, the Committee received the delegation from Allianz, in fulfillment of the reporting requirements whereby portfolio managers must give an annual presentation on their portfolio management. The Allianz team discussed the acquisition of Rogge Global Partners, which was bought by Allianz in 2016. After describing the main highlights of the merger, the firm emphasized that there had been no change in the investment team or processes used for managing the PRF portfolio. This was followed by a review of investment results in 2016 and the first quarter of 2017 and a summary of the main market developments in these periods. The Committee expressed its satisfaction with the manager's performance. After the presentation, the Committee evaluated a preliminary proposal for a responsible investment strategy, drawn up by the Committee's Technical Secretariat. In particular, the Committee reviewed general aspects of responsible investment; analyzed the practices, motivations, and experience of other sovereign wealth funds and pension funds worldwide; and discussed the main conclusions of related academic studies. The Committee requested additional information on some aspects of the proposal, which would be addressed at the next meeting.

MEETING 4 | 9 JUNE 2017

The Committee met with Mercer for the third time to analyze the final conclusions of the consulting firm's study on the PRF investment policy. The team presented an international comparison of the main characteristics of the investment policies of comparable funds, a general review of the theoretical framework used in the asset allocation model, proposals on how to define the fund's investment objective, and recommendations on different combinations of asset classes that would achieve the stated objectives. The presentation also included simulations, stress tests, and a historical analysis of the main recommendations, examining different aspects that should be taken into account during the implementation phase. Finally, the team informed the Committee that it would provide the Ministry with a simplified version of the model that could be used to assess changes in the study's main proposals in response to significant market movements. The Committee thanked the Mercer team for their work and asked the Technical Secretariat to put together a proposal on the study's conclusions for implementation.

MEETING 5 | 21 JULY 2017

At this meeting, the Committee analyzed the Technical Secretariat's proposal for modifying the PRF investment policy, based on the study carried out by Mercer. The issues analyzed included a comparison of the main financial statistics of the strategic asset allocations recommended by Mercer, an in-depth examination of the most relevant characteristics of the new asset classes that could be incorporated, and suggestions of possible benchmarks for each class, as well as technical aspects of the implementation of the investment policy. After discussing the pros and cons of each proposal, the Committee voted to submit a recommendation to the the Finance Minister on a new PRF investment objective and strategic asset allocation, in line with the objectives for which the fund was created (see *Chapter 3, Section B*). In other business, the Committee, having previously analyzed the possibility of integrating responsible investment practices into the management of the Chilean sovereign wealth funds, concluded that it is not feasible to directly adhere to the international framework promoting these practices, given the legal nature of the funds and their direct relationship with the Finance Ministry. However, to move forward in the area of responsible investment standards, the Committee voted to establish the requirement that any external managers contracted to manage the sovereign wealth funds must comply with the Principles for Responsible Investment (PRI), which are supported by the United Nations. Finally, the Committee recommended that with regard to the securities lending program, no more than 10% of the total should be loaned to companies related to the custodian bank.

MEETING 6 | 20 OCTOBER 2017

At this meeting, the Committee continued its analysis of the investment strategies and main characteristics of the new asset classes to be recommended to the Finance Minister for incorporation into the PRF investment portfolio. There was also a preliminary discussion of the timing and length of time necessary to implement the new investment policy. Finally, it was agreed that the Committee President would present the suggested changes to the Finance Minister at the meeting scheduled for 30 October.

MEETING 7 | 15 DECEMBER 2017

The Committee discussed the implementation plan for the new PRF investment policy, which was approved by the Finance Minister in early November. The Committee recommended implementing the new plan in two phases. In the first phase, projected for 2018, external managers will be contracted to invest the U.S. agency MBS and high-yield bond portfolios. Exposure to equity will be gradually increased, with a corresponding reduction in exposure to corporate and sovereign fixed-income, so as to converge to the new strategic asset allocation. In a second phase, a selection process will be held for the management of exposure to the real estate sector, and the currency hedging strategy will be implemented gradually. There will also be a new selection process for the management of the corporate bond and equity portfolios, given the length of time since the current contracts were signed. This second phase will also continue the process of increasing equity exposure and adjusting the other shares to reach the new PRF strategic asset allocation. In addition, the Committee reviewed a proposed procedure for reviewing the funds' investment policies, in order to standardize the methodology and timing of these processes in the future. The Committee asked the Technical Secretariat to draw up a new proposal incorporating the recommendations made by Committee members at the meeting.

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Glossary

Active management — an investment strategy that seeks to obtain a higher return than a given benchmark.

Alternative investments — investments other than those traditionally used (equities and fixed-income); they mainly include private equity, venture capital, hedge funds, commodities and real estate.

American depositary receipts (ADR) — negotiable certificate issued by a U.S. bank representing a specified number of shares (or one share) in a foreign equities traded on a U.S. exchange.

Asset class — a specific investment category such as equities, corporate bonds, sovereign bonds or money market instruments. Assets of the same class generally share characteristics that make them similar from a tax, legal and structural perspective, but this does not imply that they respond the same way to a given market event.

Basis point — one one-hundredth of a decimal point; 1 basis point = (1/100) de 1%.

Bond — a financial liability of an issuer (for example, a company or a government) to investors, under which the issuer undertakes not only to return the investors' capital, but also to pay an agreed interest rate on a specific date(s).

Cash — cash in hand and bank demand deposits.

Corporate bond — a bond issued by a corporation or company.

Credit default swap (CDS) — a financial instrument used by investors as protection against default on a bond; can also be used to take a speculative position on a bond covered by the CDS.

Credit rating — the level of solvency of the issuer of a financial instrument (company or country) as defined by a credit rating agency.

Duration — a measure of the sensitivity of a bond's price to changes in interest rates: the longer the duration, the farther the bond's price will fall in response to an increase in interest rates.

Equities — securities that represent the ownership or capital of a company; buyers of equities become owners or shareholders of the company and thus have earnings or losses depending on the company's performance.

Ex ante tracking error — a measure of the difference between the return on an investment fund and its benchmark.

Exchange-traded fund (ETF) — a market-traded financial instrument that typically replicates a market index; traditionally used to obtain passive exposure to equity market indexes, but has expanded into fixed-income, commodities and even active strategies.

Fiscal Responsibility Law — Law N° 20,128, published in Chile's Official Gazette on 30 September 2006.

Fixed-income — investment instruments with a yield over a given period that is known at the time of their acquisition; sovereign and corporate bonds and bank deposits are fixed-income assets.

Global depositary receipts (GDR) —bank certificate issued in more than one country for shares in a foreign company. The shares are held by a foreign branch of an international bank. The shares trade as domestic shares but are offered for sale globally through the various bank branches.

Headline or reputational risk — the risk of an adverse public perception of an entity's management.

High Yield Bonds — non investment grade sovereign and corporate bonds.

Inflation-indexed bond — a bond whose value varies in line with an inflation index; in the United States, these securities are known as Treasury Inflation-Protected Securities (TIPS).

Internal rate of return (IRR) — the effective yield on an investment, calculated taking the net present value of all cash flows as zero.

Investment policy — the set of criteria, guidelines and instructions that regulate the amount, structure and dynamics of an investment portfolio.

Leverage — the level of debt carried by a firm or investment vehicle.

LIBID — London interbank bid rate; the interest rate paid on interbank deposits. By definition, this rate is equal to the LIBOR minus 0.125%.

LIBOR — London interbank offered rate; the interest rate charged on interbank borrowing.

Liquidity — the degree to which an asset or security can be quickly bought or sold in the market without affecting the asset's price.

Money market instrument — a short-term asset with a maturity of less than a year, which can readily be converted into cash and is less volatile than other asset classes.

Mutual fund — an investment vehicle managed by an entity that brings together the capital of different investors and provides them with exposure to different asset classes; unlike ETFs, mutual funds are not traded on the market.

Passive management — an investment strategy that seeks to replicate the return on a representative index of an asset class or combination of asset classes.

Portfolio — the combination of investments acquired by an individual or institutional investor.

Quantitative easing — an unconventional monetary policy tool used by some central banks to increase the money supply, usually through the purchase of the country's own government bonds.

Recognition bond *(bono de reconocimiento)* — an instrument issued by Chile's Pension Normalization Institute *(Instituto de Normalización Previsional)* representing a worker's contributions to the old pension system before joining the new (private) AFP system.

Return (total) — the combination of the return in local currency and the return generated by exchange rate fluctuations.

Return generated by exchange rate movements — the share of the return that is generated by variations in the value of the dollar against other currencies in which assets are held.

Return in local currency — the return generated by a financial instrument in the currency in which it is denominated; corresponds to the share of returns associated with the level of interest rates and their movements, creditworthiness and other factors.

Risk — the possibility of suffering a financial loss; the variability of the return on an investment.

Sovereign bond — a bond issued by a government.

Special Drawing Rights (SDR) — International reserve assets created by the IMF to supplement its member countries' official reserves. SDRs can be exchanged for freely usable currencies.

Spread — the difference between the yield rate at maturity of two fixed-income instruments; used to measure their level of relative risk.

TED Spread — the difference between the interbank borrowing rate (LIBOR) and the risk-free rate (U.S. Treasury bills). A higher TED spread typically indicates a lower level of market liquidity.

Time-weighted rate of return (TWR) — a measure of return obtained by compounding or multiplying daily returns, excluding contributions and withdrawals; unlike the IRR, it excludes the effect of net cash flows.

Variable-income — Equities.

VIX — the Chicago Board Options Exchange (CBOE) Volatility Index, which reflects market expectations for volatility over the next 30 days; based on the implied volatilities of a wide range of S&P500 index options.

Volatility — a measure of a financial asset's risk, representing the variation shown by its price over a period of time.