



CHILE

SELECTED ISSUES PAPER

July 2014

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CHILE

SELECTED ISSUES

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Approved By
**Western Hemisphere
Department**

Prepared By Yi Wu (AFR), Elif Ture, Daniel Rodriguez-Delgado (both WHD), and Nicolas Arregui (MCM), with research assistance from Ehab Tawfik and editorial support from Stella Allotey Addo and Edward Moreno (all WHD). These Selected Issues papers have benefitted from discussions with staff from the Central Bank of Chile and government officials.

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WHY FOREIGN OWNERSHIP OF LOCALLY ISSUED SOVEREIGN BONDS IS SO LOW IN CHILE¹

This chapter seeks to explain why foreign ownership of locally issued sovereign bonds is so low in Chile and its implications. The low foreign ownership seems to be the result of a combination of macroeconomic, regulatory, and technical factors.

A. Introduction

1. Chile has substantially opened up its capital account since 1999 including on foreign portfolio investments (Carrière-Swallow and García-Silva, 2013). Capital market reforms in recent years sought to promote the development of Chile's financial market and its integration into the international financial system. Foreign banks (foreign ownership more than 50 percent) account for close to 40 percent of the banking sector. The Chilean authorities also introduced new measures in April 2011 to facilitate bond issuance by foreign corporates in Chile (dubbed "huaso" bond).² In 2013 Banco de Chile (Citi) first introduced global depository notes. Inflows were strong initially, totaling US\$900 million in April/May, but subsequently quieted down.

Table 1. Chile: Chinn-Ito Index of Financial Openness

	Chile	Brazil	Colombia	Mexico	Peru	U.S.
1998	-1.9	-1.2	-1.2	1.1	2.4	2.4
2011	1.4	-0.1	-0.1	1.1	2.4	2.4

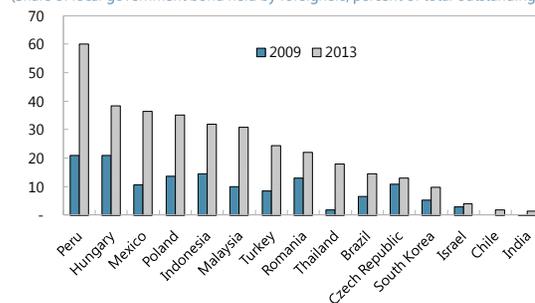
Note: Higher values indicate more open capital account.

Source: Chinn and Ito (2008), updated

2. However, foreign ownership of domestically issued sovereign bonds is still very low in Chile. Foreign ownership of locally issued public debt is only 2 percent in Chile (Central Bank of Chile, 2013).³ This is extremely low compared with other emerging markets, e.g., 37 percent in Mexico and 60 percent in Peru.⁴ This chapter focuses on sovereign bonds, but foreign ownership of locally issued corporate bonds is estimated to be also very low. This is perplexing because when the Chilean government or Chilean companies approach the

Foreign Investor Participation in Local Government Bond Markets

(Share of local government bond held by foreigners; percent of total outstanding)



Sources: IMF (2014) and Central Bank of Chile (2013).

¹ Prepared by Yi Wu (AFR).

² New criteria allow companies constituted in countries with at least three sovereign ratings to issue huaso bonds, although only a handful of borrowers have tapped this asset class.

³ Foreign investors, especially leveraged investors, also get exposure to the local fixed-income market through the swap market.

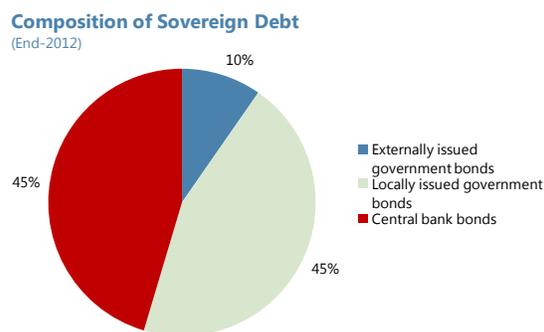
⁴ The figure for Chile is for the third quarter of 2012 and refers to foreign ownership of sovereign debt, which are dominantly bonds, as foreign investors hold little treasury bills.

overseas markets, there is always strong demand. Foreign share of equity market capitalization is also low, estimated at 5 percent, although nonresidents account for about 20 percent of stock market trading volume (OECD, 2011).⁵

3. This chapter seeks to shed some light on the reason for the low foreign ownership of local bonds. To the best of our knowledge, there have been no comprehensive studies on the subject. The most recent Financial Stability Report (Central Bank of Chile, 2013) discusses the issue, and points to the tax on capital gains, costs for custody of securities and other administrative costs, and the relatively small size of the sovereign bond market as the reasons. Our study also finds that a combination of factors contributed to the low foreign ownership, including a moderate supply of sovereign bonds shadowed by strong local demand, illiquid secondary market, tax and administrative burden, the dominance of inflation-indexed bonds, and inconvenience and potential risks associated with foreign exchange transactions. The remainder of the chapter is organized as follows: Section B discusses possible factors of the low foreign ownership; Section C touches upon its implications; and Section D provides some concluding remarks.

B. Possible explanations of low foreign ownership of local sovereign bonds

4. The market is relatively small while the demand for government bonds from local institutional investors is high. Chile's gross government debt is low, standing at only 12 percent of GDP as of June 2013 (the government has net assets), and locally issued government debt is even smaller at about 10 percent of GDP. The central bank also issues bonds whose yields are similar to those of government bonds. Central bank debt amounts to about 10 percent of GDP as of June 2013. Chilean pension funds are large (with assets equivalent to 60 percent of GDP) and the most important investor of sovereign bonds. They hold about two-thirds of government bonds—as much as three quarters of inflation-linked government bonds—and half of central bank bonds. Although Chilean local bonds are included in the major global benchmarks (like Barclays), its share, at about 0.35 percent, is small. International investors would need to weigh the benefit from a small market against the fixed costs of investing in Chile.



Source: Central Bank of Chile.

5. Nevertheless, the yields for Chile's sovereign bonds are reasonably good. This is particularly the case when controlling for the perceived low risk of Chilean sovereign bonds. For example, although historically Chile's 10-year government bond yield was often lower than that of Mexico, Peru, and Colombia, it was actually higher as of May 1, 2013 for both the nominal and

⁵ Chile's equity market is large compared to others in the region; however, the equity market has remained rather illiquid, as the pension funds act largely as buy-and-hold investors, and much of Chile's corporate sector is dominated by large conglomerates with correspondingly low float ratios (OECD, 2011; IMF, 2011).

inflation-indexed bonds (before the emerging market bond market turmoil), even though Chile has higher credit rating and lower credit default swap spread.⁶ This suggests other important factors (instead of yields) in explaining the low foreign ownership of local bonds.

Table 2. Chile: 10-Year Local Currency Sovereign Bond

Country	Nominal		Inflation indexed		As of May 1, 2013			
	Yield (May 1, 2013)	Yield (May 1, 2011)	Yield (May 1, 2013)	Yield (May 1, 2011)	Moody's	S&P	Fitch	CDS
Chile	5.2	6.4	2.4	2.9	Aa3	AA+	AA-	65
South Korea	2.8	4.5	n.a.	n.a.	Aa3	AA-	AA	72
Brazil	9.6	12.6	3.4	6.2	Baa2	A-	BBB	110
Mexico	4.5	7.2	1.1	3.2	Baa1	A-	A-	82
Peru	4.1	6.8	n.a.	n.a.	Baa2	A-	BBB+	87
Colombia	4.8	8.3	1.8	3.7	Baa3	BBB+	BBB	82

Note: Ratings are for local currency long-term bonds, and CDS is for dollar bonds.

Source: Bloomberg.

6. The secondary market is illiquid and opaque. Local pension funds typically buy and hold. As a result, the secondary market is thin, with daily transactions averaging only US\$1.6 billion, or about 3 percent of the outstanding stock. Even more importantly, the bulk of these transactions (more than 80 percent) are over-the-counter, where trading is nontransparent and expensive for nonresidents. A liquid and centralized secondary market is very important in attracting foreign investors, who typically make profit through trading. While many other emerging markets also have illiquid secondary market with mainly over-the-counter trading, the dominance of inflation-indexed bonds may make it a more acute problem in Chile (see the next paragraph). The relatively low volatility of Chilean sovereign bonds may have also discouraged opportunistic international investors seeking higher yields and volatility.

7. The dominance of inflation-indexed (UF) bonds in Chile also has deterring effects on foreign investors. UF bonds account for about 70–80 percent of government bonds outstanding and 70 percent of central bank bonds. Unlike local pension funds, international investors do not have liabilities indexed to Chilean inflation, and would prefer nominal bonds instead of UF bonds. The dominance of UF bonds essentially reduces the (relevant) local market size for them substantially.⁷

8. The capital gains tax could have also reduced foreign investment in local bonds. Until recently, foreign investors were subject to a 35 percent capital gains tax on fixed-income instruments traded over-the-counter, which is where the bulk of the trading happens. Transactions of fixed income instruments traded on a stock exchange were exempted from the tax. The Single

⁶ The difference in yields was also unlikely driven by exchange rate factors, as there was no expectation of trend depreciation of the Chilean peso vs. the other currencies.

⁷ Nonetheless, as UF bonds dominate the market, foreign investors are more likely to invest in them rather than in nominal bonds.

Funds Act, which came into effect on May 1, 2014, abolished the capital gains tax for over-the-counter transactions and equalized their treatment with stock exchange transactions. The law also expanded the range of government and central bank instruments eligible for tax exemption, allowing instruments issued prior to 2010 to benefit from the new tax treatment. This expanded the eligible instruments by some 25 percent of the outstanding stock of government and central bank bonds.⁸ The new legislation effectively eases the access for foreign investors to the local government bond market.

9. The on-shore foreign exchange market infrastructure is costly and cumbersome for international investors. Most foreign investors would like to get their returns in U.S. dollar. Although there is an off-shore foreign exchange derivative market, there is no off-shore spot market for Chilean peso. While Chile's on-shore foreign exchange market is deep and liquid, trading is controlled by banks and pension funds and conducted in a closed platform. As a result foreign investors may find it cumbersome and costly to conduct foreign exchange transactions in Chile. In addition, Chile is not part of the Continuous Linked Settlement (CLS), which adds to foreign exchange settlement risks.⁹

10. There is also an administrative burden for nonresidents to purchase local bonds. Registering an account in Chile to purchase local bonds takes about six months (Bloomberg, 2013). Although one could argue that this is a one-off cost and should not be a barrier, anecdotal evidence suggests that it is an impediment to international investors.

C. Implications

11. Higher foreign investment in the local bond market could help further develop domestic financial market and lower bond yields. The financial market in Chile is already quite well developed and indeed the low foreign ownership in the bond market is among the few "last frontiers" for financial liberalization and development. Also, low government debt results in small government interest payments. However, foreign ownership could also be a mixed blessing. For example, Ebeke and Lu (2013) find that although foreign holdings of local currency government bonds in emerging markets lowered bond yields, they have increased yield volatility somewhat during the post-Lehman period.

⁸ See <http://www.hacienda.cl/english/public-debt-office/new-article-104.html> for a detailed discussion of the Article 104 tax regime for fixed income instruments under the Single Funds Act. Huaso bonds are also subject to the new treatment.

⁹ CLS is a bank-owned institution that was launched in 2002 to eliminate settlement risk, one of the biggest dangers in the foreign exchange market. The Chilean peso ranks 28th among most traded currencies in the world (BIS, 2013).

12. The low foreign ownership of local bonds may have helped shelter Chile's bond market from the emerging markets bond sell-off amid the Fed's tapering talk. During May 1 to June 25, 2013, the yield on Chile's locally issued (peso) sovereign bond only increased slightly while the increase for other countries in the region was much larger. An important reason could be the very low foreign ownership of local bonds in Chile. This can be confirmed from the much larger yield increase for Chilean sovereign bonds issued internationally, for both dollar and peso bonds.¹⁰

Table 3. Chile: Bond Yield Increase in BPS During the EM Bond Sell-Off (Local Currency Bonds), May 1–June 25, 2013
(10-year sovereign bonds)

Chile (locally issued peso bonds)	18
Chile (internationally issued dollar bonds)	127
Chile (internationally issued peso bonds)	50
Colombia	244
Brazil	209
Mexico	171
Peru	159

Source: Bloomberg.

D. Concluding remarks

13. The low foreign ownership of Chilean local bonds seems to be the result a combination of macroeconomic, regulatory, and technical factors. In particular, the small size of the market for nominal bonds, the lack of a liquid secondary market, the previous tax regime and existing administrative burden, and transaction costs in the foreign exchange market seem to be the main reasons. Tackling (some of) these issues could help increase foreign ownership, which could help lower financing costs for the government and corporates. However, the low foreign ownership helped insulate Chile from the recent worst sell-off for emerging markets local debt in four years. With the normalization of monetary policy in advanced economies, high foreign ownership of sovereign bonds is now considered a vulnerability, and one may wonder whether pursuing a policy to increase foreign ownership in local bond markets is necessarily an optimal move at the current juncture.

¹⁰ Although the yield for the Chilean peso bond issued internationally rose only moderately, it already rose 87 basis points (bps) during February and April when the international market was rather quiet. The bulk of Chile's externally issued government bonds is in U.S. dollars, except for the \$500 million peso-linked bond issued in 2011 (in New York).

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CHILE'S EXPERIENCE WITH INCLUSIVE GROWTH¹

Socioeconomic indicators in Chile have improved significantly over the last two decades. Income per capita has risen and poverty has declined. Chile's income distribution has also become somewhat more even, but it remains highly skewed compared to the region and OECD countries. This chapter reviews Chile's experience with inclusive growth over the last two decades and identifies remaining challenges and policy options.

A. Introduction

1. Inclusive growth is not only important for economic and social stability but also for the sustainability of strong growth. High levels of poverty and inequality can affect long-term growth by making it harder for the poor to invest in human capital, increasing the risk of social conflict and crises that undermine economic performance, and shortening the duration of high growth episodes.² Consequently, making growth inclusive has become an essential part of successful growth strategies, and many governments, including in Chile, have set themselves the goal of growth with social equity.

2. This paper reviews Chile's experience with inclusive growth over the last two decades, and identifies challenges and policy options to promote greater equality. Specifically, the paper reviews Chile's progress in improving the following: (i) poverty and income inequality; (ii) labor market equity, including in employment and wages; and (iii) equality of opportunity, including in access to quality education and health care services, and compares Chile's performance with countries in the region³ and the OECD. The paper ends with a discussion of social policy options.

B. Inclusive growth: trends

Poverty and Income Inequality

3. Chile has made significant progress in reducing poverty over the last two decades on the back of strong economic growth. During that period, Chile's GDP per capita in purchasing power terms doubled and it is now the highest in Latin America. Poverty has also fallen: the share of the population living below the national poverty line⁴ has fallen from 39 percent in 1990 to

¹ Prepared by Elif Ture (WHD).

² See, for example, Banerjee (2004) for the underinvestment channel, Rodrik (1999) for the social conflict and Kumhof and Rancière (2010) for the crisis channels, and Berg, Ostry and Tsangarides (2014) for the growth duration channel.

³ Throughout the paper, regional comparisons are made among LA6 countries, which include Brazil, Chile, Colombia, Mexico, Peru, and Uruguay.

⁴ See Box 1 for definitions of key concepts.

14 percent in 2011, and extreme poverty from 13 percent to below 3 percent (Table 1).⁵ Most of the reduction in poverty has resulted from Chile's strong economic growth. A study by Libertad and Desarrollo (2010) found that growth accounted for 75 percent of the poverty reduction in the last two decades. Nonetheless, while Chile's poverty rate is one of the lowest in Latin America, it is still one of the highest within the OECD (Figure 1).

Table 1. Chile: Poverty Headcount Ratios 1990-2011

(Percentage of Population Below Poverty Lines)

	National Poverty Lines /1		Regional Poverty Lines		Relative Poverty Line
	Extreme Poverty	Moderate Poverty	\$2.5 a day	\$4 a day	(50% of median income)
1990	13.0	38.6	20.8	40.8	20.3
1996	5.7	23.2	11.2	26.2	19.6
2000	5.6	20.2	8.9	23.0	19.5
2006	3.2	13.7	5.1	15.6	18.2
2011	2.8	14.4	2.9	9.9	15.9

Source: Socio-Economic Database for Latin America and the Caribbean (CEDLAS).

1/ In November 2011, extreme poverty line was \$36 and moderate poverty line was \$72 per month per person in Chile.

4. The decline in Chile's high income inequality has been slower and more recent. While most of the poverty reduction occurred in the 1990s and mainly due to strong growth, most of the improvement in income distribution occurred in the 2000s with the help of social policy (See Section C). After being relatively flat in the 1990s, Chile's Gini index declined from 55 percent in 2000 to 51 percent in 2011 (Table 2). However, it remains high even by Latin American standards—the region with the world's highest income inequality—and it is the highest within the OECD (20 percentage points above the OECD average) (Figure 2). Other metrics also show a gradual improvement, but inequality remains significant. For example, the top decile (quintile) in the income distribution earns 25 (13) times more than the bottom decile (quintile).

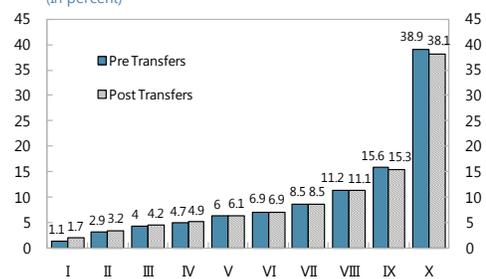
5. The reduction in poverty has not led to a commensurate reduction in inequality as the largest income disparities prevail at the top of the income distribution. According to the 2011 National Socioeconomic Characterization Survey (CASEN), the

Table 2. Chile: Income Inequality 1990-2011

	Income Ratios				Gini Index
	Quintiles	Deciles	Centiles		Total Income
	5/1	10/1	90/10	95/5	Per Capita
1990	18.3	38.2	11.3	24.7	0.57
1996	16.3	32.7	10.5	21.4	0.55
2000	16.3	33.6	10.0	21.8	0.55
2006	13.5	26.4	8.7	17.8	0.52
2011	12.5	24.5	8.3	17.0	0.51

Source: Socio-Economic Database for Latin America and the Caribbean (CEDLAS).

Distribution of Household Monetary Income Before and After Monetary Transfers
(In percent)



Source: National Socioeconomic Characterization (CASEN) Survey 2011.

⁵ Note that the (extreme) poverty rate increased in Chile between 2006 and 2009, from 13.7 (3.2) percent to 15.1 (3.9) percent for the first time since 1990, mostly due to the economic slowdown.

average autonomous income for households in the 10th (top) decile was 2.5 times as high as for the ones in the 9th decile, whereas for the 2nd through the 9th income deciles, the ratios between two sequential deciles were on average 1.3. Thus, income distribution was relatively equitable except for the top and bottom deciles. For the latter poorest, however, monetary transfers partly improved relative incomes and helped reduce poverty. Nevertheless, monetary transfers, historically accounting for 1–2 percent of household monetary income, have not significantly reduced inequality (Table 3).

Table 3. Chile: Monetary Transfers and Income Inequality 1990-2011

	Gini Index for Household Income /1		Share of Subsidies in Household Monetary Income (%)
	Autonomous	Monetary	
1990	0.57	0.56	0.9
1996	0.57	0.56	0.9
2000	0.58	0.58	1.0
2006	0.54	0.53	1.2
2011	0.54	0.52	2.2

Source: National Socioeconomic Characterization (CASEN) Surveys.

1/ Household monetary income consists of autonomous income (labor and capital income together with contributory and private transfers) and monetary subsidies.

6. High income inequality is reinforced by low intergenerational social mobility.

Intergenerational earnings elasticity, which measures the extent to which the income of a person is determined by his parents' income, is high in Chile by international standards, implying a low degree of intergenerational social mobility (Figure 3). Recent estimates of intergenerational earnings elasticity are in the range of 0.5–0.75 for Chile (Corak 2006, Contreras 2007, Nuñez and Miranda 2010), one of the highest within the OECD, stemming largely from a high inequality of opportunity especially in access to quality education (See Section C).

Wages and employment

7. As wages constitute the bulk of household monetary income, wage inequality is an important determinant of income inequality. In the 2011 CASEN Survey, labor income accounted for about 85 percent of household monetary income, out of which 60 percent was wages and salaries, and the rest was non-salaried income (of entrepreneurs and self-employed).⁶ The Gini indices for labor incomes show that non-salaried labor income is associated with much higher inequality than salaried income (Table 4). However, both salaried and non-salaried income

⁶ While 85 percent of household monetary income was labor income, around 13 percent of household monetary income was non-labor autonomous income, including rents, interest and dividends, pension, healthcare, and other private transfers. The remaining 2 percent of household monetary income was monetary subsidies. Total non-labor income accounted for less than 5 percentage points of the Gini index on household monetary income, which was 53 percent in 2011 (Friedman and Hofman, 2013). Note that household surveys are unable to measure capital income accurately, especially for higher income groups, due to sampling and under-reporting issues.

distributions have improved over the last decade, feeding into the lower inequality observed in the household monetary incomes.

Table 4. Chile: Inequality in Labor Income Distribution and Skill Premium in Labor Earnings 1990-2011

	Gini Index for Labor Income (Males Aged 15+)			Skill Premium on Hourly Wages /1 (Males Aged 25-55)	
	Total	Salaried	Non-Salaried	High over Medium	Medium over Low
1990	0.55	0.47	0.63	2.8	1.4
1996	0.56	0.48	0.60	2.9	1.7
2000	0.59	0.52	0.65	3.1	1.6
2006	0.52	0.46	0.58	2.5	1.4
2011	0.49	0.45	0.54	2.7	1.2

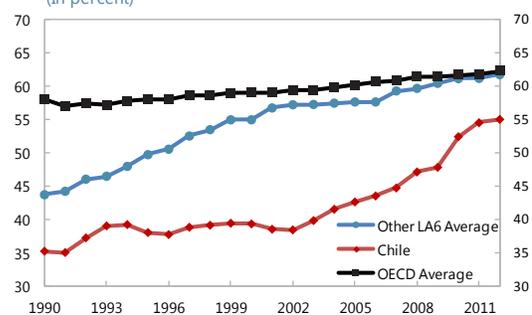
Sources: National Socioeconomic Characterization (CASEN) Surveys and Socio-Economic Database for Latin America and the Caribbean (CEDLAS).

1/ Ratio of wages for those with a tertiary education (high skilled), secondary education (medium skilled) and primary education (low skilled).

8. Wage inequality in Chile is closely linked to the skill premium. In the 1990s, for males aged 25–55, wages for those with a tertiary education were three times higher than for those with secondary education, partly reflecting increased demand for high-skilled workers during this period (Table 4). In the last decade, however, an increase in the supply of skilled workers helped reduce skill premiums, wage gaps, and income inequality (Larrañaga and Herrera, 2008). Nevertheless, Chile's skill premium remains among the highest in the region and in the OECD, due in part to differences in the quality of secondary education that affect enrollment in higher education (Figure 3).

9. Chile has seen an increase in female labor force participation and a decline in the gender-wage gap. Female labor force participation rose from 35 percent in 1990 to 55 percent in 2011, but this is still 7 percentage points below OECD and Latin America averages (Table 5). This increase was mainly driven by higher participation among adult females. Coupled with a fall in the participation of young males, this increase resulted in an increase in the share of women in the labor force from 30 percent in 1990 to 40 percent in 2011 and in the share of women in employment from 32 to 40 percent. The gender wage gap, defined as the ratio of the male-wages to female-wages, declined from 1.4 to 1.2. While the share of women in employment is 5 percentage points below the OECD average, Chile's gender-wage gap is close to the Latin America and OECD averages (Figure 2).

Female Labor Force Participation Rate (Ages 15-64)
(In percent)



Sources: World Bank, World Development Indicators, and OECD.

Table 5. Chile: Female Labor Force Participation, Employment, and Gender Wage Gap 1990-2011

	Labor Force Participation					Percentage of Females in		Gender Wage Gap /1	
	Ages 15-64		Ages 15-24		Ages 25-64		Labor Force		Employment
	Female	Male	Female	Male	Female	Male			
1990	35.2	51.4	27.3	46.8	38.5	90.2	30.5	32.2	1.36
1996	37.7	46.8	27.9	41.0	44.5	92.0	31.9	33.9	1.21
2000	39.3	41.0	27.3	42.9	48.9	91.4	33.1	36.1	1.36
2006	43.5	42.9	29.7	54.8	54.8	91.4	35.6	38.5	1.17
2011	54.5	42.3	28.7	57.2	57.2	90.3	39.7	40.5	1.19

Sources: Socio-Economic Database for Latin America and the Caribbean and World Bank World Development Indicators.

1/ Ratio of wages for males to those for females.

C. Social policy: progress

10. Chile has a large number of social programs and has seen an increase in public social spending. Of the 386 social programs that the Ministry of Social Development identified in 2013, most focused on social protection, education, and health (Table 6).⁷

Social spending in these areas increased from 12 to 14 percent of GDP over the last two decades, and the increase was particularly large for education and health spending (Table 7). Overall public social spending is fairly high in

Chile by regional standards when measured on per capita basis but when measured as a percentage of GDP it falls behind the regional and OECD averages (Figure 4).

Table 6. Chile: Number of Social Programs in 2013

Ministry	Social Protection	Education	Health	Others	Total
Social Development	18	6	4	32	60
Education	1	86	0	12	99
Health	0	0	66	0	66
Labor and Social Security	26	1	0	15	42
Others	20	8	0	91	119
Total	65	101	70	150	386

Source: Ministry of Social Development (2013).

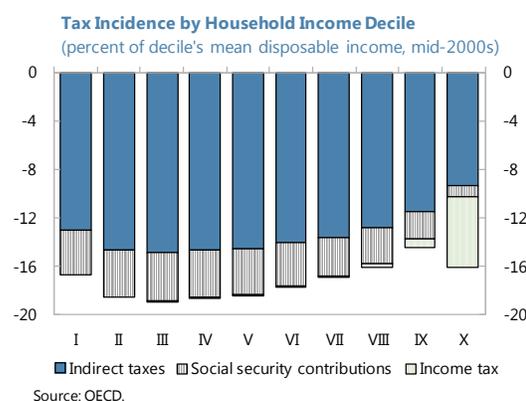
Table 7. Chile: Public Social Spending 1990-2011

	Health Care		Education		Social Protection		Total	
	Amount /1	% GDP	Amount /1	% GDP	Amount /1	% GDP	Amount /1	% GDP
1990	100	1.8	100	2.3	100	8.0	100	12.1
1996	203	2.4	197	2.9	142	7.3	161	12.5
2000	260	2.8	281	3.7	168	7.9	203	14.5
2006	415	2.6	374	2.9	201	5.5	266	11.1
2011	694	3.6	610	3.9	280	6.3	405	13.7

Sources: Budget Directory (DIPRES).

1/ Amounts in 2012 Chilean Pesos, normalized to 1990=100.

11. The Chilean tax-transfer system is characterized by low level of redistribution. While Chile has a level of tax revenue comparable to countries with similar characteristics (i.e., per capita GDP and demographics), Chile relies more on consumption-based indirect taxation (VAT and excise) than on income taxation, which tends to be more progressive.⁸ The tax incidence (tax payments as a fraction of disposable income) for the highest income decile in Chile is in fact lower than the one faced by the lowest income decile, and the tax incidence peaks at the third decile and then falls between the third and ninth deciles, both of which



⁷ Other programs include, for example, housing, environment, and culture. Social protection programs include social assistance and social security transfers together with social development programs targeted at improving the living conditions of vulnerable groups.

⁸ See for more details *Chile's Tax System and Reform*, by D. Rodriguez-Delgado, Selected Issues Paper.

indicate progressivity. On the other hand, the amount of public social transfers in Chile, including old-age, survivors, disability, family, labor market, and housing related cash and in kind transfers, has been low compared to the OECD average (10.2 versus 21.8 percent of GDP in 2012). Consequently, the Chilean tax-transfer system has not been effective in reducing poverty and inequality compared to the OECD (Figure 3).

Social assistance and development

12. Over the last decade, Chile has launched several new social assistance and development programs focused on extreme poverty, and social vulnerability and exclusion.

Key programs include: *Chile Solidario* (2002) aimed at overcoming extreme poverty, *Chile Crece Contigo* (2006) providing maternity and early childhood care and education for poor families, and *Pension Basica Solidaria* (2008) providing non-contributory pensions to old and disabled without social security. In 2011, the government created the Ministry of Social Development to serve as a coordinating body of all social policies and monitor their performance with the goal of eradicating extreme poverty by 2014 and poverty by 2018. Towards this goal, the government replaced *Chile Solidario* with a new cash transfer system *Ingreso Etico Familiar* (2012), aiming to achieve better outcomes in employment and earnings of the poor.

13. *Chile Solidario* (2002) was the first initiative to fight extreme poverty in Chile.

Beneficiaries of *Chile Solidario*, targeted through a proxy means-testing called the *Ficha de Proteccion Social* that evaluates the possessions and the income-generating capacity of households, have preferential access to a wide range of transfer programs and social support. The transfers include basic solidarity pensions mentioned above, family allowances to children, pregnant women, and disabled provided by *Subsidio Unico Familiar* (1981), and a subsidy for drinking water and sewage, together with the transfers directly provided by *Chile Solidario*. The latter, however, were temporary and small in size, mainly aimed at motivating participation and creating awareness and better use of the social public services with the help of a social worker (*Programa Puente*), rather than eliminating poverty.

14. *Ingreso Etico Familiar* (IEF), created in 2012, replaced *Chile Solidario* aiming to reduce poverty and vulnerability through a wider range and larger amount of transfers and employment support.

The transfers under IEF consist of three pillars: dignity, duties, and achievements. The first two target households and individuals living in extreme poverty: Dignity awards are unconditional cash transfers, whereas duties awards are transfers conditional on children's health check-ups, school enrolment and attendance.⁹ The third pillar (achievements) targets not only the extremely poor, but also the most vulnerable 30–40 percent of the population. Achievement awards include transfers conditional on secondary school graduation, academic

⁹ Financial assistance for schooling covers over 90 percent of primary education and 85 percent of secondary education.

performance of students, and female employment (*Bono Al Trabajo de La Mujer*). In addition, IEF provides employment support for individuals older than 18, and training sessions developing technical and soft skills for employability to help them enter the labor market.

Social services

15. Access to quality social services, i.e., health care and education, is unevenly distributed between the poor and the rich. Individuals with higher incomes typically rely on more expensive social services provided by the private sector in private facilities with higher quality, while individuals with lower incomes typically rely on public social services, which are more affordable, in some cases free, but generally with lower quality.

16. Access to health care has become almost universal but there are large differences in the quality of health care. The share of the population covered by health insurance increased from 88 percent in 1990 to 97 percent in 2011 (Table 8). In 2011, 84 percent of the population had public insurance with universal benefits, while 14 percent of the population, mostly from the top income quintiles, had private insurance with benefits depending on additional contributions and health risk.¹⁰ Beneficiaries of public insurance have access to both public and private health care facilities. The latter, however, provide higher quality health care with shorter wait times but with higher co-

Table 8. Chile: Health Insurance Coverage 1990-2011
(Share of people covered by health insurance per income quintile; in percent)

	1	2	3	4	5	All
1990 Public	86	72	73	62	41	71
Private	5	12	13	24	44	17
None	9	16	14	15	15	12
2011 Public	96	95	91	80	50	84
Private	2	3	7	17	47	14
None	2	2	2	4	4	3

Source: Ministry of Social Development (2013).

payments, limiting the access for the relatively poor. Nevertheless, the special health care plan *Plan de Acceso Universal con Garantías Explícitas* introduced in 2004 ensures universal access to affordable and quality healthcare from accredited providers (as of 2013) for a number of high priority health conditions, facilitating greater equity.

17. Enrollment in education has increased at all levels, but still remains segregated among the poor and the rich. While lower-income students mostly attend free public schools or, in some cases, subsidized private schools for primary and secondary education, higher-income students, mostly from the top quintile, attend paid private schools with higher quality (Table 9), measured by better performance in standardized tests and higher enrollment in tertiary education (Ministry of Social Development, Social Policy Report, 2013). For tertiary education, availability of scholarships and financial aid partly compensate for the existence of tuition fees. However, performance at the

¹⁰ All Chilean workers and pensioners are obligated to pay 7 percent of income for health insurance, which could be public or private. For the latter, higher contributions can be paid to increase benefits.

entrance exams, which reflects the quality of earlier education, remains significant in determining the socioeconomic differences in enrollment rates.

Table 9. Chile: Enrollment in (Public) Education 1990-2011

	Net Enrollment Rate						Share of Students in Public Schools					
	per Income Quintile (%) /1						per Income Quintile (%)					
	1	2	3	4	5	total	1	2	3	4	5	total
1990 Primary	95	96	97	97	99	97	98	98	96	92	61	91
Secondary	53	62	63	77	86	66	98	98	94	94	68	91
Tertiary	3	6	10	18	37	14	48	46	43	46	50	49
2011 Primary	99	99	99	100	99	99	99	99	97	94	67	93
Secondary	78	84	82	90	93	84	99	98	98	96	63	92
Tertiary	21	26	26	38	62	33	32	25	30	27	29	29

Source: Socio-Economic Database for Latin America and the Caribbean (CEDLAS).

1/ Share of children/youth in primary/secondary/tertiary school age attending primary/secondary/tertiary education.

18. Despite recent improvements, the quality of education is still a concern in Chile. In

OECD's 2012 Program for International Student Assessment (PISA) survey, which assesses

15-year-olds in mathematics, science, and reading,

Chilean students obtained the highest scores among

participating Latin American countries in all three areas,

and raised their scores substantially since the 2000

survey. However, Chilean students still ranked far below

the OECD average. Moreover, together with Peru and

Uruguay, Chile ranked among the countries with lowest

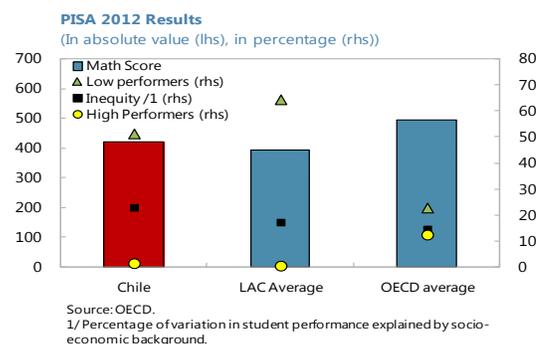
equity in education, with a large part of variation in

performance explained by socio-economic factors,

including parents' educational and occupational

attainment, and living standards. Chile's high intergenerational earnings elasticity and low

intergenerational mobility are largely explained by educational inequity (Contreras, 2007).



D. Remaining challenges and policy options

19. Sustaining strong growth is paramount for continued and lasting increases in welfare and reductions in poverty.

As studies show, most of the poverty reduction has been due to economic growth in Chile, especially in the 90s, and economic slowdown was the main reason for the temporary rise in poverty in 2009. Macroeconomic stability and avoiding crises are key for continued reductions in poverty and inequality, which in turn reinforce sustainability of strong growth, creating a virtuous cycle of growth and equity.

20. Further efforts on the jobs, education, and redistribution fronts could also help improve income distribution and social mobility (IMF, 2014). Focus could be on:

- *Facilitating labor force participation and employment, especially among women.* The extension of early-childhood education and childcare services through *Chile Crece Contigo*, the increase in the length of maternity leave to 24 weeks in 2011, and the introduction of

employment bonuses for low income women as part of the IEF are welcome steps. In line with OECD recommendations (OECD, 2013), other measures that could be considered are i) reassessing the requirement for childcare provision by companies with more than 19 female employees to eliminate unintended gender discrimination in hiring, and instead promoting universal access for quality childcare, and ii) improving job training opportunities, especially for young women.

- *Strengthening unemployment assistance, especially for the young and low-skilled.* IEF already provides employment support and training services, the impact of which could be evaluated. However, youth employment subsidies (*Subsidio al Empleo Joven*), introduced in 2009, are not used by many eligible young people (according to Ministry of Labor). Increasing awareness and take-up of existing benefits would help improve their impact.
- *Promoting equal access to quality education, especially at younger ages and among women.* Raising the quality and equity in education would improve income-generating human capabilities and reduce inequality. Chile's public spending on education is low by international standards¹¹ (Table 10) and has limited scope for efficiency gains.¹² Nevertheless, the authorities' planned education reform is an opportunity to reassess the effectiveness of the existing social programs in education and channel resources to the areas that have the highest social return. Such areas, e.g., early childhood education, are also the areas in which Chile has to make significant strides to close the gap (both in enrollment and quality) with its OECD peers (OECD Education Policy Outlook, 2013).
- *Streamlining the tax-transfer policy to achieve greater redistribution.* According to a study by Fairfield and Jorratt (2014), in Chile, the top percentile is estimated to have a very large income share (15–33 percent depending on assumptions), while paying relatively low effective tax rates (between 9–17 percent depending on methodology) by international standards. The authors argue that there is substantial room to increase the taxes on top income earners to curtail their income

Table 10. Chile: Education Spending as a Share of GDP, 2010 1/

		Pre-primary	Primary & Secondary	Tertiary	Total
		(In percent)			
Chile	Public	0.5	2.7	0.7	3.9
	Private	0.1	0.7	1.7	2.5
	Total	0.6	3.4	2.4	6.4
Mexico	Public	0.5	3.4	1.0	4.9
	Private	0.1	0.6	0.4	1.1
	Total	0.6	4.0	1.4	6.0
OECD	Public	0.5	3.7	1.1	5.3
	Private	0.1	0.3	0.5	0.9
	Total	0.6	4.0	1.7	6.2

Source: Education at a Glance, OECD 2013.
1/ 2011 for Chile. Spending on educational institutions only. Total public spending on education, including subsidies (scholarships/grants/loans), were 4.1, 5.3, and 5.8 percent of GDP in Chile, Mexico and average OECD, respectively.

¹¹ Note that total education spending (public and private) is not low in Chile compared to the OECD (Table 10), due mostly to high private spending on tertiary education.

¹² See Grigoli (2014) on the efficiency of public spending in Chile from a cross country perspective.

growth, as well as raising more revenue to finance social spending, both of which could contribute to reducing inequality. The current government has put forward a tax reform proposal aiming to increase progressivity.

E. Concluding remarks

21. Further analysis on wealth distribution could provide a more comprehensive understanding of the level and evolution of inequality. Keeping in mind the caveat of data availability,¹³ future research could focus on the differences in savings of the individuals as well as bequests and inheritances, especially for the top income brackets, to document better the distribution of wealth in Chile, which is presumably more skewed than the distribution of disposable income measured using household surveys.

¹³ Such analysis could require using confidential tax-return data, as conducted by Fairfield and Jorratt (2014).

Box 1. Definitions of Key Concepts

National Poverty Lines: Official poverty thresholds measuring minimum levels of income necessary to afford basic nutritional needs (extreme poverty) together with necessities such as clothing, healthcare and shelter (moderate poverty) based on a basic basket of goods.

Regional Poverty Lines: Poverty lines approximately representing median value of the extreme and moderate poverty lines officially set by governments in the Latin America and Caribbean region, which are \$2.5 and \$4 a day in purchasing power terms, respectively.

Relative Poverty Line: Poverty line corresponding to 50 percent of the median income in the population, a measure used in more advanced economies including the OECD.

Household Monetary Income: Sum of autonomous income and monetary subsidies. Equivalently, sum of labor and non-labor income.

Autonomous Income: Sum of labor income consisting of wages, salaries, allowances and bonuses, and non-labor income (including capital income) consisting of rents, interest and dividend earnings, pension, healthcare benefits, and other private transfers.

Monetary Subsidies: Cash transfers by the public sector through social programs.

Labor income: Income from work of (i) employees earning wages or salaries (salaried income), and (ii) employers and self-employed including home production (non-salaried income).

Non-labor Income: Sum of non-labor autonomous income and monetary subsidies.

Public Social Spending: Sum of government spending on social protection and social services, i.e., health care and education.

Social Protection: Covers social assistance transfers (conditional and unconditional cash transfers), social security transfers (contributory and noncontributory public pensions), and social development programs targeted at improving the living conditions of vulnerable groups.

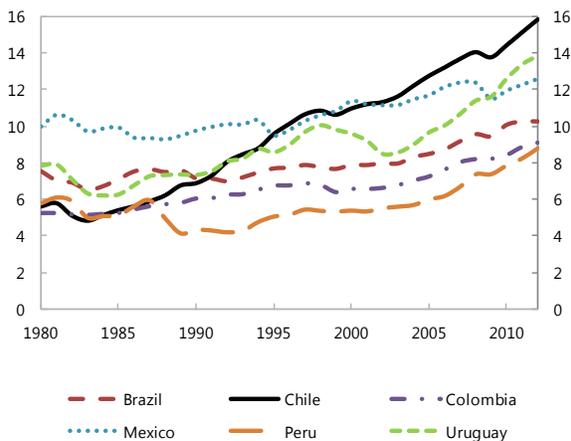
Social Development Programs: Aim to increase the welfare of vulnerable groups (e.g. elderly, women and children, youth and unemployed, homeless, disabled, indigenous) through, for example, capacity building (e.g. job training programs) to overcome the root causes of poverty.

Figure 1. Chile: Income Per Capita and Poverty

Per capita GDP doubled in Chile in the last two decades, reaching the highest level in Latin America...

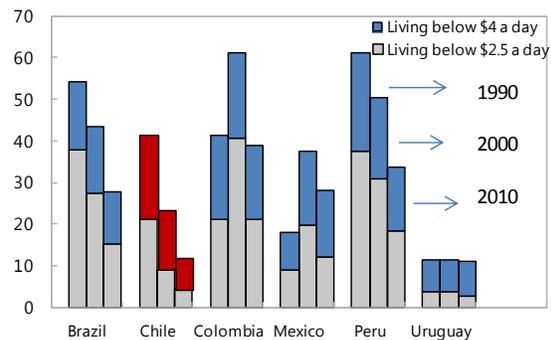
... and the poverty rate fell significantly, and is one of the lowest in the region.

GDP per Capita PPP
(In thousands of constant 2005 U.S. Dollars)



Sources: World Bank World Development Indicators.

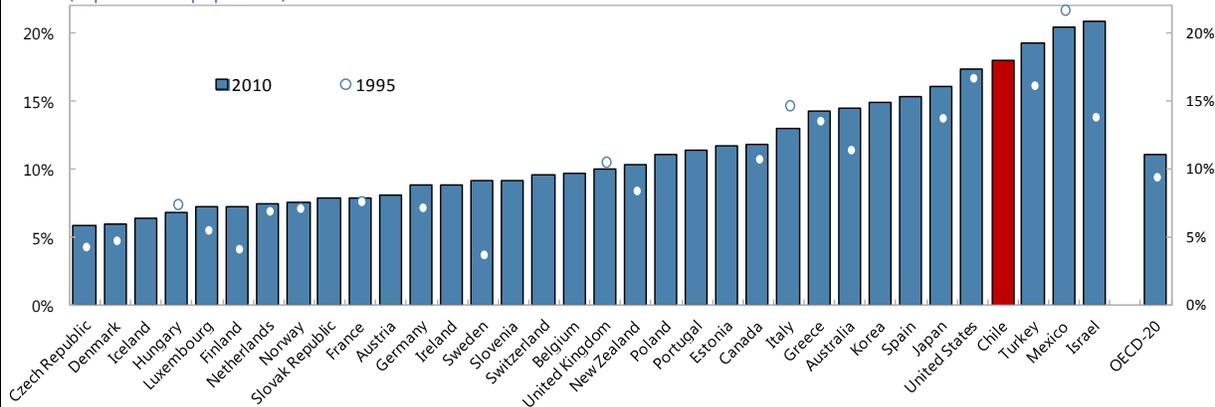
Poverty Headcount Ratio
(In percentage of population)



Sources: World bank, PovcalNet database, and Fund staff calculations.

However, relative poverty, measured by the share of population living with less than 50 percent of the median income is still high compared with OECD averages.

Relative Income Poverty Rates, 1995 and 2010
(In percent of population)



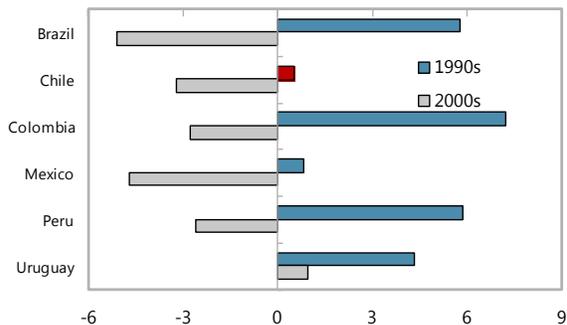
Source: OECD Income Distribution Database.

Figure 2. Chile: Income Inequality

Chile has seen a modest reduction in income inequality recently.

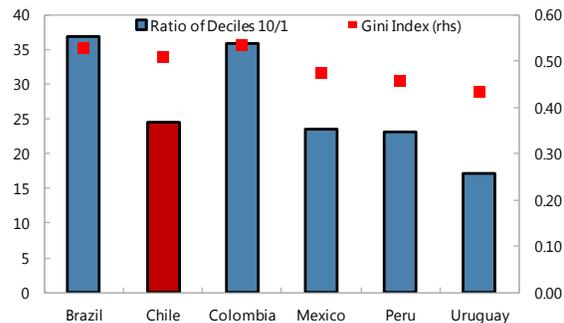
However, it still has a high degree of inequality relative to the region...

Change in Gini Index /1
(In Gini points)



Source: World Bank World Development Indicators.
1/ Changes are between 1992-2000 and 2000-2010, respectively.

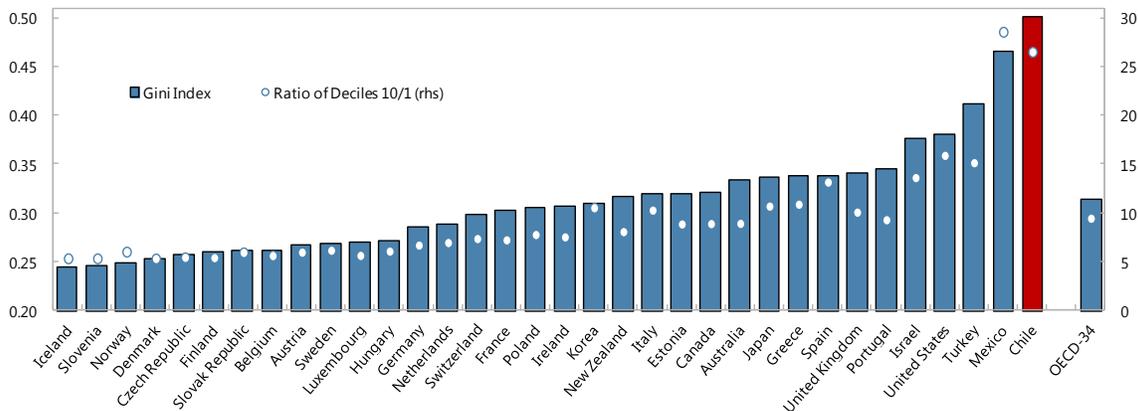
Income Inequality, 2011 /1



Source: Socioeconomic Database of Latin America and Caribbean (CEDLAS).
1/ 2010 for Mexico.

...and has the highest level of inequality within the OECD.

Gini Index and Gap between Richest and Poorest 10%, 2010

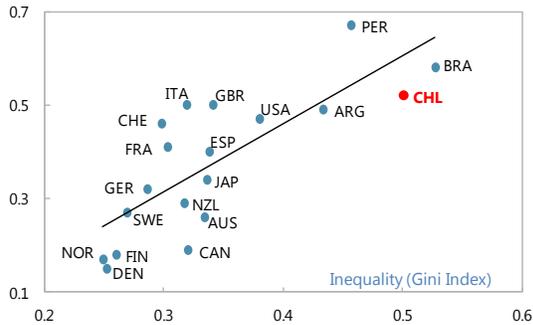


Source: OECD Income Distribution Database .

Figure 3. Chile: Social Mobility and Labor Market Equity

Intergenerational earnings elasticity is relatively high in Chile, pointing to low social mobility and equality of opportunity.

Intergenerational Immobility (Earnings Elasticity)

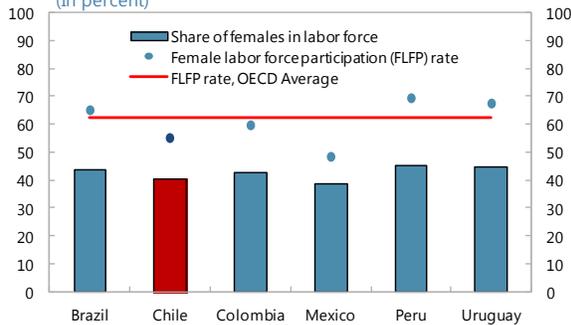


Sources: Corak (2006), OECD, and Socioeconomic Database for Latin America and the Caribbean (CEDLAS).

Gender inequality in the labor market remains high, with a low female labor force participation compared to most peers, ...

Female Labor Force (Ages 15-64), 2012

(In percent)

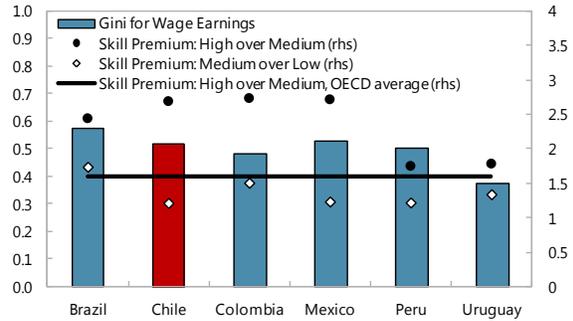


Sources: World Bank, World Development Indicators, and OECD.

Wage earnings are highly unequally distributed, as in the region, due in part to high wage premiums for higher education.

Wage Inequality and Skill Premiums, 2012 /1

(In Gini points)



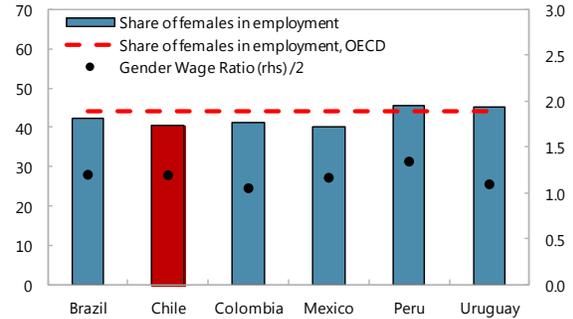
Sources: Socio-Economic Database for Latin America and the Caribbean (CEDLAS) and OECD.

1/ 2011 for Chile and OECD. Skill premiums reflect relative hourly labor earnings of adult males with different levels of education.

... and a low share of female employment. Gender wage gap is slightly higher than regional and OECD averages.

Gender Inequality in Labor Markets, 2012 /1

(In percent)



Sources: Socioeconomic Database for Latin America and Caribbean and OECD. 1/ 2011 for Chile.

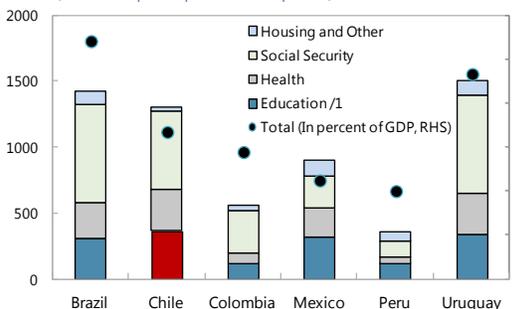
2/ In 2011, the ratio of annual full-time earnings of females aged 25-64 to those of males was 77 percent in Chile and 79 percent in average OECD.

Figure 4. Chile: Public Social Spending and Tax-Transfer System

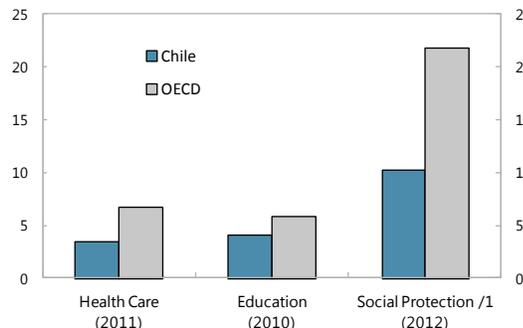
Public social expenditure is fairly high in Chile within the region when measured on per capita basis.

However, as a share of GDP it is below OECD averages.

Public Social Expenditure, by Sector, 2009
(In dollars per capita at 2005 prices)



Public Social Expenditure
(In percent of GDP)

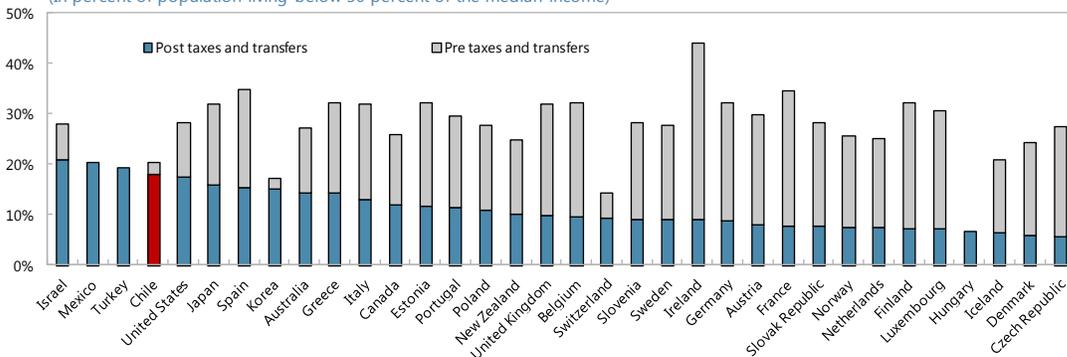


Source: Economic Commission for Latin America and the Caribbean (CEPAL).
1/ As a share of GDP, public spending in education was 4.2 percent in Chile in 2010 (average LA6 4.6 percent.), the lowest within LA6 after Peru (CEPAL)

Source: OECD.
1/ Includes old age, survivors, disability, family, labor market and housing related cash and in kind transfers. Incomparable to LA6 numbers from CEPAL.

Compared to the OECD, the tax-transfer system is not effective in reducing poverty...

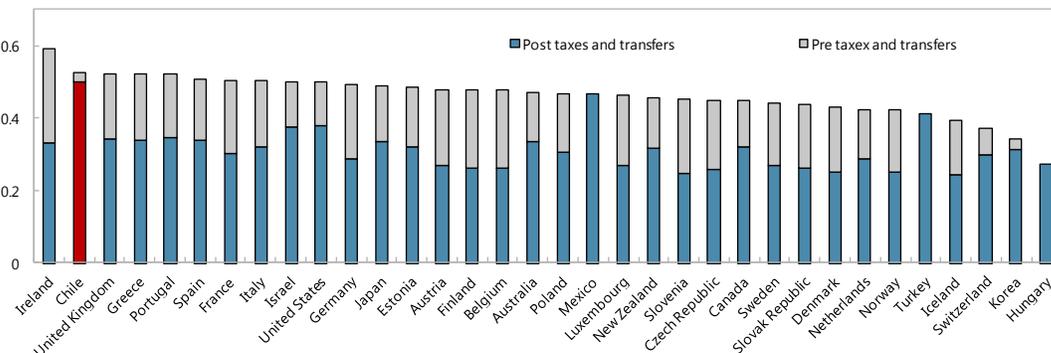
Relative Poverty, 2011 (or latest), Pre and Post Taxes and Transfers
(In percent of population living below 50 percent of the median income)



Source: OECD.
Note: Pre taxes and transfers only for Mexico, Turkey, and Hungary.

... nor in reducing inequality.

Gini Index, 2011 (or latest), Pre and Post Taxes and Transfers



Source: OECD.
Note: Pre taxes and transfers only for Mexico, Turkey, and Hungary.

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CHILE'S TAX SYSTEM AND THE 2014 TAX REFORM¹

The design of any tax system is confronted with tradeoffs between different objectives such as equity and economic efficiency. This chapter compares the tax system in Chile with broad guidelines derived from cross-country experience and discusses the potential impact of some key elements from the tax reform proposed by the government.

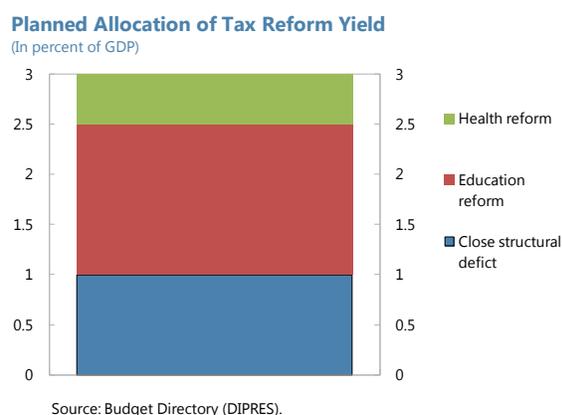
A. Background

1. The design of any tax system often requires striking a balance between different objectives.

- First, tax revenue is instrumental in providing the needed *financing* for expenditure commitments.
- Second, the selection of specific tax instruments often aims to address *equity* (income or consumption redistribution) and/or *efficiency* (e.g. economic growth) objectives.²
- Third, tax system design also considers the ease of implementation and *tax administration*.

Of course, there could be some important interdependence among these objectives. For instance, a larger tax collection could help expand pro-equity or pro-efficiency expenditure programs; a complex or difficult to manage tax system could lead to tax evasion and avoidance that often weaken the equity and/or efficiency impact of the system.

2. In Chile, the government has submitted to Congress, a tax reform with both equity and efficiency objectives.³ The reform aims to raise 3 percent of GDP to finance an expansion in education and other social programs and to close the structural deficit (1 percent of GDP in 2014). Additional goals include improving tax progressivity, revamping incentives for savings and investment and fighting tax evasion and avoidance. The reform centers on changes to the income tax system, and a key component is



¹ Prepared by Daniel Rodríguez-Delgado (WHD) in collaboration with Roberto Schatan (FAD).

² In practice, tax systems also aim to correct externalities (e.g., pollution, road congestion). While this goal could also be seen as part of efficiency goals, this note will focus only on the growth component.

³ Based on the tax proposal as submitted to Congress on April 1, 2014.

the proposal to include profits, regardless whether distributed as dividends, in the personal income tax (PIT) base. In other words, the PIT on profits would be on an *accrued* rather than distributed basis. Section D provides a preliminary analysis of its key elements.

3. The purpose of this paper is twofold. First, drawing on the Fund’s tax expertise and cross-country experience, the paper compares Chile’s tax system with those of its peers. Second, it provides a preliminary qualitative analysis of the authorities’ tax reform with an emphasis on income tax reforms, and possible implications for *equity, efficiency, and tax administration*. Data limitations prevent a fuller, quantitative assessment and this is an important caveat. Another caveat is that this paper focuses only on the revenue side of the reform whereas a fuller analysis of the effects on growth and equity should take into account also the planned education and health reforms.

B. Overview of tax design principles

4. While there is no one-size-fits-all solution, the literature has identified some broad principles regarding efficiency/growth considerations in tax design.

- *Growth-friendly taxes.* Recent OECD (2010, 2013) and IMF (2013a) studies conclude that taxes on property are typically the least distortive taxes for growth. Broad-based consumption taxes, and particularly the VAT, also have moderately negative effects on growth as they do not discourage saving and investment.
- *Growth-inhibiting taxes.* The same studies suggest that income taxes and social contributions have the most adverse effects on growth as they interfere directly with key economic decisions. Within income taxes, corporate taxes are typically seen as the most harmful to growth primarily because they discourage capital accumulation and productivity improvement.

5. Cross-country experience also suggests some broad lessons in how taxation can address equity goals (IMF 2013b). Taxation often takes a second place, behind expenditure measures, in the pursuit of equity goals. Thus, spending and taxes should be looked at together. Notwithstanding, there are some broad guidelines regarding how taxes by themselves can contribute to achieving equity goals.

- *Equity-friendly taxes.* In most countries improving the progressivity of the tax system, including of PIT and social contributions can help achieve equity goals. A zero-rate PIT threshold can improve progressivity, provided is not too high as to significantly erode the tax base. While tax deductions are a common feature in many tax systems, it is important that deductions do not accrue disproportionately on the rich (often the case with mortgage interest deduction) and do not generate large tax expenditures. Taxes on capital income and wealth, especially on immovable property, are also an option to achieve more progressive taxation.
- *Equity-inhibiting taxes.* In contrast, consumption taxes are often considered inferior for achieving redistributive policies.

6. These findings illustrate some of the tradeoffs often found in the design of a tax reform. Income taxes stand to help on equity goals but might hurt efficiency goals. Consumption taxes offer the opposite trade off. Property taxes, in contrast, could help achieve both goals simultaneously. The focus of this paper is on the government's tax reform, but it is important to note that its overall reform agenda, which includes energy, education and tax reform among other, also aims to advance simultaneously on equity and efficiency grounds.

7. There are also some general principles regarding how a tax system can address expenditure financing and tax administration goals. As expenditure programs often require continued fiscal financing, it is important to match commitments with permanent revenue sources. In this context, in designing a tax system is important to identify its steady state yield potential and to adjust expenditure plans accordingly specially during the transition to such steady state. Regarding tax administration, the overall accepted principle is to design tax systems in line with existing institutional capacity at the tax authority; going forward, capacity building efforts will make room for more complex systems.

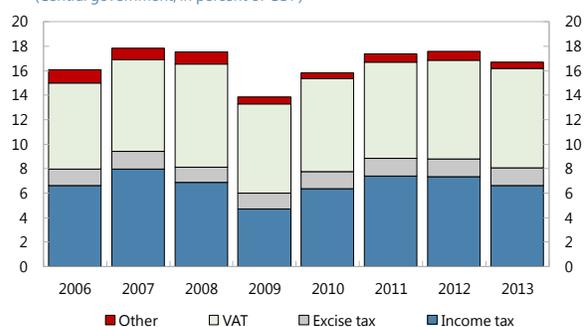
C. Chile's current tax system

8. Tax revenue in Chile stems mostly from indirect taxes and is concentrated at the central government level. General government tax revenue equaled about 18 percent of GDP in 2006–13 on average. The bulk (16.5 percent of GDP) accrued to the central government. VAT and excise taxes represent about 55 percent of tax revenue; while income taxes, including mining-related taxes, represent about 40 percent of central government tax revenue. Municipalities' tax revenue (1.5 percent of GDP) is mostly composed of real-estate taxes and patent fees.

9. Tax revenue in Chile is somewhat below its peers'; and it is somewhat more reliant on consumption taxes.⁴ In comparing Chile with other countries, two methodologies are presented next, which suggest that Chile's tax burden is up to 6.5 percent of GDP lower than in similar countries. First, a comparison of total tax revenue (including mining taxes), contrasts Chile's tax ratio with the

⁴ Analysis based on IMF *Fiscal Monitor – Taxing Times, 2013* and Fenochietto and Pessino (2013). See these publications for further methodological details.

Tax Revenue Composition
(Central government; in percent of GDP)



Sources: Budget Directory (DIPRES) and Fund staff estimates.

Table 1. Chile: Fiscal Gap, 2012 1/
(In percent of GDP)

	Outturn	Norm 2/	Gap
Total non-mining tax revenue	18.8	20.1	1.2
Income (non-mining) tax	5.8	6.3	0.5
Consumption tax	9.5	8.9	-0.6
Payroll tax	1.4	3.7	2.3
Other tax	2.1	1.1	-1.0
Memo items:			
Municipalities tax revenue	1.4		
Private health contribution	0.9		
Private pension contribution	2.4		

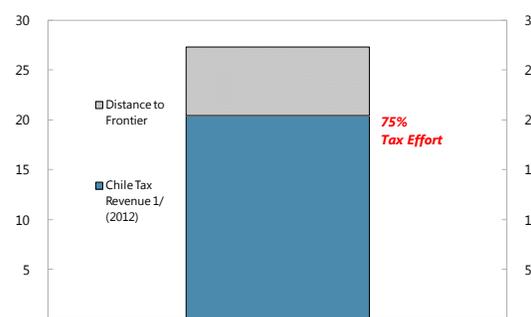
Sources: Ministry of Finance, Superintendency of Pensions, Superintendency of Health Providers, and Fund staff estimates

1/ For General government (central government plus municipalities). Includes social contributions

2/ Based on a regression that controls for country characteristics. Based on IMF (2013).

maximum that other countries with similar characteristics have achieved. It controls for country characteristics such as GDP per capita, trade openness, public expenditure in education and the Gini coefficient and suggests the current tax burden leaves 25 percent of tax capacity untapped, which represents about 6.5 percent of GDP. A second methodology only compares non-mining (or more generally, on non-natural resource based) tax revenue controlling for country characteristics, such as GDP per capita, old dependency ratio, and population growth, and suggests Chile collects 1.2 percentage points of GDP less than the norm (i.e., conditional *average*). This methodology also suggests Chile has a higher reliance on consumption taxes (55 percent) than countries with similar characteristics (45 percent). An important caveat of both of these methodologies is that Chile is among the countries in which a fraction of pension (and health) contributions are not reflected as tax revenue but rather as private contributions to individual accounts. This factor could explain part of the measured difference between Chile's tax revenue and its peers'.

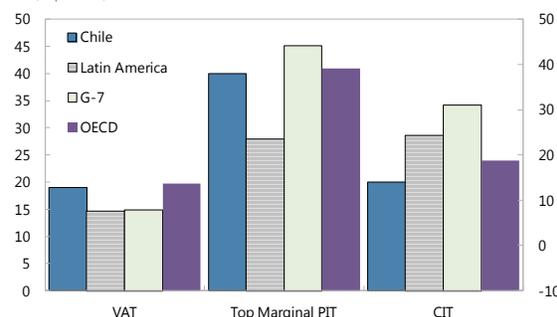
Stochastic Frontier: Tax Effort, 2012



Sources: Fenochietto and Pessino (2013) and Fund staff estimates.
1/ Includes private mining income

10. Chile's tax rates differ somewhat from international averages. Chile's VAT and

(maximum) personal income tax (PIT) rates are higher than the Latin America average, but in line with OECD averages.⁵ In contrast, the corporate income tax (CIT) rate is lower than both regional and OECD averages. Furthermore, it is notable that Chile has a relatively large gap between the maximum PIT rate and the CIT rate. As will be discussed below and in the appendix, given the tax system in Chile, this gap provides incentives for keeping profits inside the firm but also creates strong incentives for tax planning and evasion.

Tax Rate Comparison
(In percent)

Source: SII (Chile's internal revenue service).

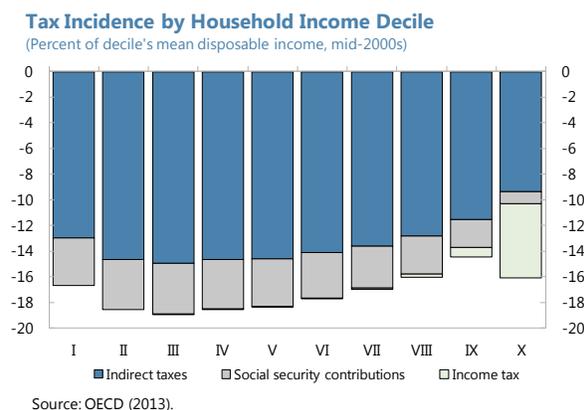
11. Chile's income tax system has some distinguishing design features. First, there is full integration between the CIT and the PIT, that is, any CIT paid at the firm level is credited in the firm's shareholder's PIT bill and shareholders can obtain a partial refund if their (average) PIT is lower than the CIT rate. The annex includes a more detailed description of the system including a comparison with other types of income tax systems. The PIT combines all sources of income, including dividends, labor and income; is progressive (0 to 40 percent, with some 80 percent of the taxpayers with

⁵ In this paper, PIT refers to both *Impuesto de Segunda Categoría* (e.g., for dependent workers) and *Impuesto Global Complementario* (e.g. for dividend earners). Both tax categories have the same tax schedule.

income levels that fall into the zero bracket); and has identical schedules for dependent workers and recipients of other income (income from self-employment, dividends, etc.). Further, at the personal level, PIT on profits is *deferred* until distribution and a special ledger (FUT) is used to keep track of undistributed profits—during 2001–2010, some 30 percent of profits were distributed (Jorrat, 2013). Further, this system avoids the common “double taxation” of profits, and offers a progressive taxation of dividends income (in contrast with dual income systems with a flat tax on income from capital including dividends). Other features include inflation indexation; and unlimited carry-back and carry-forward of losses.

12. Key implications for equity, efficiency, and tax administration of the existing tax system include.

- Equity.** Recent OECD studies (Castelletti, 2013) have found that the current Chilean tax system is somewhat regressive. The chart below shows that the tax incidence (tax payments as a fraction of disposable income) for the highest income decile is in fact *lower* than the one faced by the lowest income decile. Another evidence of regressivity comes from the fact that tax incidence peaks at the third decile and then falls between the third and ninth deciles. This result could be interpreted as in part due to the dominance of indirect taxes, which are typically regressive, and the income tax system not having enough offsetting impact. In practice, evasion and avoidance by the top income earners is also a significant contributor to the low impact of income taxes (Fairfield and Jorrat, 2014).
- Efficiency.** Based on cross-country experience (mentioned above), the low CIT rate, the deferral of PIT on undistributed profits, and the tax mix with a higher reliance on consumption taxes and a lower reliance on income taxes, all represent pro-growth characteristics of the tax system. This *PIT deferral* until distribution combined with a relatively low CIT rate has underpinned corporate savings although its effect on investment is less clear (Jorrat, 2013). Other recent research suggests higher CIT rates can result in lower investment but also illustrate that there could be mitigating factors which could offset such impact.⁶
- Tax administration.** In broad terms, the tax system in Chile appears to work well. According to the World Bank Doing Business Indicators, in terms of ease of paying taxes, Chile ranks



⁶ See, for example, Cerda and Larrain (2005 and 2010), reference therein and Hsieh and Parker (2006) on the potential negative impact of CIT rates on investment. On the other hand, see Bustos, Engel, and Galetovic (2004) on how depreciation and interest deductions could offset such negative impact.

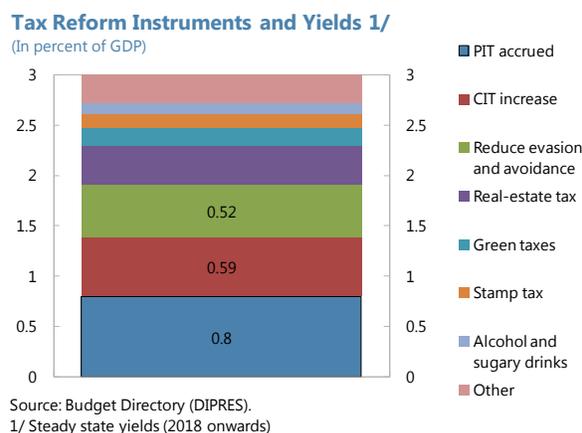
38th worldwide, which represents the best in Latin America and above the median among OECD members. However, the income tax system is administratively complex—in particular the administration of the FUT. In practice, the correct implementation and enforcement of the system requires the internal revenue service (SII) to track and monitor decades of inflows and outflows into the FUT and the corresponding credit for every shareholder. The complexity of the system makes it prone to avoidance and evasion. SII's estimated that tax evasion in the income tax was about 31 percent in 2009 and that VAT evasion stood at 20 percent in 2011.

- **Expenditure financing.** Chile has a well-entrenched practice of following the general principle of matching expenditure commitments with permanent revenue (the tax reform discussed in the next section is a case in point). Further, Chile's structural balance fiscal rule shields expenditure from cyclical fluctuations in revenue, including in tax revenue.

D. Government's tax reform

13. As mentioned before, the reform's objectives include both efficiency and equity considerations. The revenue yield (3 percent of GDP) will be used in part to eliminate the structural deficit and to finance an education reform which aims to provide more equal access to quality education. The specific tax measures of the reform aim to improve progressivity and revamp tax incentives for investment and savings.

14. The reform's key component is a change in the income tax system in Chile. On April 1, 2014, the government submitted to Congress a proposal for tax reform. The three main components are: (i) PIT on profits would be on an accrued basis; that is, profits, regardless of distribution, will be included in the personal income tax base, de facto eliminating the Taxable Profit Fund (FUT); (ii) the corporate tax rate will be increased from 20 to 25 percent; and (iii) the top marginal personal income tax rate will be reduced from 40 percent to 35 percent.⁷ It is important to note that the reform preserves the full integration between the CIT and the PIT. The government estimates that the income tax reform would yield about 1.4 percent of GDP (first two items in the chart).



15. The new income tax system will have different implications for firms (and their shareholders) depending on their size. Under the reform, PIT on accrued profits will be charged to

⁷ With the second highest bracket currently having a marginal tax rate of 35.5 percent, the reform will make the top two brackets equal at 35 percent.

whoever owns the firm at end-year, regardless of whether he/she received dividends during the year.

- Large firms. For simplicity of administration, for *large companies* (traded, with foreign owner, or with non-personal shareholders) the tax will be withheld at corporate level. These firms will withhold an additional 10 percent of profits at the end of the year (the difference between the maximum PIT rate and the CIT) which firms could credit against the mandatory dividend distribution (30 percent). Virtually, all shareholders will be eligible for a refund which will depend on their average PIT rate.
- Small and Medium. For *all other companies*, the shareholder will be responsible to pay the tax bill even in the case that no dividend was received.

16. The reform also includes tax administration measures and green and excise taxes. Tax administration gains are the third largest component of the reform, yielding 0.5 percent of GDP from lower evasion and avoidance. Specific measures include improving access to information for the SII, introducing a general anti-avoidance rule and strengthening auditing capacity. The reform will also allow for instant depreciation of physical capital investment for small firms, increase the stamp (financial transactions) tax and excise taxes on alcoholic drinks, impose an emission tax on industrial activity and modify some real-estate related taxes.

17. The reform will be implemented gradually over four years and some transitory measures are also included. The CIT increase would be gradual over four years but starting in 2014; on the other hand, the switch to a PIT on accrued basis and the reduction in the maximum PIT rate will only come into effect in 2018. Instant depreciation will also be available for medium and large firms for twelve months after the enactment of the reform.

18. The reform's overarching goals appear appropriate and broadly in line with past Fund recommendations. Closing the structural deficit is a welcome step toward protecting policy buffers. The matching of new education expenditure commitments with new permanent revenue is prudent and welcome. And a more equal access to high quality education would help improve productivity and income distribution.

19. The emphasis on income taxes is in line with the reform's equity goals and Chile's relatively low CIT rates and burden. Amid the highly skewed income distribution in Chile, the reform's emphasis on income taxes seems appropriate. In particular, the reduction of the CIT-PIT gap would help reduce evasion/avoidance opportunities currently being exploited by the well-off. As indicated above, Chile collects relatively less income taxes than its peers; and the increase in the CIT rate will bring it close to the regional average.

20. The tax reform's impact on growth and savings is subject to a great deal of uncertainty and will require careful assessment. The proposal includes measures that are likely to affect savings, investment, and growth in different ways and with opposing signs. At this point it is

not possible for staff to make a full analysis of the net effect of all these measures. But a few things can be said.

21. In particular, possible effects of the reform include:

- **Equity.** The reform should make tax incidence more progressive by eliminating the PIT tax deferral that currently benefits disproportionately the well-off (e.g. firm's owners). The final impact on equity would also depend on the balance between the lower progressivity resulting from lowering the PIT and the gains from reducing evasion by high-income individuals through closing the gap between the CIT and PIT.
- **Efficiency.** Again, the proposal includes measures that are likely to have different effects on savings, investment, and growth. Based on the findings in the literature mentioned above, the CIT increase in itself could have a dampening effect on investment, and growth. The elimination of the FUT would make corporate savings less attractive and could result in higher corporate leverage. At the same time, the proposal includes measures—e.g., faster depreciation of capital—that should support investment and growth. Further, the decrease in the maximum PIT rate could increase the attractiveness of equity investment. In all, the reform could affect firms differently according to their size.

Large firms. As explained above, large firms will withhold 10 percent of profits and will only be eligible for instant depreciation for the first year. These factors could hamper firms' investment plans. On the other hand, large firms are often less cash constrained and have better access to external financing.

Small firms. As small firms often rely on equity/internal financing to finance working capital and investment, the CIT increase could affect their production and growth plans. At the same time, instant depreciation allowance should provide some offsetting effect and Chile's deep local capital markets should also help provide ample firm financing. Shareholders could face some liquidity pressures to pay PIT on accrued profits, but in this type of firms, the owners have more direct control over the distribution of profits.

- **Tax administration.** The proposal to include non-distributed profits in the personal income tax base while allowing for the elimination of the FUT would resolve some but not all administrative challenges in the current system and will likely introduce additional difficulties. In particular, the SII would likely still need to collect detailed information about the ownership structure of each company. Additional complications might arise depending on firms' size. In particular, for large firms, the SII would have to handle a potentially large number of refunds very efficiently.

E. Concluding remarks

22. **The authorities have launched a large tax reform to finance increased outlays on education and health and to raise public savings.** The overall objectives are welcome. Improving access to high quality education will help improve both Chile's long term growth prospects and

reduce Chile's skewed income distribution. And eliminating the structural fiscal deficit will help preserve Chile's strong public finances and fiscal buffers. The proposal is also prudent in that it matches new spending commitments with new permanent revenue. The tax reform's emphasis on income taxes and reducing loopholes used by the well-off will also help improve income distribution.

23. The tax reform involves a substantial increase in tax revenue and important changes to the tax regime. The proposal involves a large number of changes with different implications for investment, savings, and growth. At this time it is not possible to provide a full, quantitative assessment of the net effects. But the size of the reform and in particular the uncertainty surrounding the implications of the changes to the tax regime (especially the change to dividend taxation which has little similarity in the rest of the world) would likely have a dampening effect on investment and growth though a fuller analysis of long term implications would also need to take into account the effects from education reform. There is also some uncertainty about the revenue yield of the tax reform, stemming from how the private sector will adapt. The planned gradual implementation and strengthening of tax administration are thus welcome. It will remain important to monitor the effects on investment and savings and stand ready to adjust the reform if warranted.

Annex I. Chile's Full Integration Tax System⁸

Full integration means that enterprises and their shareholders are considered in the end as a single taxpayer, so that all corporate income taxes paid by the business entity are creditable against the personal tax liability of the owner that ultimately perceives the business profit. From a conceptual point of view this is a desirable feature in an income tax system, making it more neutral between different forms of financing investment. However, few income tax systems are fully integrated in such way. One of the reasons is that, in practice, they are vulnerable to tax planning, minimizing shareholders' tax burden.

Different imputation systems

- The Chilean full integration system

Chile's full integration system is probably one of the purest in design. Firms pay a 'provisional' tax rate of 20 percent on profits as these are accrued by the firm,⁹ but this is in reality a payment on account of shareholders' personal income taxes (PIT), which are due when profits are distributed to them;¹⁰ at that time they can fully credit against their tax liability the tax paid by the company.¹¹ The PIT rate will be that in the schedule which corresponds to the individual (total) income bracket. The current maximum PIT rate is 40 percent, twice the rate applicable to accrued profits.

Full integration means in the Chilean system that shareholders may in fact get refunded if their PIT is below 20 percent. In the extreme, a small shareholder that has a sufficiently low annual income to be exempt from PIT would obtain a full refund of the tax paid by the firm.¹² Moreover, as Chile permits unlimited carry-back and carry-forwards of losses, shareholders could possibly obtain credits or refunds on past taxes paid as the fortune of the firm reverses. This aspect of the system adds uncertainty to government's tax revenues and a sizeable complication to tax administration.

⁸ Prepared by Roberto Schatan (FAD).

⁹ *Impuesto de primera categoría*.

¹⁰ The fact that there is a tax on accrued profits, even if it is strictly a temporary down-payment on shareholders PIT, might give grounds for some to conceive the system as only partially integrated. For one year, in 1990, Chile's tax system was fully integrated in that even the *impuesto de primera categoría* was levied only when profits were distributed.

¹¹ *Impuesto de Segunda Categoría* applies to labor income and the *Global Complementario* for all other income, and are all subject to the sale PIT schedule.

¹² A similar system operates in Australia; see <http://www.investors.asn.au/education/shares/understanding-shares/franking-credits/>

- Full imputation system

Full imputation is the mechanism whereby companies pass on credits for the tax paid on their accrued profits to their shareholders when they distribute dividends. Shareholders declare in their annual income tax return the gross value of the dividends before corporate income taxes (CIT) distributed to them, as well as the imputation credits received. They will then pay any PIT in excess of the imputation credits, eliminating double taxation of business profits. However, imputation credits cannot be claimed as a tax refund.¹³

Instead, Chile's income tax system—conceptually at least—does not have a CIT per se; most countries do. This means that in most countries with an imputation system CIT may be credited against shareholder's PIT up to the amount of PIT liability, but not further, so that individuals cannot obtain refunds for the tax paid by the company on its accrued profits. Thus, PIT on distributed dividends may be zero if the CIT is equal or higher than the PIT rate, but the CIT cannot be diminished as a consequence of PIT calculations. CIT is a separate and final tax.

- Partial imputation

There is a variety of partial imputation systems, where CIT may be credited against shareholders' PIT at different rates and under different conditions. Mexico's system (until 2013), for example, simplified quite significantly the imputation mechanism: it exempted from PIT all dividends distributed after CIT had been paid. This implied that all shareholders received their dividends net of the same CIT rate—which equaled the top PIT rate, irrespective of their total personal income. The regime carried a certain degree of inequity as shareholders belonging to lower income brackets (with lower PIT rates) paid the same tax rate for the dividends they earn. However, it can be safely assumed that most shareholders are in the top PIT income brackets, so that dividends were probably rarely overtaxed

- Classical system

Commonly, countries do not have an imputation system, so that profits are subject to CIT and distributed dividends are also taxed with the corresponding PIT once in shareholders hands, as in the U.S.A. There is no question that such system subjects business profits to double taxation and generates a potentially costly debt bias. Often, in order to minimize such disadvantage and simplify the system, dividends are subject to a relatively small flat withholding tax when distributed.

¹³ See for example New Zealand's system; <http://www.ird.govt.nz/business-income-tax/imputation/imputation-basics/>

- Dual income tax system

Some 30 years ago, Nordic European countries broke the notion of a global income tax by introducing a flat uniform (relatively low) tax on corporate income and all capital income, separate from the progressive tax on labor income. Dividends could be distributed subject to no further taxation.¹⁴

Tax planning around Chile's integration system

Tax planning opportunities around Chile's integration regime arise for more than one reason and they need to be distinguished in order to identify policy design challenges. There are at least three issues that deserve specific attention: tax deferrals on undistributed dividends; differential CIT and PIT rates; tax avoidance by shareholders on perceived dividends.

- Tax deferral

Capital gains arising from unrealized increases in the value of an asset are not generally subject to income taxes. Though the wealth of the person might have increased, there are potential liquidity constraints that make it advisable to tax only when those gains are realized, i.e., when the asset is sold. Taxation of undistributed profits follows the same logic; even if accrued by the company, they are not subject to PIT before they are in the hands of the shareholder. The same liquidity concerns apply, leading to a tax advantage commonly ingrained in income tax systems.

It could be argued that companies could withhold PIT as profits accrue, before they actually distribute dividends, but they would need to know the residence of shareholders and the total income of each domestic shareholder. Since this is administratively impractical, such regime would in fact force distribution profits as they accrue, limiting incentives for the expansion of business.

Tax deferral privileges can be abused however if shareholders find ways to increase their personal consumption at the expense of undistributed profits, avoiding therefore paying PIT. Any deductible expenditure made by the company which in reality is personal consumption of the shareholder represents a way to distribute dividends without paying PIT and often anti-avoidance rules are insufficient or administratively not cost efficient to combat such practice.

- Tax rates

The incentive to disguise private consumption as a company expense (i.e., to withdraw undistributed profits without paying PIT) is exacerbated with any other additional asymmetry between PIT and CIT. It is particularly notorious in Chile's income tax system that the top marginal rate is now twice the

¹⁴ J. Norregaard and T. Khan, "Tax policy: recent trends and coming challenges", IMF Working Paper 07/274.

CIT rate. This in itself is a powerful incentive to disguise personal income as company income, quite independently of the integration system.

In general terms, individuals will face the choice (depending on the weaknesses of each legal system) of incorporating themselves in order to offer their labor services or/and act as holding companies in order to receive dividends. In the first case, even if individuals have a subordinated relationship with an employer, they will have the strong incentive to invoice for labor services as independent contractors. They would then pay only CIT (20 percent) and defer the difference with their PIT liability until such time they formally withdraw the dividends (or never pay it if they find the way to spend those dividends in their benefit but somehow within the realm of the business activity). Precisely to avoid the rush of wealthy individuals to incorporate and avoid a higher PIT, countries typically have the top marginal PIT rate equal to the CIT rate (or at least very close).

In some cases, the profits of personal holding companies are taxed on accrued basis, so as to eliminate the incentives for individuals incorporating themselves and avoiding tax consequences on labor income. In the U.S., for example, personal holding companies are defined to be firms with 50 percent of the value of the stock owned by five or fewer persons, and 60 percent of gross income arising from passive sources. A withholding of 15 percent applies to accumulated earnings above a certain amount or above what may be considered to be a reasonable accumulation of undistributed earnings, explained, for example, by future expansion plans. There is some consensus that this regime is complicated to administer.

- Tax avoidance

It is a qualitatively different problem when legitimate shareholders (of legitimate companies) avoid the tax on distributed dividends. Shareholders can constitute holding companies to be the first-tier recipient of dividends, instead of the individual; if the ownership of the holding company is dispersed for example among a number of family members with no additional earnings, the second-tier distribution of dividends could be sufficiently subdivided so that the income of each individual shareholder was low enough not to warrant an additional PIT liability.¹⁵

Furthermore, shareholders could incorporate as any other entity enjoying special tax privileges. For example, a variety of small companies and, more importantly, private investment societies are subject to no income tax until funds are withdrawn, but they can buy durable goods or invest in real estate which might be for the exclusive enjoyment of the individual shareholder. In general, to the extent that exemptions are juxtaposed with Chile's particular integration system, more escape routes may potentially open for business earnings of high income individuals to remain tax free.

¹⁵ Potentially, it could be sufficiently subdivided so as to claim a refund of the initial CIT, if the taxpayer is willing to run the risk of exposing the scheme to the tax authority when examining the merits of the refund.

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CHILEAN BANKS' LOAN TO DEPOSITS RATIO¹

This chapter presents a cross-country comparative exercise using granular public data to understand Chilean banks' high loan to deposits ratio and its implication for financial stability.

A. Introduction

1. The loan-to-deposits (LTD) ratio is frequently used in the literature as a measure of liquidity or funding stability. It compares the “stable” deposit base with gross loans (excluding interbank activity). When stable deposits are low relative to loans, there is a greater dependence on more volatile funds to cover the illiquid assets in deposit takers’ portfolios. In such circumstances, if liquidity stress arises, there is a greater risk of illiquidity than if a stable deposit base primarily funds the loans. Using country level data, Lund-Jensen (2012) finds that a higher LTD ratio is associated with a higher probability of a banking crisis. In a bank-level panel regression, The Global Financial Stability Report (GFSR) 2013 finds that a higher LTD ratio is associated with a higher probability of bank distress.²

2. The Chilean banking system’s LTD ratio (as reported in IMF FSI database) is high in comparison with its regional peers. In general, more developed countries tend to have a higher LTD ratio, reflecting availability of alternative sources of funding. However, the Chilean ratio is high even relative to OECD countries (Annex II), so looking into this variable is important as it may be indicating a source of vulnerability. It should be noted, however, that the LTD ratio is only a coarse and partial measure of liquidity. For instance, the ratio does not address the “stability” of the liabilities other than customer deposits. Assessing the implications for financial stability requires analyzing balance sheet items that may not be reflected in the LTD ratio.

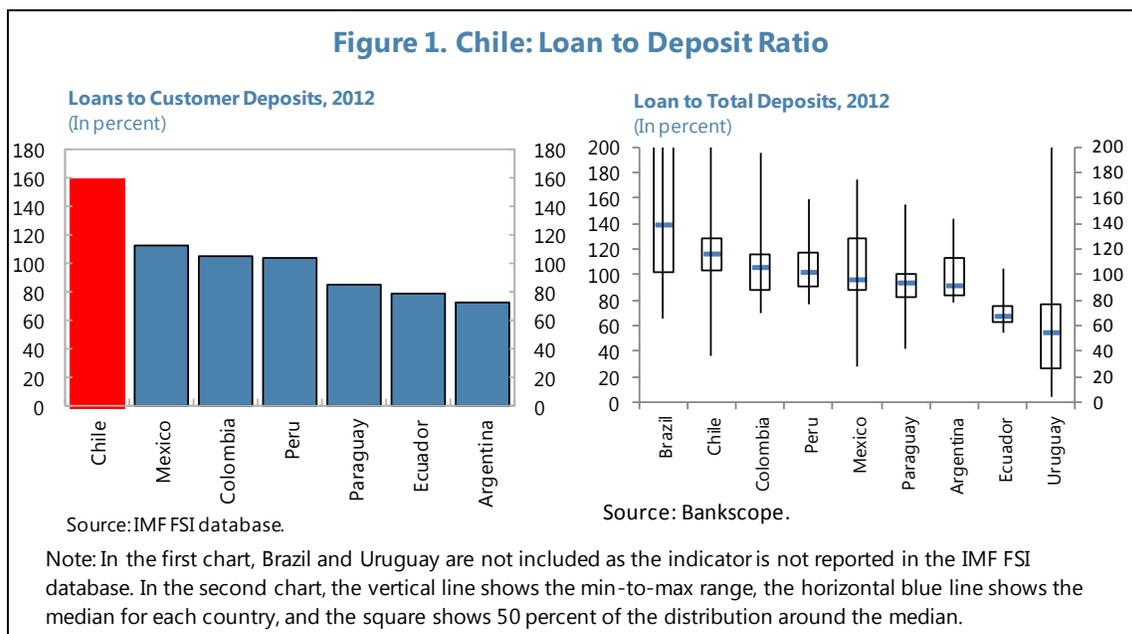
3. This note uses granular public data for Chile and comparators to understand Chilean banks’ high LTD ratio and its implication for financial stability. This note looks at the LTD ratio for Chilean banks from a cross-country perspective using bank level data from Bankscope database. The sample covers the 15 largest commercial banks for nine Latin American countries (Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, and Uruguay).³ Using micro data allows identifying risks that may be not be apparent using system level data. Also, using micro data allows extending the cross-country comparison to other balance sheet items that are not reported in the IMF FSI database and that may be important for financial stability. As a drawback, Bankscope does not provide deposits by type of depositor, so the LTD ratios computed are relative to total deposits

¹ Prepared by Nicolas Arregui (MCM).

² Additionally, a number of empirical papers find that more general measures of reliance in wholesale funding are positively related with bank instability.

³ Annex II extends the cross-country analysis to OECD countries using system-wide data.

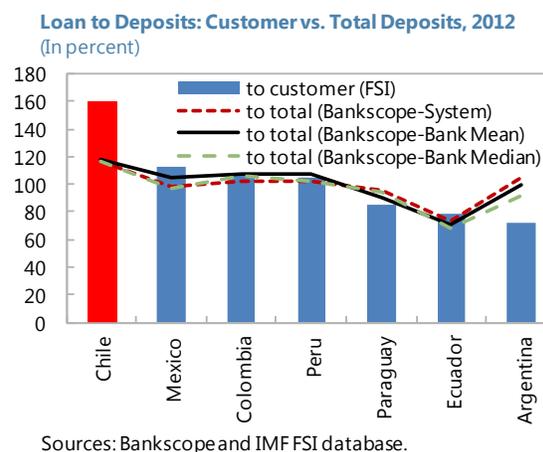
(excluding interbank). Bank-level data shows Chilean banks' median LTD ratio only second to Brazil in this sample of Latin American countries.⁴ Heterogeneity across individual banks is significant.



B. Institutional depositors

4. Chilean banks' high reliance on institutional deposits is an important factor explaining the system's high LTD ratio.

Retail deposits (characterized by a large number of depositors and relatively low individual amounts) tend to be more stable, even during periods of financial stress. In contrast, wholesale deposits tend to be more sensitive to market volatility, since they are concentrated among a few creditors with better access to information and more sophisticated investment decisions. Therefore, a large share of retail deposits in the banking system's financing has traditionally been considered a contributing factor for greater stability.⁵ In the IMF FSI



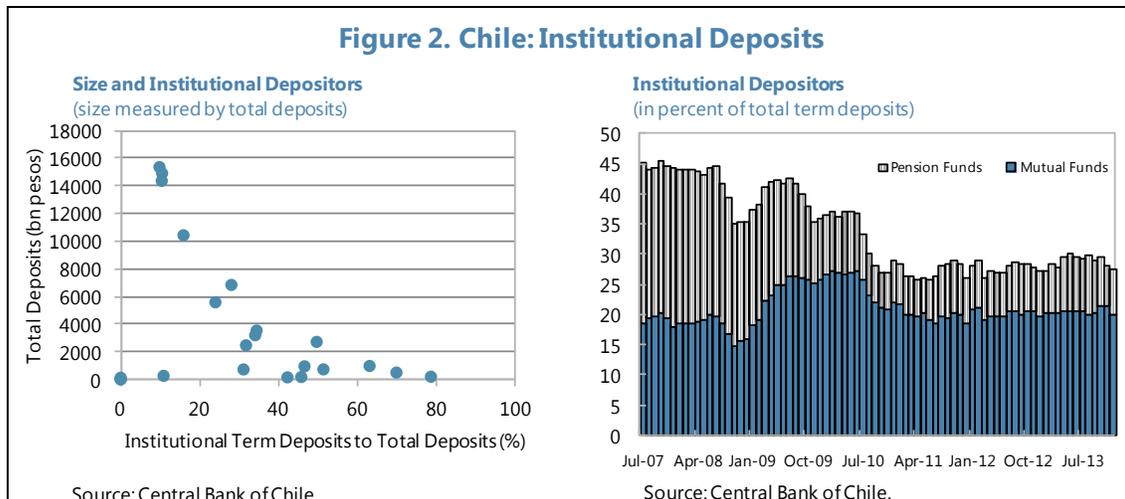
⁴ Brazil does not report the LTD ratio to the IMF FSI database. Possible explanations for Brazil's high median LTD ratio include: the on-lending of loans originated by the Brazilian Development Bank-BNDES- (not funded by deposits) through other institutions, and the use of Letras Financeiras (bonds with minimum term of 2 years), Letras de Crédito Agrícolas, Letras de Crédito Imobiliário, and other deposit-like instruments that are not counted as deposits.

⁵ See BCBS 2013.

database, *customer deposits* are defined to include all deposits other than those placed by other deposit takers and other financial institutions.⁶ The significant difference between the loan-to-customer deposits ratio (from the IMF FSI database) and the loan-to-total (non-interbank) deposits ratio (obtained from Bankscope), suggests that institutional depositors play a particularly large role in bank funding in Chile relative to other countries.⁷

5. The Chilean Central Bank's Financial Stability Reports (FSR) have raised repeatedly concerns over the risks associated with high reliance on wholesale deposits. Following Box IV.1 in the December 2013 FSR, three developments are worth flagging:

- a. *The share of institutional deposits in total deposits is decreasing in size. Large banks have larger networks and therefore capture the bulk of retail and demand deposits, depending less on institutional deposits.*
- b. *Banks reduced their dependence on institutional deposits during 2009–11, and mutual funds have become the biggest institutional depositor. This is mostly because pension funds have decreased their allocation in domestic deposits.⁸ Deposits from mutual funds have on average shorter maturity than those from pension funds.*
- c. *Small banks have a greater diversification within institutional depositors and usually carry a larger share of liquid assets on their balance sheets and a larger share of own resources in their funding structure.*



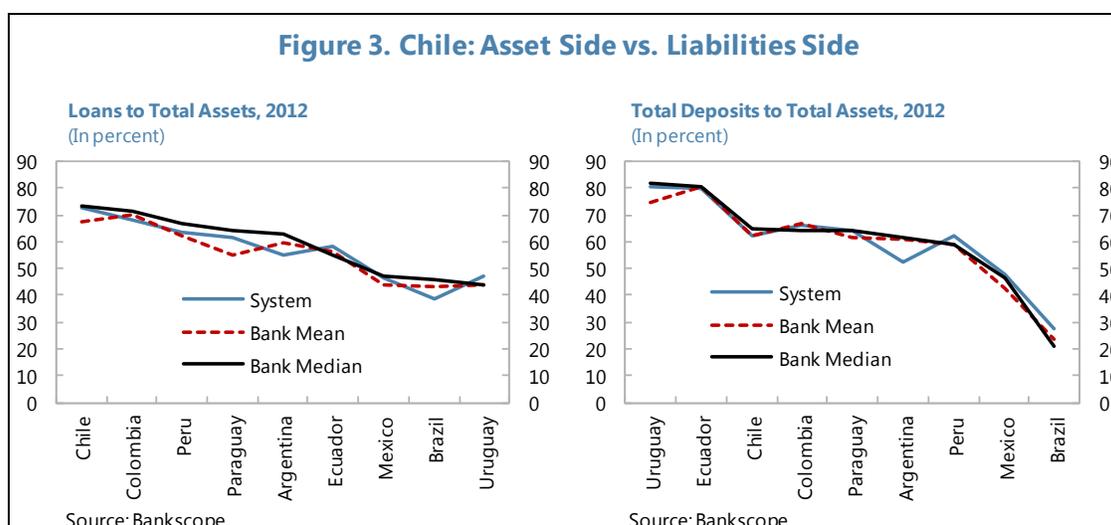
⁶ See IMF FSI Compilation Guide.

⁷ Note that Chilean banks' loans-to-total asset ratio was similar in the two databases, confirming the idea that the difference in the two ratios stems from the type of deposits included in each definition.

⁸ This was in part a response to the gradual increase in pension funds' overall limit on offshore investments during August 2007 and September 2011.

C. Asset side vs. liability side

6. In addition, Chilean banks' asset allocations also play a role in explaining the relatively higher LTD ratios. Computing the ratio of loans to total deposits (instead of customer deposits) still shows Chile on the higher end of the regional distribution. This means that high reliance on institutional depositors is not the entire story. A decomposition of the ratio into an asset component and a liability component reveals that the asset component is important to understand cross-country differences.⁹ Chilean banks' reliance on non-deposits sources of funding is not high from a cross country perspective.¹⁰ However, Chilean banks tend to hold a larger fraction of their portfolio in loans than its regional peers. To the extent that loans are less liquid than other alternative assets, this may pose a limitation in terms of capacity to absorb idiosyncratic funding shocks. As a matter of fact, the Chilean banking sector shows a low ratio of liquid assets to total assets relative to the rest of the region.¹¹



7. As a mitigating factor, Chilean banks show a high reliance on long term funding relative to the region. As mentioned in the introduction, the LTD ratio is a coarse and partial measure of liquidity as it does not cover assets other than loans or liabilities other than deposits. For example, on the asset side, it does not cover a bank's holding of securities or off-balance sheet items, which can be illiquid. Similarly, the LTD does not cover the stability of nondeposit funding like debt securities. Using Bankscope data allows characterizing those other assets and other liabilities.

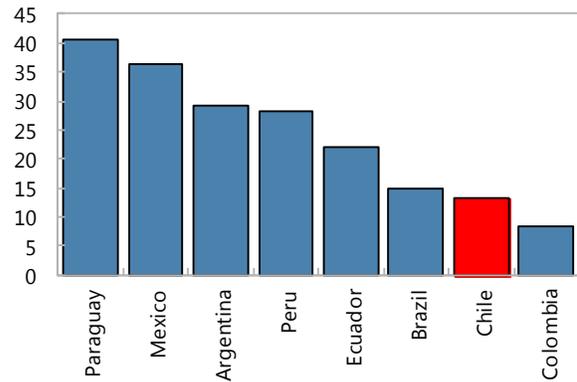
⁹ The asset component and liability component of the LTD ratio refer to the numerator and denominator, respectively, of the decomposition: $\frac{Loan}{Total Deposits} = \frac{Loan}{Total Assets} / \frac{Total Deposits}{Total Assets}$.

¹⁰ That is, Chilean banks' reliance on total deposits (i.e., ignoring the distinction between retail and wholesale deposits) is in line with other countries in the region.

¹¹ Mortgages, accounting for 25 percent of banks' loan portfolio, are typically kept on banks' books and not sold or securitized. While this is relevant for liquidity risk, it may also make underwriting standards less likely to be compromised at origination.

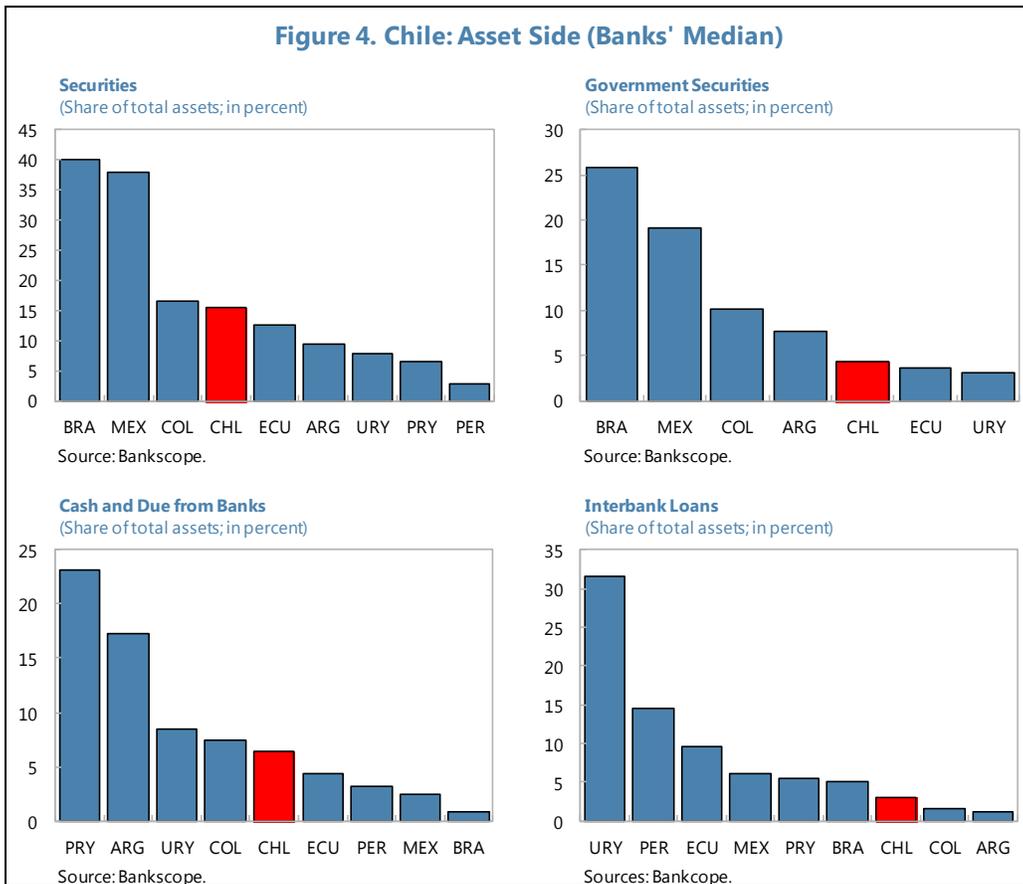
- *Other assets:* the asset structure of Chilean banks shows that investments in total securities and reserves at the Central Bank are in line with regional peers, while holdings of government securities and interbank lending are relatively low.
- *Other liabilities:* the liability structure shows a borrowing structure with a low reliance on short-term maturities and a high reliance on long-term maturities. This borrowing structure is likely explained by the fact that long-term debt is the main source of financing for mortgage loans (accounting for roughly a quarter of bank loans).

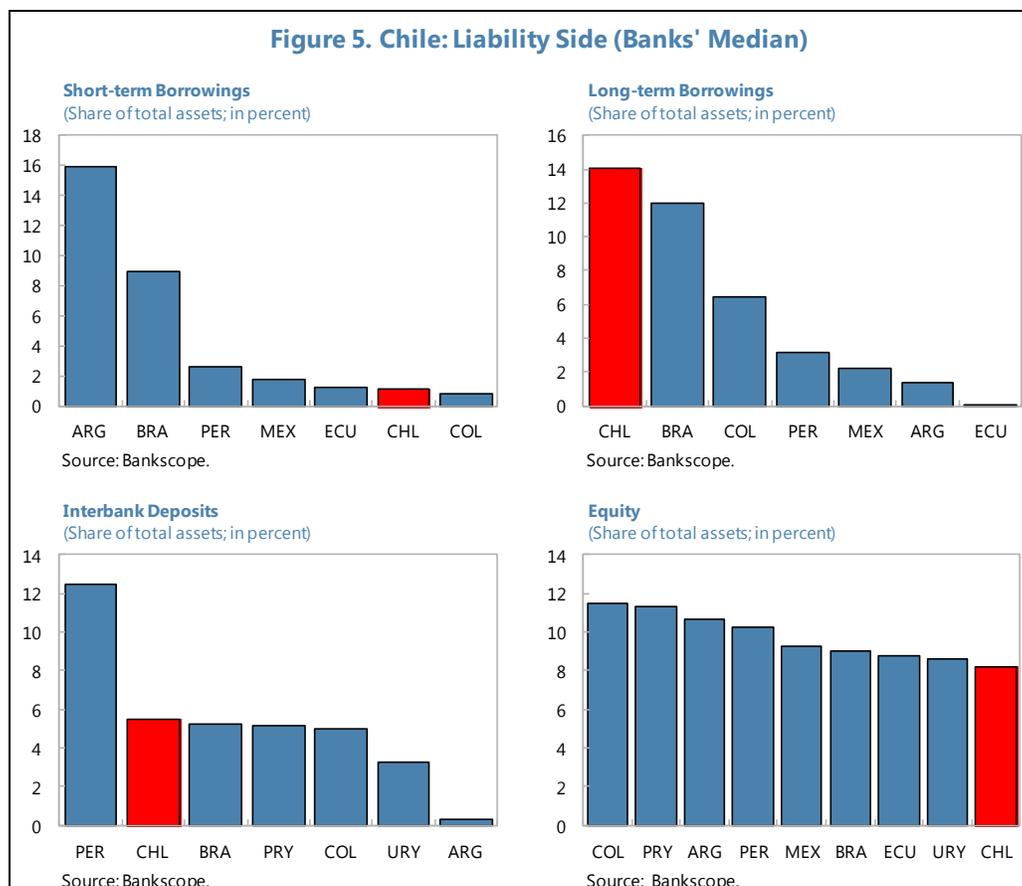
Liquid Assets to Total Assets, 2012
(In percent)



Source: IMF FSI database.

Figure 4. Chile: Asset Side (Banks' Median)

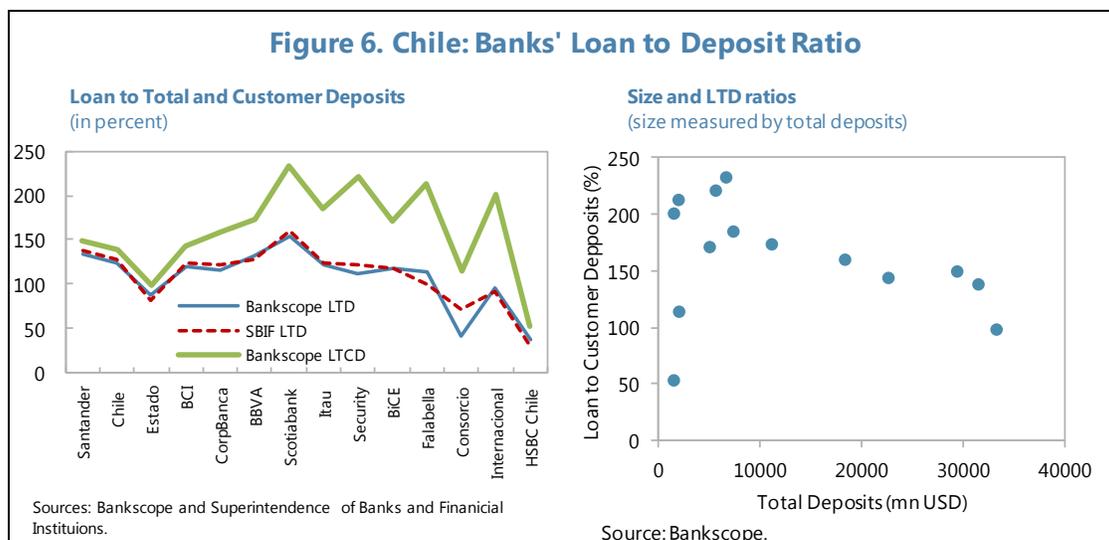




D. Individual Chilean banks

8. In Chile, LTD ratios are particularly high for small and medium sized banks. System aggregates may hide individual bank heterogeneity. Figure 7 shows the loan-to-total deposits for the largest banks in the Chilean system, using Bankscope and SBIF's publicly available data. Additionally, the figure shows an estimation of the loan-to-customer deposit ratio.¹² Heterogeneity across banks is significant. Small and medium sized banks tend to have higher loan-to-customer deposit ratios, driven mostly by their higher reliance on institutional deposits as a source of funding.

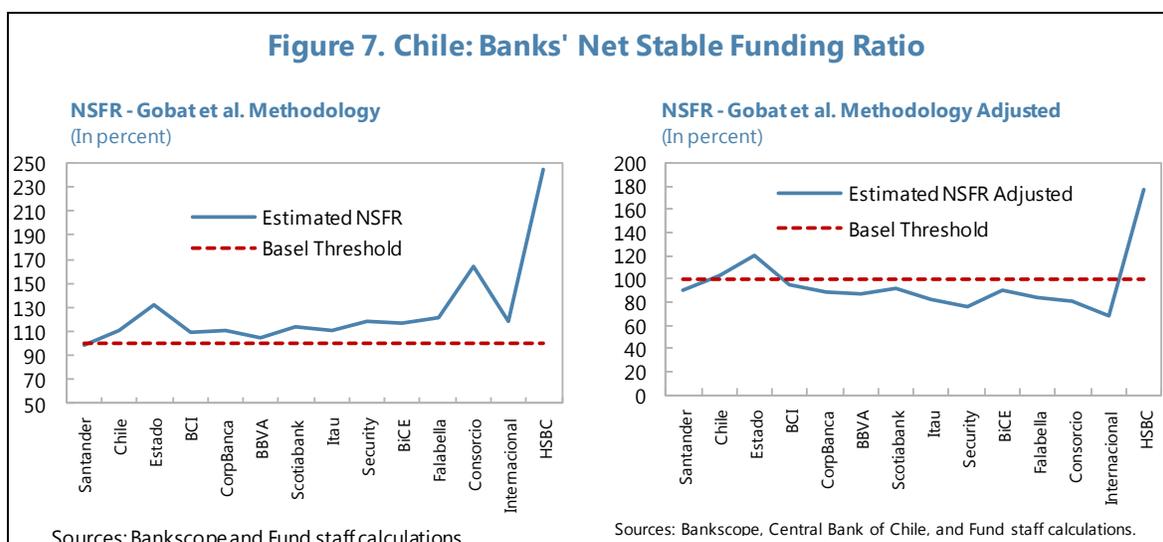
¹² The estimation combines Bankscope data with the bank-by-bank institutional deposits share of term deposits provided by the Banco Central de Chile.



9. Preliminary estimations suggest that the Chilean banking sector is well positioned to meet the Net Stable Funding Ratio (NSFR) in accordance with the Basel timeline. The Net Stable Funding Ratio (NSFR), introduced as part of the Basel III reforms, is a measure of funding risks that extends beyond loans and deposits.¹³ The analysis conducted in the context of the Chile FSAP Update (2011), showed that the banking system was well positioned to meet the NSFR in accordance with the Basel timeline.¹⁴ In a more recent study, Gobat and others (forthcoming) estimate the NSFR using Bankscope data for a variety of countries including Chile (Annex III). All Chilean banks included in their sample appear to satisfy the 100 percent threshold on the estimated NSFR. However, the paper has two limitations for the purpose of this note. First, the authors exclude subsidiaries operating in Chile (e.g. Santander Chile). Second, their methodology treats all deposits as retail deposits, assigning them a more stable coefficient than Basel prescribes, for example, for institutional deposits. We extend the analysis in Gobat and others to account for these two issues. Figure 7a applies the authors' methodology to the 14 largest Chilean banks, including subsidiaries of foreign banks. The figure is in line with the result in the paper that most Chilean banks satisfy the 100 percent threshold. When extending the methodology to take into account the difference between retail and institutional deposits (Figure 7b) the estimated NSFR for most banks drops below the threshold. The shortfall appears larger for small and medium sized banks.

¹³ In 2012, the Basel Committee on Banking Supervision agreed on a revised framework for the Liquidity Coverage Ratio with an extended phase-in period. The design of the Net Stable Funding Ratio is under discussion.

¹⁴ The analysis also found that the system was well positioned to meet the Liquidity Coverage Ratio (LCR).



E. Liquidity regulation

10. The Central Bank is currently in the process of reviewing the liquidity rules governing the banking sector with a view to strengthen the framework and increase convergence with international standards. For the liquidity standards, the Chilean regulatory framework currently establishes 30 and 90-day mismatch limits in domestic and foreign currencies. Some of the envisioned changes are aimed especially at achieving a more robust management of wholesale funding sources, in order to mitigate the risk factors described in this note. The draft of the new regulation has been published for public comment until September 2014. The main objectives are as follows:

- To strengthen liquidity risk management policies in the banking system, establishing minimum criteria for developing stress tests and contingency plans.
- To include binding regulatory limits on a consolidated basis, in addition to individual limits, so as to take into account the liquidity management of bank affiliates, in particular in banks established overseas that are affiliates of Chilean financial institutions.
- To standardize the assumptions used by internal models, for banks authorized to use internal models.

To add variables for monitoring the liquidity position of each bank. These include: (i) the liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR), as proposed in Basel III, (ii) reports on concentration by creditor, instrument, currency and maturity, and (iii) reports on rollover rates for wholesale funding sources. In a first stage, a minimum requirement on the LCR or on the NSFR will not be established, but will be evaluated in the future based on the analysis allowed by improved data collection and the lessons learned from the implementation in G20 countries.

Annex I. Data

Table A1.1. Chile: Country Coverage

Country	IMF FSI	Gobat and others	This Note
Chile	X	X	X
Brazil	0	X	X
Mexico	X	X	X
Argentina	X	X	X
Peru	X	X	X
Colombia	X	0	X
Ecuador	X	0	X
Paraguay	X	0	X
Uruguay	0	0	X

IMF FSI database

The first data source is IMF Financial Soundness Indicator (FSI) database (publicly available at <http://fsi.imf.org/>).

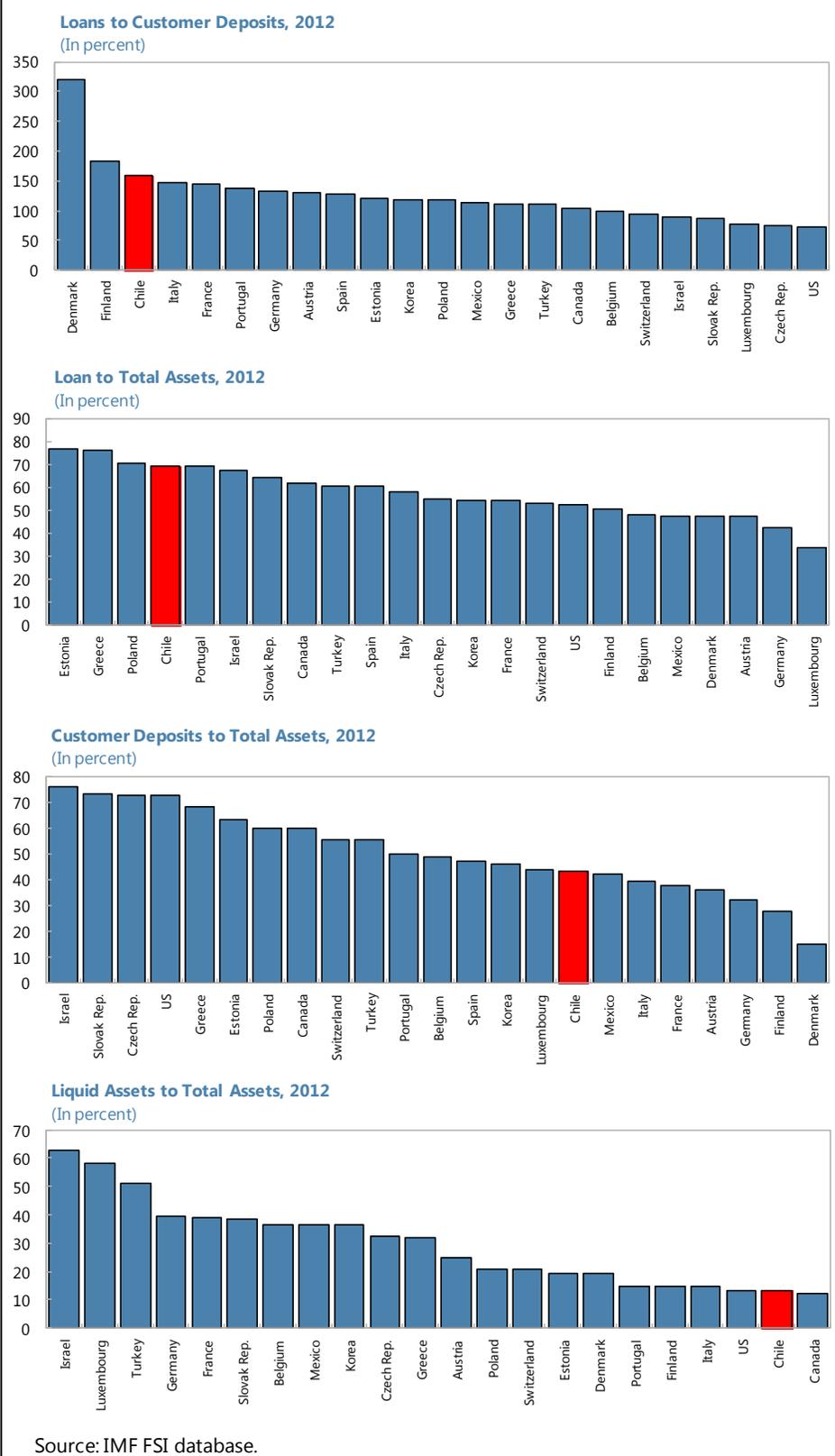
“Loan to Total Assets” and “Customer Deposits to Total Assets” are computed using the underlying series reported by countries under “Capital to Assets” and “Customer deposits to total noninterbank loans” in the Encouraged Set of the FSIs for deposit takers.

Bankscope data

The sample considers only commercial banks, as recorded in Bankscope database. For each country, we select the largest 15 banks (if available). The total number of banks in the sample is 134. The consolidation method selected is C1, C2, or U1. We use the latest observation available of 2011 or 2012.

Annex II. Broader Cross-Country Comparison

Figure A2.1. Chile: Loan to Deposit Ratio



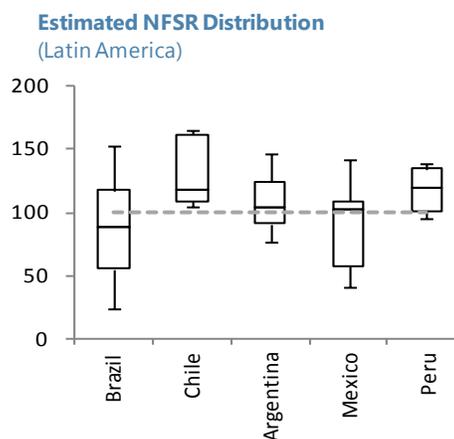
Source: IMF FSI database.

Annex III. NSFR Estimation

The Net Stable Funding Ratio (NSFR) was introduced as part of the Basel III reforms. It is a new prudential liquidity rule aimed at measuring excess maturity transformation risk and promoting funding stability.¹⁵

The ratio is defined as a bank's available stable funding (ASF) divided by its required stable funding (RSF), with banks having to meet at minimum a regulatory ratio of 100 percent beginning 2018. ASF is the portion of a bank's funding structure that is reliable over a one year time horizon, while the RSF is the portion of a bank's assets and off balance exposures that are viewed as illiquid over a one year horizon and hence should be backed by stable funding sources. The ASF and RSF weights range from 100 percent to 0 percent to reflect the stability of funding for liability categories and the liquidity of asset categories. A higher ASF weight is attached to more stable funding. For example, regulatory capital enjoys a 100 percent ASF weight while stable non-maturity deposits a 95 percent ASF weight, respectively. In contrast, funding from a financial institution with residual maturity less than six months has a 0 ASF factor. Similarly, liquid assets enjoy lower RSF factors while illiquid assets are assigned higher RSF factors. Central bank reserves have a 0 percent RSF weight and performing loans are assigned an 85 percent RSF weight.

The note applies the Gobat and others (forthcoming) methodology to estimate the Net Stable Funding Ratio (NSFR) based on Bankscope data. Because the degree of granularity in the data is very limited, the estimation should be taken only as indicative and interpreted with caution.



Source: Gobat et al. (forthcoming)

¹⁵ After undergoing review following strong criticism from the industry, the revised package has now been issued for public consultation with a plan of making it binding in 2018.

Table A3.1. Chile: NSFR Estimation Assumed Coefficients

Assets	Weights	Liabilities	Weights
Cash and Due From Banks	0.00	Customer deposits	0.93
Gross Loans	0.85	Customer deposits - current	0.90
Residential Mortgage Loans	0.85	Customer deposits - savings ¹	0.95
Other Mortgage Loans	0.85	Customer deposits - term ¹	0.95
Other Consumer/ Retail Loans	0.85	Deposits from Banks	0.00
Corporate & Commercial Loans	0.85	Wholesale short-term borrowing (debt+deposits) ²	0.5 0.00
Other Loans	0.85	Derivative liabilities	0.00
Loans and Advances to Banks	0.00	Trading liabilities	0.00
Total Securities	0.28	Long-term borrowing (more than one year)	1.00
Level 1 (government securities)	0.05	Other liabilities (tax, pension, insurance)	0.00
Level 2 (equities, commodities, corporates)	0.50	Equity	1.00
Net derivatives	1.00		
At-equity Investments in Associates	1.00		
Other Earning Assets	1.00		
Non-interest earning assets	1.00		
Memo: Mandatory Reserves included above	1.00		
Off balance sheet	0.05		

Source: Gobats et al. (forthcoming).

Note: Due to missing granular data in Bankscope reporting, we exclude Rabobank in the bank-by-bank NSFR estimation.

¹ The adjusted NSFR applies a weight of zero to Institutional Deposits.

² It assumes that 40 percent matures between 6 and 12 months and 60 percent mature in less than 6 months. Risk weights are 0.5 and 0, respectively.

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CHILE'S INSURANCE SECTOR¹

This chapter reviews recent trends, outlook and risks in Chile's insurance sector.

A. Background

1. The insurance sector is a significant player in the Chilean financial system. Measured by total assets, insurance is the third largest sector in the financial system (next to banks and pension funds), accounting for 20 percent of GDP. In a regional context, Chile's insurance business is well developed, with high insurance density (premiums to population) and penetration (premiums to GDP) relative to other countries. Nonetheless, Chile's insurance market is expected to grow further, as density is at the lower end of OECD countries, and the market has been growing in tandem with GDP.

2. The sector is dominated by life insurance companies. Life insurance companies account for roughly 90 percent of the sector's total assets and 65 percent of gross written premiums. Development in the life insurance sector (measured by the penetration rate) is not only high relative to the region, but also in line with the OECD median. Growth in the life sector reflects the inflow of funds from those retiring and converting their pensions into annuities. Chile has a mandatory, defined contribution pension scheme that requires workers to create individual savings accounts with pension funds that subsequently are converted into annuities at retirement. Pension funds, which are a large part of the financial system, will therefore eventually be converted into annuities, spurring the growth of the life insurance sector further.

Table 1. Chile: Financial System Structure
(Assets as a share of system total and GDP; in percent)

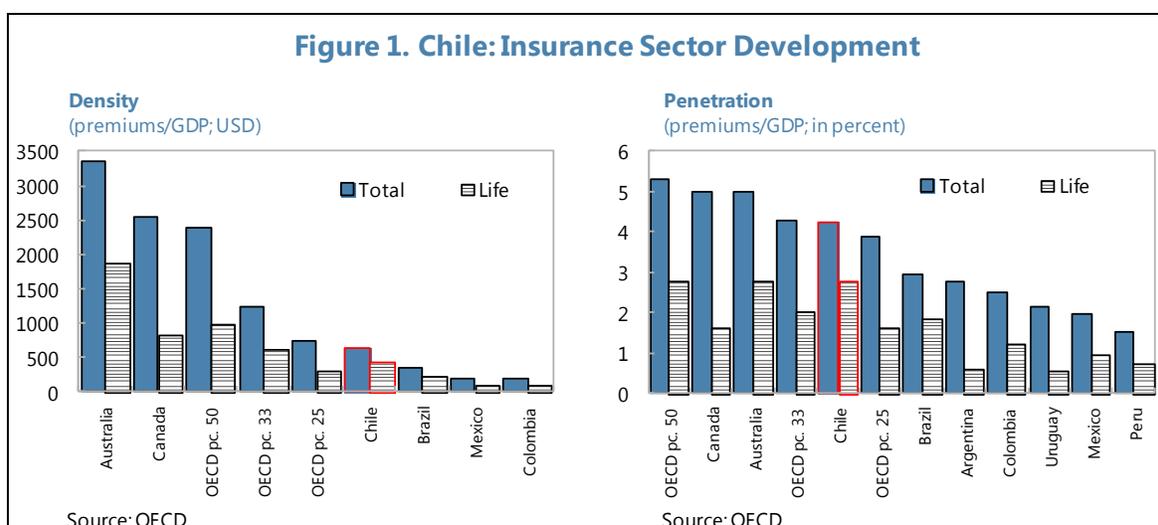
	2005		2012	
	(share of total)	(share of GDP)	Share of total	Share of GDP
Banks	50.5	92.7	52.4	107.7
Pension fund administrators 1/	31.7	58.1	28.9	59.4
Insurance companies	11	20.1	10.0	20.5
Property and casualty	0.6	1	1.1	2.3
Life	10.4	19.1	8.9	18.2
Other fund administrators 1/ 2/	6.9	12.6	8.7	17.8
Total	100	183.5	100	205.4

Source: Superintendencia de Banks and Financial Institutions, Superintendencia of Insurance and Securities, Superintendencia of Pensions, and Fund staff calculations.

1/ Assets under management.

2/ Includes mutual funds, investment funds, investment funds for foreign capital.

¹ Prepared by Nicolas Arregui (MCM).



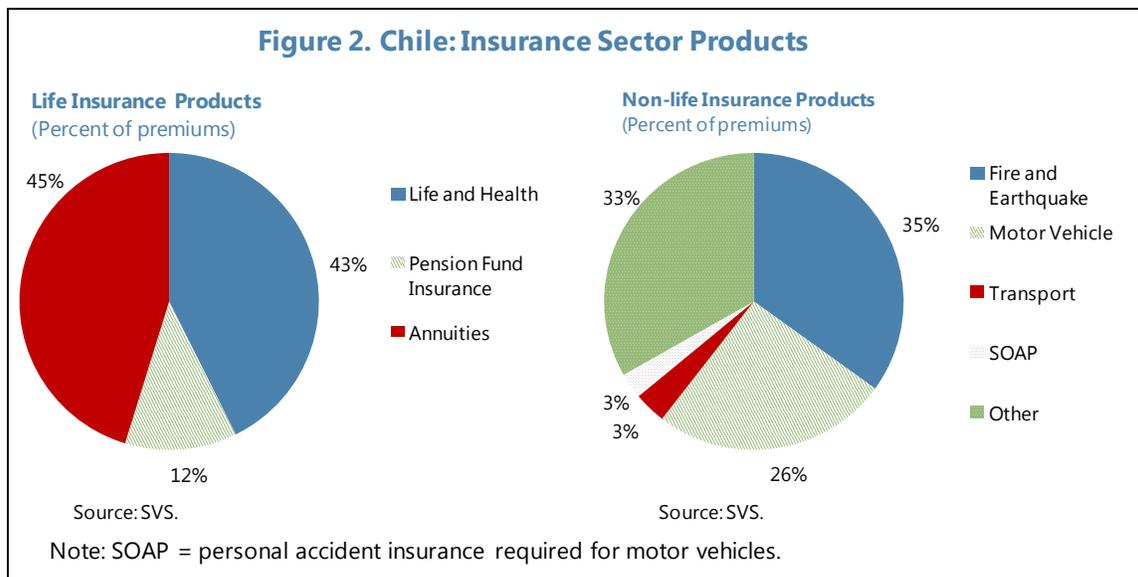
3. Regarding its ownership structure, the Chilean insurance sector has a large foreign presence and a large presence in conglomerates. The market share of foreign controlled undertakings and branches of foreign undertakings in total domestic business is 45 percent for life and 65 percent non-life insurance. Life insurance companies are usually part of conglomerates,² as companies belonging to conglomerates manage 95 percent of the assets in the industry. The Herfindahl Index (HHI) for life and non-life insurance are both below 1000 indicating that the degree of concentration is low according to the Department of Justice and Federal Trade Commission classification for the United States.³ The top five insurers account for 50 percent of the gross written premium in the life and 55 percent in the nonlife sector.

4. The products offered in the Chilean insurance sector are mostly traditional insurance products. Chile has the following statutory insurance obligations: (i) all credit operations require life insurance policy protecting the creditor; (ii) mortgage loans require fire, earthquake, and flood insurance; (iii) motor vehicles are required to have insurance for personal accidents; and (iv) pension funds are required to cover affiliates' risk of death or incapacity. Non-life insurance sector is dominated by fire and earthquake, and motor vehicle insurance. Life insurance is dominated by annuities and life and health insurance. Annuities account for 80 to 85 percent of the technical reserve requirements for life insurance companies. In recent years, the International Association of Insurance Supervisors (IAIS) has highlighted the extent to which insurance companies perform "non-insurance/non-traditional" activities as an indicator of their potential systemic impact. Insurers

² While banks or insurance companies are not permitted to directly own another insurance company, conglomeration can be established between financial companies through a holding company. While life and non-life companies need to be individually licensed and a separate corporation established, if they belong to the same group, the same management and administrative system may be used in Chile.

³ In their guidelines, markets with a Herfindahl Index (HHI) below 1000 are deemed "unconcentrated," those with an HHI between 1,000 and 1,800 are deemed "moderately concentrated," and those with an HHI above 1,800 are deemed "highly concentrated."

engaged in traditional insurance activities are in general able to absorb their losses with no systemic impact. In contrast, insurance groups and conglomerates that engage in non-traditional or non-insurance activities can be more vulnerable to financial market developments and therefore more likely to contribute to systemic risk.⁴

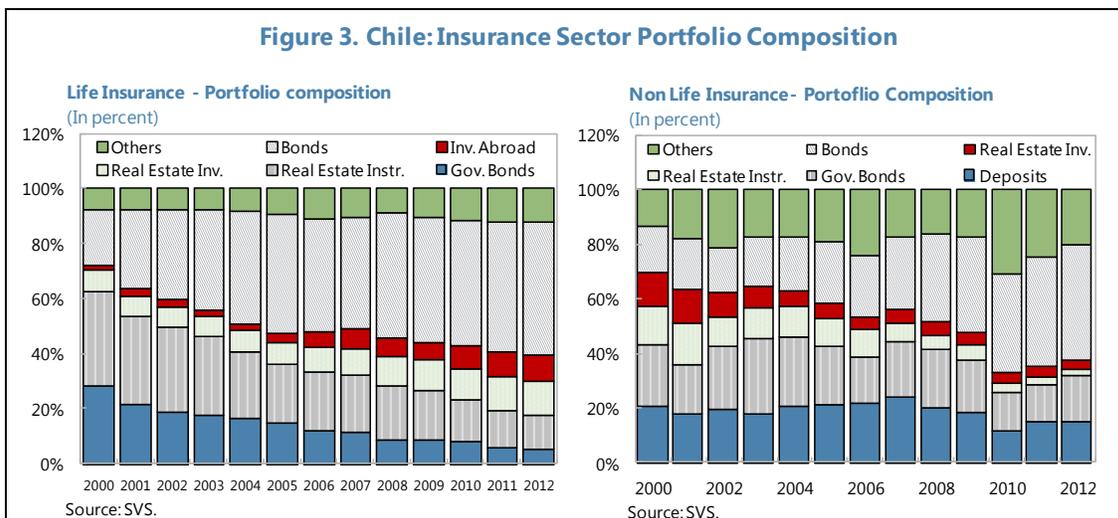


B. Investment and profitability

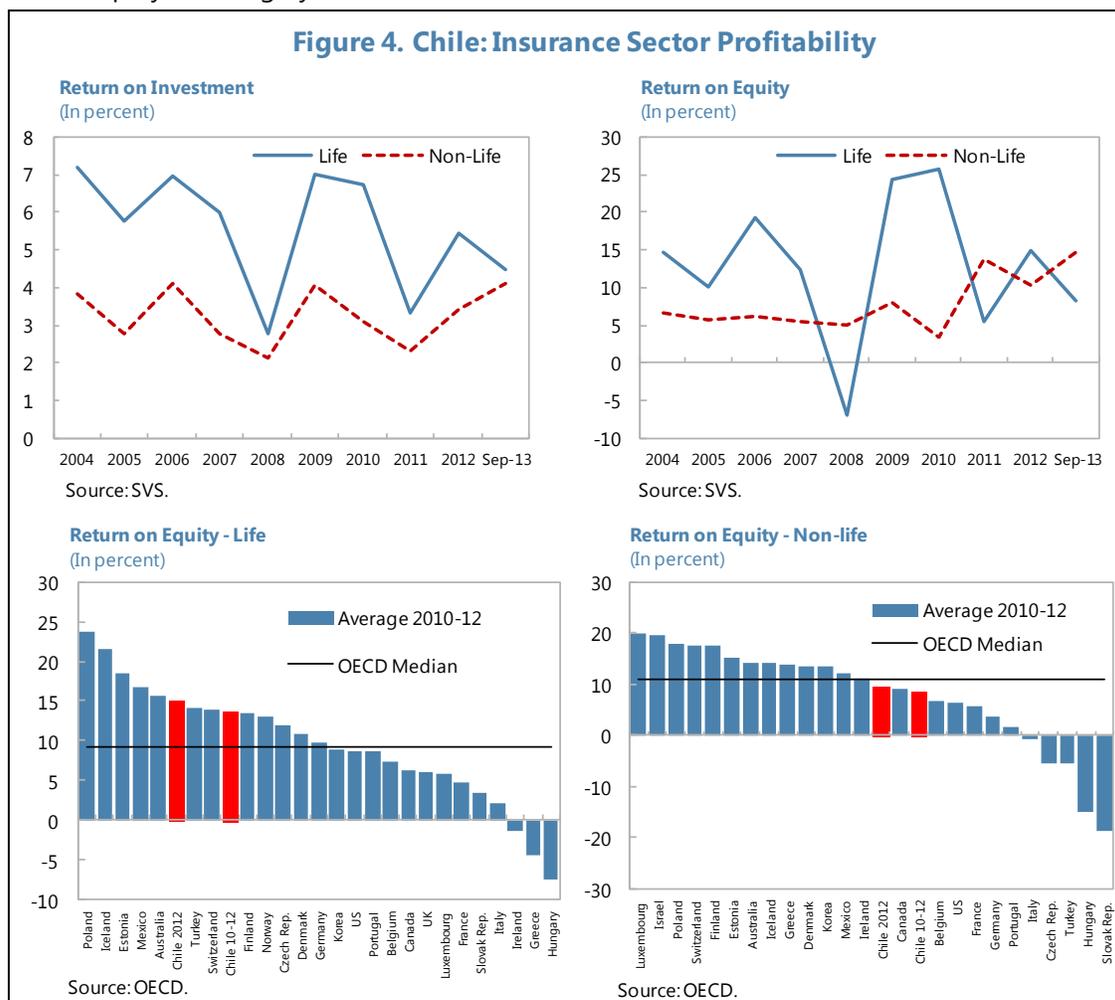
5. The insurance sector invests roughly 70 percent of its portfolio in domestic fixed income assets. Bank and corporate bonds account for 40 to 50 percent of life and non-life insurance companies' portfolios. Non-life insurance companies favor more liquid investments, including cash, deposits and government bonds.⁵ Life insurance companies, make longer term investments, including real estate instruments (*letras* and *mutuos hipotecarios*) and real estate direct investments. The conventional approach that matched annuity (long-term and fixed interest rate) liabilities with long-term government bonds became impractical as the annuity pricing rate has exceeded the bond rate since 2001. In response, emphasis was first shifted to fixed-rate corporate bonds to capture higher yields. More recently, insurers have increased their exposures abroad and to real estate. These moves have enabled life insurance companies to seize higher yields but have increased the exposure to investments that are less liquid and with higher relative risk.

⁴ Examples of non-traditional and non-insurance activities include financial guarantee insurance, capital market activities such as credit default swap (CDS) issuance, transactions for non-hedging purposes, derivative trading or leveraging assets to enhance investment returns.

⁵ Mutual funds are a key investment for property and casualty insurers.



6. Profitability in the insurance sector appears healthy. It was negatively affected in 2011 but has recovered since then. Returns on investment are a key determinant of profitability in the sector. Return on investment for life insurers has been relatively high compared to non-life insurance companies due to life insurers' investment in longer term assets. Returns on investment for both life and non-life insurers were negatively affected in 2011 due to the poor performance of variable income assets and investments abroad. Profitability for both sectors appears adequate, as returns on equity are roughly in line with the median for OECD countries.



C. Risks

7. There are two major sources of risk in the annuity business: longevity risk and reinvestment risk. Longevity risk would arise from unanticipated medical advances and/or diet improvements affecting the long term outlook for annuities payments. Following the 2004 FSAP recommendation, mortality tables have been updated and are now regularly reviewed to provide for future life expectancy improvements. In terms of reinvestment risk, Chilean life insurers with annuity liabilities show a systematic maturity mismatch of assets and liabilities, due to the scarcity of assets with similar durations as liabilities. With a lower average maturity for assets than for liabilities, life insurers stand to benefit from normalization in world monetary conditions.

8. In recent years, life insurers have increased their exposures to risks in the real estate sector. Direct exposures to real estate have increased as a share of total portfolio, in particular commercial real estate.⁶ In turn, commercial real estate activity has been dynamic in recent years. Price data for commercial real estate remain spotty, and the central bank has only recently commenced collecting such series. A substantial amount of office space is expected to come to completion in the near future, heightening the risks of a downward correction in prices and rents. As a mitigating factor, the securities and insurance superintendence (SVS) reports that accounting requirements for these assets are conservative.⁷ Results of SVS' stress testing exercises, assuming a drop in real estate prices between 25 and 30 percent, also do not raise significant concerns.⁸ Nonetheless, the SVS should continue to monitor real estate-related asset structures and values closely.

9. Chilean non-life insurers have high exposure to catastrophic risk. The major natural catastrophe risk in Chile is earthquake and a tsunami caused by an earthquake as Chile is one of the most seismically active regions in the world. Over the last century, Chile has experienced more than a dozen major earthquakes. The performance of insurance companies and the SVS in the context of the latest major earthquake and associated tsunami of February 2010 was impressive.⁹ The country suffered extensive destruction of property, and the insurance industry settled 98 percent of the claims within seven months following the earthquake. Losses to local insurance companies were limited as the associated risk had been transferred to international markets via reinsurance. The SVS played a proactive role in informing homeowners of their insurance coverage and in monitoring the settlement and payment of property claims.

⁶ Regulatory exposure limits for housing are tighter than those for commercial real estate.

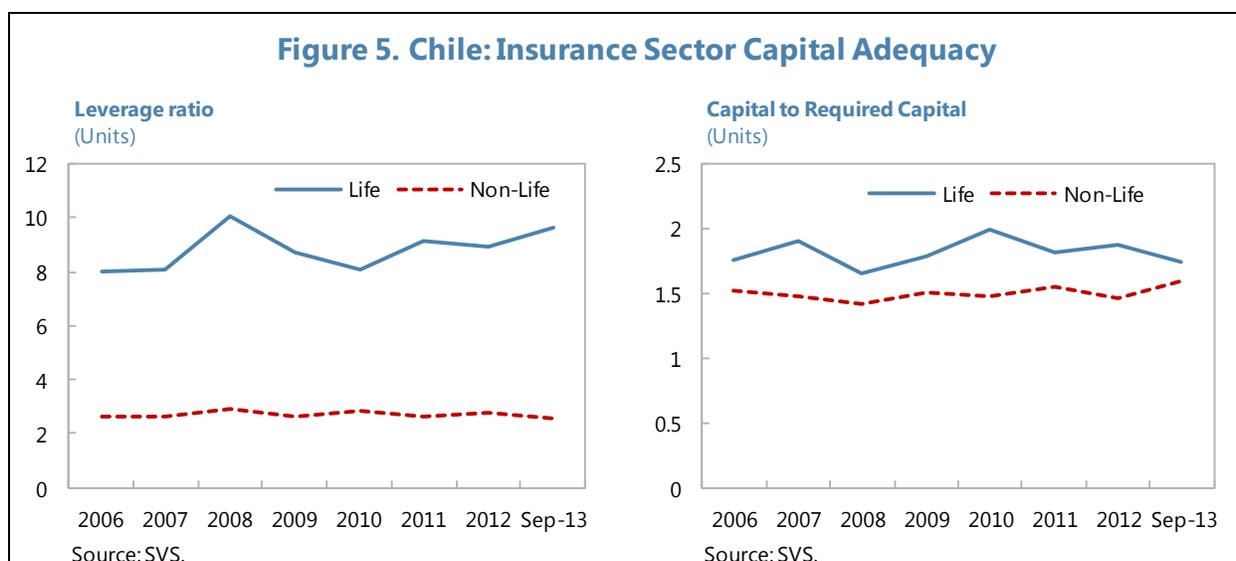
⁷ Real estate assets are priced at the minimum of two independent price sources and the amortized cost adjusted by inflation.

⁸ Another stress testing exercise conducted by SVS considers a drop in asset prices of 30 percent.

⁹ See IMF Chile FSAP Update 2011.

D. Capital analysis

10. Chilean insurance companies have a conservative approach to solvency and tend to accumulate more capital than required by current regulation. The securities and insurance superintendence (SVS) reports two variables to monitor solvency: a leverage ratio (debt to equity ratio) and a ratio of capital to required capital. Over the last years, the leverage ratio for non-life insurers has remained stable and has increased mildly for life insurers. The ratios for both non-life and life insurers remain well below their regulatory maxima (five and twenty, respectively). Also, both non-life and life insurers hold capital significantly above required capital levels.¹⁰ However, it should be noted that current capital requirements do not fully capture all risks confronted by insurers (market risk, credit risk, reinvestment risk and longevity risk). Moreover, insurers that opted to recognize in a deferred way the 2006 mortality tables of beneficiaries and disabilities (B-2006, MI-2006), were granted a twenty year period to implement them. Thus far, seventeen insurers have opted for that mechanism and are not recognizing an amount equivalent to 30 percent of their net capital. If those insurers were to recognize in a one-time such mortality tables, their leverage levels would be higher than reported in this note and, in a few cases, above regulatory minimum. The SVS is in the process of changing capital requirements to be based on risk (see next section).



E. Supervision and regulation

11. Keeping up with best practices in insurance supervision and regulation is crucial, given the key role played by life insurers in the Chilean financial system. The life insurance sector is currently the third largest financial sector (with assets around 20 percent of GDP) and is expected to continue growing as the number of retirees in the pension system increases. Its interconnectedness with the rest of the financial system is significant. Life insurers hold a large share of their portfolio in

¹⁰ The lack of a global standard for capital adequacy in insurance does not allow for a cross-country comparison.

bank bonds and real estate financing instruments (*letras* and *mutuos hipotecarios*). Additionally, the sector plays an important role financing the Chilean corporate sector. In terms of ownership, life insurers tend to be part of financial conglomerates. Regarding exposures, over the last decade, they have increased their exposure to investments with lower liquidity and higher relative risk. Finally, there is an explicit government guarantee on annuities, therefore representing a fiscal contingent liability in case of insolvency of a life insurer.

12. Chile is in the process of introducing a risk-based supervisory system, including changes in solvency requirements. The project strengthens the supervisory process by distinguishing companies by their risk level and their risk management practices and corporate governance. The project is therefore in line with previous FSAP¹¹ and OECD recommendations. In October 2012, the project was approved in the Deputies Chamber and is currently sitting with the Senate. Changes in capital requirements, investment regulation and corporate governance of insurance companies are expected with the passage of the bill.

13. The proposed system employs a two-pillar assessment of the financial strength of the companies.

- In the first pillar, the level of compliance with new minimum solvency requirements is evaluated. The new minimum solvency requirements incorporate the notion of risk-based capital requirement, to better align capital charges with the associated asset risks.¹² For example, capital charges on variable income assets and real estate investments are introduced, which are missing under the current regulatory framework. Additionally, requirements for longevity and reinvestment risks are tightened.
- In a second pillar, the SVS will assign a rating to each company based on its evaluation of risk exposure, risk management practices, quality of corporate governance, and based on a qualitative assessment of capitalization.

The strength ratings for each pillar are then combined into an aggregate rating that guides SVS supervision and, depending on circumstances, allow SVS to require early remedial action by management. In addition, the project tightens limits on investments in related parties, which is relevant given the high degree of conglomeration in the Chilean financial sector.

¹¹ The 2004 FSAP conducted a review of the insurance sector that, among other issues, recommended a move to a more risk-based approach to supervision. The 2011 FSAP followed up on the recommendation.

¹² At present the capital requirements (based on Solvency I) cannot be said to be sensitive to the size and risks of the insurers' operations. The SVS is in the process of developing a standard formula for risk-based capital. To date, the SVS has published two methodological papers and is conducting its second quantitative impact study.

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