INTERNATIONAL MONETARY FUND

IMF Country Report No. 16/376

CHILE

December 2016

2016 ARTICLE IV CONSULTATION—PRESS RELEASE; STAFF REPORT; AND STATEMENT BY THE EXECUTIVE DIRECTOR FOR CHILE

Under Article IV of the IMF's Articles of Agreement, the IMF holds bilateral discussions with members, usually every year. In the context of the 2016 Article IV consultation with Chile, the following documents have been released and are included in this package:

- A **Press Release** summarizing the views of the Executive Board as expressed during its December 7, 2016 consideration of the staff report that concluded the Article IV consultation with Chile.
- The **Staff Report** prepared by a staff team of the IMF for the Executive Board's consideration on December 7, 2016 following discussions that ended on October 28, 2016, with the officials of Chile on economic developments and policies. Based on information available at the time of these discussions, the staff report was completed on November 23, 2016.
- An **Informational Annex** prepared by the IMF staff.
- A **Staff Statement** updating information on recent developments.
- A **Statement by the Executive Director** for Chile.

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INTERNATIONAL MONETARY FUND

COMMUNICATIONS DEPARTMENT

Press Release No. 16/548
FOR IMMEDIATE RELEASE
December 9, 2016

International Monetary Fund
700 19th Street, NW
Washington, D. C. 20431 USA

IMF Executive Board Concludes 2016 Article IV Consultation with Chile

On December 7, 2016, the Executive Board of the International Monetary Fund (IMF) concluded the Article IV consultation[1] with Chile.

GDP growth has been weak, with activity slowing in October. However, conditions are in place for the economy to recover. After expanding by a moderate 1.7 this year, growth is forecast to increase to 2 percent in 2017. Faster growth in main regional partners and more stable copper prices are expected to lift exports and investment. The recovery is, however, projected to be gradual, held back by slow wage and job growth and still low business confidence. Inflation is expected to continue to decelerate to 2.7 percent next year.

The balance of risks is on the downside. The main external risk is an unexpected slowdown in Chile's main trading partners, China and Brazil. Possible changes to the U.S. policy path have added uncertainty to the outlook. External risks could be magnified by high corporate leverage and reliance on foreign currency debt. Domestically, the main risks are a delayed recovery in business confidence and investment related to larger the expected uncertainties surrounding a new labor bill. Also, should a pension reform be approved, an increase in contribution rates could dampen growth over the medium term. On the upside, a fiscal expansion in advanced economies could raise external demand above expectations.

The financial sector appears healthy. Banks profitability is declining but capital buffers are adequate and non-performing loan rates are low. Discussions about a strengthening of the regulatory framework, especially Basel III, and a strengthening of supervision have been underway for some time.

The macroeconomic policy mix remains accommodative. Amidst fast disinflation and slow activity, the policy rate has remained unchanged throughout 2016 and policy guidance is now setting the tone for an easing cycle. The strong net public-asset position has allowed the use of

[1] Under Article IV of the IMF's Articles of Agreement, the IMF holds bilateral discussions with members, usually every year. A staff team visits the country, collects economic and financial information, and discusses with officials the country's economic developments and policies. On return to headquarters, the staff prepares a report, which forms the basis for discussion by the Executive Board.

fiscal space so far, and the envisaged consolidation is gradual and geared toward pro-growth spending.

Structural reforms are setting the stage for stronger growth. Investment in infrastructure, especially roads and electricity, have come underway. Implementations of the previously approved education reform is proceeding. More recently a package of measures aimed at raising productivity has been passed.

Executive Board Assessment[2]

Executive Directors commended the authorities' sound macroeconomic management, which has contributed to Chile's resilience to large terms-of-trade shocks. At the same time, Directors noted that less favorable external conditions, declining trend growth, and an urgent need to address social needs could impact the country's economic prospects. Directors welcomed the authorities' continued commitment to strong policies and reforms aimed at achieving higher and more inclusive growth and tackling the challenges ahead.

Directors welcomed the current monetary policy stance which is based on an inflation-targeting framework and a flexible exchange rate regime. They supported the ongoing monetary policy accommodation and agreed that further easing could be considered in case disinflationary pressures broaden and growth risks intensify. They recommended that monetary policy decisions should continue to be data dependent.

Directors commended the authorities' shift toward fiscal consolidation, given the sizable structural deficit, and recommended a gradual consolidation path so as to minimize the drag on the recovery. They noted that the role of the Advisory Fiscal Council could be strengthened to buttress fiscal credibility.

Directors noted that although Chile's pension system is sound, it is not delivering adequate benefits. They welcomed the authorities' plans to reform the pension system, including ensuring adequate old-age income by strengthening the private and public solidarity pillars, and by reducing the costs of pension fund administration. Directors highlighted that consideration should also be given to increases in contribution rates, retirement ages, and mandatory coverage. In addition, they underscored that economic effects of these reform efforts need to be carefully assessed for their impact on growth as well as on current and future pensions.

Directors noted that the financial sector is healthy. However, they encouraged the authorities to closely monitor vulnerabilities as weaker-than-expected growth could strain the solvency of

[2] At the conclusion of the discussion, the Managing Director, as Chairman of the Board, summarizes the views of Executive Directors, and this summary is transmitted to the country's authorities. An explanation of any qualifiers used in summings up can be found here: http://www.imf.org/external/np/sec/misc/qualifiers.htm.

highly leveraged firms and less resilient small-and medium-sized enterprises, with potential for amplification via strong inter-sectoral balance-sheet linkages. Directors underscored the need to further improve resilience by adopting Basel III capital standards and to move towards risk-based supervision of insurers. They also called for more effective oversight of conglomerates and stronger corporate governance and investor protection.

Directors emphasized that ambitious structural reforms are necessary to promote stronger and more inclusive growth. They welcomed the authorities' continued efforts toward improving the quality of education, upgrading key infrastructure, and raising productivity. Directors also underscored the importance of tackling legal uncertainties related to the labor reform.

Chile: Selected Social and Economic Indicators

GDP (2015), in billions of pesos	157,508	Quota	
GDP (2015), in billions of U.S. dollars	240.8	in millions of SDRs	856
Per capita (U.S. dollars)	13,374	in % of total	0.36%
Population (2014), in millions	17.8	Poverty rate (2015)	11.70
Main products and exports	Copper	Gini coefficient (2015)	49.50
Key export markets	China, Euro area, U.S.	Literacy rate (2015)	99.2

						Proj.	
	2011	2012	2013	2014	2015	2016	2017
	(Annual percentage change, unless otherwise specified)						
Output							
Real GDP	5.8	5.5	4.0	1.9	2.3	1.7	2.0
Total domestic demand	9.4	7.4	3.6	-0.3	2.0	1.5	1.8
Consumption	7.8	5.7	5.2	2.8	2.5	2.2	2.1
Private	8.9	6.1	5.5	2.4	1.9	1.7	1.9
Public	2.5	3.5	3.5	5.1	5.8	4.6	3.5
Investment	14.4	12.6	-0.7	-9.9	0.3	-1.0	0.5
Fixed	15.0	11.6	2.2	-4.2	-1.5	0.5	0.5
Private	15.8	12.6	2.7	-4.7	-3.3	0.4	0.7
Public	8.3	3.8	-1.9	0.8	14.5	1.0	-1.7
Inventories 1/	0.0	0.4	-0.8	-1.5	0.5	-0.3	0.0
Net exports 1/	-4.2	-2.0	0.3	2.8	0.4	0.4	0.3
Exports	5.5	0.1	3.3	1.1	-1.9	0.7	2.8
Imports	16.0	4.8	2.1	-5.7	-2.8	-0.4	1.9
Employment							
Unemployment rate (annual average)	7.1	6.4	5.9	6.4	6.2	7.0	7.6
Consumer prices							
End of period	4.4	1.4	2.8	4.7	4.4	3.1	3.0
Average	3.3	3.0	1.9	4.4	4.3	3.9	2.7
	(In percent of GDP, unless otherwise specified)						
Public sector finances							
Central government revenue	22.6	22.2	21.0	20.7	21.3	21.1	21.3
Central government expenditure	21.4	21.6	21.6	22.4	23.5	24.1	24.6
Central government fiscal balance	1.3	0.6	-0.6	-1.6	-2.2	-3.1	-3.3
Structural fiscal balance 2/	-1.0	-0.1	-1.0	-1.5	-2.1	-2.4	-2.1
Fiscal impulse	-1.4	-0.9	0.8	0.6	0.5	0.3	-0.3
Public sector net debt	-4.9	-1.9	-1.1	0.5	1.0	6.2	9.5
Public sector gross debt	34.9	34.3	34.0	37.8	40.6	44.4	48.7
Central government gross debt	11.2	12.0	12.8	15.1	17.5	20.8	25.0
Of which, share of FX-denominated debt (in percent)	17.2	16.1	12.9	15.9	18.3	17.3	17.3
Money and credit							
Broad money (percentage change)	18.5	7.6	14.9	9.3	9.8	...	...
Credit to the private sector (percentage change)	16.7	11.9	10.0	10.2	10.7	8.1	6.0
3-month central bank bill rate (%)	4.9	5.1	5.0	4.0	2.6	...	...
Balance of payments							
Current account	-1.2	-3.5	-3.7	-1.3	-2.0	-2.2	-2.2
Current account (in billions of U.S. dollars)	-3.1	-9.4	-10.3	-3.3	-4.8	-5.4	-5.4
Foreign direct investment inflows	9.3	10.7	7.0	8.6	8.5	8.6	8.8
Gross international reserves (in billions of U.S. dollars)	42.0	41.6	41.1	40.4	38.6	38.6	38.6
In months of next year's imports of goods and services	5.6	5.5	5.9	6.7	6.6	6.3	6.0
Gross external debt	39.6	45.4	48.6	57.8	64.6	64.7	68.3
Public	2.9	3.1	3.4	3.8	4.3	4.9	5.6
Private	36.7	42.4	45.2	54.0	60.4	59.8	62.7
Exchange rate	(Annual percentage change)						
Real effective exchange rate (real appreciation +)	0.0	3.2	-0.7	-8.8	1.4	...	...
Terms of trade	1.5	-6.6	-2.9	-2.0	-4.1	-1.7	-2.3

Sources: Central Bank of Chile, Ministry of Finance, Haver Analytics, and IMF staff calculations and projections.

1/ Contribution to growth.

2/ Based on staff's output gap estimates and WEO copper prices.

INTERNATIONAL MONETARY FUND

CHILE

STAFF REPORT FOR THE 2016 ARTICLE IV CONSULTATION

November 23, 2016

EXECUTIVE SUMMARY

Context: Chile's fundamentals and policy framework remain strong. However, economic prospects are being shaped by lower dynamism in key trading partners, permanently lower copper prices, slower trend growth, and mounting social demands for inclusive growth. Important reforms are underway to lift growth and reduce inequality, but they inevitably generate transition costs. Against this background, staff's recommendations aim to balance trade-offs between growth, stability, and social objectives, while assessing the macroeconomic policy mix during this challenging transition.

Key findings and policy recommendations.

Conditions are in place for a modest recovery next year. Stronger external demand is aiding an export-led recovery, lifting growth from 1.7 percent to 2 percent next year. A faster recovery is hampered by weak domestic demand and a slow improvement in confidence, dampened by uncertainty related to the labor reform and costs associated with a new corporate income tax perceived as complex.

Trend GDP growth has declined substantially to 2.8 percent (from 4.8 percent in 2011). The scaling back of investment, flagging productivity, and slowing labor supply are the result of infrastructure bottlenecks, low human capital, and demographics.

Fiscal consolidation should commence, but Chile can proceed slowly. The 2017 budget appropriately shifts towards fiscal consolidation. A strong net public-asset position allows Chile to proceed slowly in the near term while growth is weak and pro-growth and equality reforms are implemented. As the economy recovers, stronger fiscal adjustment is needed. To provide adequate old-age income, a planned pension reform should strengthen the private and the public solidarity pillars, all the while mitigating growth costs.

Monetary policy is appropriately accommodative. The central bank should lower rates if disinflation becomes broad based and more persistent, and if growth risks intensify.

Structural reforms are setting the stage for stronger growth. The reform agenda could be strengthened by fast-tracking a new infrastructure fund geared to raise private participation, improving programs to strengthen workers' skills, and facilitating growth of businesses.

Financial sector balance sheets are healthy, but risks to stability bear close monitoring. Weaker-than-expected growth could strain solvency of highly leveraged firms, less resilient SMEs, and indebted households. A subsequent tightening of credit could get amplified via macro-financial linkages, thereby dampening growth. Corporate stress tests show that banks' balance sheets can withstand a significant rise in credit risks.

There is considerable scope to enhance the resilience of the financial sector. Key Basel III regulations and risk-based supervision of insurers should be adopted swiftly. Enhanced coordination and information sharing among financial sector supervisors would ensure more effective oversight of financial conglomerates. Improved corporate governance could be incentivized through the introduction of a voluntary stewardship code.

Approved By
Jorge Roldos (WHD) and Vikram Haksar (SPR)

Discussions took place in Santiago during October 17–28, 2016. The staff team comprised Mr. Danninger (head), Mmes. Pérez Ruiz, Santoro (all WHD), Mr. Brandao Marques (MCM), and Mr. Blagrave (RES) with research assistance from Mr. Tawfik. Mr. Vicuña (OED) attended some of the meetings. The mission met with the Minister of Economy, the Minister of Finance, the Minister of Labor, the Central Bank Governor, senior officials in the Budget Office, various ministries, and the Central Bank, and representatives from banks and industry, think tanks, and academics. Mr. Roldos (WHD) joined the concluding meetings with the Minister of Finance and the Central Bank Governor.

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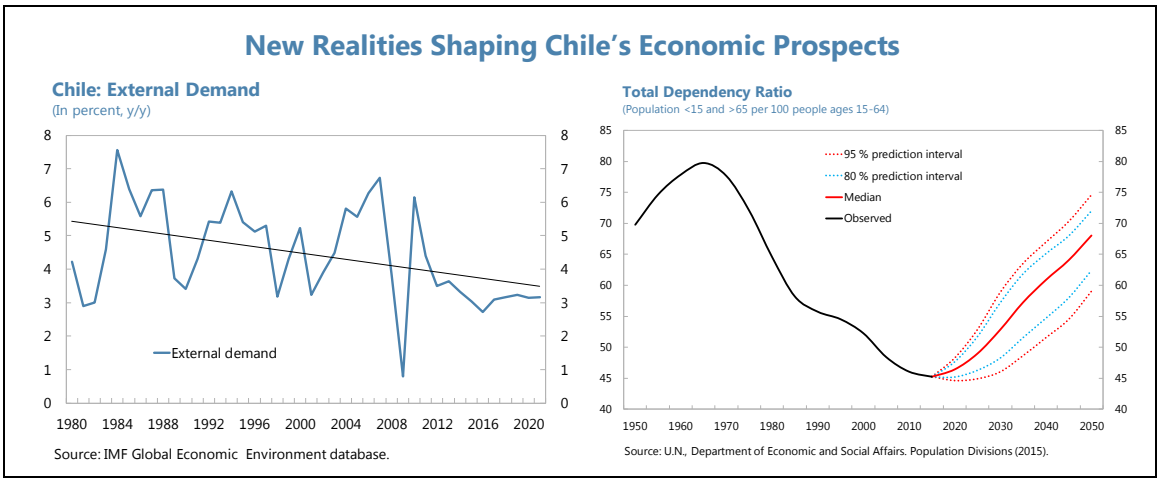
CHILE'S GROWTH AND INEQUALITY CHALLENGE

1. **New realities are shaping Chile's economic prospects.** Economic rebalancing in China, less buoyant income growth in the U.S. and Europe, and structural problems in Latin America—notwithstanding a better outlook for next year—are generating a less dynamic external environment beyond the near-term. Domestically, population aging, infrastructure bottlenecks, and low human capital are dampening trend growth. Meanwhile demand for adequate provision of public services are mounting amidst still high income inequality and poverty, raising trade-offs between growth, fiscal, and social objectives. Structural reforms aimed at addressing these challenges are forging new avenues for growth, but are also generating adjustment costs. In particular, a new labor reform, while upgrading labor relations, is creating uncertainty given legal ambiguities. The next general election is slated for November 2017.



2. **Despite these challenges, Chile has grown faster than others in the region.** This owes to a credible and effective fiscal and monetary framework, a modern and stable financial system, and a flexible exchange rate. Since 2014, growth averaged 2 percent, substantially below rates of 4 percent a few years ago, but well above the Latin-American six largest countries average of 0.3 percent during the last 3 years.

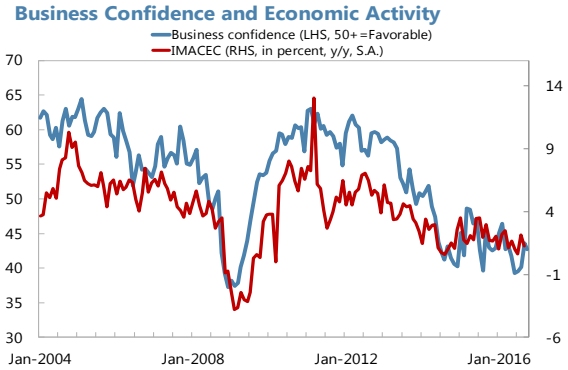
A. Recent Developments

3. **The growth slowdown is coming to an end** (Figure 1, 2). GDP decelerated to 1.6 percent (saar) in the first half of 2016, mainly in response to flagging external demand from the region, and a second round of copper price declines in 2015. The contraction in mining contributed more than half to the overall growth slowdown, while ex-mining activity remained sluggish owing to soft domestic demand. Private consumption slowed to 1.8 percent y/y in 2Q2016 in line with decelerating wage and employment growth (Figure 4). Business investment continues to be low owing to uncertain external conditions,[1] diminishing construction activity (payback from last year's tax-policy induced advancing of residential investment), and depressed sentiment. However, signs of a turnaround have

[1] Staff analysis finds high sensitivity of Chile's investment to copper price uncertainty: Comelli and Perez Ruiz, 2016, "To Bet or Not to Bet: Copper Price Uncertainty and Investment in Chile, IMF Working Papers No. 16/218.

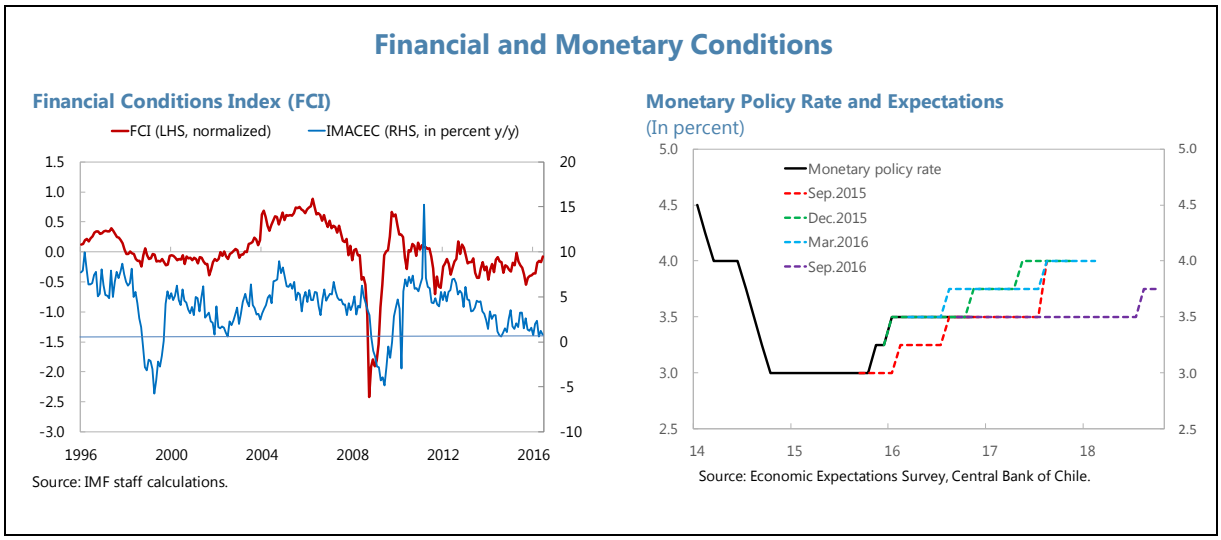
emerged. Mining exports and the trade balance improved over the summer, and an uptick in real incomes from rapid disinflation is helping private consumption.

4. **Business confidence is improving.** Sentiment is still depressed, but has risen slightly since July. A better regional outlook and moderately stronger-than-expected activity since the summer appear the main factors. Also, passage of large parts of a controversial reform agenda have reduced uncertainty, although legal ambiguities in the new labor law and implementation costs associated with a complex new business tax continue to weigh on sentiment.



Source: Haver Analytics, Inc.

5. **A supportive macro policy mix is set to turn less accommodative next year.** Amidst weak growth and steady disinflation, the central bank has kept the policy rate unchanged at 3½ percent since the beginning of the year. Forward guidance has reduced interest rate expectations, and financial conditions (text chart) have in parallel shifted from slightly tight to neutral (relative to the historical 1996–2015 average). Fiscal policy delivered stimulus of ½ percent of potential GDP per year during 2013–16 but starting 2017, the structural deficit is set to narrow at the yearly pace of ¼ percent.

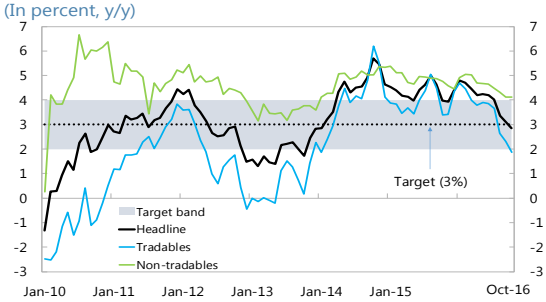


B. Outlook, Macro-Financial Linkages, and Risks

6. **Conditions are in place for a modest recovery next year.** GDP is forecast to grow moderately faster at 2 percent in 2017, slightly up from 1.7 percent this year (Table 1). Faster external demand growth in key trading partners—up by 0.3 ppts. to 3 percent in 2017—and more stable copper prices are projected to lift exports. Spillovers to business investment are, however, slow to materialize: business confidence will likely continue to improve only at a moderate pace as the effects of new labor legislation—effective in April 2017—take time to be understood by social partners. Private consumption will be held back by slow wage growth and rising unemployment (expected to peak at almost 8 percent by mid-2017). Beyond the near-term, growth is expected to accelerate as ongoing reforms remove growth bottlenecks.[2]

7. **Financial conditions are staying broadly neutral.** External conditions are set to remain favorable and capital inflows to emerging economies with strong fundamentals, such as Chile, are expected to remain robust as expected gradual monetary policy normalization in the U.S. commences. The slowdown in credit growth since June 2016 is set to extend into next year, reflecting both sluggish domestic demand and some tightening of banks' credit conditions. In particular, moderately higher credit risks will dampen bank lending conditions for SMEs, consumer credit, and mortgages under the baseline. Banks will also focus more on strengthening capital buffers in anticipation of an expected phased-in adoption of Basel III minimum solvency requirements.

8. **Disinflation is set to continue into 2017** (Figure 3). Inflation has returned to the target band after decelerating rapidly from 4 percent in July to 3.1 percent in September. Peso appreciation (7½ percent against the dollar since January), slower services inflation, and a soft labor market all contributed. With the output gap widening next year, inflation is projected to decline to 2.7 percent in 2017.



Source: Haver Analytics, Inc.

9. **Risks are tilted to the downside** (Risk Assessment Matrix (RAM), text table, and Box 2). On the downside, an unexpected slowdown in China or setbacks from pending adjustments in Brazil could dampen exports and investment, and tighten financing conditions as investor risk aversion increases. Sustained uncertainty about U.S. domestic policies, a shift towards protectionism, and faster than expected tightening of monetary policy could dampen external demand while raising inflation as the peso depreciates. Domestically, the recovery in confidence could be further delayed by a drawn-out resolution of legal uncertainty embedded in the new labor bill. Also, implementation costs of a complex new corporate tax code could be larger than expected. Moreover, should the pension reform be approved, an increase in contribution rates could dampen growth over the medium-term relative to the baseline. Finally, a sharper-than-anticipated cooling in the labor-intensive real estate market could create headwinds to consumption via higher unemployment. On

[2] Over the medium-term, GDP could be between 2 to 6 percent higher relative to a no-reform scenario. Santoro, M., 2015, "Short-Term Pain, Long-Term Gain: Assessing the Potential Impact of Structural Reforms in Chile", IMF Working Papers No. 15/282.

the upside, approaching the presidential elections next year, private sentiment could rebound more rapidly than expected as perceived policy uncertainty diminishes.

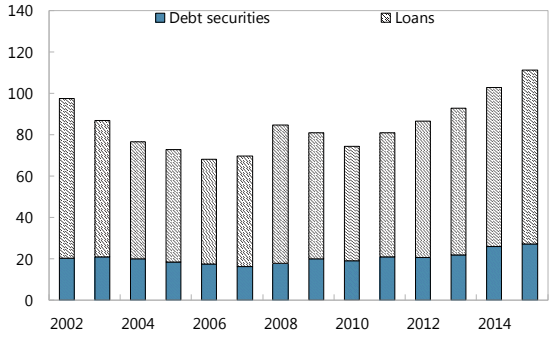
Simulated GDP Impact of Risk Scenarios 1/
(percentage points deviation from October 2016 WEO baseline)

Type of shock	*Main transmission channel*	*GDP impact*
1 ppt. lower growth in China	Copper exports	-0.4
Faster pace of monetary policy normalization in the US: 100 basis points increase in EMBIG yield	Central Bank of Chile raises policy rates to avert excessive pass-through to domestic inflation or capital outflows	-0.4
1 ppt. lower growth in Brazil	Non-copper exports	-0.06
3 ppt. lower growth in Argentina	Non-copper exports	-0.05
10 basis points increase in the (12-month ahead) probability of default of Chilean non financial corporates 2/	Investment, deleveraging	-1

Source:IMF staff.
1/ Table shows the impact on the level of GDP over the course of two years as informed by Blagrave and Vesperoni (2016), *Spring 2012 and Spring 2014 Regional Economic Outlook, Western Hemisphere Department.* The probability-of-default scenario relies on a TVP-FAVAR approach (see Box 2).
2/ An increase in the average median probability of default from 0.17 currently to 0.27 represents a 3.4 standard deviation deterioration in the FCI.

10. **The impact of downside risks materializing could be amplified through macro-financial linkages.** Although balance sheets in key sectors appear to be healthy (Annex II.A), historically high household debt (60 percent of GDP), high leverage among non-financial corporates, and strong inter-sectoral balance-sheet linkages are sources of vulnerability (network chart). Among large corporates, foreign currency debt is substantial (55 percent in 2016Q1), although long maturities, a substantial share of FDI related debt, and financial and natural hedges are containing risks from currency mismatches. Compared to other countries in Latin America, cross-sector liability positions appear elevated and are complex—for example, households have significant claims on other financial corporates (88 percent of GDP). On the other hand, linkages between the copper and the domestic financial sector are limited, due to large-scale funding of mining via FDI.

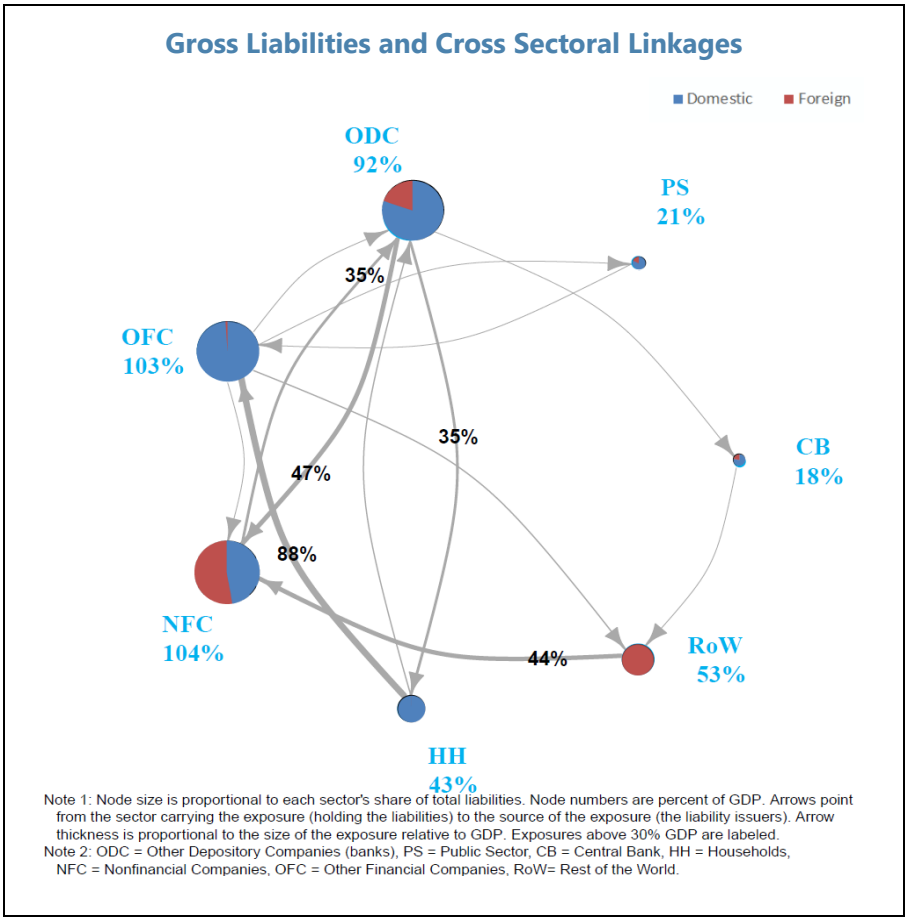
Non-Financial Corporate Debt
(In percent of GDP)



Source: Central Bank of Chile.

11. **Against this background, a deterioration in external growth or financing conditions could force firms to deleverage at an accelerated pace.** Under the baseline of a moderate recovery, staff does not expect firms' investment plans and banks' credit supply to be constrained by high leverage, given long maturities of debt and low interest costs. However, under a risk scenario, an associated rise in job losses and/or a rapid decline in real estate prices could, via macro-financial linkages, lead to larger-than-expected defaults on mortgages and consumer credit—all resulting in tightening credit and shrinking domestic demand. To illustrate the growth implications, an increase

in Chile's EMBI spread by 100 basis points (equivalent to a one standard-deviation deterioration in the Financial Condition Index) would cause growth to drop by roughly 0.3 percentage points within less than one year (Annex I). Severe stress tests of corporate balance sheets, which substantially raise default probabilities of externally exposed firms, show that credit losses would be substantial. Even so, the banking sector would manage to absorb a rise in credit costs thanks to sufficient capital buffers (Box 2).



Authorities' Views

12. **The authorities' broadly shared staff's views on the outlook.** They also saw growth accelerating only mildly in 2017, with the recovery in domestic demand being dampened by a loosening labor market but helped by a gradual improvement in private sentiment. On the positive side, they felt that the continuation of favorable financial conditions, a depreciated peso (relative to 2013), and lower energy costs all provided strong incentives for investment in tradable sectors. Faster regional growth alongside measures taken to facilitate service exports and competition in specific sectors should help exports. They also underscored that the absence of macroeconomic imbalances left Chile well placed to take advantage of improvements in the external environment. They viewed China's growth sustainability and economic transformation as the main concern. Owing to largely anticipated U.S. monetary policy normalization, the authorities expected limited volatility and, on net, they saw improved growth prospects leading to an increase in capital flows to the Chilean economy.

13. **The authorities did not see significant risks originating in the corporate sector.** They noted that increases in foreign currency debt were mostly linked to past peso depreciation, but that financial expenditures were low, and currency mismatches limited. Central bank stress tests found corporate balance sheets were only mildly sensitive to exchange or interest rate shocks, and that a very large shock to GDP was needed for substantial stresses to emerge. The authorities also noted that NPLs were low despite several years of slow growth, although the real estate sector and SMEs posed pockets of vulnerabilities. With the external environment getting stronger, especially in the region, they saw the overall outlook for the corporate sector improving.

C. Medium-Term Challenges

14. **Demand for more inclusive growth is growing.** Large skill disparities in the labor market and duality between formal and informal sectors continue to sustain wage inequality. Job reallocation is hampered by transportation bottlenecks and limited effective retraining programs. Old-age poverty is high (18 percent of population compared to 12 percent for OECD average) and related to inadequate pensions. Population aging will further raise social demands in the coming years.

15. **A secular decline in growth is difficult to reverse.** GDP growth in Chile has more than halved over the past three decades from 6.8 percent on average in the golden 1990–94 lustrum to around 2 percent in recent years. The decline has been broad-based and affected all sectors of the economy.

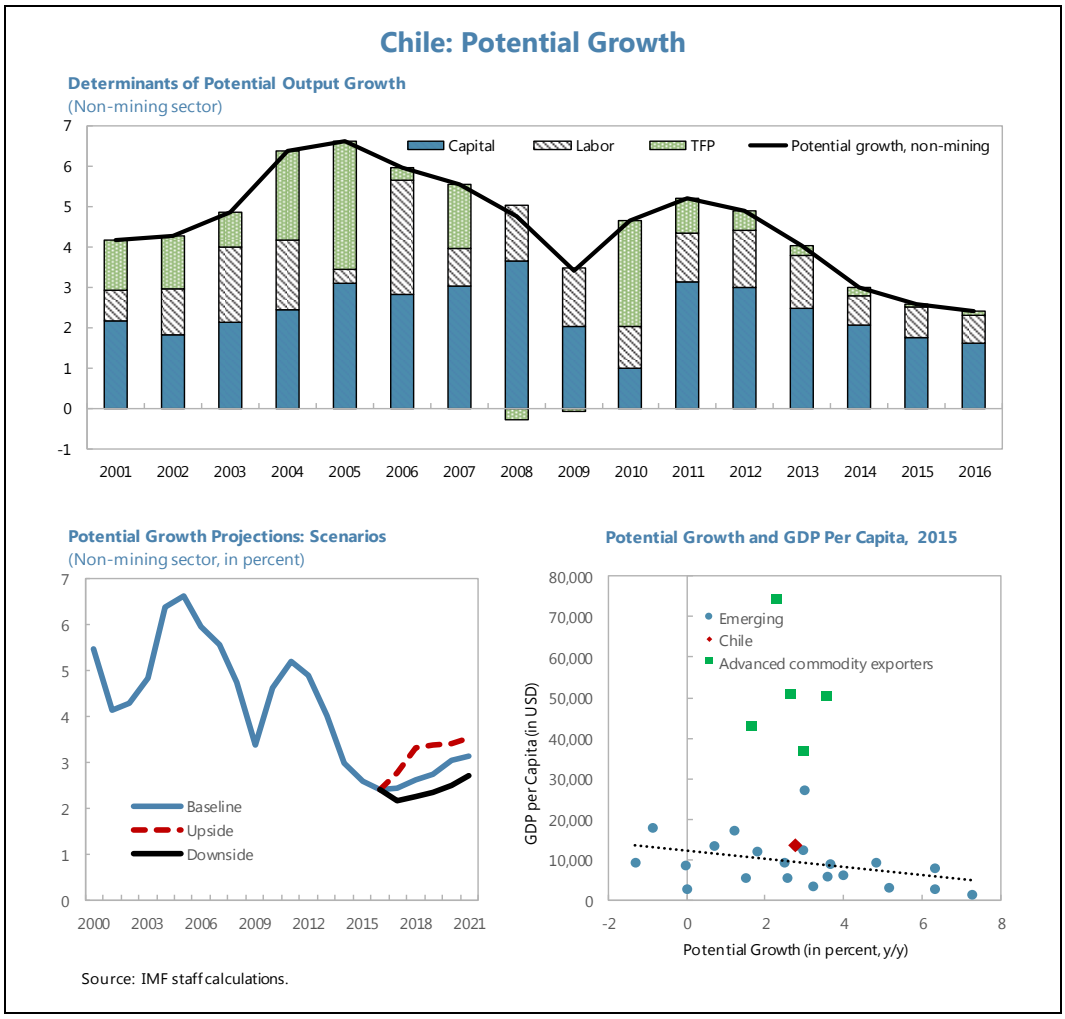
16. **Underlying reasons differ across sectors:**[3]

- **Mining: disinvestment.** The slowdown in the capital-intensive mining sector (10 percent of total potential GDP) is explained by flagging productivity due to declining quality of ore grade, as well as slower capital accumulation amidst low and uncertain copper prices in the long term.

- **Non-mining: a broader story.** Potential growth—the maximum rate without creating excessive inflation or labor market imbalances—has deteriorated from 5 percent in 2011 to 2½ percent in 2015–16 according to new IMF estimates. About half of the decline can be attributed to weaker capital accumulation related to the persistence of the terms of trade shock. The other half comes from lower labor and TFP growth (about 20 and 30 percent of the total slowdown, respectively). Declining TFP growth is likely linked to the investment drought but also to infrastructure bottlenecks[4] and low average skill levels. Population aging and a tapering off of past gains in female labor force participation are constraining labor supply growth.

[3] Blagrave and Santoro, 2016, "Estimating Potential Output in Chile: A Multivariate Filter for Mining and Non-Mining Sectors, IMF Working Paper No. 16/201.

[4] Chile's infrastructure gap relative to OECD countries is substantial (Calderon and Serven, 2004; Santoro, 2015) and closing it would require a doubling of infrastructures investment to about 5 percent of GDP in the coming years (Ministry of Public Works).



17. **Projected trend growth is insufficient to narrow the income gap with advanced economies.** Under the baseline, the cyclical pick-up in investment over the medium-term would lift growth contributions from capital and productivity, although ebbing labor force growth is limiting gains. Staff projects trend growth of 3¼ percent in 2021 in the non-mining sector (chart), and 2¾ percent for the economy as a whole. This trend growth rate—the rate when the economy is at full employment—is comparable to estimates in emerging economies with similar per capita income levels. However, at 2¾ percent it is not much higher than rates in advanced economy commodity exporters (e.g., Australia, Canada) which substantially higher per capita income levels. Hence at currently projected rates, Chile would catch up only very slowly to income levels of comparable developed economies.

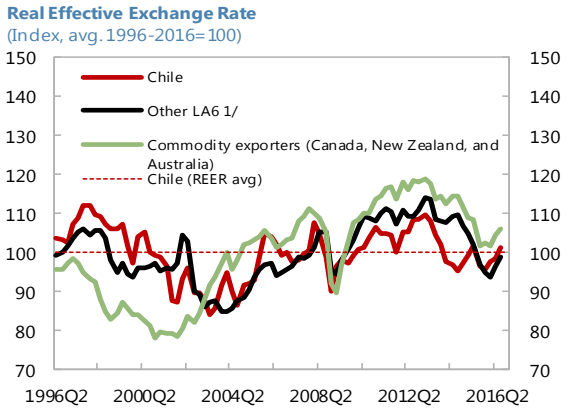
Authorities' Views

18. **The authorities stressed the role of the reform agenda in tackling both inequality and low growth, all the while being cognizant of short-run trade-offs.** They also saw trend growth as having declined but stressed that estimates were uncertain and, in particular, the recovery in productivity growth could be stronger than projected by staff. They also noted that the reform

package was aimed at raising skills levels which should help with inequality, while old-age poverty needed to be tackled by expanding the social safety net.

D. External Balance

19. **External adjustment has been facilitated by a flexible exchange rate** (Figure 6). The current account deficit narrowed from 3.7 percent of GDP in 2013 to 2 percent in 2015, helped by significant peso depreciation (10 percent in real effective terms), marked contraction in investment-related capital imports, and strong imports substitution for intermediate inputs. Staff projects a current account deficit of 2.2 percent of GDP this year, as lagged effects from a weaker peso and low internal demand balance out soft copper exports. Over the medium term when internal demand recovers, the current account is expected to widen to around 2.5 percent of GDP.



Source: IMF Information Notice System.
1/ LA6 includes Brazil, Colombia, Mexico, Peru and Uruguay.

20. **Chile's external position is broadly in line with medium-term fundamentals.** EBA-based estimates (Annex IV) suggest that the REER was moderately undervalued in 2016 (between 5 and 10 percent). But the IMF's EBA model estimates do not take into account the effects of unusually low business sentiment related to the large-scale reform package, which has suppressed investment and imports. By implication, adjusting model estimates for this effect, Chile's external position is broadly in line with medium-term fundamentals and desirable policies. Should confidence and investment remain structurally weak, Chile's external position would be stronger than warranted by macro fundamentals.

Authorities' Views

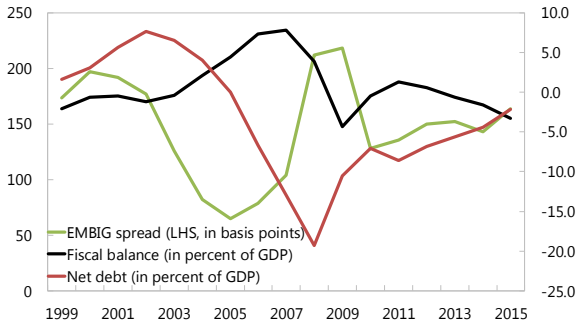
21. **The authorities noted that the external position was market determined and that the peso appeared somewhat strong, given real fundamentals.** The authorities explained that the currency depreciation over 2013–15 explained the resilience in non-mining tradables investment, as well as some of the expected pick-up in investment next year. However, they felt that economic rebalancing was slow to materialize and indicated that the exchange rate, heavily influenced by financial developments, appeared somewhat strong given weak external demand from the region and the slow growth in non-copper exports. They reiterated their commitment to free-capital-mobility and a flexible-exchange-rate framework.

MACROECONOMIC POLICIES

A. Fiscal Policy

22. **For some time, the government has made use of fiscal space.** Chile's strong net worth position and credibility of the structural balance rule have allowed fiscal policy to counter the sharp growth slowdown.[5] On average fiscal stimulus reached around ½ percent of potential GDP since 2013. The headline deficit is expected to widen to 3.1 percent of GDP in 2016 as expenditure increases related to the government's reform program (education, infrastructure) have exceeded revenue gains from the 2014 enacted tax reform, partly as a result of a weak economy.

Government Budget Balance, Net Debt, and Sovereign Debt Premiums



Sources: Central Bank of Chile, Ministry of Finance, and Bloomberg.

23. **The 2017 budget has appropriately tilted the needle towards fiscal consolidation.** The budget proposal is in line with the consolidation path announced last year of about ¼ percent per annum in structural terms although reaching fiscal balance has become more difficult given weaker growth.[6] It aims to largely maintain pro-growth spending plans, in particular education and health care and to a lesser extent infrastructure, within a tight budget envelope. Permissible expenditure growth under the fiscal rule has more than halved relative to 2015 (staff estimates), reflecting downgraded long-term copper prices and trend growth (USD 2.56/lb and 3 percent, respectively, down from USD 2.98/lb and 3.6 percent in the 2016 budget). To limit the scaling back of pro-growth spending, a concerted effort should be made to identify and eliminate inefficiencies in public spending.

24. **Fiscal consolidation needs to continue, but Chile can proceed slowly for now.** Debt is projected to increase rapidly and reach 25 percent of GDP next year and to 30 percent by 2021. Government financial assets are sizeable at about 21 percent of GDP in 2016, of which more than 50 percent are highly liquid. The general government debt position is resilient to a series of macro and fiscal shocks in the medium term (see Annex IV). A gradual adjustment path over 2017–18 can be justified by the government's positive net worth position; low financing costs; and the focus of the

[5] The fiscal rule adjusts the structural balance regularly for changes in estimated trend growth and long-run copper prices. The uncertainty surrounding those estimates implies that it takes time for them to feed through. As a result, fiscal policy was accommodative during the adjustment period to lower copper prices and trend growth post 2011. As of 2016, structural revenues and balances are estimated respectively 2 percent and 1½ percent of GDP lower than estimated using 2011 trend growth and long-run copper price.

[6] The government's adjustment path of ¼ percent of GDP per year has been unchanged but is starting in 2017 from a lower headline fiscal balance than originally estimated in 2015. Together with lower medium-term revenue projections this implies that a larger expenditure adjustment is needed to achieve the same consolidation effort as envisioned last year.

budget on building human capital and infrastructure. However, as growth recovers, and spending needs are addressed, a more ambitious fiscal consolidation path should be adopted. In the meanwhile, any new spending commitments should be part of a budget balance-neutral package. Expenditure programs should be evaluated for effectiveness and targeting improved including by linking free access to tertiary education to means-testing. To buttress fiscal credibility, the Advisory Fiscal Council could be given financial independence and its mandate broadened to assessing annual and medium-term fiscal targets.

Authorities' Views

25. **The authorities broadly concurred with staff.** The authorities agreed that maintaining fiscal credibility was a priority and that addressing skill and infrastructure gaps requires a careful balancing act. With regard to the near-term, they reiterated their commitment to fiscal adjustment as a means to safeguard the credibility of the fiscal framework, while using fiscal space. For the medium-term, they saw merit in a comprehensive expenditure review, going beyond the regular program evaluation conducted under the 2017 budget. They also reinstated their intention to strengthen the independence and mandate of the Advisory Fiscal Council, though the legislative agenda is deemed crowded.

B. Pension Reform

26. **Chile's pension system is rooted in sound principles.** Created in 1981, Chile's pension system is based on individual savings accounts administered by privately-owned corporations (*Administradoras de Fondos de Pensiones*) and was complemented in 2008 by a publicly-funded solidarity pillar which provides minimum pensions. Over the last 30 years, the fully-funded defined-contribution system has raised national savings, helped develop capital markets, and reduced fiscal risks. The governance of the system is sound, pension investments are well protected, and supervision is effective.

27. **The system is, however, not delivering adequate benefits for a large share of retirees.** Chile's average pension is below the minimum wage and estimated replacements rates are very low relative to the OECD average of 63 percent (text table), particularly for women. Low mandatory contribution rates of 10 percent and short contribution periods—largely reflecting discontinuous career paths—are the main reasons. In addition, contributions have not been adjusted to rising life expectancy and dependency ratios. Furthermore, the coverage of workers under the system is narrow (e.g., self-employment, informal labor), and the solidarity pillar does not provide adequate minimum pensions.

Chile: Median Replacement Rates

	Total	Men	Women
	(in percent of average salary over last 10 years)		
Actual replacement rates (2007-14)			
Self-financed pension (*)	34	48	24
Self-financed pension + public benefit (APS)	45	60	31
Projected replacement rates (2025-35)			
Self-financed pension (*)	15	24	8
Self-financed pension + public benefit (APS)	37	41	34

Source: Comisión Bravo (2015).

28. **The government outlined the broad contours of a pension reform.** Drawing on recommendations of a 2015 commission report (*Comisión Bravo*), the government has announced

plans to gradually increase contribution rates by 5 percentage points over 10 years; allocate the additional revenue in yet-to-be-determined shares to individual accounts and for solidarity related payments (improving pensions of current retirees); and reduce costs of the pension fund administration.

29. **The reform should preserve the current system, but strengthen its delivery** (Annex III)**.** Adequate pensions can be achieved through a variety of policies including increases in contribution rates, retirement ages, expansion of mandatory coverage, and an augmented solidarity pillar. A reform package should give consideration to the following measures:

- *For future retiree*s, contribution rates for individual accounts should be raised alongside other measures. An increase of contribution rates to 15 percent would raise replacement rates close to OECD country averages. A gradual increase in the retirement age (currently at 65 years for men and 60 for women) would also similarly increase replacement rates, but given the projected rise in life expectancy by 5 years in 2050 are likely necessary regardless. Importantly, for women a gradual increase of the retirement age to 65 years should be strongly considered given discontinuous lifetime-employment and contributions. Contributions of self-employed should be made mandatory to cover a larger share of workers under the individual accounts.

- *For current retirees*, pension and solidarity pillar benefits should be increased. Given fiscal constraints, any increases in benefits need to take future aging-related commitments into account. Specifically, growth and equity implications of different financing modalities should be studied carefully. For instance, IMF simulations suggest that a pension reform package funded by a mix of higher contributions and indirect taxes would carry lower growth costs than one funded exclusively by increased contribution rates (Annex III).

Overall, such a pension reform would lead to more stable life-time incomes for broader segments of the population and likely raise Chile's savings. Over the near to medium-term, however, higher tax or contribution rates could generate growth costs. For these reasons, the economic effects of any reform need to be assessed carefully alongside its impact on current and future pensions.

Authorities' Views

30. **The authorities agreed with the key principles of staff's recommendations, though noted that any reform needs to support the retired middle class in the short run.** Both the authorities and staff agreed that any reform proposal needed to be carefully evaluated for its implications on current and future economic growth, for its long-term fiscal costs and risks, and for the implications on inter and intra-generational fairness. In doing so, any final proposal should then carefully weigh the tradeoffs between efficiency, incentives, inequality, and fiscal considerations.

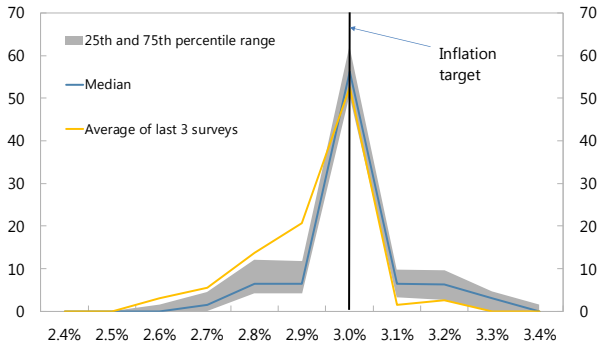
C. Monetary Policy

31. **Central bank policy has become more accommodative this year.** After remaining above the 2−4 percent target band for over two years, inflation has slowed since the beginning of this year. In parallel, the policy rate has remained unchanged at 3½ percent and the central bank has softened its

policy guidance in successive policy meetings, dropping its tightening bias in August.[7] In recent months, inflation has decelerated more rapidly than expected, from 4 percent in July to 3.1 percent in September. Although largely the result of a stronger peso since earlier this year,[8] the risk of disinflation spreading to the non-tradable sector has risen given weak economic activity.

32. **The central bank should cut rates if disinflation pressures become broad based and persistent, and if the growth slowdown intensifies in coming months.** The expected widening of the output gap and slowing wage growth have raised the risk that inflation could undershoot the target for some time. The decision whether to ease now or wait for further evidence needs to weigh the benefits from safeguarding against the risks of a decline in inflation expectations, versus the costs of prematurely reacting to temporary factors. Balancing these considerations, staff agrees with the central bank's recent adjustments to its forward guidance, its decision to keep rates for now, and to remain data dependent.

Distribution of Inflation Expectations at 24 Months
(In percent of respondents, surveys 2015M1-2016M10)



Sources: Central Bank of Chile and IMF staff calculations.

Authorities' Views

33. **The central bank shared staff's assessment.** The authorities stressed that monetary policy had become more accommodative this year in response to the slowdown in activity and a more subdued inflation outlook. They saw the recent disinflation as broadly in line with the central bank's baseline forecast, but noted that the pace has been somewhat faster than expected. Going forward, the authorities concurred that policy should remain data dependent.

D. Macro Policy Mix

34. **The current policy mix is broadly adequate.** Permanently lower copper revenue and trend growth suggest that fiscal policy needs to adjust, albeit moderately. Given dampened potential growth, fiscal policy needs to remain geared toward growth-enhancing education and infrastructure spending. Although inflation expectations are stable, monetary authorities should be prepared to ease. Enhanced financial sector supervision and broadly unchanged macro-prudential stance can contain feedback effects from rising credit costs and financial tightening, all the while mitigating pro-cyclicality.

35. **In a downside scenario, monetary policy should be the first line of defense.** If external conditions weaken, more accommodation is warranted as disinflationary pressures are likely to accelerate because of a further widening output gap and continued fiscal consolidation. However, given long transmission lags, the impulse on demand may be small. Hence, in case of a severe

[7] Staff estimates the real neutral rate between ½–1½ percent.

[8] Pérez Ruiz, Esther, 2016, "Depreciation and Inflation Dynamics: Pass-Through and Second-Round Effects," IMF Working Papers No. 16/129.

slowdown, fiscal tightening should be paused and the attainment of a structural balanced budget goal further delayed, while tilting spending to pro-growth infrastructure and education programs.

36. **The authorities broadly agreed with this assessment.** The central bank noted that its reaction to downside risks would be guided by the type of the risk materializing and its impact on the inflation forecast.

UPGRADING GROWTH AND SECURING STABILITY

37. **Subdued trend growth, high inequality, and risks to stability are intersecting policy challenges.** Infrastructure bottlenecks and demographic trends are slowing investment, productivity growth, and labor force participation. Income inequality is high—the post-tax-and-transfers Gini index is 15 percentage points above the OECD average— as a result of large wealth inequality and a substantial skill divide. Finally, the financial sector has been stable, but high corporate leverage, substantial foreign currency debt and exposure to the region, and a slowdown in the real estate sector are vulnerabilities.

A. Growth Reforms

38. **Structural reforms adopted since 2014 are setting the stage for stronger growth.** Bottlenecks in the electricity sector have lessened, costs for attending secondary and tertiary education are declining, and 50,000 additional childcare facilities have been created. Staff assesses these and other measures undertaken since 2014 to be growth positive over the medium term (Santoro, 2015, op. cit.), although transitional costs, in particular from frontloaded tax increases, are inevitable and should be managed carefully. Complementing these efforts, new competition and productivity laws passed in 2016 are good enhancement of the business environment.

Chile: Structural Reform Agenda

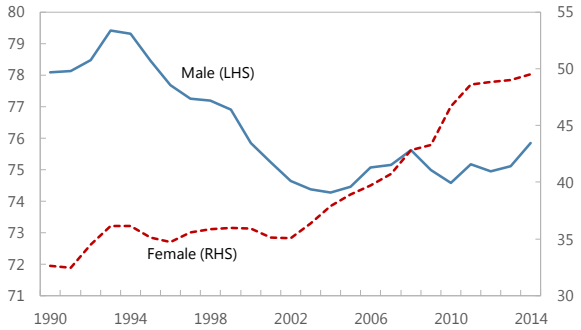
Reform Areas	Main Measures	Status
Tax Reform	Capital Income Tax	Enacted
	Excise and Broadening of VAT Base	Passed
Labor reform	Abolition of replacement during strikes	Passed
	Establishment of minimum floors for salary negotiations	
Education Reform	End Co-payments, Student Selection and for-profit Institutions	Passed
	Improve Teaching Quality and Early Education	Passed
	Universal Tertiary Education	Passed
Energy	Ease Permits and Incentivize Renewable Energy	Enacted
Productivity reform	Ease financing of productive investments, boost service exports, and cut red tape	Passed
Infrastructure Fund	Strategic planning and fostering PPPs	Announced
Telecommunication	Reduce digital divide	Announced
Competition law	Strengthens sanctioning system	Passed

39. **There is scope to strengthen the effectiveness of the reform agenda:**

- **The creation of a new Infrastructure Fund (IF)—geared to attract private capital—should be fast-tracked.** Chile has a successful record of collaborating with the private sector in developing and managing transportation projects via Private-Public-Partnerships (PPPs). The scope of the IF should be narrowed to infrastructure projects suitable for PPPs and additional safeguards should be adopted to strengthen proposed governance provisions and to limit fiscal risks from contingent liabilities.

- **Workers' skills should be enhanced further to strengthen labor supply.** Labor force participation has risen in the past, but its growth rate is slowing owing to population aging. Moreover, labor productivity is substantially below the average in OECD countries. More targeted professional and vocational training is essential to raise effective (skill-weighted) labor supply. Efforts should be directed to fostering linkages between industries and education institutions and by enhancing incentives for on-the-job training especially at SMEs and apprenticeship programs.

Labor Force Participation
(In percent)



Source: International Labor Organization.

- **The ability of productive firms to grow should be strengthened further.** New competition and productivity laws are easing the financing of productive investments, supporting service exports, and cutting red tape. Further efforts are needed to help SMEs grow. Programs to improve business management skills and record keeping should be expanded. At 0.4 percent of GDP, Chile has also one of the lowest R&D spending rates in the OECD (2 percent of GDP on average). The government has put forward a number of initiatives to boost innovation: seed money to start ups ("Start-up Chile"), SME-specific credit lines (CORFO), loan guarantees for innovative investments ("Cobertura pro-inversión"), and a registry of firms' mobile assets. To further enhance technology development, regulatory requirements for accessing capital markets could be tailored to different firm sizes to help medium-sized firms tap domestic capital.

Chile: Selected Innovation Indicators
(percentile rank; higher means better score)

Indicator	Chile	OECD 1/	Other LA6 1/
Innovation capacity	57	82	48
Quality of scientific research inst.	68	85	48
Company spending on R&D	61	79	50

Sources: World Economic Forum (WEF), Global Competitiveness Rankings
1/ Mean. LA6 includes Brazil, Chile, Colombia, Mexico, Peru and Uruguay.

40. **Legal uncertainties related to the new labor bill need to be addressed.** A new labor law coming into force next year is redefining collective bargaining. It mandates full disclosure of firms' balance sheets ahead of wage negotiations and defines conditions for exercising the right to strike, which taken together lay the basis for well-structured discussions between workers and employers around the bargaining table. However, legal ambiguities about key elements, including the definition of minimum services that need to be provided during strikes, the possibility to extend benefits to those workers not participating in the negotiations, and the status of the negotiating groups following a Constitutional Court ruling have created broad-based uncertainties. To avoid multi-year judicial processes to settle disputes and limit implementation costs, not least given the visible deterioration of the labor market, ambiguities need to be removed swiftly in an effort to balance efficiency with equity considerations.

Authorities' Views

41. **The authorities considered continued progress on structural reforms to be of high importance.** They noted that the reforms were already lifting bottlenecks in the electricity sector. But given the economic environment they needed to proceed gradually, remain flexible to address emerging needs, while devising eclectic solutions to reach consensus amongst stakeholders, with the pensions reform being cited as an example. They recognized that the new labor bill had not lived up to expectations, but thought that uncertainties would largely resolve upon implementation. In their view, the new framework puts a premium on improved social dialogue and the ability of social partners to overcome the challenge. The authorities shared the staff's diagnosis that trend potential growth has declined, and that firms' ability to grow needed to be strengthened. They emphasized the importance of productivity-enhancing measures, with the Agenda on Productivity, Innovation and Growth launched in 2014 being followed by the 2016 package. They remain committed to complete the education reform.

B. Financial and Corporate Sector Stability

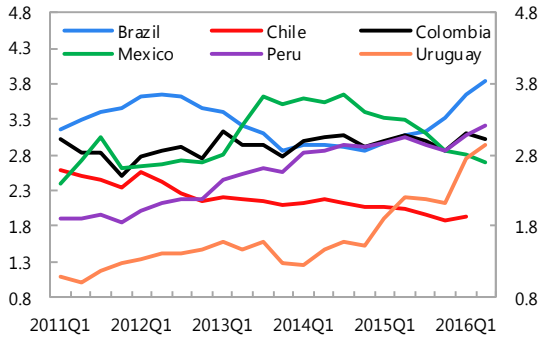
42. **Financial sector balance sheets are healthy, but risks to financial stability bear close monitoring** (Figure 7). Banks' earnings slowed in 2016 as a result of low economic activity. However, non-performing loans remained low at about 2 percent of total loans and capital buffers are well above the current regulatory requirements built on Basel I principles (text chart). Life insurance companies and pension funds—with assets exceeding 90 percent of GDP in 2015—continue to be pressured by the low-yield environment and have kept on shifting their portfolios towards higher yield but potentially riskier or less liquid assets. Weaker-than-expected growth could strain the solvency of highly leveraged firms and less resilient SMEs, with potential for amplification via strong inter-sectoral balance sheet linkages. Recent stress tests conducted by the central bank find that the average banks' CAR would decline by 2 percentage points from a 13 percent of risk-weighted assets at end 2015.[9] Staff's stress test based on accelerated corporate defaults find a similar decline (Annex II.B). These vulnerabilities call for a continued strengthening of financial sector regulation and supervision.

43. **Prudential policies appropriately aim at credit risk.** Provisioning for commercial loans appears adequate. For mortgages, provisions were recently raised for delinquent loans and loans with high LTV ratios. Given the slowing credit growth and neutral financial conditions, no further tightening of macro-prudential policies is currently warranted.

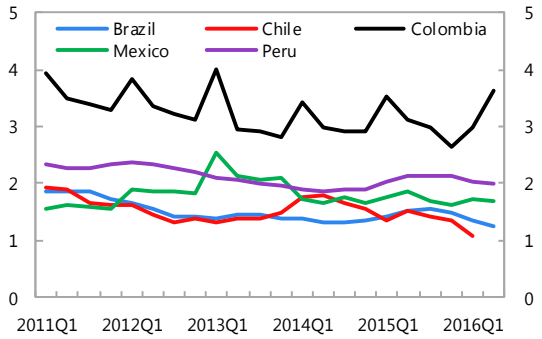
[9] The BCCh's stress tests assume a decline in GDP growth to -5 percent in the trough quarter, recovering to 1.3 percent in 2017. Under the stress scenario, all banks would meet the current minimum capital adequacy ratio of 8 percent.

Chile: Selected Banking Indicators

Nonperforming Loans
(In percent of total loans)



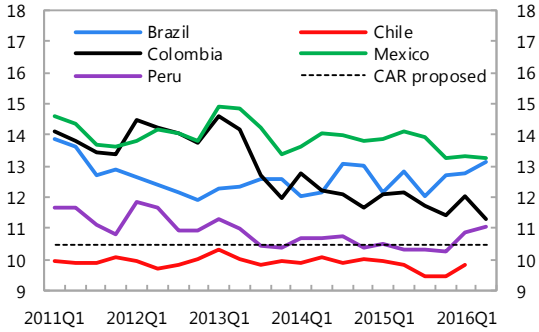
Return on Assets
(In percent)



Sources: Haver Analytics; IMF, Financial Soundness Indicators database; national authorities; and IMF staff calculations.

44. **A proposed new General Banking Law (GBL) aims to bolster resilience.** The proposal would close the gap with Basel III minimum solvency requirements, provide new resolution and financial stabilization tools to the regulator, and improve the governance of the supervisory agency (SBIF).

Regulatory Tier 1 Capital
(In percent of risk-weighted assets)



Sources: Haver Analytics; IMF, Financial Soundness Indicators database; and national authorities.

- *New minimum solvency requirements.* The law aligns the definition of regulatory capital with international standards. Banks have six years to increase the minimum total solvency requirement to 10.5 percent from 8 percent of RWA. The draft law mandates a capital surcharge of up to 3.5 percent of RWA for systemically important domestic banks.

- *New bank resolution tools.* The draft law gives SBIF greater powers to regulate, transfer, or liquidate troubled banks. At an *early normalization stage*, the SBIF is granted the power to intervene in order to restore the troubled banks' condition. If problems persist, a prior-to-liquidation *bank resolution stage* will implement asset separation (good bank/bad bank resolution tool) and allow for certain degrees of bail-in. The current creditor preference would remain unchanged and the existing central bank guarantee on current accounts and deposits would be maintained.[10]

- *Supervisory governance structure.* Details of the banking supervisor's governance structure reform are yet to be finalized but could lead to a possible integration under the recently proposed

10 Currently, the government guarantee under the General Banking Act (GBA) establishes that natural persons' term deposits in local and foreign currency are guaranteed at 90 percent of its value with a cap of $4,000. Demand deposits are 100 percent guaranteed.

Financial Markets Commission (FMC), which includes for now the insurance and capital markets supervisor (SVS). In time, the FMC is expected to incorporate the SBIF and the SP.

45. **The creation of the Financial Markets Commission (FMC) is an opportunity to upgrade the governance of financial supervisors.** Guaranteeing the operational independence of such a body should be a priority. Governance reform should also ensure a selection and appointment process in line with Basel Core Principles of Effective Banking Supervision and international best practices. Similarly, rules on post-employment restrictions and legal protection for staff involved in sanction processes should follow international best practices.

46. **Proposed amendments to the GBL would bolster resilience but its adoption is at risk of falling behind schedule.** The revised GBL would greatly contribute to enhance the credibility of Chile's financial sector, to strengthen its resilience against domestic and external shocks, and to more efficient supervision. Adjusting to the new capital requirements appears manageable for the system as a whole. In the case of Banco Estado, the government-owned bank and main provider of loans to SME, staff recommends a capital injection to address an estimated capital shortfall of $US1.4 billion, as well as an upgrade of its corporate governance, a review of operational risks, and measures to increase efficiency. A delay in the adoption of the new GBL implies that Chile would fall behind in the adoption of international standards and best practices—which could create uncertainty.

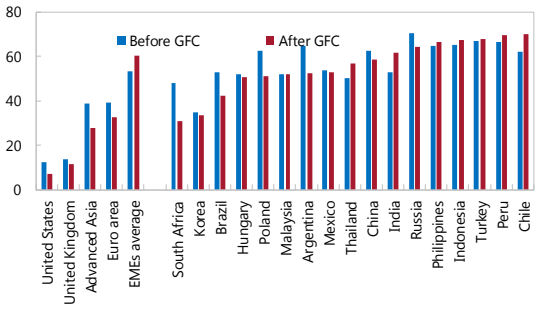
47. **Better coordination and information sharing among financial sector supervisors and the central bank is key.** The proposed creation of the FMC is an important step towards an integrated view of financial sector supervision that may allow a more effective oversight of financial conglomerates (including monitoring conglomerates' compliance with limits on risk exposure and designing a tailored crisis management framework). Chile's conglomerates are a potential source of financial fragility as they are large (consolidated assets likely exceeding 125 percent of GDP), complex, and relatively opaque. However, the implementation of the FMC should not delay the adoption of other longstanding, important reforms (that is, Basel III and risk-based supervision of insurers)[11] and should be used as an opportunity to broaden the scope of supervision to shadow banking activities (for instance, factoring companies and *cajas de compensación*).

48. **There is scope to improve corporate governance and investor protection** (Box 4). Chilean companies are, on average, relatively opaque, ownership of large conglomerates is concentrated, and levels of compliance with best practices in corporate governance are low. Given their important role in Chile's financial system, institutional investors, such as pension fund administrators, can encourage Chilean businesses to improve corporate governance (Brandao-Marques 2016). For instance, institutional investors could give preference to investments in companies with high governance standards and protection of minority shareholder interests. These standards could be

[11] Discussions about the adoption of Basel III have been underway since 2013 and a draft law introducing risk-based supervision for the insurance sector is awaiting approval from the Senate since 2013.

enshrined in a new governance code (also known as Stewardship Codes) which firms could subscribe to on a voluntary basis. Such codes have been successfully introduced in the UK and Japan.

Closely Held Shares
(Percent of outstanding shares; market value weighted averages)



Sources: OECD Corporate Governance Factbook, Thomson Reuters Datastream, and IMF staff calculations.

Authorities' Views

49. **The authorities are intent to move ahead with the financial sector policy agenda.** They see passing of the new GBL and creating the FMC as an important step towards a more integrated approach to financial sector supervision and to more coordination among supervisors. In addition, the FMC constitutes an opportunity to improve the regulation and supervision of certain parts of the shadow banking sector and to strengthen the supervision of financial conglomerates. However, the authorities noted there were risks that a lengthy discussion in Congress of the GBL could further postpone the adoption of Basel III solvency requirements for banks. They noted, however, that banks were already meeting liquidity requirements and that capital buffers were strong and would not require substantial upgrading to meet the new standards.

STAFF APPRAISAL

50. **Chile is facing a challenging macroeconomic outlook.** Growth prospects are dampened by waning tailwinds from slower growth in trading partners and a decline in trend growth. High income inequality amid ageing population are raising the urgency to address social needs, especially from low old-age pensions. An ambitious reform package aims to address these challenges, but it will take time for results to become tangible.

51. **Despite these challenges, Chile has grown faster than others in the region.** Since 2014, growth averaged 2 percent, substantially below rates of 4 percent a few years ago, but well above the Latin-American six largest countries average. This owes to a credible and effective fiscal and monetary framework, a modern and stable financial system, and a flexible exchange rate.

52. **The policy mix remains moderately supportive of activity.** The freely floating exchange rate is helping with economic rebalancing following the large terms-of-trade shock. Monetary policy is appropriately accommodative. If disinflationary pressures broaden and become more persistent, interest rates should be lowered. Fiscal policy is appropriately shifting towards consolidation given the sizable structural deficit. Chile can, however, proceed slowly with consolidation in the near term given its strong public net-asset position. The role of the Advisory Fiscal Council could be strengthened to buttress policy credibility.

53. **Chile's pension system is rooted in sound principles, but low coverage, insufficient life-time savings, and low minimum pension need to be addressed.** Any pension reform should preserve the current system, but strengthen its delivery for current and future generations by

expanding the public solidarity pillar and raising contribution rates for the contributory pillar. The mandatory retirement age should be adjusted in line with rising life-expectancy.

54. **Structural reforms adopted since 2014 are setting the stage for stronger growth.** The closing of Chile's infrastructure gap could be facilitated by the creation of a new Infrastructure Fund geared at attracting private capital. Workers' skills should be enhanced further through improved and more specialized education and training programs. Legal uncertainties related to the new labor bill should be tackled. Cutting red tape and improved access to capital by small- and medium-sized companies could help dynamic firms to grow faster and enhance productivity.

55. **The financial sector is healthy, but risks to financial stability bear close monitoring and regulatory reforms should be adopted swiftly.** Credit risks have risen as a result of slow growth, but non-performing loans have so far remained low. Financial sector supervision is sound, but the regulatory framework risks falling behind international standards. Adoption of Basel III capital requirements and risk-based supervision of the insurance sector should be a priority. Improving coordination and information sharing among financial sector supervisors and the central bank remains important. Finally, there is scope to strengthen corporate governance and investor protection.

56. **Staff proposes to hold the next Article IV consultation on the standard 12-month cycle.**

Risk Assessment Matrix

Sources of Risk: Nature of the shock	Sources of Risk: Vulnerabilities/ Channels of transmission	Impact if Realized	Policy Response
EXTERNAL			
Significant China slowdown, possibly due to a severe housing downturn or a shock in the shadow banking sector; weak China demand further suppresses commodity prices, roils global financial markets, and reduces global growth	**Financial:** Banks, insurers, and pension funds hold significant net claims on non-financial corporations, even if direct exposure to natural resource sectors is modest. Leverage **Real:** Copper exports to China represent 40 percent of mining exports and 25 percent of total exports. Spillover effects to other sectors through the value added chain could amplify the first-round effects. Revenue **Fiscal:** Revenue from mining companies constitutes more than 10 percent of total revenues.	China's large footprint in the global copper market (about 50 percent of global demand) implies that a further growth slowdown in China could further depress copper prices, thus worsening Chile's ToT. Lower copper sales could spill over to sectors related to copper production. This would also negatively affect the fiscal position.	- The floating exchange rate represents the first line of defense. - Monetary policy should easy further. - In case of a severe output drop, fiscal balance should be allowed to deteriorate for cyclical reasons.
Tighter or more volatile global financial conditions as global investors respond to uncertainty about U.S. policies and the the Fed policy rate path, changes in growth in regional trading partners or, involving lower risk appetite and abrupt portfolio reallocation away from emerging economies.	**Leverage:** Non-financial corporate debt stands at about 105 percent of GDP. 55 percent of non-financial corporate debt is in foreign currency. **Shock amplification:** balance sheet linkages suggest strong feedback loops between non financial corporations, banks, insurers, pension funds, and households.	Tighter or more volatile financial conditions could cause a sharp increase in interest rates, a sudden reversal of capital inflows, and strong depreciation of the peso, and a deterioration in banks' capital base. The impact is likely to be mitigated by a series of factors: - A significant share of external debt is FDI-related (70 percent for financial corporates; 40 percent for NFCs); natural hedges against FX risks. - Moderate rollover risks due to favorable maturity profiles. - Institutional investors are likely to act as stabilizers by investing in domestic assets following broad-based corrections in valuations.	- The floating exchange rate represents the first line of defense. - The authorities should be prepared to contain liquidity pressure: expand repo operations, broaden the range of accepted collateral, and set up dollar swap auctions. - Capital flow management measures and foreign exchange intervention could be envisaged to counter termporarily disorderly conditions.
DOMESTIC			
A rise in defaults of leveraged non-financial corporates due to dimininshed earnings and impairment on assets.	**Financial:** Banks, insurers, and pension funds hold significant net claims on non-financial corporations, even if direct exposure to natural resource sectors is **Real:** Some disruption of business actiivity and	A tightening of credit conditions and declining investment and job creation would depress growth. A weakening of labor markets could have repercussions	- Maintain an accommodative monetary policy stance. - Identify and deal with impaired debt to maintain low funding costs for healthy corporates. - Strengthen measures on LTVs and service-to-income ratios. - Swift adoption of Basel III capital requirements.
Mortgage debt becomes distressed reflecting a sharper-than-anticipated cooling of the real estate market	**Leverage:** Banks hold significant net claims on households. Most mortgages in Chile are not subject to LTV. **Shock amplification:** balance sheet linkages suggest strong feedback loops between banks, households, insurers, and pension funds.	A severe slowdown in real estate prices could deteriorate banks' asset quality, result into tighter mortgage lending standards, and impair buyers' ability to meet their financial obligations.	

Note: Colored boxes on left hand side represent shock likelihood and colored boxes on right hand side represent severity of impact.

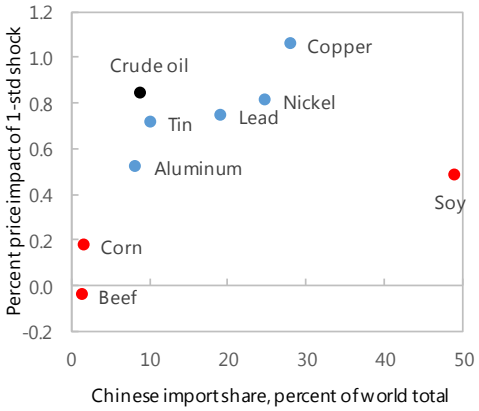
Red = High, Yellow = Medium, and Green = Low. The RAM reflects staff views on the source of risks and overall level of concern as of the time of discussions with the authorities. Non-mutually exclusive risks may interact and materialize jointly

Box 1. Spillovers from China's Economic Rebalancing

Slower and less investment-driven growth in China is putting downward pressure on commodity prices. Evidence from a structural VAR and regression analyses find that shocks to China's industrial production have large effects on commodity prices. Particularly, the impact on copper prices is large, given China's dominant global role as a copper importer (Kolerus, N'Diaye and Saborowski, 2016).

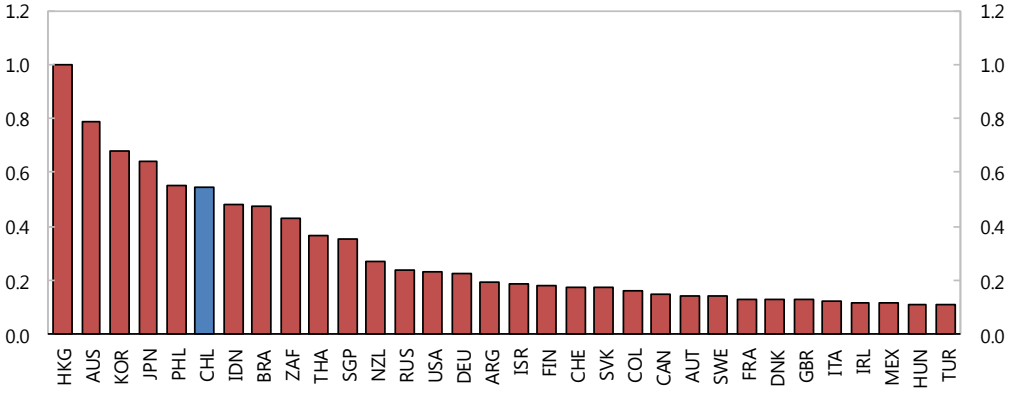
Given Chile's strong trade linkages, China's rebalancing has a sizable impact on exports growth. Using a multi-country panel VAR, staff estimates that a 1 percentage point decline in China's final demand lowers average export growth by around 0.5 percentage points over the course of a year (Blagrave and Vesperoni, 2016). The size of the impact is smaller than that in Australia, but larger than in most Latin American economies.

Futures-Price Response to China Industrial-Production News Surprise



Source: Kolerus, N'Diaye, and Saborowski 2016.
Note: 1-std = one standard deviation.

Impact on Average Export Growth Rate (over 1 year) of a 1 Percentage Point Shock to China Demand
(In percent)



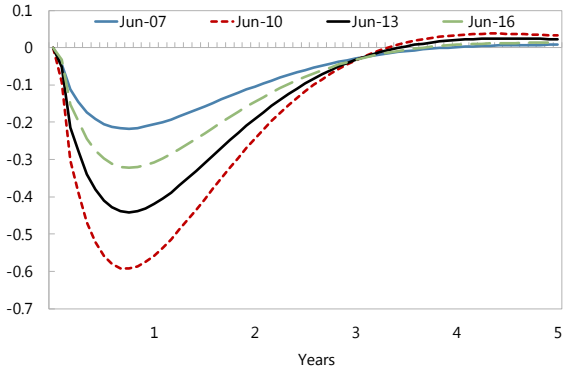
Source: IMF staff calculations.

Box 2. The Impact of Financial Shocks on Economic Activity

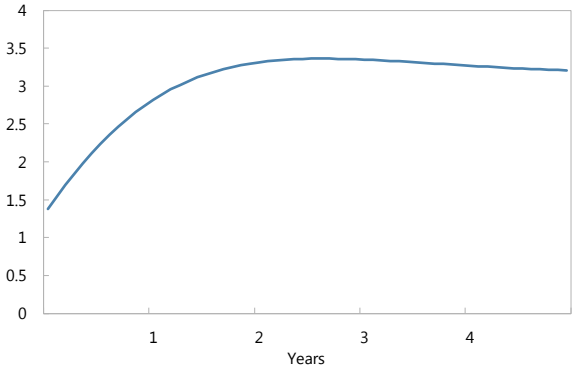
In Chile, tighter financial conditions have a sizable impact on real economic activity. Using a newly developed Financial Conditions Index (FCI) for Chile, a VAR analysis finds that a 1 standard deviation tightening of financial conditions lowers GDP growth by about 0.3 percentage points within one year. Estimates are robust to different specifications and estimates and exclude the effects of monetary policy and exchange rate changes which are controlled for separately (Annex I).[1]

The growth impact of financial shocks in Chile varies with global financial conditions. In 2010, a period of relatively adverse external conditions, the effect of financial tightening on economic activity was three times as high as in 2016. An important channel of transmission is the deterioration of the balance sheets of non-financial corporations. Empirical analysis shows that an adverse shock to the FCI is associated with a more than doubling of expected default rates of moderately risky firms within one year.

Economic Activity and Financial Conditions
(Percent)



Expected Corporate Default Rate (75th percentile)
(Percent)



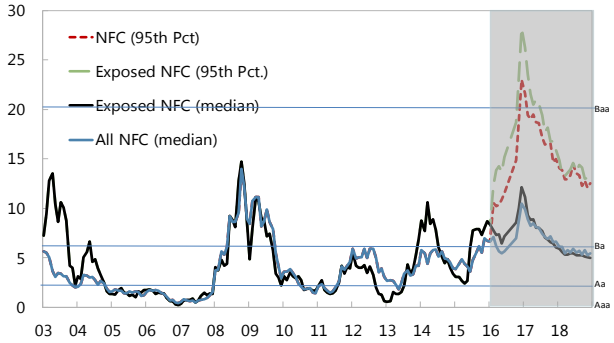
[1] Granger causality tests finds that FCI granger-causes output but not vice-versa.

Box 3. Corporate Stress Tests and Shock Amplification

Rising credit risks could have substantial economic implications via macro-financial linkages. Using corporate default data for listed companies and a Bottom-up Default Analysis (BuDA) tool developed by Duan, Sun, and Wang (2015) staff estimates firm-level probability of defaults as a function of macroeconomic conditions, firm-specific balance sheet information, and market-based factors (Annex II.B). Staff then estimates increases in corporate default rates and implied capital costs to the banking system using a variety of severe stress scenarios.

- *Corporate stress tests show elevated risks to a severe external shock* (Annex II.B). Under a scenario where Chile's Latin American partners fall into a deep recession, risk of default among large Chilean corporations with significant exposures to the region could double (albeit from a very low base).

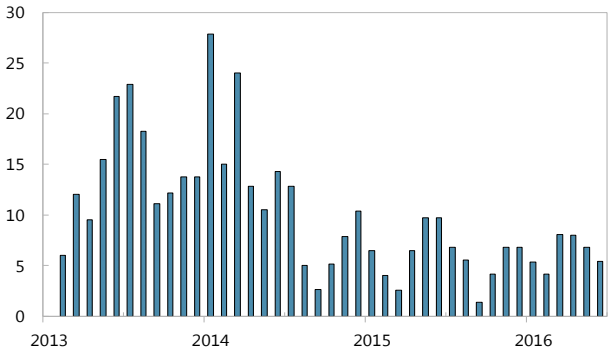
Probabilities of Default: Regional Shock
(Basis points)



Sources: IMF staff estimates based on BuDA and Moody's rating grades.

- *Banks can absorb associated credit costs, although financial tightening could be substantial.* Staff estimates that the necessary increase in provisions could amount to 1 percent of assets (80 percent of annual profits). Due to substantial holdings of corporate debt, balance sheets of life insurers could also weaken, further exacerbating financial conditions under a stress event. The associated tightening of financial conditions would weigh on activity.

Stocks Under Fire Sale
(Percent)



Sources: SVS; IMF staff calculations. Note: The chart shows the percentage of stocks owned by Chilean mutual funds that are experiencing a fire sale according to Coval and Stafford's (2007) definitition.

- *The potential for shock amplification bears watching (Annex II.C).* An adverse shock could be amplified given strong financial linkages between sectors. For instance, a simultaneous increase in mortgage defaults or accelerated redemptions from mutual funds— observed during the global financial crisis or the 2013 taper tantrum—could transmit to asset prices through credit losses or fire sales, respectively.[1] Banks' funding could also be sensitive to confidence-induced fluctuations in wholesale deposits, particularly in

Box 3. Corporate Stress Tests and Shock Amplification (concluded)

institutional and corporate deposits which represent about 30 percent of total funding. An additional illustration of the intensity of inter-sectoral linkages can be gained by tracing out the effects of a hypothetical impairment of sector capital. Linkages are the strongest between non-financial corporates, households and institutional investors (OFC), and the banking sector. There are also substantial linkages between households and insurance companies through their role in originating mortgages.

Capital Impairment of Sector (column) Resulting from 10 Percent Default by Corresponding Sector (row)

(Percent of pre-shock capital)

	Banks	OFC	NFC	HH
Public sector	11.3	4.5	0.0	0.0
Banks		1.0	3.6	8.5
OFC	28.3		1.0	1.9
NFC	53.0	0.6		0.0
HH	34.6	38.8	0.0	
RoW	11.9	0.1	3.3	0.0

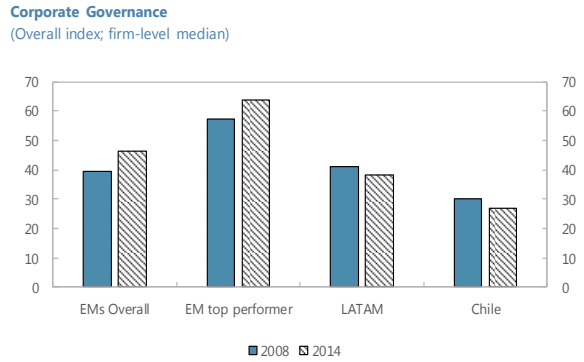
[1] The Coval and Stafford (2007) measure of fire sales shows the percentage of firms in each month falling under that 10th percentile of a price-pressure measure for the entire sample (January 2013 through June 2016). The price-pressure measure for each stock is the difference between the sales of a stock by the mutual funds in the top decile of outflows and the purchases of the same stock by the mutual funds in the top decile of inflows.

Box 4. Policies to Enhance Corporate Governance

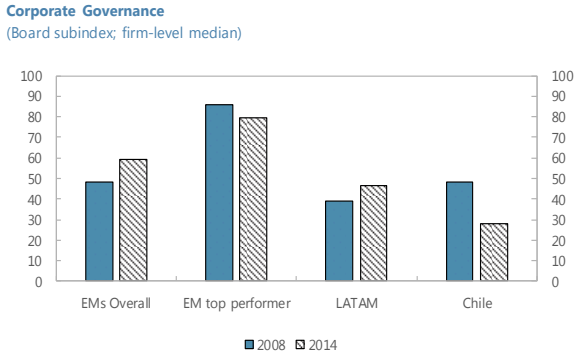
Chile has high-quality institutions, but compares less favorably in terms of corporate governance and corporate transparency. Chile has the highest quality of the rule of law among emerging markets. However, its largest corporations, on average, display low corporate governance scores, especially in terms of transparency and executive compensation practices (Figure 4.1). The discrepancy between the high quality of institutions and the level of corporate governance and transparency can be explained, in part, by the highly concentrated ownership of its firms and the prevalence of conglomerates (OECD, 2015a and 2015b).

The Quality of Corporate Governance in Chile

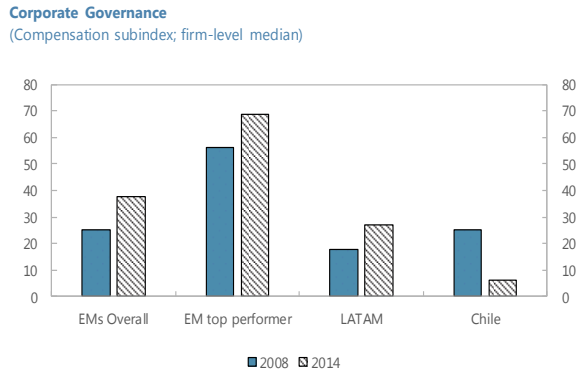
Overall, Chilean firms have worse corporate governance than those of peer countries.



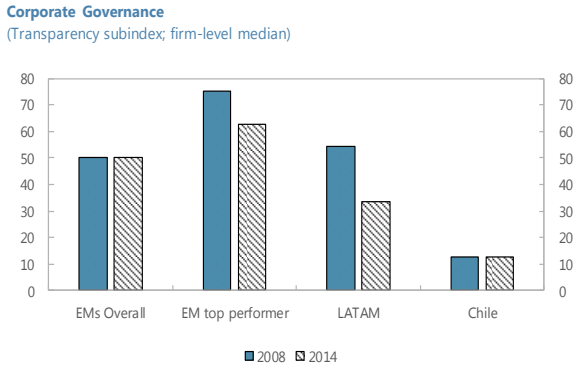
The quality of board governance has declined since 2008.



The quality of executive compensation practices is now significantly worse than in other EMEs…



… and Chilean firms are very opaque.



Sources: IMF; Thomson Reuters Datastream (Asset4).

International experience shows that equity ownership by institutional investors, such as mutual funds, insurance companies, and pension funds is typically associated with better firm governance. Studies using data from U.S. companies have found that higher institutional ownership tend to improve firm governance (Crane, Michenaud, and Weston, 2016). In addition, the engagement of institutional investors with firm governance seems stronger when they are large blockholders with a long investment horizon (MCahery, Sautner, and Starks, 2016 forthcoming).

Box 4. Policies to Enhance Corporate Governance (concluded)

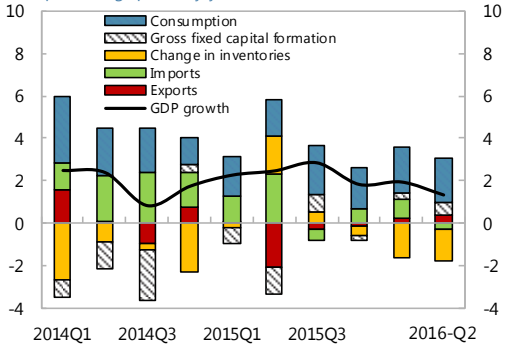
In Chile, where institutional investors are important minority shareholders, the introduction of a voluntary stewardship codes could be a powerful tool to promote good corporate governance among investee companies. The goal of such codes is to ensure that institutional investors are effectively engaged in the promotion of long-term success of the companies they own. Stewardship codes typically are voluntary and use a "principle-based" approach to increase disclosure and encourage monitoring by institutional investors, including asset managers, insurance companies, and pension funds. The first country to adopt a stewardship was the United Kingdom, in 2010. In Japan, a similar Code was adopted in 2014 and led to a broad-based uptake among institutional investors, investment managers, and pension and insurance funds.

Incentivized governance codes could also be used to enhance transparency in Chile's non-financial sector. Governance codes for listed non-financial corporates have been a successful in strengthening corporate transparency and accountability in the UK. As of 2014, over 90 percent of firms in the FTSE 350 index are compliant with the governance code. Adoption in Chile could be incentivized by linking its subscription to the inclusion of a listed company in key equity market indices.

Figure 1. Chile: Economic Activity

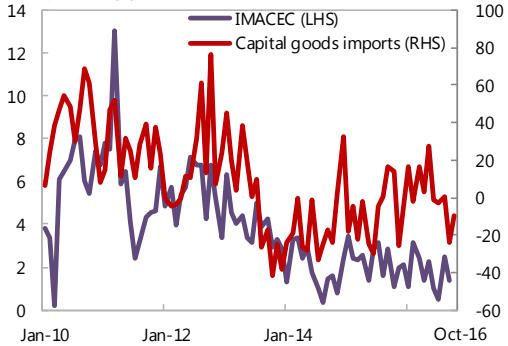
Activity has decelerated, with exports and investment failing to recover.

Contributions to Real GDP Growth
(In percentage points,, y/y, S.A.)



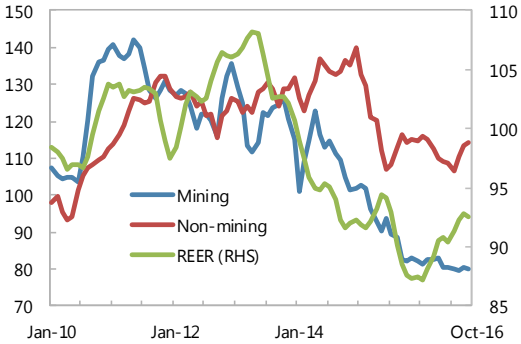
Ebbing activity has led to imports compression.

Selected Economic Activity Indicators /1
(In percent, y/y)



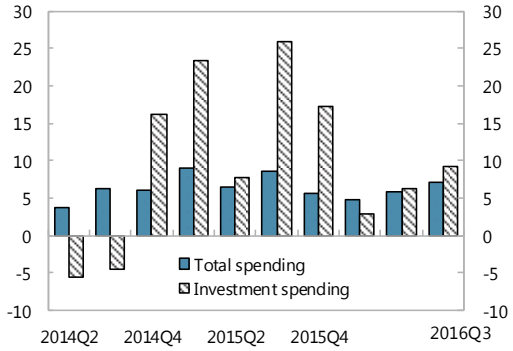
Flagging global demand weighs on both copper and non-copper exports...

Mining and Non-Mining Exports
(Index, 2010M1=100, 3mma)



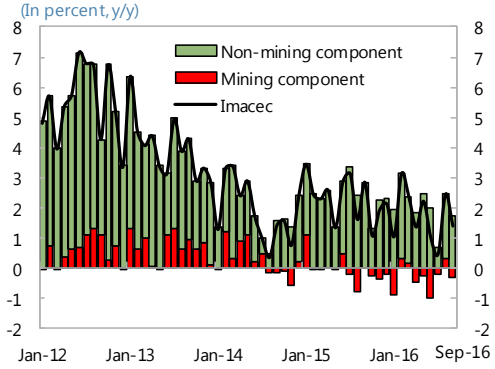
Public spending is supporting activity.

Real Government Expenditure
(In percent, y/y, 2013 pesos)



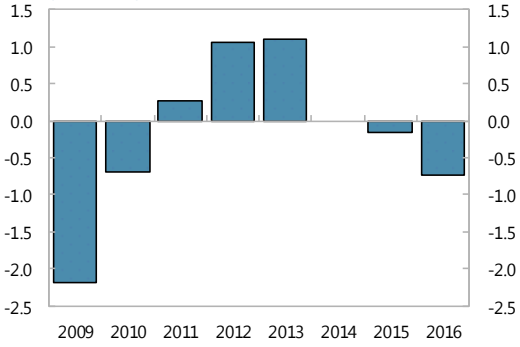
Mining is contracting and non-mining activities remain sluggish...

Contributions to IMACEC Growth /1
(In percent, y/y)



...causing the output gap to swing into negative territory.

Output Gap
(In percent of potential GDP)

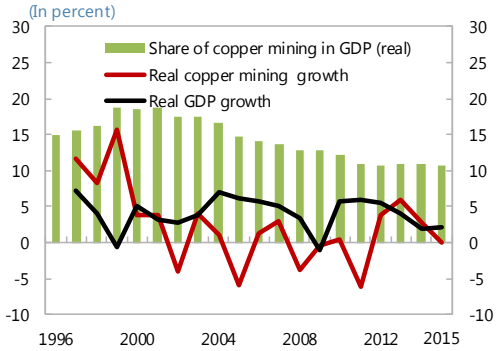


Sources: Central Bank of Chile, Ministry of Finance, Haver Analytics, and IMF staff calculations.
/1 IMACEC is a monthly economic activity indicator.

Figure 2. Chile: Macroeconomic Effects of Copper Prices

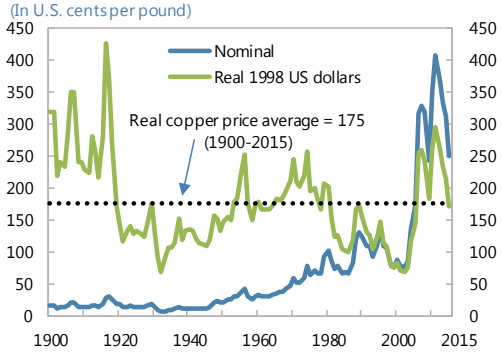
Copper production represents around 10 percent of real GDP.

Real GDP and Copper Output
(In percent)



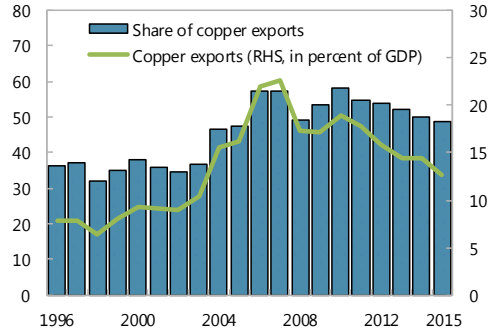
Copper prices have fallen dramatically since 2011.

Historical Price of Copper
(In U.S. cents per pound)



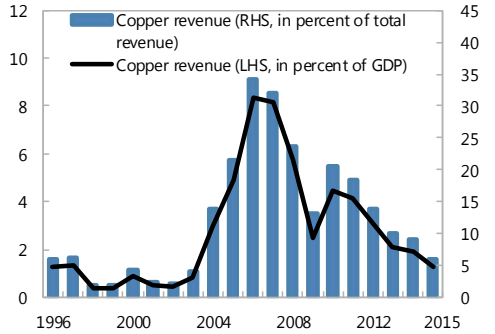
Mining contributions to exports are falling...

Copper Exports
(In percent of total exports of goods, unless otherwise stated)



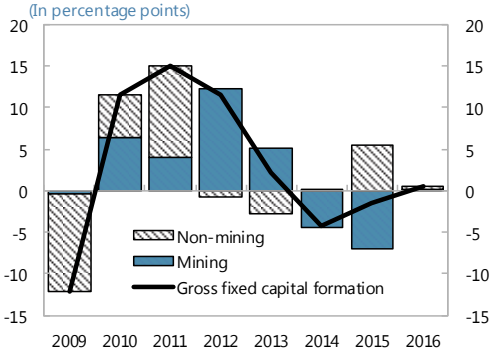
... and so are fiscal revenues.

Government Copper Revenues



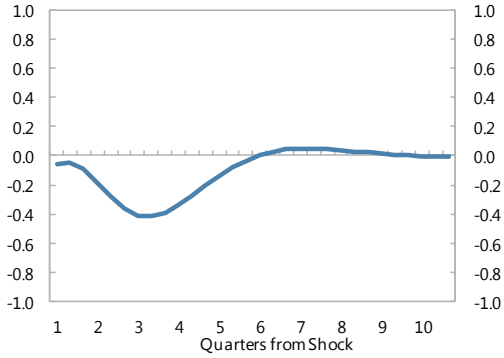
Mining investment declined since 2014...

Investment in Mining and Non-mining Sectors
(In percentage points)



... partly reflecting higher uncertainty about copper prices.

Investment Response to Copper Price Uncertainty /1

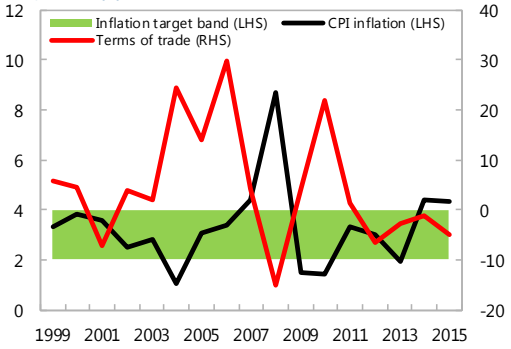


Sources: Central Bank of Chile; Haver Analytics, Inc.; U.S. Geological Survey; IMF staff calculations.
1/ Staff analysis finds high sensitivity of Chile's investment to copper price uncertainty, reflecting the large irreversibility component inherent to mining investment (Comelli and Perez Ruiz, 2016, "To Bet or not to Bet: Copper Price Uncertainty and Investment in Chile, IMF Working Papers No. 16/216).

Figure 3. Chile: Inflation and Monetary Policy

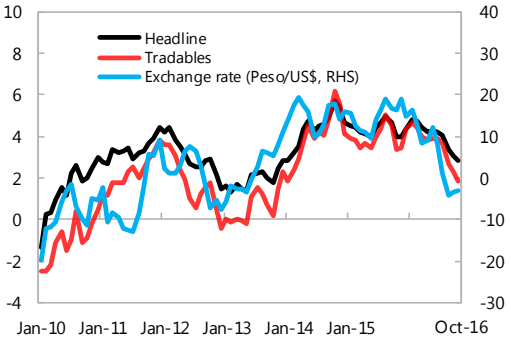
Chile's outside-the-band inflation dynamics reflect large swings in the terms of trade.

CPI Inflation and Terms of Trade
(In percent, y/y)



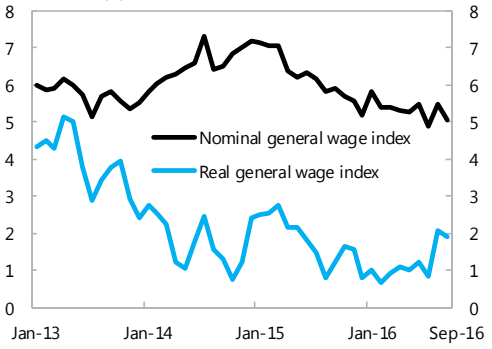
After the depreciation-driven surge in inflation in 2014-15, inflation is decelerating rapidly...

Consumer Prices and the Exchange Rate
(In percent, y/y)



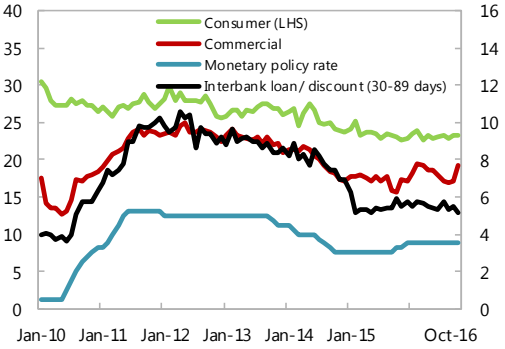
... with significant wage moderation.

Wages
(In percent, y/y)



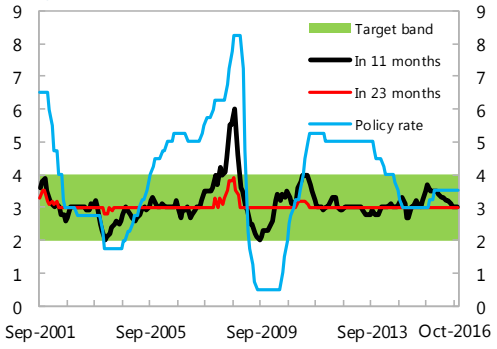
Monetary policy has remained broadly accommodative since 2013.

Policy and Lending Rates
(In percent)



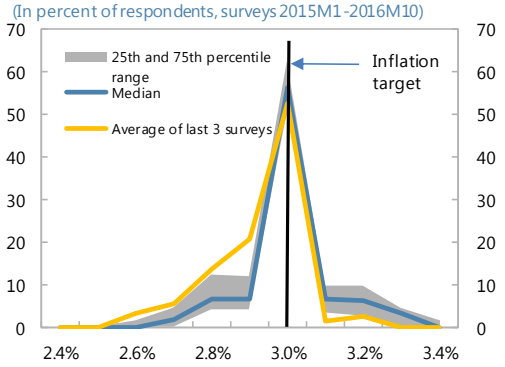
Inflation expectations have remained well anchored at 3 percent throughout 2013-16 ...

Inflation Expectations and Monetary Policy Rate
(In percent)



... but a recent downward shift suggests that inflation could undershoot over the near term.

Distribution of Inflation Expectations at 24 Months
(In percent of respondents, surveys 2015M1-2016M10)

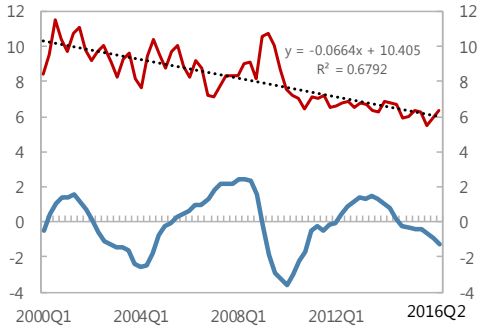


Sources: Central Bank of Chile, Haver Analytics, and IMF staff calculations.

Figure 4. Chile: The Softening of the Labor Market

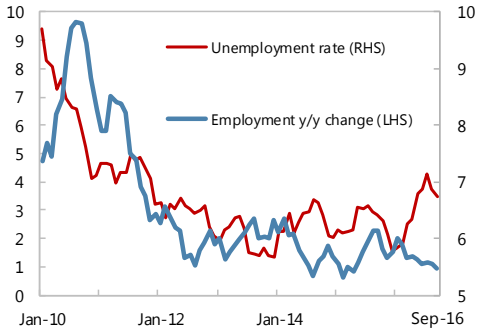
Following steady decline in the NAIRU and remarkable reslience to the slowdown in output over 2014-15

Unemployment Rate, 2000-16
(In percent, adjusted for comovement with output gap)



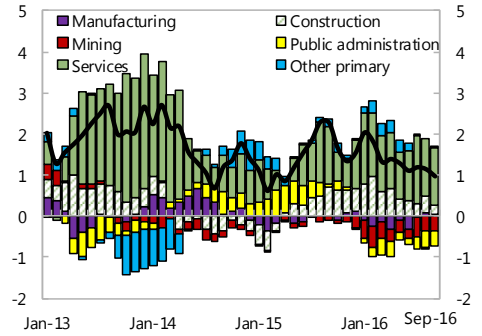
...unemployemnt has now edged up.

Labor Market
(In percent, 3mma)



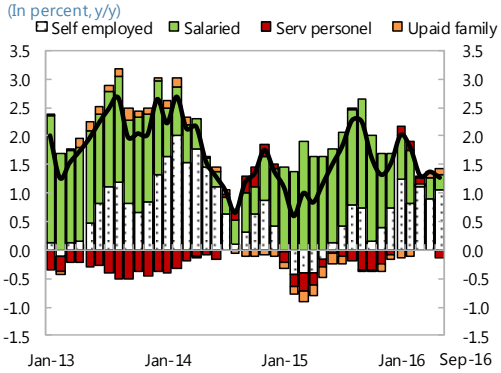
Job shedding is concentrated in mining, manufacturing, and public administration.

Contributions to Employment by Sector
(In percent, y/y)



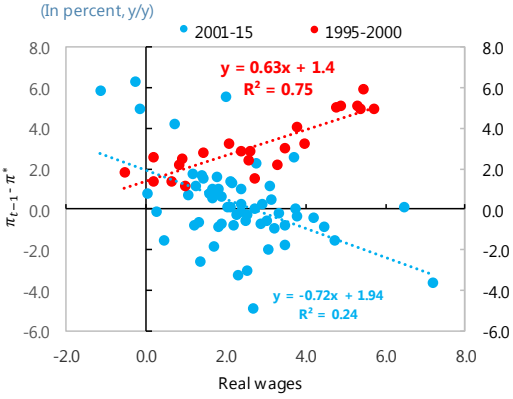
Employment quality is deteriorating rapidly, with job creation titled towards self-employment.

Contributions to Employment Growth by Occupation
(In percent, y/y)



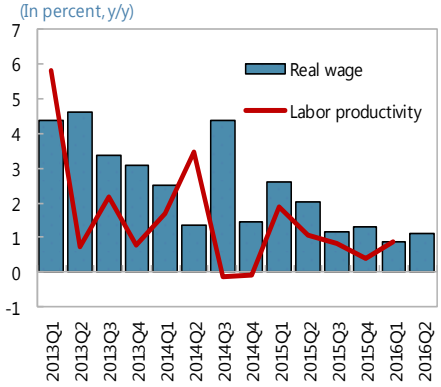
A flexible labor market ...

Deviation of Inflation from Target and Real Wages
(In percent, y/y)



... is helping with the adjustment.

Real Wages and Productivity
(In percent, y/y)

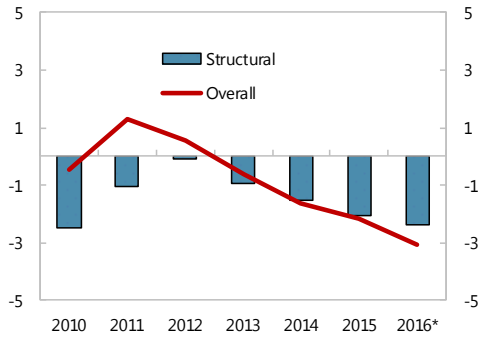


Sources: Central Bank of Chile, Haver Analytics, and IMF staff calculations.

Figure 5. Chile: Public Finances

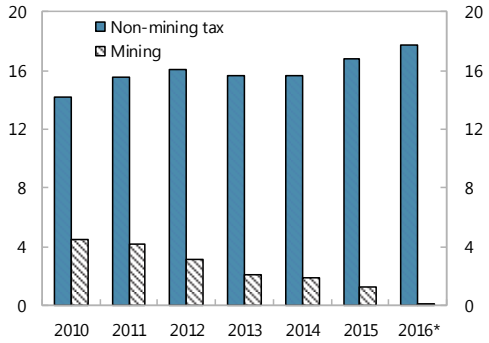
Fiscal balances have weakened since 2012...

Central Government Balances 1/ 2/
(In percent of GDP)



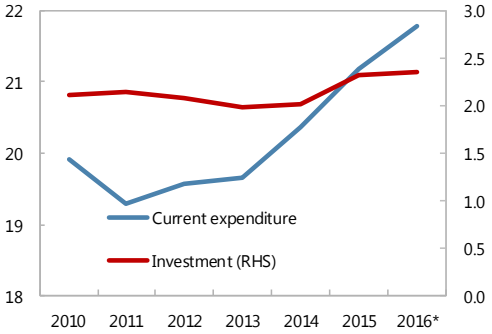
...due in part to subdued mining revenue...

Central Government Revenues
(In percent of GDP)



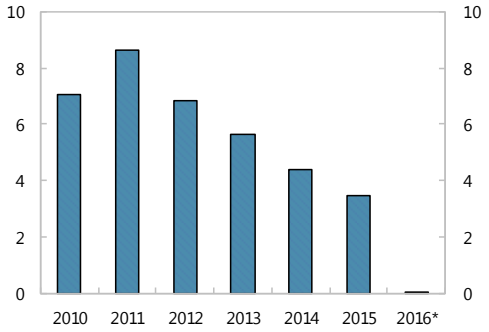
... but also more recently to higher spending on education, infrastructure and social programs.

Central Government Investment and Current Expenditure
(In percent of GDP)



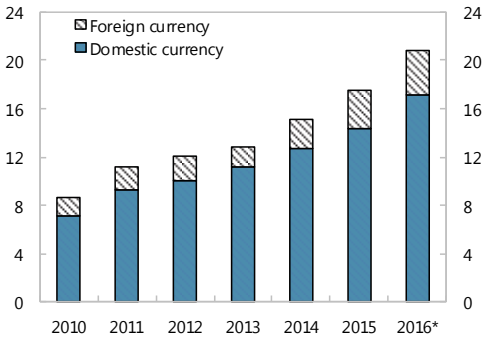
The general government sector remains a net creditor...

General Government Net Assets
(In percent of GDP)



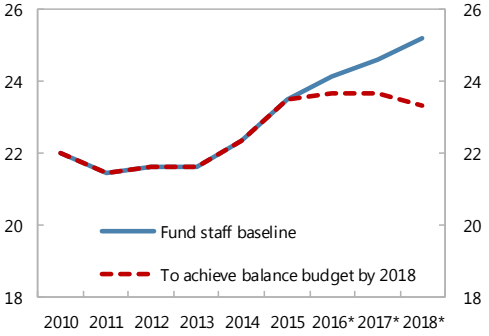
...and gross debt remains low, although it doubled as a share of GDP since the financial crisis.

Central Government Gross Debt
(In percent of GDP)



Complying with the 2018 target will require expenditure restraint.

Public Expenditure Path Under Two Scenarios
(In percent of GDP)

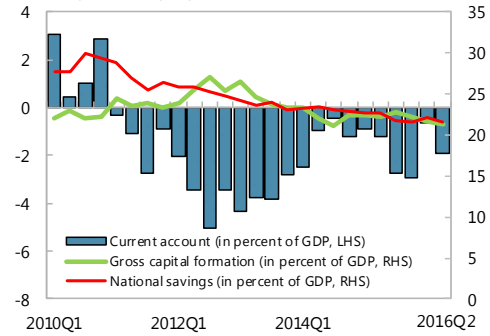


Sources: Ministry of Finance, Central Bank of Chile, and IMF staff calculations.
1/ For 2012, includes capital gains tax windfall.
2/ For 2014, includes the expected yield of the 2014 tax reform as submitted to Congress.
* Projections.

Figure 6. Chile: External Stability

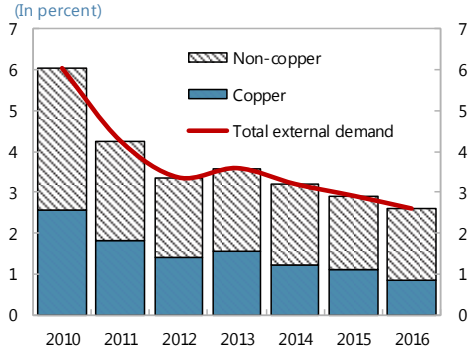
The current account deficit has narrowed ...

Savings, Investment, and the Current Account
(Quarterly, seasonally adjusted data)



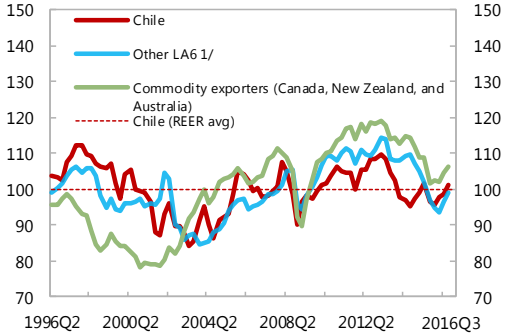
...despited headwinds from external demand...

External Demand Growth Addressed to Chile
(In percent)



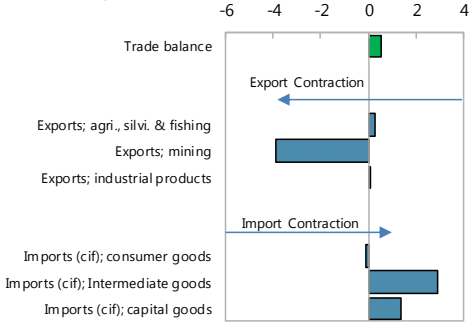
... helped by significant peso depreciation ...

Real Effective Exchange Rate
(Index avg. 1996-2016=100)



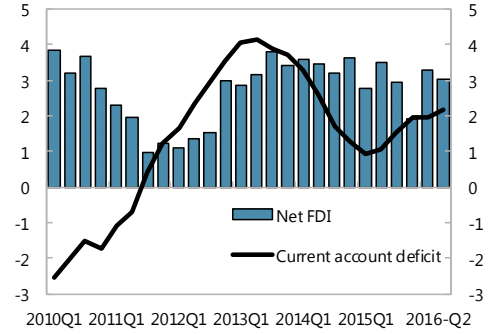
... and imports compression.

Change in Trade Balance, 2012 - 2015
(In percentage points of GDP)



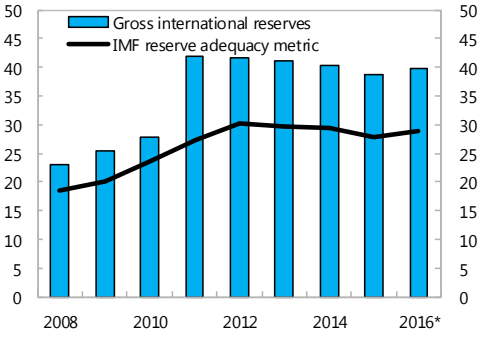
The current account deficit remains mostly financed by FDI ...

Balance of Payments and Foreign Direct Investment
(In percent of GDP; 4-quarter moving sum)



...and gross international reserves are adequate.

Gross Reserves and Reserve Adequacy Metric 2/
(In billions of U.S. dollars)

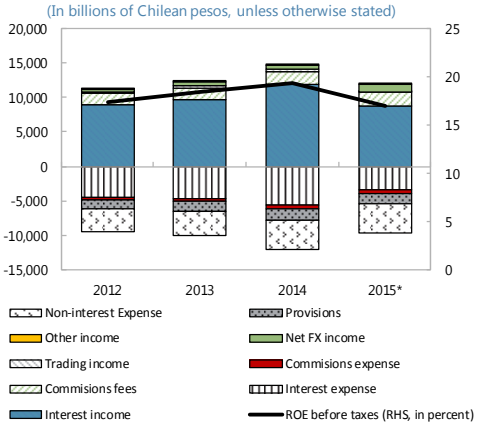


Sources: Central Bank of Chile, Haver Analytics, Inc., and IMF staff calculations.
1/ LA6 includes Brazil, Colombia, Mexico, Peru and Uruguay.
2/ *Assessing Reserve Adequacy*, IMF.

Figure 7. Chile: Financial Sector

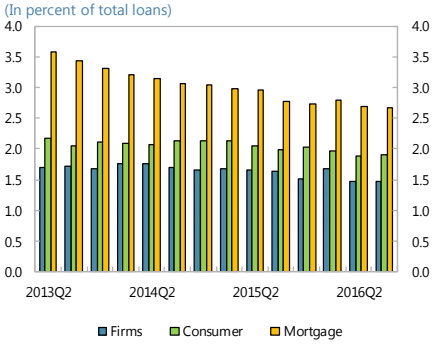
Bank's profitability has declined ...

Income Statement of Banking Sector
(In billions of Chilean pesos, unless otherwise stated)



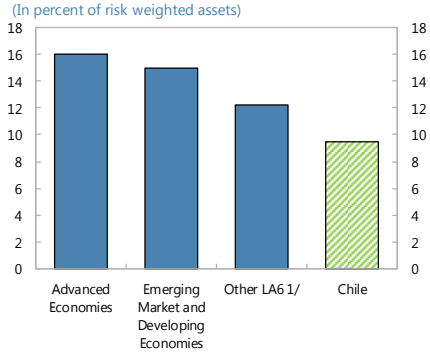
... although non-performing loans have stabilized at moderate levels.

Non-performing Loans
(In percent of total loans)



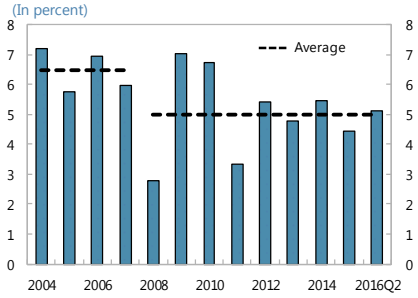
While capital ratios are lower than in other countries, 60 percent of Tier 1 capital is made of common equity.

Tier 1 Capital Ratio, end 2015
(In percent of risk weighted assets)



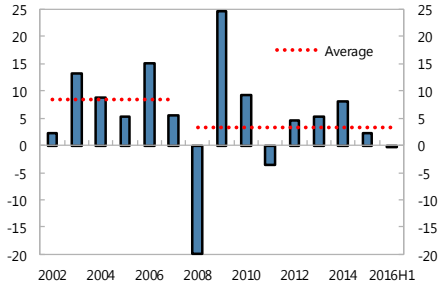
Due to low interest rates, life insurance companies are facing low returns on their investments...

Return on Investment of Life Insurance Sector
(In percent)



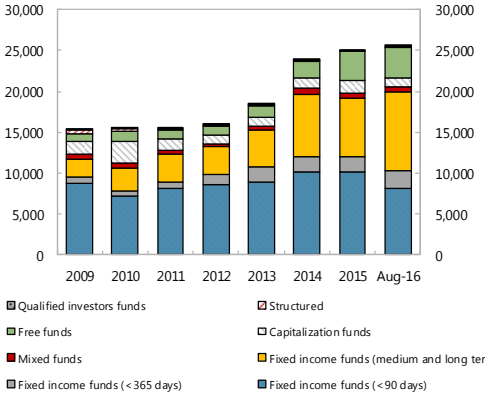
...and so are pension funds.

Real Return of Pension Funds /2
(In percent)



Mutual funds that invest in medium and long-term instruments have grown rapidly.

Structure of Mutual Funds
(In billions of Chilean pesos)

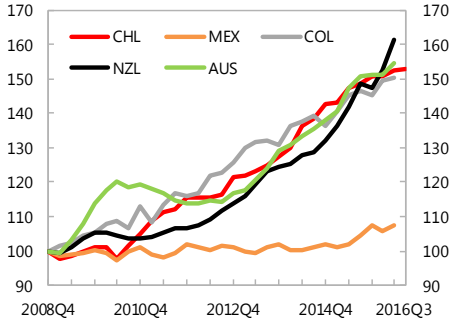


Sources: Superintendiencia Valores y Seguros (SVS), Superintendencia de Bancos e Instituciones Financieras (SBIF), Central Bank of Chile, IMF Financial Soundness Indicators 2015, and Fund staff calculations.
* Projections.
1/ Includes Argentina, Brazil, Colombia, Mexico, Peru and Uruguay.
2/ Simple average of monthly returns across fund types for 2016H1.

Figure 8. Chile: Housing Market Developments

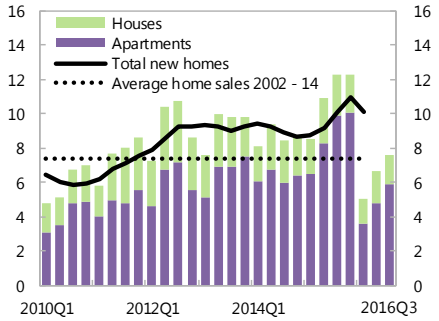
Housing prices have grown at a relatively fast pace in Chile, prior to an impending VAT increase in 2016.

Real Residential Price Indices
(2008Q4=100)



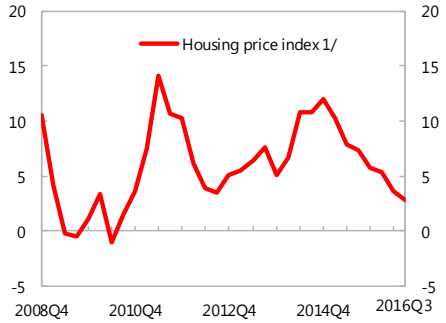
Residential property sales have fallen sharply since early 2016.

Residential Property Sales in Greater Santiago 2/
(In thousands of units)



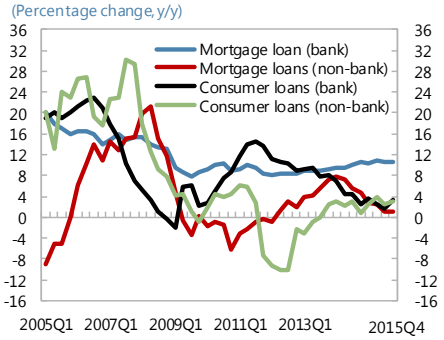
Housing prices are cooling down rapidly.

Real Residential Price Index
(In percent, y/y)



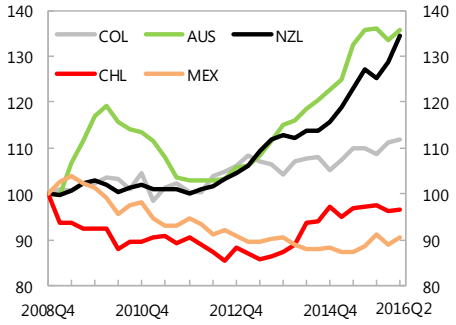
Household debt has increased, driven by mortgage loans.

Real Loans to the Household Sector
(Percentage change, y/y)



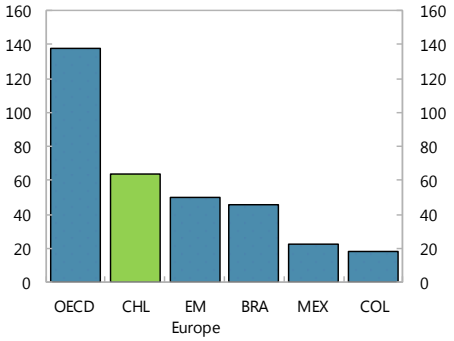
Still, the price-to-income ratio has stabilized recently ...

Residential Price-to-Income Ratios
(2008Q4=100)



... and, the debt-to-income ratio in Chile remains low relative to advanced economies.

Household Debt, 2015 /3
(In percent of disposable income)



Sources: Central Bank of Chile, Superintendence of Banks and Financial Institutions, Chilean Chamber of Construction, Global Property Guide, SuSeso, SVS and Fund staff calculations.
1/ Compiled by the Central Bank of Chile controlling for home characteristics.
2/ Includes purchase commitments.
3/ Latest data available for OECD, EM Europe, and Mexico are 2014.

Table 1. Chile: Selected Social and Economic Indicators

GDP (2015), in billions of pesos	157,508	Quota	
GDP (2015), in billions of U.S. dollars	240.8	in millions of SDRs	856
Per capita (U.S. dollars)	13,374	in % of total	0.36%
Population (2014), in millions	17.8	Poverty rate (2015)	11.70
Main products and exports	Copper	Gini coefficient (2015)	49.50
Key export markets	China, Euro area, U.S.	Literacy rate (2015)	99.2

	2011	2012	2013	2014	2015	Proj. 2016	Proj. 2017
	(Annual percentage change, unless otherwise specified)						
Output							
Real GDP	5.8	5.5	4.0	1.9	2.3	1.7	2.0
Total domestic demand	9.4	7.3	3.6	-0.3	2.0	1.5	1.8
Consumption	7.8	5.7	5.2	2.8	2.5	2.2	2.1
Private	8.9	6.1	5.5	2.4	1.9	1.7	1.9
Public	2.5	3.5	3.5	5.1	5.8	4.6	3.5
Investment	14.4	12.6	-0.7	-9.9	0.3	-1.0	0.5
Fixed	15.0	11.6	2.2	-4.2	-1.5	0.5	0.5
Private	15.8	12.6	2.7	-4.7	-3.3	0.4	0.7
Public	8.3	3.8	-1.9	0.8	14.5	1.0	-1.7
Inventories 1/	0.0	0.4	-0.8	-1.5	0.5	-0.3	0.0
Net exports 1/	-4.2	-2.0	0.3	2.8	0.4	0.4	0.3
Exports	5.5	0.1	3.3	1.1	-1.9	0.7	2.8
Imports	16.0	4.8	2.1	-5.7	-2.8	-0.4	1.9
Employment							
Unemployment rate (annual average)	7.1	6.4	5.9	6.4	6.2	7.0	7.6
Consumer prices							
End of period	4.4	1.4	2.8	4.7	4.4	3.1	3.0
Average	3.3	3.0	1.9	4.4	4.3	3.9	2.7
	(In percent of GDP, unless otherwise specified)						
Public sector finances							
Central government revenue	22.6	22.2	21.0	20.7	21.3	21.1	21.3
Central government expenditure	21.4	21.6	21.6	22.4	23.5	24.1	24.6
Central government fiscal balance	1.3	0.6	-0.6	-1.6	-2.2	-3.1	-3.3
Structural fiscal balance 2/	-1.0	-0.1	-1.0	-1.5	-2.1	-2.4	-2.1
Fiscal impulse	-1.4	-0.9	0.8	0.6	0.5	0.3	-0.3
Public sector net debt	-4.9	-1.9	-1.1	0.5	1.0	6.2	9.5
Public sector gross debt	34.9	34.3	34.0	37.8	40.6	44.4	48.7
Central government gross debt	11.2	12.0	12.8	15.1	17.5	20.8	25.0
Of which, share of FX-denominated debt (in percent)	17.2	16.1	12.9	15.9	18.3	17.3	17.3
Money and credit							
Broad money (percentage change)	18.5	7.6	14.9	9.3	9.8	...	...
Credit to the private sector (percentage change)	16.7	11.9	10.0	10.2	10.7	8.1	6.0
3-month central bank bill rate (%)	4.9	5.1	5.0	4.0	2.6	...	...
Balance of payments							
Current account	-1.2	-3.5	-3.7	-1.3	-2.0	-2.2	-2.2
Current account (in billions of U.S. dollars)	-3.1	-9.4	-10.3	-3.3	-4.8	-5.4	-5.4
Foreign direct investment inflows	9.3	10.7	7.0	8.6	8.5	8.6	8.8
Gross international reserves (in billions of U.S. dollars)	42.0	41.6	41.1	40.4	38.6	38.6	38.6
In months of next year's imports of goods and services	5.6	5.5	5.9	6.7	6.6	6.3	6.0
Gross external debt	39.6	45.4	48.6	57.8	64.6	64.7	68.3
Public	2.9	3.1	3.4	3.8	4.3	4.9	5.6
Private	36.7	42.4	45.2	54.0	60.4	59.8	62.7
Exchange rate	(Annual percentage change)						
Real effective exchange rate (real appreciation +)	0.0	3.2	-0.7	-8.8	1.4	...	...
Terms of trade	1.5	-6.6	-2.9	-2.0	-4.1	-1.7	-2.3

Sources: Central Bank of Chile, Ministry of Finance, Haver Analytics, and Fund staff calculations and projections.
1/ Contribution to growth.
2/ Based on staff's output gap estimates and WEO copper prices.

Table 2. Chile: Summary Operations of the Central Government

(In percent of GDP; unless otherwise indicated)

	2011	2012	2013	2014	2015	Projections 1/ 2016	2017
Revenues	**22.7**	**22.2**	**21.0**	**20.7**	**21.3**	**21.1**	**21.3**
Taxes	17.4	17.7	16.7	16.6	17.6	17.4	18.0
Private mining companies	1.9	1.6	1.1	1.0	0.8	-0.3	0.4
Other tax revenues, non-mining	15.5	16.1	15.7	15.6	16.8	17.7	17.6
Social contributions	1.3	1.4	1.4	1.4	1.4	1.4	1.4
Grants	0.1	0.1	0.1	0.0	0.1	0.1	0.0
Other revenue	3.9	3.1	2.8	2.6	2.2	2.2	1.8
Codelco revenues	2.3	1.5	1.0	0.9	0.4	0.4	0.3
Income on assets	0.5	0.5	0.5	0.5	0.4	0.5	0.4
Operating income	0.5	0.5	0.5	0.5	0.5	0.6	0.5
Other income	0.7	0.6	0.8	0.8	0.8	0.8	0.5
Expenditures	**21.4**	**21.6**	**21.6**	**22.4**	**23.5**	**24.1**	**24.6**
Expense	19.3	19.6	19.7	20.4	21.2	21.8	22.3
Compensation of employees	4.1	4.2	4.3	4.4	4.6	4.4	4.6
Purchases of goods and services	2.2	2.1	2.0	2.2	2.1	2.0	2.0
Interest payments	0.6	0.6	0.6	0.6	0.7	0.8	0.8
Subsidies and grants	6.3	6.7	7.0	7.2	7.7	9.0	9.3
Social benefits	4.2	4.1	4.1	4.1	4.1	3.8	3.9
Other expense	2.0	2.0	1.7	1.8	2.0	1.8	1.7
Capital transfers	1.9	1.9	1.7	1.8	1.9	1.8	1.7
Net acquistion of nonfinancial assets	2.1	2.0	2.0	2.0	2.3	2.3	2.3
Investment	2.1	2.1	2.0	2.0	2.3	2.4	2.3
Sale of physical assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross operating balance	**3.4**	**2.6**	**1.4**	**0.4**	**0.1**	**-0.7**	**-1.1**
Net lending/borrowing	**1.3**	**0.6**	**-0.6**	**-1.6**	**-2.2**	**-3.1**	**-3.3**
Non-mining overall balance	-2.9	-2.5	-2.7	-3.5	-3.4	-3.1	-4.0
Net financial transactions	**1.3**	**0.6**	**-0.6**	**-1.6**	**-2.2**	**-3.1**	**-3.3**
Net acquistion of financial assets	3.1	1.0	-0.5	0.2	-0.2	1.1	1.5
Currency and deposits	-0.2	0.3	-0.5	0.0	0.0	0.0	0.0
Securities other than shares	3.4	0.8	0.0	0.2	-0.2	1.1	1.5
Loans	-0.1	0.0	0.0	0.0	0.0	0.0	0.0
Net incurrence of liabilities	1.8	0.4	0.1	1.8	1.9	4.2	4.8
Domestic	2.0	0.8	1.1	1.7	2.0	4.1	4.5
Securities other than shares	2.4	1.3	1.6	2.5	3.0	4.1	5.2
Amortization	0.4	0.5	0.5	0.8	1.1	0.0	0.7
External	0.5	0.3	-0.3	0.6	0.5	0.6	0.8
Securities other than shares	0.5	0.6	0.0	0.9	0.5	0.6	0.8
Amortization	0.1	0.3	0.3	0.3	0.1	0.0	0.1
Recognizion bonds	-0.7	-0.6	-0.6	-0.5	-0.5	-0.5	-0.4
Memorandum items							
Primary balance	1.4	0.7	-0.5	-1.5	-1.9	-2.8	-2.9
Structural balance 2/	-1.0	-0.1	-1.0	-1.5	-2.1	-2.4	-2.1
Fiscal impulse	-1.4	-0.9	0.8	0.6	0.5	0.3	-0.3
Expenditure growth (in real terms)	2.6	4.7	4.4	7.0	7.4	3.8	3.0
Expense	2.6	4.7	4.9	6.6	6.4	3.9	3.6
Net acquisition of nonfinancial assets	7.5	-0.3	-4.6	7.7	13.9	-0.3	-3.4
Net assets of the central government	8.6	6.8	5.6	4.4	3.5	0.0	-3.0
Gross debt	11.2	12.0	12.8	15.1	17.5	20.8	25.0
Peso-denominated assets	7.8	7.2	6.6	6.2	6.8	7.5	8.2
Foreign currency-denominated assets	12.0	11.6	11.9	13.2	14.1	13.4	13.7
Nominal GDP (trillions of pesos)	121.2	129.0	137.2	147.6	157.5	165.3	171.5
Copper price, USD per pound (WEO)	4.0	3.61	3.33	3.11	2.50	2.16	2.20

Sources: Ministry of Finance and Fund staff calculations and projections.

1/ Based on the authorities' medium-term fiscal projections in the 2015 Budget Law (issued in October 2015), adjusted for staff's GDP and copper price projections.

2/ In percent of potential GDP. Based on staff's output gap estimates and WEO copper prices.

Table 3. Chile: Balance of Payments

(In millions of USD, unless otherwise stated)

	2010	2011	2012	2013	2014	2015	Projections 2016	Projections 2017
	(In millions of U.S. dollars)							
Current account	3,770	-3,089	-9,377	-10,311	-3,317	-4,765	-5,353	-5,386
Trade balance	15,942	11,039	2,333	1,709	6,345	3,494	2,773	1,595
Exports	71,109	81,438	77,791	76,387	74,924	62,232	59,048	61,274
Copper	41,361	44,670	41,955	39,946	37,363	30,253	27,354	27,676
Non-copper	29,748	36,768	35,836	36,440	37,561	31,979	31,694	33,598
Imports	55,167	70,399	75,458	74,678	68,579	58,738	56,275	59,678
Net services	-1,897	-3,073	-2,745	-3,729	-3,818	-3,814	-4,445	-4,729
Net income	-14,686	-13,920	-11,024	-10,404	-7,693	-6,195	-5,331	-3,895
Net transfers	4,411	2,865	2,059	2,114	1,849	1,750	1,651	1,643
Capital account balance 1/	6,240	11	12	12	11	584	0	0
Financial account balance	5,945	-17,827	-9,154	-12,230	-4,903	-4,953	-5,370	-5,413
Foreign direct investment	-6,049	-3,057	-7,937	-9,491	-9,428	-4,663	-4,235	-4,038
Abroad by Chilean residents	9,461	20,252	20,556	9,872	12,915	15,794	16,571	17,193
In Chile by foreign residents	15,510	23,309	28,493	19,363	22,342	20,457	20,806	21,230
Of which, debt instruments	2,985	3,162	10,876	8,584	8,423	10,045	10,217	10,425
Portfolio investment	6,421	-11,484	4,280	-4,722	-4,046	-2,554	-2,680	-2,780
Abroad by Chilean residents	15,710	-799	15,374	10,667	8,710	436	457	475
In Chile by foreign residents	9,289	10,685	11,094	15,389	12,756	2,990	3,137	3,255
Of which, equities	1,764	4,650	5,633	5,884	2,185	-6	-6	-7
Of which, debt	7,525	6,035	5,460	9,506	10,570	2,997	3,143	3,261
Financial derivatives	934	2,418	-10	1,005	1,612	933	0	0
Other investments	4,639	-5,704	-5,487	977	6,959	1,331	1,545	1,405
Abroad by Chilean residents	6,385	-661	-2,333	-1,093	3,813	-1,917	-1,917	-1,917
In Chile by foreign residents	1,746	5,043	3,154	-2,070	-3,146	-3,248	-3,462	-3,322
Change in reserves assets	3,024	14,190	-367	311	1,057	211	0	0
Errors and omissions	-1,042	-562	-158	-1621	-538	-564	-17	-27
Gross official international reserves (In months of imports of goods and services)	3.9	5.6	5.5	5.9	6.7	6.6	6.3	6.0
	(In percent of GDP)							
Current account	1.7	-1.2	-3.5	-3.7	-1.3	-2.0	-2.2	-2.2
Trade balance	7.3	4.4	0.9	0.6	2.5	1.5	1.1	0.7
Exports	32.7	32.5	29.3	27.6	29.0	25.8	24.4	25.3
Copper	19.0	17.8	15.8	14.4	14.4	12.6	11.3	11.4
Non-copper	13.7	14.7	13.5	13.2	14.5	13.3	13.1	13.9
Imports	25.4	28.1	28.5	27.0	26.5	24.4	23.3	24.6
Net services	-0.9	-1.2	-1.0	-1.3	-1.5	-1.6	-1.8	-1.9
Net income	-6.8	-5.6	-4.2	-3.8	-3.0	-2.6	-2.2	-1.6
Net transfers	2.0	1.1	0.8	0.8	0.7	0.7	0.7	0.7
Financial account balance 2/	2.7	-7.1	-3.5	-4.4	-1.9	-2.1	-2.2	-2.2
	(Annual change in percent)							
Total export volume	-0.2	4.1	1.7	3.7	1.7	-2.0	0.5	2.8
Copper export volume	0.4	-2.0	2.1	5.9	1.4	-0.3	-2.3	0.9
Agricultural exports volume	2.5	12.6	-0.4	6.4	-7.6	4.5	2.9	7.2
Industrial exports volume	-2.1	13.8	0.6	0.8	4.2	-6.1	2.8	4.6
Total import volume	30.8	16.5	6.9	1.4	-6.6	-3.2	-0.8	1.9
Terms of trade	22.0	1.5	-6.6	-2.9	-2.0	-4.1	-1.7	-2.3
Total export prices	28.6	10.2	-6.2	-5.2	-3.7	-15.0	-5.3	0.9
Copper export prices	40.4	11.0	-8.4	-9.7	-8.1	-18.6	-7.7	0.3
Total import price	5.6	8.7	0.4	-2.4	-1.6	-11.4	-3.6	3.4
Memorandum items:								
Copper price (LME; U.S. cents per pound)	342	400	361	333	311	250	216	220
Volume of copper exports (2004=100)	99	97	99	105	107	106	104	105

Sources: Central Bank of Chile, Haver Analytics, and Fund staff calculations and projections.

1/ In 2010 reflects insurance payment associated with the earthquake.

2/ Excluding change in reserves.

Table 4. Chile: Monetary Survey
(In billions of pesos; unless otherwise indicated)

	2010	2011	2012	2013	2014	2015
Central bank						
Net foreign assets	12,508	21,307	19,396	20,943	23,937	26,645
Net international reserves	13,051	21,891	19,933	21,523	24,567	27,333
Net international reserves (in millions of US$)	27,865	41,980	41,649	41,093	40,447	38,642
Other foreign assets, net	-543	-584	-537	-580	-630	-688
Net domestic assets	-6,913	-14,587	-11,737	-12,646	-15,222	-16,943
Net credit to general government	559	143	367	738	-1,102	-124
Net claims on banks and financial corporations	-2,964	-4,593	-4,202	-4,370	-5,854	-6,306
Credit to the private sector	861	805	717	609	518	406
Other items (net)	-5,439	-10,811	-8,388	-9,166	-9,317	-11,469
Monetary base	5,595	6,720	7,660	8,297	8,715	9,702
Currency	3,209	3,647	4,199	4,693	5,161	5,679
Required reserves	2,386	3,073	3,460	3,604	3,555	4,023
Other depository institutions						
Net foreign assets	-4,767	-6,995	-6,477	-6,232	-5,085	-6,120
Net foreign assets (in millions of US$)	-10,178	-13,414	-13,533	-11,899	-8,372	-8,652
Net domestic assets	66,513	80,007	84,909	93,481	102,966	115,569
Net credit to general government	-2,240	-1,709	-716	445	890	-532
Credit to the private sector	73,786	86,276	96,702	106,586	117,658	130,465
Other items (net)	-5,033	-4,560	-11,077	-13,550	-15,582	-14,364
Liabilities to the private sector	61,746	73,012	78,432	87,249	97,881	109,449
Demand deposits	13,465	14,947	16,080	17,799	20,453	23,562
Quasi-money	48,281	58,065	62,352	69,450	77,428	85,887
Banking system						
Net foreign assets	7,741	14,313	12,918	14,712	18,852	20,526
Net domestic assets	61,579	71,076	79,803	86,751	93,072	102,942
Net credit to general government	-1,681	-1,566	-349	1,183	-212	-656
Credit to the private sector	74,647	87,081	97,419	107,195	118,176	130,871
Other items (net)	-11,387	-12,627	-17,268	-21,627	-24,893	-27,272
Liabilities to the private sector	69,320	85,389	92,721	101,463	111,924	123,468
Money	16,888	18,641	20,560	22,780	25,824	29,420
Quasi-money	52,432	66,748	72,161	78,683	86,100	94,048
Memorandum items						
	(Annual percentage change)					
Monetary base	18.2	20.1	14.0	8.3	5.0	11.3
Liabilities to the private sector	7.5	23.2	8.6	9.4	10.3	10.3
Credit to the private sector (banking system)	7.0	16.7	11.9	10.0	10.2	10.7
	(In percent of GDP)					
Monetary base	5.0	5.5	5.9	6.0	5.9	6.2
Liabilities to the private sector	62.5	70.4	71.9	73.9	75.8	78.4
Credit to the private sector (banking system)	67.3	71.8	75.5	78.1	80.1	83.1

Sources: Central Bank of Chile and Haver Analytics.

Table 5. Chile: Medium-Term Macroeconomic Framework

	2013	2014	2015	Projections 2016	2017	2018	2019	2020	2021
National accounts	(Annual percentage change, unless otherwise specified)								
Real GDP	4.0	1.9	2.3	1.7	2.0	2.7	3.0	3.1	3.3
Total domestic demand	3.6	-0.3	2.0	1.5	1.8	2.7	3.0	3.1	3.3
Consumption	5.2	2.8	2.5	2.2	2.1	2.6	2.9	2.9	3.2
Private	5.5	2.4	1.9	1.7	1.9	2.3	2.8	3.2	3.2
Public	3.5	5.1	5.8	4.6	3.5	3.7	3.4	1.3	3.0
Investment	-0.7	-9.9	0.3	-1.0	0.5	3.1	3.0	3.8	3.8
Fixed	2.2	-4.2	-1.5	0.5	0.5	2.9	2.9	3.6	3.6
Private	2.7	-4.7	-3.3	0.4	0.7	3.0	3.8	4.2	4.2
Public	-1.9	0.8	14.5	1.0	-1.7	2.3	-3.8	-1.1	-1.1
Inventories 1/	-0.8	-1.5	0.5	-0.3	0.0	0.0	0.0	0.0	0.0
Net exports 1/	0.3	2.8	0.4	0.4	0.3	0.0	0.0	0.0	-0.1
Exports	3.3	1.1	-1.9	0.7	2.8	3.8	4.3	4.5	4.6
Imports	2.1	-5.7	-2.8	-0.4	1.9	3.7	4.0	4.4	4.6
Consumer prices									
End of period	2.8	4.7	4.4	3.1	3.0	3.0	3.0	3.0	3.0
Consumer prices (average)	1.9	4.4	4.3	3.9	2.7	3.0	3.0	3.0	3.0
Output gap	1.1	0.0	-0.2	-0.7	-1.0	-0.7	-0.3	0.0	0.4
Potential growth	4.0	3.0	2.5	2.3	2.3	2.4	2.6	2.8	2.9
Memo items:									
Non mining potential growth	4.0	3.0	2.6	2.4	2.5	2.6	2.8	3.0	3.1
Credit to the private sector (percentage change)	10.0	10.2	10.7	8.1	6.0	7.5	8.5	9.2	9.9
Balance of payments	(In percent of GDP)								
Current account	-3.7	-1.3	-2.0	-2.2	-2.2	-2.4	-2.4	-2.5	-2.5
Trade balance	0.6	2.5	1.5	1.1	0.7	0.5	0.5	0.4	0.4
Financial account balance	-4.4	-1.9	-2.1	-2.2	-2.2	-2.4	-2.4	-2.5	-2.5
Of which, foreign direct investment (net)	-3.4	-3.6	-1.9	-1.8	-1.7	-1.4	-1.2	-1.0	-0.7
Change in reserves assets	0.1	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
REER (in percent y/y, +=appreciation)	-0.7	-8.8	1.4	...	...	...	...	...	...
	(Annual percentage change)								
Total export volume	3.7	1.7	-2.0	0.5	2.8	3.8	4.3	4.5	4.6
Of which, copper export volume	5.9	1.4	-0.3	-2.3	0.9	2.0	2.5	2.5	2.6
Total import volume	1.4	-6.6	-3.2	-0.8	1.9	3.7	4.0	4.4	4.6
Terms of trade	-2.9	-2.0	-4.1	-1.7	-2.3	-0.5	-0.3	-0.2	0.0
Total export prices	-5.2	-3.7	-15.0	-5.3	0.9	0.8	0.7	0.5	0.4
Copper export price index	-9.7	-8.1	-18.6	-7.7	0.3	0.8	0.6	0.6	0.5
Total import price	-2.4	-1.6	-11.4	-3.6	3.4	1.3	1.0	0.6	0.3
External debt	(In percent of GDP)								
Gross external debt	48.6	57.8	64.6	64.7	68.3	69.0	69.3	69.7	70.0
Public	3.4	3.8	4.3	4.9	5.6	5.9	6.0	6.1	6.3
Private	45.2	54.0	60.4	59.8	62.7	63.1	63.3	63.5	63.7
Gross int. reserves (in billions of U.S. dollars)	41.1	40.4	38.6	38.6	38.6	38.6	38.6	38.6	38.6
Savings and investment									
Gross domestic investment	24.5	22.2	22.4	22.2	21.7	21.8	21.8	21.9	22.0
Public	2.3	2.3	2.6	2.6	2.6	2.6	2.4	2.3	2.2
Private	22.2	19.9	19.7	19.5	19.1	19.2	19.4	19.6	19.8
National saving	20.8	20.9	20.4	19.9	19.5	19.4	19.4	19.5	19.5
Public	1.7	0.7	0.5	-0.6	-1.0	-0.5	-0.1	0.4	0.5
Private	19.1	20.2	19.9	20.5	20.5	19.9	19.5	19.1	19.0
Public sector finance									
Net debt	-1.1	0.5	1.0	6.2	9.5	12.2	14.3	15.8	17.0
Excluding public enterprises	-7.9	-7.5	-8.1	-3.7	-0.9	1.8	3.9	5.4	6.7
Public sector gross debt 2/	34.0	37.8	40.6	44.4	48.7	50.3	51.1	51.1	50.9
Central government gross debt	12.8	15.1	17.5	20.8	25.0	27.2	28.7	29.4	29.9
Central government balance	-0.6	-1.6	-2.2	-3.1	-3.3	-2.9	-2.4	-1.8	-1.6
Total revenue	21.0	20.7	21.3	21.1	21.3	22.3	22.6	22.6	22.9
Total expenditure	21.6	22.4	23.5	24.1	24.6	25.2	24.9	24.4	24.5
Central government structural balance	-1.0	-1.5	-2.1	-2.4	-2.1	-1.8	-1.7	-1.3	-1.3
Employment	(Annual percentage change, unless otherwise specified)								
Working age population	1.6	1.6	1.6	1.5	1.1	1.1	1.1	1.1	1.1
Labor force	1.6	2.0	1.4	1.5	1.1	1.1	1.1	1.1	1.1
Employment	2.1	1.5	1.6	0.7	0.4	1.6	1.3	1.5	1.4
Unemployment rate (in percent)	5.9	6.4	6.2	7.0	7.6	7.2	7.0	6.6	6.3

Sources: Central Bank of Chile, Ministry of Finance, National Statistics Institute, Haver Analytics, and Fund staff calculations and projections.

1/ Contribution to growth.
2/ Gross consolidated debt of the public sector (central bank, non-financial public enterprises, and general government).

Table 6. Chile: Indicators of External Vulnerability
(In percent; unless otherwise indicated)

	2010	2011	2012	2013	2014	2015
Financial indicators						
M3 (percent change)	11.2	18.9	6.2	13.9	11.1	11.5
Less pension funds' deposits (annual percentage change)	16.4	19.9	5.9	14.8	9.0	11.8
Private sector credit to GDP	66.6	71.2	75.0	77.7	79.7	82.8
90-day central bank promissory note (nominal) interest rate (avg.)	1.7	4.9	5.1	5.0	4.0	2.6
Share of foreign currency deposits in total deposits	15.4	12.8	12.7	14.0	16.6	16.2
Share of foreign currency loans in total credit	10.7	12.7	12.9	13.5	13.7	13.9
External indicators						
Exports, U.S. dollars (annual percentage change)	28.2	14.5	-4.5	-1.8	-1.9	-16.9
Imports, U.S. dollars (annual percentage change)	37.6	27.6	7.2	-1.0	-8.2	-14.3
Terms of trade (annual percentage change)	22.0	1.5	-6.6	-2.9	-2.0	-4.1
REER (annual percent change, period average)	0.0	0.0	3.2	-0.7	-8.8	1.4
Exchange rate (pesos per U.S. dollar, period average)	510.2	483.7	486.5	495.3	570.4	654.1
Current account balance (percent of GDP)	1.7	-1.2	-3.5	-3.7	-1.3	-2.0
Financial account less reserves accumulation (percent of GDP)	2.7	-7.1	-3.5	-4.4	-1.9	-2.1
Gross official reserves (in billions of U.S. dollars) 1/	27.9	42.0	41.6	41.1	40.4	38.6
Gross official reserves, months of imports of goods and services	3.9	5.6	5.5	5.9	6.7	6.6
Gross official reserves to M3	13.5	19.0	16.3	15.5	15.9	15.9
Gross official reserves to short-term external debt 2/	97.4	109.5	99.7	117.9	125.9	120.6
Gross official reserves (percent of GDP) 3/	12.8	16.8	15.7	14.8	15.6	16.1
IMF reserve adequacy metric (percent of GDP) 3/	13.4	13.2	13.8	13.2	14.0	14.0
Total external debt (percent of GDP)	39.1	39.6	45.4	48.6	57.8	64.6
Of which: External public sector debt	2.6	2.9	3.1	3.4	3.8	4.3
Total external debt to exports of goods and services	103.3	105.0	133.6	151.6	174.1	216.2
External interest payments to exports of goods and services	2.3	2.3	3.7	3.8	4.3	5.3
External amortization payments to exports of goods and services	32.2	31.7	49.3	49.2	46.9	44.6
Financial market indicators						
Stock market index (in U.S. dollars; period average) 4/	2362	2564	2434	2173	1726	1465
Sovereign long-term foreign currency debt rating (end of period)						
Moody's	Aa3	Aa3	Aa3	Aa3	Aa3	Aa3
S&P	A+	A+	AA-	AA-	AA-	AA-
Fitch ratings	A	A+	A+	A+	A+	A+

Sources: Central Bank of Chile, Haver Analytics, WEO, and Fund staff calculations and projections.

1/ Gold valued at end-period market prices.
2/ Includes amortization of medium/long-term debt due during the following year.
3/ Assessing Reserve Adequacy (IMF, 2011 Policy Paper).
4/ Morgan-Stanley Capital International index (Dec/1987=100).

Table 7. Chile: Financial Soundness Indicators, 2011–14

(In percent; unless otherwise stated)

	2011	2012	2013	2014	2015
Total Assets					
Total assets 1/	126,295	140,536	158,746	180,846	203,609
Percent of GDP	121.6	128.2	139.2	155.7	171.4
Capital Adequacy					
Regulatory Capital to Risk-Weighted Assets	13.9	13.3	13.3	13.4	12.6
Regulatory Tier 1 Capital to Risk-Weighted Assets	10.1	10.0	9.9	10.0	9.4
Capital to Assets	7.8	8.0	8.1	8.0	7.6
Credit Risk					
NPLs Net of Provisions to Capital	0.2	-0.6	-1.6	-2.1	-3.3
NPLs to Gross Loans	2.3	2.2	2.1	2.1	1.9
Profitability					
Return on Assets	1.6	1.4	1.5	1.5	1.3
Return on Equity	20.8	17.3	18.3	19.3	17.7
Interest Margin to Gross Income	64.5	64.3	64.3	67.8	66.6
Trading Income to Gross Income	9.5	10.7	12.0	10.8	10.6
Non-interest Expenses to Gross Income	48.0	49.3	47.8	47.4	48.6
Liquidity					
Liquid Assets to Total Assets	15.2	13.3	13.2	13.6	13.8
Customer Deposits to Loans	63.8	62.6	61.1	..	..
Institutional and corporate deposits to total liabilities	34.0	35.0	34.0	32.0	28.0
FX and Derivative Risk					
FX Loans to Total Loans	14.5	15.7	18.4	18.4	20.0
FX Liabilities to Total Liabilities	21.2	21.4	24.3	25.5	27.1

Sources: IMF Financial Soundness Indicators, Moody's Investor Service and Fund staff calculations.
1/ In billions of Chilean pesos.

Table 8. Chile: Financial System Structure

	2005			2010			2015		
	Number of institutions	Assets (% Total)	Assets (% of GDP)	Number of institutions	Assets (% Total)	Assets (% of GDP)	Number of institutions	Assets (% Total)	Assets (% of GDP)
Banks	26	50.7	92.7	25	47.9	97.5	24	51.4	129.3
Domestic banks	13	22.7	41.5	11	20.8	42.4	11	25.1	63.2
Foreign banks	12	19.2	35.2	13	18.7	38.2	12	18.1	45.4
Subsidiaries	6	16.6	30.3	8	18.4	37.5	8	17.8	44.9
Branches	6	2.7	4.9	5	0.3	0.6	4	0.2	0.5
State-owned	1	8.7	16.0	1	8.3	17.0	1	8.2	20.7
Insurance companies	51	11.0	20.1	57	9.5	19.4	66	9.4	23.6
Property and casuality	22	0.5	1.0	26	0.7	1.4	30	1.0	2.4
Life	29	10.4	19.1	31	8.8	17.9	36	8.4	21.1
Pension fund administrators	6	31.7	58.1	6	30.8	62.6	6	27.6	69.5
Other fund administrators	43	6.6	12.1	43	11.8	24.0	52	11.6	29.3
Investment funds	19	1.0	1.9	21	3.8	7.7	34	4.5	11.3
Mutual funds	20	5.3	9.6	18	7.9	16.1	18	7.1	18.0
Investment funds, foreign capital	4	0.3	0.6	4	0.1	0.2	..	..	..
Total	126	100.0	183.0	131	100.0	203.5	148	100.0	251.6

Sources: SBIF, SVS, SP and staff calculations

Annex I. Characterizing Chilean Financial Cycles: A Financial Conditions Index for Chile

Financial conditions are broadly defined as the ease of access to funding. They refer to conditions emanating from within the financial sector and are separate from the effects of monetary policy and exchange rate movements which also affect financing conditions for businesses and households, but originate outside the financial sector. Financial conditions can affect economic conditions through three channels, credit, leverage, and risk. When households and corporations cannot easily obtain credit or equity financing, consumption and investment may be negatively affected. Changes in financial conditions exacerbate business cycle fluctuations through the balance sheets of borrowers (Bernanke, Gertler, and Gilchrist, 1999). In addition, changes in the quality of the balance sheets and risk-taking incentives of financial firms (lenders) also affect economic activity through their effect on the effective supply of funds (Gilchrist and Zakrajsek, 2012 and October 2016 GFSR, Chapter 2).

Measurement of financial conditions. It is widely acknowledged that no single variable fully captures financial conditions, interactions are likely and guidance from economic theory is limited. To capture a broad range of relevant conditions, the financial conditions index (FCI) represents a common element of a broad set of financial indicators. For Chile, the FCI is based on information from 42 variables that capture credit conditions, leverage levels, quality of collateral, and intensity of perceived risks (Table A.I.1). The sample used for the estimation of the FCI starts in January 1996 and ends in June 2016.

Methodology. To characterize the financial developments in Chile we combine information from 42 financial variables into a single indicator, a Financial Conditions Index (FCI). The method used to estimate the FCI is based on Koop and Korobilis (2014).[1] It combines the estimation of Primiceri's (2005) time-varying parameter vector-autoregression (TVP-VAR) with recent developments in factor analysis for large data sets (Doz, Giannone, and Reichlin, 2011). The empirical model is given by

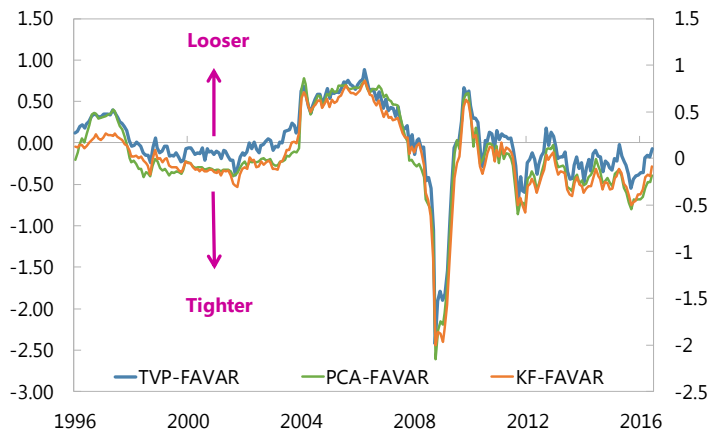
$$\begin{aligned} X_t &= \lambda_t^y Y_t + \lambda_t^f f_t + u_t, \\ \begin{bmatrix} Y_t \\ f_t \end{bmatrix} &= B_{1,t} \begin{bmatrix} Y_{t-1} \\ f_{t-1} \end{bmatrix} + B_{2,t} \begin{bmatrix} Y_{t-2} \\ f_{t-2} \end{bmatrix} + \ldots + \varepsilon_t, \end{aligned} \qquad \text{(A.1.1)}$$

in which X is a vector of financial variables, Y is a vector of macroeconomic variables (inflation, IMACEC growth, the real effective exchange rate, and the monetary policy rate), f is an unobservable factor,[2] and ε and u are uncorrelated (but heteroskedastic) error terms. In this setting, the factor f is the financial conditions index (FCI) and the coefficients λ^y and λ^f are the factor loadings which track the effect of both macroeconomic and financial conditions on each financial variable.

[1] The FCI is estimated using Koop and Korobilis' 2014 code, which was downloaded from Dimitris Korobilis' webpage (https://sites.google.com/site/dimitriskorobilis/matlab).

[2] The model can accommodate multiple factors, although doing so complicates the interpretation of the first factor as the FCI. The Bai and Ng's (2002) statistic suggests the model's fit can be improved with more factors.

Figure 1. Financial Conditions Indexes

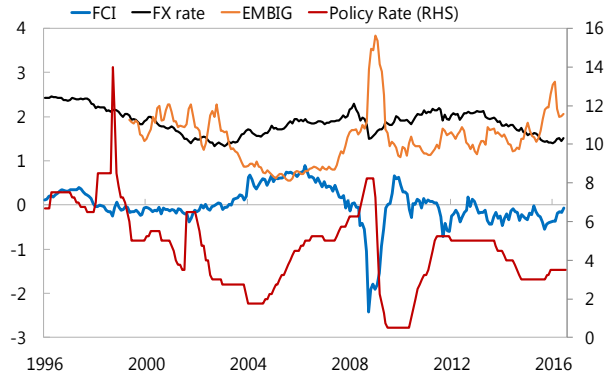


General and special cases. The model given by (A.1.1), in addition to the TVP-VAR FCI, has two other useful special cases in which the VAR parameters are not time-varying: (1) the principal components-based factor-augmented VAR (PCA-FAVAR) by Stock and Watson (2002) and Bernanke, Boivin, and Eliasz (2005); and (2) the Kalman-filter based factor-augmented VAR (KF-FAVAR) by Doz, Giannone, and Reichlin (2011). Because of the close tracking of the three models, the more sophisticated methods (TVP-FAVAR) can be approximated by simpler alternatives (PCA-FAVAR). However, a time-varying parameter framework as implementable through the TVP-FAVAR FCI is still useful because it allows the measured effect of financial conditions on economic activity to change over time (see Box 2).

Interpreting the FCI. The FCI is normalized around 0 over the observation period (1996–2006) and values above zero indicate "loose" and below zero "tight" conditions. The methodology estimates financial conditions adjusted for the business cycle and monetary policy: the constructed FCI is purged of cyclical influence by controlling for the contemporaneous and lagged correlation with GDP; and the policy interest rate is included as a separate variable in the VAR framework, such that fluctuations in the FCI do not capture the direct effect of monetary policy decisions. Variables included in the FCI cover three main dimensions: risk (several interest rate spreads and asset price volatilities), collateral values and leverage (measures of gross external debt, bank leverage, housing and stock prices, short-term versus long-term mutual fund assets, and pension fund assets), and credit (commercial, consumption, and mortgage loans and various measures of credit quality). Widening spreads, declining collateral/credit volumes, and decreasing leverage all denote a tightening in financial conditions.

Characterizing Chile's financial cycles. The FCI produced by each of the three models are similar (Figure A.I.1). The estimated FCI provides a timely assessment of how tightly/loose financial markets are operating relative to historical conditions. The turning points coincide with well-known financial and economic events. The FCI shows a significant tightening during the Asian financial crisis, still financial conditions throughout such episode and the early 2000s were only slightly tighter than average.[3] Financial conditions were relatively easy between 2004 and the GFC (2008–09), and also proved sensitive to the European sovereign debt crisis (2011–12). Although the FCI demonstrates that the financial system has healed significantly since the GFC, financial conditions have tightened since the end of the commodity super-cycle: an increase in Chile's EMBIG spread, higher exchange rate volatility, and a rise in the likelihood of nonfinancial corporate defaults have all contributed to a declining trend in financial conditions. Lower than average consumer and commercial credit by Chilean banks have also contributed.

FCI, Exchange Rate, Monetary Policy, and External Risk Premium



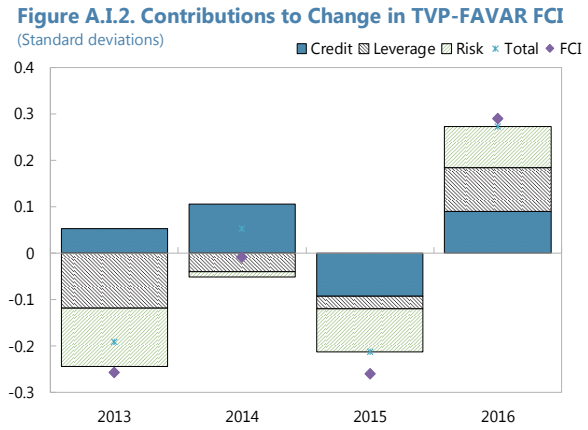
Sources: Banco Central de Chile; IMF staff calculations. Notes: EMBIG = EMBI Global spread in percentage points. FCI = Financial Conditiosn Index; FX rate = exchange rate measured as dollars per one thousand Chilean Pesos.

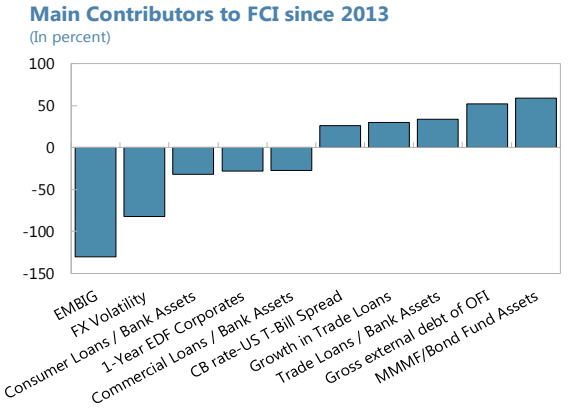
In 2016, financial conditions shifted from loose to neutral. The contribution of each factor to the TVP-FAVAR FCI—credit, leverage, and risk—has changed over time. In 2013–14, credit variables tended to improve financial conditions, whereas risk and leverage had the opposite effect (Figure A.I.2). Since 2015, however, credit, leverage, and risk have moved together: overall widening spreads, declining collateral/credit volumes, and decreasing leverage led to some tightening in financial conditions, and vice-versa in 2016.[4]

[3] During the Asian crisis, Chile's monetary policy rate (not included in the FCI since it describes the monetary policy stance) spiked but the exchange rate and credit spreads were relatively stable. This explains why the FCI does not show very tight financial conditions during that episode.

[4] In every year since 2013, except in the first six months of 2016, the change in financial conditions was lower than what warranted by cyclical macroeconomic conditions. The difference between the measured change in the FCI (purple diamond) and the total contribution of credit, leverage, and risk (blue x-mark in Figure A.I.2) reflects the change in the FCI that is associated with the change in financial variables, excluding the change in the macroeconomic variables (*Y*).

Figure 2. Financial Conditions Since 2013





Sources: Banco Central; Bloomberg LP; FactSet; Haver; Koop and Korobilis (2014); Moody's CreditEdge+; Thomson-Reuters Datastream; SBIF; SVS; IMF.

Variables Included in Chile's Financial Conditions Index

Variable Names	Transfor-mation	Dimension
1-Year EDF Banks (75th percentile)	LV	Credit
1-Year EDF Corporates (75th percentile)	LV	Credit
ELMI+ LC	DLN	Credit
Growth in Trade Loans	DP12	Credit
Loans commercial	DP12	Credit
Commercial Loans / Bank Assets	DL12	Credit
Loans consumers	DP12	Credit
Consumer Loans / Bank Assets	DL12	Credit
Loans housing	DP12	Credit
Loans housing / Total bank assets	DL12	Credit
Nonperforming loans to bank credit ratio	LV	Credit
Total bank assets	LVMA	Credit
Total loans to PS	DP12	Credit
Trade Loans / Bank Assets	DL12	Credit
Domestic bond issuance	LVMA	Leverage
Domestic equity issuance	LVMA	Leverage
Financials Datastream Return Index	DLN	Leverage
Financials to Stock Total Market	LVMA	Leverage
Gross external debt of OFI	DP12	Leverage
Gross external debt, banks (percent of GDP)	DP12	Leverage
Gross external debt, direct foreign investment (percent of GDP)	DP12	Leverage
Gross external debt, general government (percent of GDP)	DP12	Leverage
Gross external debt, Non-financial firms (percent of GDP)	DP12	Leverage
Housing prices	DLN	Leverage
Leverage, capital to assets ratio	LV	Leverage
LT External Debt (percent of GDP)	DP12	Leverage
MMMF/Bond Fund Assets	LVMA	Leverage
Pension Fund Assets (percent of GDP)	DLN	Leverage
Short Term External Debt (percent of GDP)	DP12	Leverage
Stock market IGPA	DLN	Leverage
Central Bank rate-US T-Bill Spread	LV	Risk
CDS Sovereign 2YR	LV	Risk
EMBIG	LV	Risk
FX Volatility	LV	Risk
Interbank-MPR spread	LV	Risk
Interest rates commercial loans (spread to monetary policy rate)	LV	Risk
Interest rates consumer loans (spread to monetary policy rate)	LV	Risk
Interest rates housing loans 3 years or more (spread to monetary policy rate)	LV	Risk
Interest rates trade loans (spread to US 3-Month T-bill rate)	LV	Risk
Net Loan Spread, 30 to 89 days	DLV	Risk
Net Loan Spread, 90 days to 1 year	DLV	Risk
Volatility of IGPA	LV	Risk

Sources: Banco Central de Chile; Bloomberg LP; FactSet; Moody's CreditEdge+; SBIF; SVS; Thomson-Reuters Datastream.
Notes: CDS = Credit Default Spread; EDF = Expected Default Frequency; MMMF = Money Market Mutual Fund. Transformations: DL = first difference; DLN = first log-difference; DP12 = 12-month difference; LV = level; LVMA = ratio of level to 12-month moving average.

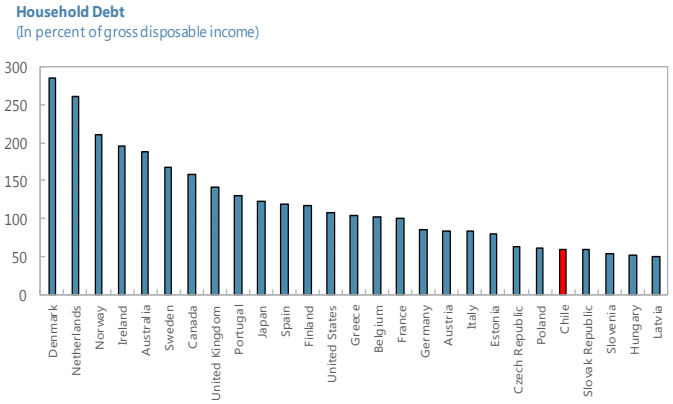
Annex II. A Snapshot of Macro-Financial Linkages

Starting with a balance sheet health checkup of key sectors in the Chilean economy, this box proceeds to estimate the solvency risk of Chilean nonfinancial corporates under an adverse macroeconomic scenario and then examines potential for shock amplification given strong financial linkages between sectors.

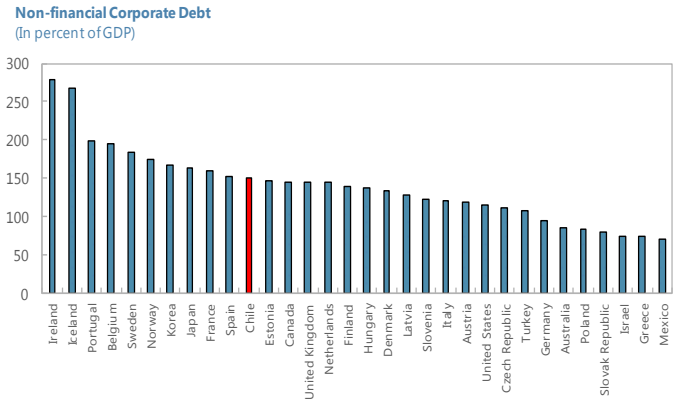
A. Balance Sheet Health Checkup

According to most metrics, balance sheets in key sectors of the Chilean economy appear to be on a solid footing. However, some recent deterioration raises concern about funding stability.

Household debt is relatively low. Despite a sizable increase in the cost of housing (70 percent increase in real, new house prices since 2007Q1) household debt as a share of gross disposable income has remained fairly stable over the past decade (around 60 percent as of end-2015, only slightly higher than it was in 2008–10—see chart). The relative stability of this ratio reflects a solid increase in income over the past decade, as loan growth (particularly mortgage lending) has also been elevated. Household debt remains low relative to advanced OECD countries—whether considered as a share of income, assets, or GDP—but is comparable to levels in many emerging market economies.



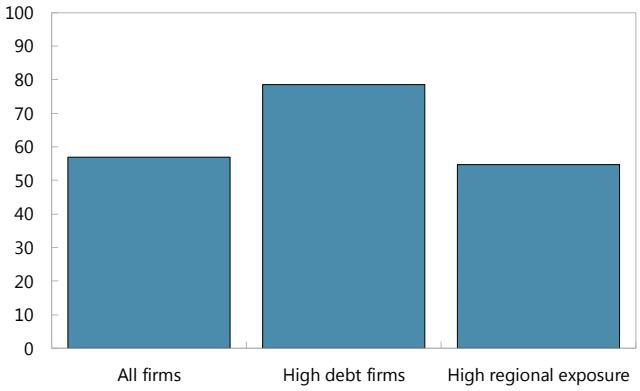
Corporate sector debt is elevated relative to peers. The sector's debt/GDP ratio has increased markedly over the past 5 years, and now stands at around 150 percent of GDP as of 2016Q1 (calculations exclude 'other accounts payable'). This rise partly reflects valuation effects associated with the sharp (50 percent) depreciation of the peso since its peak in 2011. Moreover, between 2013 and 2015, among large listed nonfinancial corporations, the 20 most indebted firms have supplemented internally generated funds with a substantial amount of debt issuance and cash drawdowns in order to finance their investment schedules and dividend payouts. However, several mitigating factors indicate that Chile's corporate debt is less worrisome than the headline figure would suggest. In particular, the maturity structure of existing debt shows little rollover risk in



coming years; the vast majority of debt is issued long-term at fixed interest rates; and finally Chilean firms' interest-coverage ratios compare favorably to those in other economies (particularly EMs).

Foreign-currency debt of NFCs is largely issued in foreign markets, with only 17 percent issued locally. Of the foreign-currency debt issued externally, nearly 50 percent is FDI, 30 percent is bonds, and about 20 percent is loans. In addition, the vast majority of foreign-currency borrowing is done at fixed interest rates, is long term, or is related to domestic bank loans in U.S. dollars to the agricultural sector, for which natural hedges exist. The increase over the past several years—from 40 percent of GDP in 2012Q1 to about 55 percent in 2016Q1—has been dominated by FDI (about 2/3 of the increase) and external bond issuance (about 1/3). Still, firms with high leverage (high debt-to-assets ratios) tend to have more foreign currency debt. However, currency mismatches remain low—estimates suggest that NFC dollar assets minus dollar liabilities and net derivative positions are about 2½ percent of total assets, as of 2015Q3 (a deterioration of around 4 percentage points since 2012Q1).

Foreign Currency Corporate Debt
(Percent of total debt weighted by assets)



Sources: FactSet; IMF staff calculations.

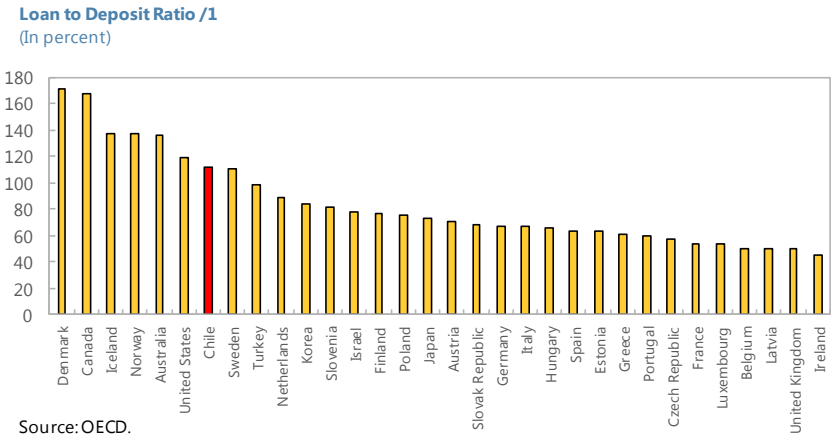
Table: Sample Characteristics of Listed Chilean Firms and Sources and Uses of Flows of Highly Indebted Firms

All firms					
Sample characteristics	2011	2012	2013	2014	2015
Average Asset Size (Millions USD)	1,886	2,189	2,206	2,147	2,014
Average Debt-to-Assets	23.12	22.58	23.70	23.53	25.02
Average Short-Term Debt (Pct. Total)	23.32	21.27	22.48	21.03	19.93
Interest Coverage Ratio	7.87	7.44	11.42	8.00	4.09
Regional Exposure (Pct. Revenues)	15.64	17.23	15.29	15.50	15.78
Highly indebted firms					
Sample characteristics	2011	2012	2013	2014	2015
Average Asset Size (Millions USD)	2,240	3,177	3,418	3,344	3,064
Average Debt-to-Assets	32.59	34.74	38.86	39.11	43.99
Average Short-Term Debt (Pct. Total)	23.32	21.27	22.48	21.03	19.93
Interest Coverage Ratio	9.75	5.68	3.60	2.34	2.47
Regional Exposure (Pct. Revenues)	15.62	18.41	17.69	17.54	19.01
Share of Total Assets	11.96	16.97	18.26	17.91	16.41
Share of Total Debt	30.95	25.02	27.00	27.65	27.04
Regionally exposed firms					
Sample characteristics	2011	2012	2013	2014	2015
Average Asset Size (Millions USD)	9,570	11,373	11,754	11,323	10,473
Average Debt-to-Assets	29.72	29.87	30.68	32.33	31.67
Average Short-Term Debt (Pct. Total)	17.51	24.22	24.22	18.79	17.30
Interest Coverage Ratio	5.35	5.14	4.46	3.85	3.70
Regional Exposure (Pct. Revenues)	43.56	48.47	48.89	55.32	53.18
Share of Total Assets	47.05	50.60	51.57	51.03	49.36
Share of Total Debt	46.61	53.01	53.29	53.65	53.97

Sources and Uses of Funds of Highly Indebted Firms					
	2011	2012	2013	2014	2015
Sources of Funds	2,794	3,363	4,252	3,016	3,568
Funds from Operations	*65*	*55*	*42*	*80*	*67*
Debt Issuance	*19*	*39*	*44*	*9*	*29*
Equity Issuance	*15*	*6*	*15*	*11*	*4*
	100	*100*	*100*	*100*	*100*
Uses of Funds	3,130	3,176	3,483	3,049	4,070
Investment	*75*	*78*	*84*	*83*	*88*
Dividends Paid	*20*	*17*	*13*	*17*	*12*
Other Financing Activities	*5*	*5*	*3*	*1*	*0*
	100	*100*	*100*	*100*	*100*
Fx Effect	-1	-1	-11	-46	-87
Changes in Cash	186	186	758	-106	-590

Source: FactSet; IMF staff calculations. Interest Coverage Ratio = EBIT / Interest Payments. Regional Exposure = Average share of revenues coming from Argentina, Brazil, Colombia, Mexico, and Peru. Of 20 firms, only 14 have reported geographic exposures. Non-reporting firms are taken as "missing" rather than zero. 4/ Share of Total Assets = Total assets of the highly-indebted firms as a percent of total assets in the sample. Share of total debt of exposed firms = Total debt as a percent of total debt of surveyed firms.

Banks in Chile exhibit a relatively high loan-to-deposit ratio. Compared to most emerging market economies, this important measure of funding stability appears elevated, standing at around 110 percent—the ratio is even elevated when considered relative to many advanced economies (see chart). Previous work on this subject (Staff Report, 2014) indicated that although there is considerable heterogeneity across individual banks, Chilean banks as a whole rely heavily on institutional deposits (with mutual funds being the biggest institutional depositor), which raises concerns given that these tend to be more sensitive to market volatility (see also Chilean Central Bank's Financial Stability Reports). In addition, previous analysis suggests that Chilean banks hold a large share of their portfolio in loans, potentially reducing their capacity to absorb idiosyncratic funding shocks. Non-bank financial corporations (pension funds and insurers) have stable debt-to-asset ratios (around 1.2).



Source: OECD.
/1 Includes accounts payable.

Government debt is very low by international standards, but has risen significantly since the end of the copper-price boom. At about 20 percent of GDP, debt is low and well-structured (predominantly long-term). However, this ratio has doubled since late 2010 as spending has increased and tax revenues have not kept pace, in the wake of a marked economic downturn.

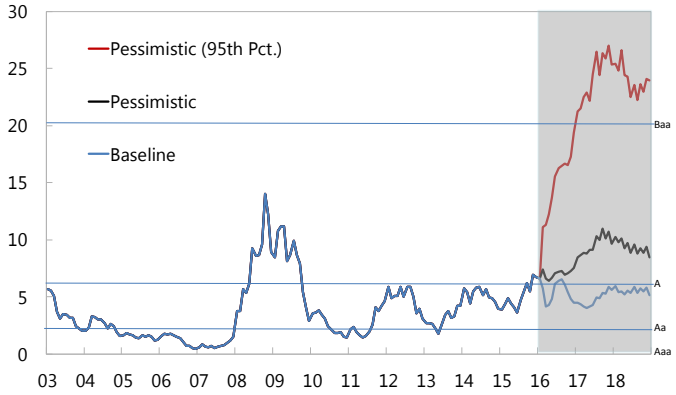
B. Corporate Stress Tests

This section estimates the solvency risk of Chilean nonfinancial corporates under an adverse macroeconomic scenario. To this aim, staff uses a new corporate default database and a Bottom-up Default Analysis (BuDA) tool developed by Duan, Sun, and Wang (2015). BuDA forecasts the empirical distribution of the probability of default (PD) of financial and nonfinancial firms as a function of macroeconomic conditions, firm-specific balance sheet information, and market-based factors.[1] The model is first calibrated using default and other exit data and firm-level financial information, for a large sample of firms from emerging market economies. It then estimates firm balance sheet variables as a function of macroeconomic and financial market variables such as real GDP and interest rates. Finally, it forecasts firm-level probabilities of default (PDs) based on firms' balance sheets. The projected PDs can then be used to estimate the impact on banks' balance sheets.

[1] BuDA uses market and balance sheet data and could provide input for bank stress testing exercises. However, it only measures the credit risk of listed firms and may be sensitive to structural changes.

The stress test assumes three scenarios: baseline, pessimistic, and regional downturn which models a negative shock to the economies of Argentina, Brazil, Colombia, Mexico, and Peru, which are among Chile's largest regional partners. The baseline scenario matches the projections from the Chile desk on real GDP growth, unemployment, and inflation. The pessimistic scenario assumes that real GDP falls by 5 percent over five quarters starting in 2016Q4 and then growth slowly returns to trend. Finally, the regional downturn scenario assumes economic activity in Chile's regional partners falls by 5 percent in the last quarter of 2016 and then slowly returns to trend growth as well. As a consequence, Chile's real GDP growth also suffers, assuming an elasticity relative to regional GDP growth of 0.3. In addition, under the regional scenario, regional equity markets (excluding Chile) fall 47 percent and then recover gradually. All simulations are based on firm data as of the end of 2015.

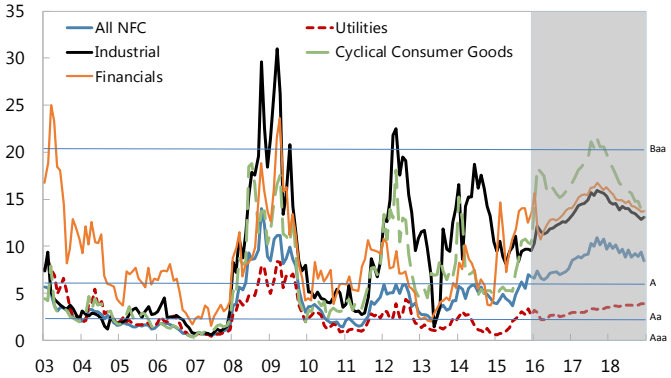
Probabilities of Default: Baseline and Pessimistic Scenarios
(Basis points)



Sources: IMF staff estimates based on BuDA and Moody's rating grades.

Simulation results under the baseline and pessimistic scenarios. The simulations show that, under the baseline scenario, the PDs of Chilean nonfinancial corporations (NFC) remain at current levels, with the median PD showing an implicit Moody's rating of Ba. Under the pessimistic scenario, median PDs within one year are doubled than under the baseline scenario and are close to the levels reached during the great financial crisis (GFC). As expected, firms on the cyclical consumer goods sector see the largest increases in expected default rates under the pessimistic scenario, while utilities firms (including energy and communications) are the most stable. Overall, the increase in the PDs (in basis points) for financial firms is somewhat smaller than that of nonfinancial firms in spite of having been more volatile in the past.

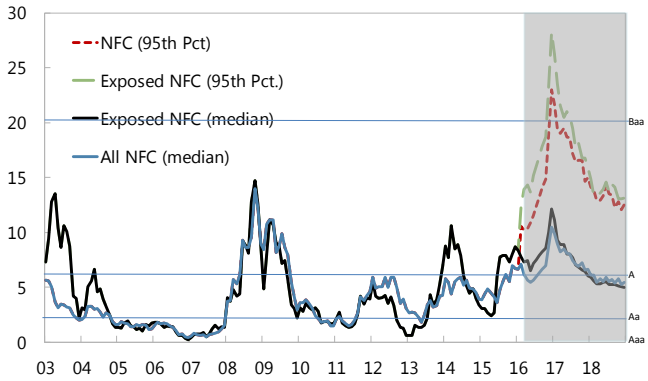
Probabilities of Default by Sector: Pessimistic Scenario
(Basis points)



Sources: IMF staff estimates based on BuDA and Moody's rating grades.

Regional downturn scenario. The regional shock scenario looks at the effect of a regional economic downturn on Chile's listed NFC in general and, in particular, on a subset of 15 Chilean firms for which more than one third of their revenues originate in Argentina, Brazil, Colombia, Mexico, or Peru. The simulated effects of the regional shock are of similar magnitude to those of the pessimistic scenario and affect all Chilean firms, not just those heavily exposed to the region. However, among the Chilean firms with large exposures to Latin America, a small number of them will display PDs, by the end of 2016, close to 30 basis points (which would trigger a credit downgrade), far in excess of what was witnessed on average during the GFC. The effect on banks' provisions of the pessimistic and regional shock scenarios would be significant. Assuming a doubling of the PDs requires a doubling of total loan loss provisions for commercial credit by banks, the required increase in provisions would amount to 1 percent of assets, or 80 percent of annual profits.

Probabilities of Default: Regional Shock
(Basis points)



Sources: IMF staff estimates based on BuDA and Moody's rating grades.

C. Inter-Sectoral Balance-Sheet Linkages

Data on balance sheet linkages across sectors highlight several possible channels of contagion. Non-financial corporates have a large net liability position vis-à-vis the rest of the world (about 40 percent of GDP) (see table), highlighting a possible vulnerability to changes in external funding conditions. Domestic banks have significant net asset claims on households (predominantly mortgages) and NFCs (business loans, of which about 75 percent are in pesos), suggesting that an adverse shock to balance sheets in these sectors could threaten bank capital. Finally, households hold a large amount of assets in pension and insurance companies ('other financial corporates') signaling the possibility of major contagion in the event of large negative shocks to that sector.

Cross-Sector Net Asset and Liability Positions: Net Position of Sector (Column) by Counterpart (Row)

	Central Bank	Consolidated Public Sector	Banks	Other financial corporations	Non-financial corporations	Households	RoW
Central Bank		0.1	12.0	5.3	(0.3)	0.0	(16.8)
Consolidated Public Sector	(0.1)		(4.5)	4.1	-	-	3.6
Banks	(12.0)	4.5		16.2	(11.8)	(12.2)	3.9
Other financial corporations	(5.3)	(4.1)	(16.2)		(11.7)	80.8	(27.2)
Non-financial corporations	0.3	-	11.8	11.7	..		40.0
Households	(0.0)	-	12.2	(80.8)	..	..	
RoW	16.8	(3.6)	(3.9)	27.2	(40.0)	..	

Sources: IMF standardized report forms for monetary and financial statistics (MFS); sector balance-sheet data from Central Bank of Chile; external debt data from World Bank (QEDS); staff calculations.

Relative to other countries in Latin America, cross-sector exposures appear elevated and are complex. NFC external debt is high relative to peers—similar inter-sectoral balance sheet exercises conducted for Mexico and Brazil indicate smaller net liability positions of NFCs in those countries, vis-à-vis the rest of the world (about 22 and 32 of GDP, respectively). In addition, linkages between other financial corporates (pension funds and insurance companies) and banks are significant in Chile, implying an important possible contagion channel in the event of an adverse shock to the banking sector. Given households' large net claims on these other financial corporates (about 81 percent of GDP), any substantial default by the banking sector on its liabilities could ultimately feed through to household balance sheets.

Although cross-sector balance sheet exposures are somewhat elevated, analysis suggests that contagion risks are modest, even for fairly large shocks.[2] Using a network analysis (based on Espinosa-Vega and Sole, 2010) we consider the cross-sector implications of a 10 percent default on liabilities of a given sector. Results suggest that the banking sector is most affected by defaults across a number of sectors. In particular, a default by insurance and pension companies, NFCs, or households on of 10 percent of their debt would reduce banking sector capital by about 28, 53, and 35 percent, respectively. In addition, a 10 percent default by households would reduce OFC capital by about 39 percent (see table).[3]

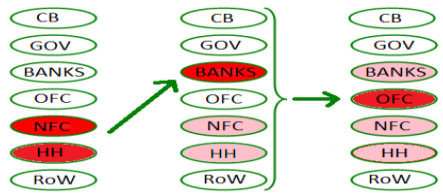
Capital Impairment of Sector (column) Resulting from 10 Percent Default by Corresponding Sector (row)

(Percent of pre-shock capital)

	Banks	OFC	NFC	HH
Public sector	11.3	4.5	0.0	0.0
Banks		1.0	3.6	8.5
OFC	28.3		1.0	1.9
NFC	53.0	0.6		0.0
HH	34.6	38.8	0.0	
RoW	11.9	0.1	3.3	0.0

Given sectoral interconnectedness, larger shocks to the non-financial private sector can lead to cascading failures. For example, a 25 default by both households and NFCs would leave banks—and subsequently OFCs—insolvent (see figure).

Scenario: Cascading Failures Following from 25 Percent Default by NFC and Households



[2] Throughout this contagion analysis, we make the non-trivial assumption that the rest of world, central bank, and public sectors are sufficiently well capitalized that they can withstand any shock to Chile's private sector—as such, their capital loss following a shock to other sectors is not considered in the scenario analysis. We do not think this is contentious for the rest of world or central bank. For the public sector, the strength of its balance sheet also makes this a reasonable assumption.

[3] Approximate shock thresholds which lead to insolvency in a particular sector were also calculated. Analysis suggests that a combined 15 percent default by households and NFC would leave the banking sector insolvent; as would a 20 percent default by NFCs, or a 30 percent default by households.

Annex III. Financing Options of the Proposed Pension Reform

Context. The Chilean authorities are debating options for a pension reform to raise future pension benefits, bring pensions in line with higher life expectancy, and to increase the support for and coverage of minimum solidarity pensions. Simulations using a general equilibrium model assess growth implications while exploring different financing options. In general, simulations show that the proposed reforms improve low-income pensions with some mild impact on GDP growth.

The current system. Chile's pension system is based mainly on a contributory scheme with individual savings accounts, administrated by privately-owned corporations (*Administradoras de Fondos de Pensiones AFPs*). The system was created in 1981 and sought to establish an intergenerationally fair system while reducing the role of the state in social security. It also aimed to raise domestic savings and to provide workers with better pensions. Contribution to the system were set at 10 percent of annual income. For old-age pensions, the minimum retirement age is set at 60 for women and 65 for men. Pensioners with low life time-savings and individuals not covered by the contributory system fall under a publicly-funded solidarity pillar, which currently covers 60 percent of the poor at a fiscal cost of 0.7 percent of GDP per year.[1]

Main issues. A 2015 commission (*Comisión Bravo*) comprising international experts identified several shortcoming of the current system: replacement rates are very low, benefits and eligibility vary significantly by gender, and administrative costs are high although they have declined recently.[2] Because of these factors and population aging the authorities estimate that spending from the solidarity pillar would need to increase by an additional 0.2 percent of GDP per year in the course of the next decade in order to maintain current benefits. The commission also proposes an increase of individual contributions to raise the adequacy of future pensions.

Chile: Median Replacement Rates

	Total	Men	Women
	(in percent of average salary over last 10 years)		
Actual replacement rates (2007-14)			
Self-financed pension (*)	34	48	24
Self-financed pension + public benefit (APS)	45	60	31
Projected replacement rates (2025-35)			
Self-financed pension (*)	15	24	8
Self-financed pension + public benefit (APS)	37	41	34

Source: Comisión Bravo (2015).

Reform. Drawing on the recommendations of the 2015 commission report, the government announced in August plans to: 1) gradually increase contribution rates by 5 percentage points over a 10-year time span; 2) allocate the additional revenue in yet-to-be-determined shares to individual accounts and for solidarity or pay-as-you-go (PAYG) related payments (which improve pensions of current retirees), and 3) reduce costs of the pension fund administration (although, it is still not

[1] Fiscal costs related to pensions exceed expenditures under the solidarity pillar, since the government continues to carry the transition cost between the fully contributory system and the pre-1980 defined benefit system. This cost is projected to decrease from 1.4 percent of GDP currently to below 1 percent in 10 years

[2] High administrative costs were highlighted in a comparative study by the OECD, which emphasized how hidden costs are the main reason for such a finding (Tapia W., J. Yermo, 2008, Fees in Individual Account Pension Systems, *OECD Working Papers on Insurance and Private Pensions No. 27*).

clearly defined what measures will be adopted). The government is not planning to change the retirement age, at the moment.

Analysis. The choice between allocating the revenue from higher contributions between individual accounts and higher current pensions has non-trivial implications on consumption and on whether individuals regard the contributions as a pure tax or forced savings. Because of the different reform objectives—to increase capital accumulation in individual pension accounts and to support low-income old households though a solidarity pillar—a differentiation in funding may be desirable. To gauge the economic effect of alternative funding approaches, we ran model simulations. Our goal is to conduct a positive analysis of the impact of the reform on macro variables over the near to medium run.

The model. We use the IMF Global Integrated Monetary and Fiscal (GIMF) model to simulate the reform and assess its macroeconomic impact. The model features three-region open-economy framework, with Chile, Asia and the rest of the world. Given the importance of analyzing the reform in light of its impact on the labor market, an open-economy framework seems the most appropriate for an economy like Chile. GIMF features agents who behave according to a life-cycle framework (overlapping generations (OLG) agents a la Blanchard Yaari, 1985) and liquidity-constrained households, who have no access to financial markets. Since OLG agents are born and die as workers, we will treat the liquidity-constrained as retirees. This is because, similar to retirees, those agents have a high consumption rate and do not optimize over their life-cycle. For instance, they cannot fully re-optimize their life-time consumption plans after any reform announcement (actual retirees have only limited ways to do that).[3]

Reform simulations. The reform scenarios are nested on a baseline projection that envisages an increase in old-age workers and a pressure towards an increase in fiscal funding for the solidarity pension. Under a baseline with no-policy action an increasing share of lower-income class elderlies will not be covered by the solidarity pensions. The reform's simulations are as follows:

1) The increase in (employer-side) contributions is modeled as a gradual increase in labor tax by 5 percentage points, over 10 years.

2) A fraction of the additional resources from higher contributions (assume 50 percent) will be rebated back to the retirees through solidarity pensions.

3) The remaining fraction (the other 50 percent) will be allocated to an asset (or reduction of debt for the government) and be used for gradually rising transfers in the future (mimicking better future pensions), after 10 model-years (we name this benchmark reform as "mixed-option").

Mixed-option 1 funded by higher contribution rates. Figure 1 displays the impact of the reform on the main macroeconomic variables. The charts plot the percentage differences of all variables

[3] In this version of GIMF, to make liquidity-constrained look more similar to retirees we have turned off their labor supply decisions. In this fashion. their labor income could be seen just as a transfer. Anything that reduced aggregate labor supply and income can be seen as retirees receiving lower solidarity pensions as tax revenue falls. Given that our goal is not a welfare but a macro assessment of alternative reforms, this feature will be relevant.

from baseline. Real GDP declines by slightly more than 0.5 percent by 2021 (0.1 percentage points less growth per year in the first 5–6 years), relative to a no-policy-action baseline, because the pension reform implies higher taxes on labor, lower employment, lower aggregate consumption (due to a fall of OLG/highly contributing agents' consumption) and investment. However, liquidity-constrained agents are better-off than in the baseline as targeted transfers (pensions) raise their consumption. Exports are also lower in the reform scenario as higher labor cost dampens competitiveness, leading to an appreciation of the real effective exchange rate (REER).[4]

Mixed option 2 with alternative funding mix. In an alternative reform scenario, we assume that the government finances the solidarity pillar with a consumption tax, under the rationale that the additional budget spending via the solidarity pillar should be funded from a global base. Figure 2 shows the results when we simulate the reform using a consumption tax (red dashed line) instead of a labor tax as in authorities' proposed reform (blue solid line) to provide the same funding to the solidarity pillar. We find that the impact of the reform on GDP is more muted relative to the reform proposed by authorities. GDP is only about 0.2 percent lower than the baseline by 2021. Raising part of the total funds of the reform using a less distortionary tax reduces the labor cost wedge so that labor supply and investment are less penalized. Funding via a consumption tax also implies less impairments of competitiveness so that exports decline less than in case of the authorities' reform. Consumption of the liquidity-constrained is similar to the case of authorities' reform proposal, since it is still supported by transfers (pensions).[5]

Full option with higher contributions channeled to individual accounts. We analyze the case that the revenue from higher contributions will be used only to finance better pensions in the future, through the existing defined-contributions system. Figure 3 shows the results when funds only go to individual accounts (red dashed line) as opposed to using a part to also finance the solidarity/PAYG pillar as in the mixed option (blue solid line, as in Figure 1). In this case, aggregate consumption is lower over the near to medium run relative to case of the mixed option, given that now higher taxes and less labor income is not compensated by higher pensions for the current retirees. Aggregate savings and interest rates are higher, further discouraging domestic investment.[6] Lower domestic inflation in the short run relative to the case of the mixed option (because of lower domestic demand) leads to an improved REER position and exports are stronger. GDP is 0.7 percent lower than the baseline by 2021, equivalent to about 0.2 percentage points lower growth in the next 5 years.

[4] Given the importance of labor supply response to increase in labor tax, we perform a sensitivity analysis by varying the degree of labor supply elasticity (Frisch). The worst results are under the assumption that the elasticity is double the one in the benchmark calibration. GDP is about 0.8 percent lower than in the baseline by 2021, implying about 0.2 percentage points lower annual growth in the next 5 years.

[5] As a caveat, since the model has no retirees and we have considered the uncovered retirees as the liquidity-constrained households in the model, the alternative scenario implies somewhat higher consumption than under authorities' proposed reform. This is because the liquidity-constrained also received higher labor income under the alternative financing scenario and this effect makes a scenario with less labor tax distortions looking better. In reality, this channel would be weaker, as better labor conditions may imply higher transfers to retirees but the impact is only a second round effect.

[6] The model features a financial accelerator a la Bernanke, Gertler and Gilchrist (1999).

Figure 1. Mixed Option 1: Impact of the Reform on Main Macroeconomic Variables

(% dev from baseline)

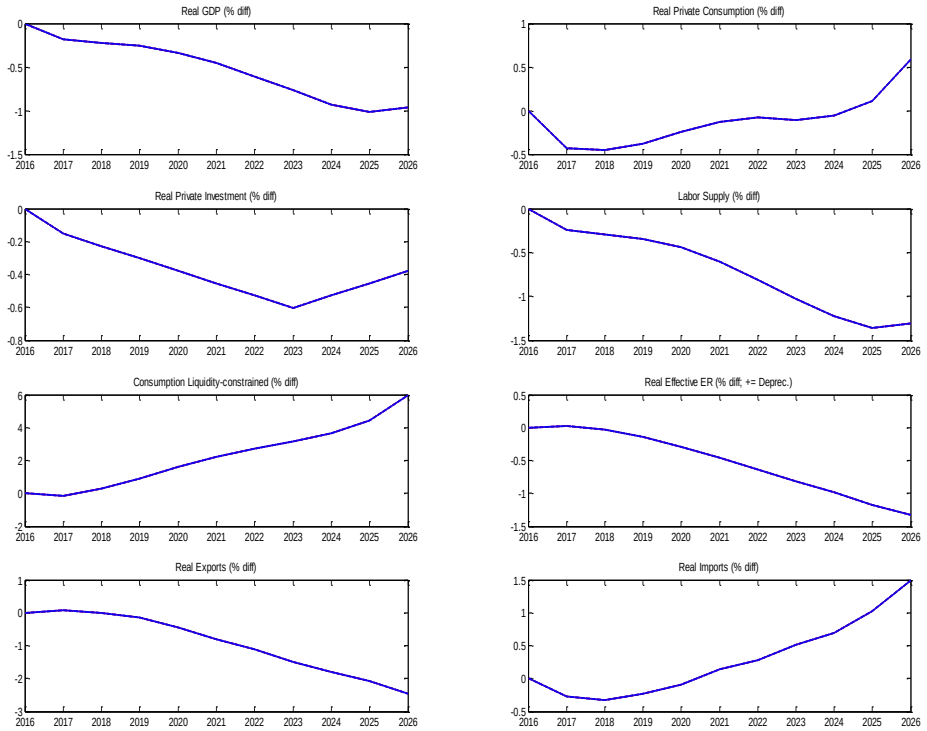


Figure 2. Mixed Option 2: Solidarity Pillar is Financed by a Consumption Tax

(% dev from baseline)

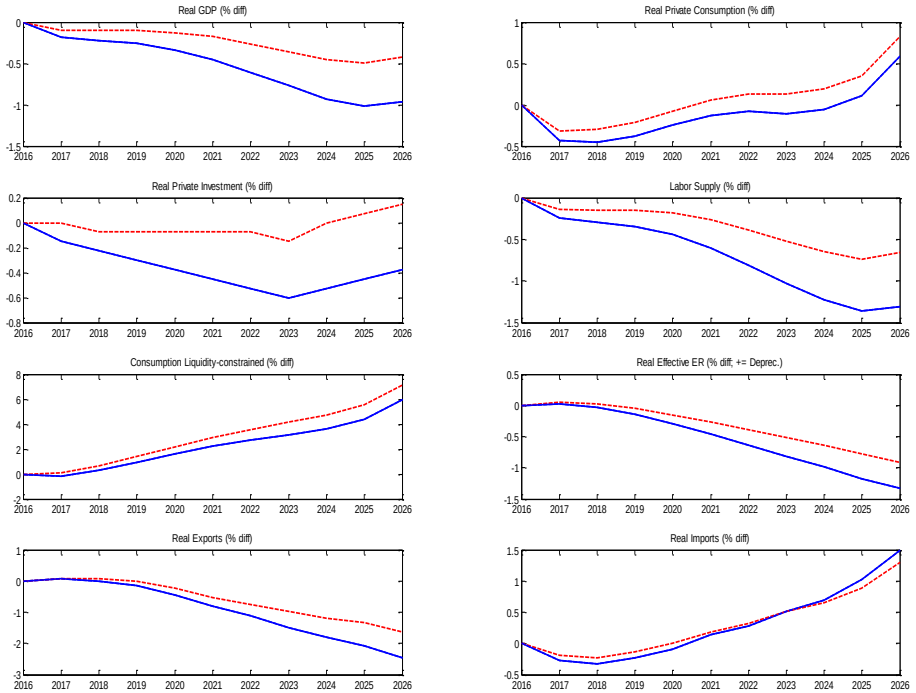
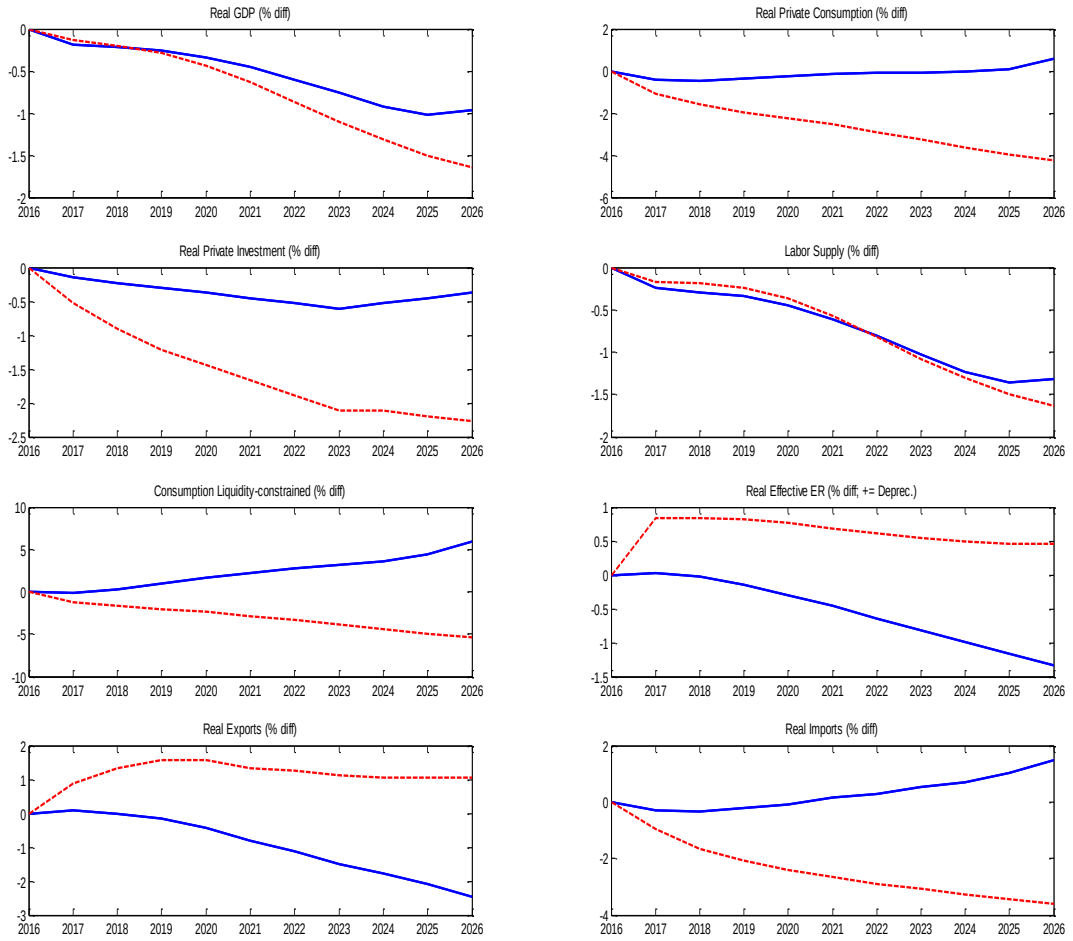
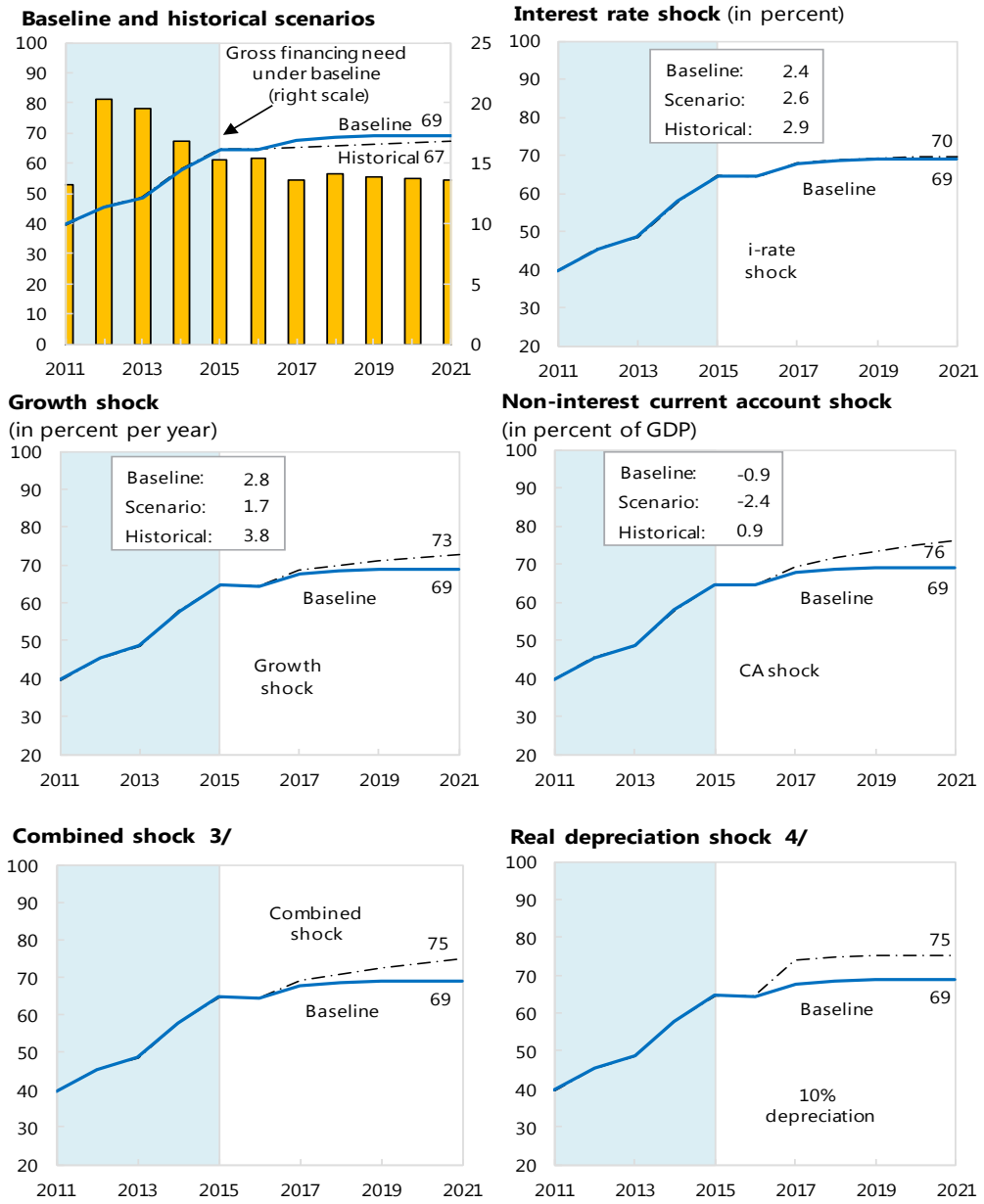


Figure 3. Full Option: Higher Contributions Channeled to Individual Accounts
(% dev from baseline)



	Chile	Overall Assessment
Foreign asset and liability position	**Background**. Chile's net international investment position (NIIP) is expected to remain stable at around –20 percent of GDP in 2016, and is stronger than other countries in the region. Chile has a net negative FDI position reflecting large inflows in the mining sector, and a net positive equity position, with the financial sector (pension funds, mutual funds, and insurance companies) being the main holders of foreign assets. The NIIP is projected to increase by about 10 percentage points in the next few years amid moderate current account deficits (abstracting from valuation effects). **Assessment**. Gross external debt is projected at 65 percent of GDP in 2016, unchanged from this year. External debt remains sustainable under a range of adverse scenarios including to interest rates, growth, and the exchange rate (Figure 1 and Table 1).	*The external position and the exchange rate are broadly consistent with medium-term fundamentals and desirable policy settings. The increase in FX private debt warrants close monitoring.*
Current account	**Background.** Chile's 2016 current account (CA) is projected at -2.2 percent of GDP, significantly improved from 3.7 percent in 2013, reflecting significant peso depreciation (14 percent in real effective terms), marked contraction in investment-related capital imports, and strong imports substitution for intermediate inputs. In terms of savings-investment balance, the national savings ratio would have declined mildly by about 1 percentage point since 2013, against 3 ½ percentage points drop in the investment ratio reflecting lower copper prices, weak global demand, and a fall in business confidence. **Assessment.** At -0.6 percent of GDP in 2016, the cyclically adjusted CA deficit is above the EBA norm of -3.1 percent (40 percent of the distance owes to policy gaps and the remaining 60 percent remains unexplained by the EBA regression, after correcting for the commodity and output cycles). However, model estimates do not take into account the effects of low business sentiment related to the large-scale reform package, which has suppressed investment and imports. Once sentiment improves, the deficit should widen and approach the norm.	
Real exchange rate and competitiveness	**Background**. The Chilean peso has appreciated throughout 2016 both bilaterally and multilaterally (8 percent against the dollar, 6 percent in real effective terms), heavily influenced by financial developments. The stronger peso reflects common market trends favoring emerging currencies (recovery in commodities and search-for-yield behavior on diminished uncertainty about developments in China) alongside country-specific factors (sound macroeconomic fundamentals and policy track record). The peso appreciation has been paralleled by a significant surge in interest rate arbitrage transactions (carry trade) and a recovery in the local stock exchange. **Assessment**. EBA estimates point to a moderate undervaluation of the peso in 2016 (between 5 and 10 percent). However, model estimates do not take into account the effects of low business sentiment related to the large-scale reform package, which have dampened investment and imports. Adjusting for this effect, the Chilean peso is assessed to be broadly in line with medium-term fundamentals and desirable policies.	
Capital and financial accounts	**Background**. The CA deficit is mostly financed from a relatively stable source of FDI net inflows related to mining activities. Chile has been remarkably resilient to the taper tantrum episode, experiencing less capital flow volatility than other EMs. Throughout, the corporate sector has maintained access to external funding. **Assessment**. Chile has a fully open capital account. Vulnerabilities are overall limited by a credible commitment to a floating exchange rate and a strong fiscal position.	
FX intervention and reserves level	**Background**. Chile has a free floating exchange rate regime. The central bank generally does not intervene in the foreign exchange market. Nonetheless, Chile had two recent intervention programs in 2008 and 2011, both aimed at weakening the peso and both based on purchases of USD. The Bank of Chile has 6 months of reserves, which is estimated as adequate according to standard reserve adequacy metrics. **Assessment**. A flexible exchange rate is the first line of defense in a small economy exporting commodities like Chile, with a large exposure to international shocks.	

Figure 1. Chile: External Debt Sustainability: Bound Tests 1/ 2/
(External debt in percent of GDP)



Sources: Fund staff calculations.
1/ Shaded areas represent actual data. Individual shocks are permanent one-half standard deviation shocks. Figures in the boxes represent average projections for the respective variables in the baseline and scenario being presented. Ten-year historical average for the variable is also shown.
2/ For historical scenarios, the historical averages are calculated over the ten-year period, and the information is used to project debt dynamics five years ahead.
3/ Permanent 1/4 standard deviation shocks applied to real interest rate, growth rate, and current account balance.
4/ One-time real depreciation of 10 percent occurs in 2017.

Table 1. Chile: External Debt Sustainability Framework, 2011–21

(In percent of GDP; unless otherwise indicated)

		Actual					Projections						
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Debt-stabilizing non-interest current account 6/
1	**Baseline: External debt**	**39.6**	**45.4**	**48.6**	**57.8**	**64.6**	**64.5**	**67.7**	**68.5**	**68.9**	**68.9**	**68.9**	**-5.5**
2	Change in external debt	0.5	5.8	3.1	9.3	6.8	-0.2	3.3	0.8	0.4	0.0	0.0	
3	Identified external debt-creating flows (4+8+9)	-5.8	-1.9	-0.1	4.0	3.6	-1.4	-1.7	-2.1	-2.5	-2.7	-2.9	
4	Current account deficit, excluding interest payments	0.4	2.3	2.5	-0.2	0.4	0.5	0.4	0.8	0.9	1.0	1.2	
5	Deficit in balance of goods and services	-72.3	-68.2	-64.8	-65.5	-59.9	-57.1	-59.6	-59.9	-60.0	-60.0	-59.8	
6	Exports	37.7	34.0	32.0	33.2	29.9	28.2	29.2	29.3	29.3	29.3	29.3	
7	Imports	-34.5	-34.2	-32.8	-32.2	-30.0	-28.9	-30.5	-30.6	-30.7	-30.7	-30.5	
8	Net non-debt creating capital inflows (negative)	-1.9	-3.2	-1.8	-0.5	-2.2	-2.5	-2.6	-2.8	-2.9	-3.1	-3.3	
9	Automatic debt dynamics 1/	-4.3	-0.9	-0.8	4.6	5.5	0.6	0.5	-0.2	-0.5	-0.6	-0.8	
10	Contribution from nominal interest rate	0.9	1.3	1.2	1.4	1.6	1.7	1.8	1.6	1.5	1.4	1.4	
11	Contribution from real GDP growth	-2.0	-2.1	-1.8	-1.0	-1.4	-1.1	-1.3	-1.7	-2.0	-2.0	-2.1	
12	Contribution from price and exchange rate changes 2/	-3.2	-0.1	-0.2	4.1	5.3	...	...	...	...	...	...	
13	Residual, incl. change in gross foreign assets (2-3) 3/	6.3	7.7	3.2	5.3	3.2	1.2	4.9	2.9	2.9	2.7	2.9	
	External debt-to-exports ratio (in percent)	105.0	133.6	151.6	174.1	216.2	228.4	232.2	234.1	234.8	234.9	235.4	
	Gross external financing need (in billons of US dollars) 4/	**33.1**	**53.8**	**54.0**	**43.6**	**36.9**	**37.4**	**33.0**	**35.7**	**37.0**	**38.5**	**40.2**	
	in percent of GDP	13.2	20.3	19.5	16.9	15.3	15.5	13.6	14.1	13.9	13.7	13.6	
	Scenario with key variables at their historical averages 5/						**64.5**	**65.0**	**65.6**	**66.2**	**66.5**	**67.0**	**-2.4**
	Key macroeconomic assumptions underlying baseline												
	Real GDP growth (in percent)	5.8	5.5	4.0	1.8	2.3	1.7	2.0	2.7	3.0	3.1	3.2	
	GDP deflator in US dollars (change in percent)	9.1	0.2	0.4	-8.3	-9.0	-1.2	-1.6	1.8	2.0	2.0	2.1	
	Nominal external interest rate (in percent)	2.5	3.4	2.8	2.8	2.6	2.6	2.8	2.4	2.3	2.2	2.1	
	Growth of exports (US dollar terms, in percent)	14.9	-4.6	-1.6	-3.2	-16.2	-5.2	3.7	4.8	5.3	5.2	5.2	
	Growth of imports (US dollar terms, in percent)	26.9	4.6	0.2	-8.1	-13.3	-3.3	5.7	5.1	5.1	5.1	5.1	
	Current account balance, excluding interest payments	-0.4	-2.3	-2.5	0.2	-0.4	-0.5	-0.4	-0.8	-0.9	-1.0	-1.2	
	Net non-debt creating capital inflows	1.9	3.2	1.8	0.5	2.2	2.5	2.6	2.8	2.9	3.1	3.3	

1/ Derived as [r - g - r(1+g) + ea(1+r)]/(1+g+r+gr) times previous period debt stock, with r = nominal effective interest rate on external debt; r = change in domestic GDP deflator in US dollar terms, g = real GDP growth rate, e = nominal appreciation (increase in dollar value of domestic currency), and a = share of domestic-currency denominated debt in total external debt.

2/ The contribution from price and exchange rate changes is defined as [-r(1+g) + ea(1+r)]/(1+g+r+gr) times previous period debt stock. r increases with an appreciating domestic currency (e > 0) and rising inflation (based on GDP deflator).

3/ For projection, line includes the impact of price and exchange rate changes.

4/ Defined as current account deficit, plus amortization on medium-and long-term debt, plus short-term debt at end of previous period.

5/ The key variables include real GDP growth; nominal interest rate; dollar deflator growth; and both non-interest current account and non-debt inflows in percent of GDP.

6/ Long-run, constant balance that stabilizes the debt ratio assuming that key variables (real GDP growth, nominal interest rate, dollar deflator growth, and non-debt inflows in percent of GDP) remain at their levels of the last projection year.

Annex V. Public Sector Debt Sustainability Analysis

Table 1. Chile: Public Sector Debt Sustainability Analysis (DSA)—Baseline Scenario

(In percent of GDP; unless otherwise indicated)

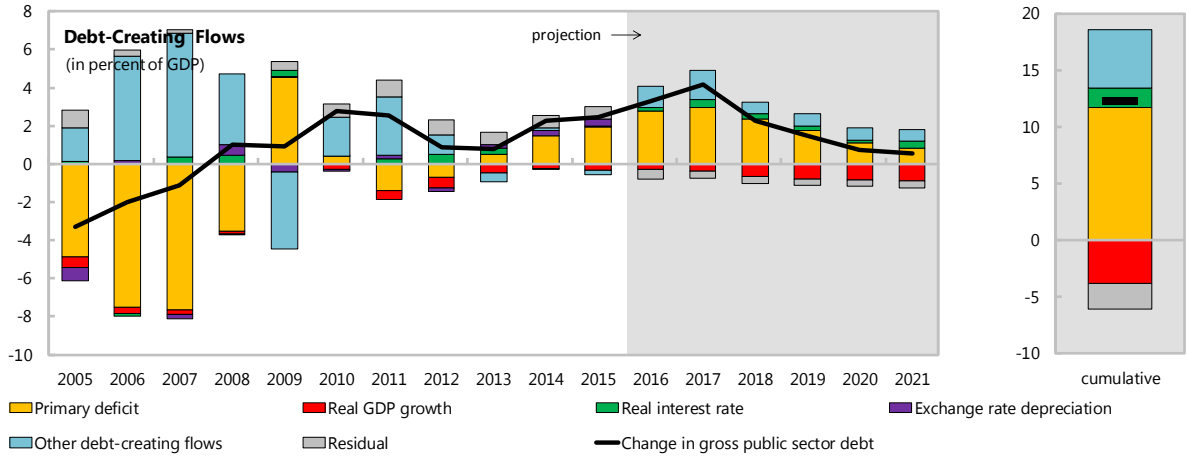
Debt, Economic and Market Indicators [1/]

	Actual			Projections					
	2005-2013 [2/]	2014	2015	2016	2017	2018	2019	2020	2021
Nominal gross public debt	7.9	15.1	17.5	20.8	25.0	27.2	28.7	29.4	29.9
Public gross financing needs	-0.5	3.2	3.8	3.6	4.5	3.8	3.1	3.2	3.7
Net public debt (excludes Pension Reserve Fund)	-7.5	-1.2	0.2	3.6	6.8	9.5	11.5	12.8	14.0
Real GDP growth (in percent)	4.5	1.8	2.3	1.7	2.0	2.7	3.0	3.1	3.2
Inflation (GDP deflator, in percent)	4.9	5.6	4.3	3.3	1.7	2.8	3.0	3.0	3.1
Nominal GDP growth (in percent)	9.6	7.5	6.7	5.0	3.7	5.5	6.1	6.2	6.5
Effective interest rate (in percent) [4/]	9.2	5.2	4.7	4.6	4.7	4.8	4.9	4.9	5.0

As of November 03, 2016		
Sovereign Spreads		
Bond Spread (bp) 3/		185
5Y CDS (bp)		94
Ratings	Foreign	Local
Moody's	Aa3	Aa3
S&Ps	AA-	AA+
Fitch	A+	AA-

Contribution to Changes in Public Debt [1/]

	Actual			Projections							
	2005-2013	2014	2015	2016	2017	2018	2019	2020	2021	cumulative	debt-stabilizing primary balance [9/]
Change in gross public sector debt	0.3	2.3	2.4	3.3	4.2	2.2	1.5	0.7	0.5	12.4	
Identified debt-creating flows	-0.3	1.6	1.8	3.8	4.5	2.6	1.8	1.0	0.9	14.7	
Primary deficit	-2.2	1.5	1.9	2.8	2.9	2.3	1.7	1.1	0.8	11.7	0.1
Primary (noninterest) revenue and grants	22.1	20.3	20.9	20.6	20.8	21.9	22.2	22.2	22.5	130.3	
Primary (noninterest) expenditure	19.9	21.8	22.8	23.4	23.8	24.2	23.9	23.3	23.3	141.9	
Automatic debt dynamics [5/]	-0.1	0.0	0.1	-0.1	0.0	-0.3	-0.5	-0.7	-0.5	-2.1	
Interest rate/growth differential [6/]	-0.1	-0.3	-0.3	-0.1	0.0	-0.3	-0.5	-0.7	-0.5	-2.1	
Of which: real interest rate	0.2	-0.1	0.0	0.2	0.4	0.3	0.3	0.2	0.4	1.8	
Of which: real GDP growth	-0.3	-0.2	-0.3	-0.3	-0.4	-0.6	-0.8	-0.8	-0.9	-3.8	
Exchange rate depreciation [7/]	-0.1	0.3	0.4	...	...	...	...	...	...	...	
Other identified debt-creating flows	2.1	0.2	-0.2	1.1	1.5	0.6	0.6	0.6	0.6	5.1	
Deposits/asset accumulation (negative)	2.1	0.2	-0.2	1.1	1.5	0.6	0.6	0.6	0.6	5.1	
Contingent liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Residual, including asset changes [8/]	0.5	0.6	0.6	-0.5	-0.3	-0.4	-0.4	-0.3	-0.4	-2.3	



Source: Fund staff calculations.

1/ Public sector is defined as central government.

2/ Based on available data.

3/ EMBIG (bp).

4/ Defined as interest payments divided by debt stock (excluding guarantees) at the end of previous year.

5/ Derived as [r - π(1+g) - g + ae(1+r)]/(1+g+π+gπ) times previous period debt ratio, with r = effective nominal interest rate; π = growth rate of GDP deflator; g = real GDP growth rate; a = share of foreign-currency denominated debt; and e = nominal exchange rate depreciation (measured by increase in local currency value of U.S. dollar).

6/ The real interest rate contribution is derived from the numerator in footnote 5 as r - π (1+g) and the real growth contribution as -g.

7/ The exchange rate contribution is derived from the numerator in footnote 5 as ae(1+r).

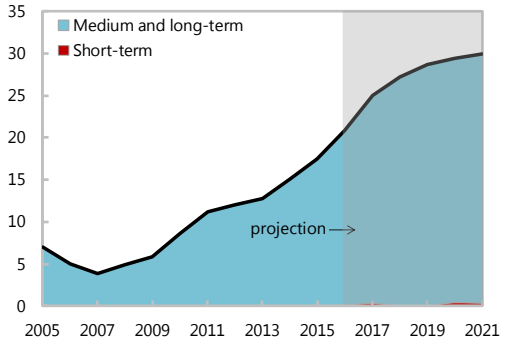
8/ Includes asset changes and interest revenues (if any). For projections, includes exchange rate changes during the projection period.

9/ Assumes that key variables (real GDP growth, real interest rate, and other identified debt-creating flows) remain at the level of the last projection year.

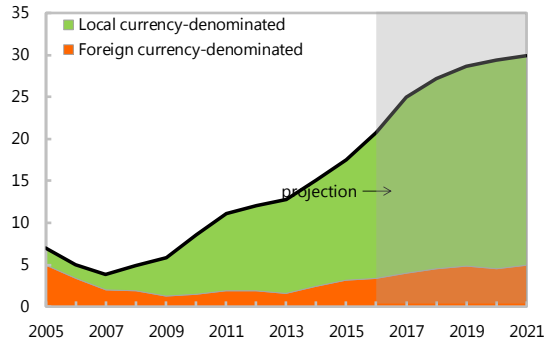
Figure 1. Chile: Public DSA—Composition of Public Debt and Alternative Scenarios

Composition of Public Debt

By Maturity
(in percent of GDP)



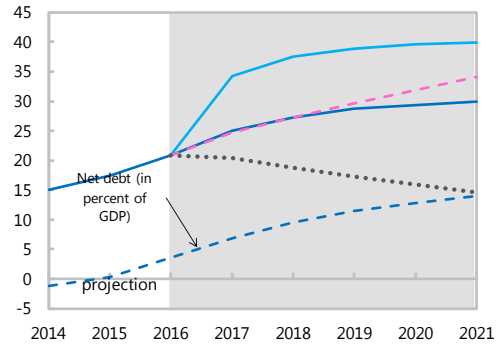
By Currency
(in percent of GDP)



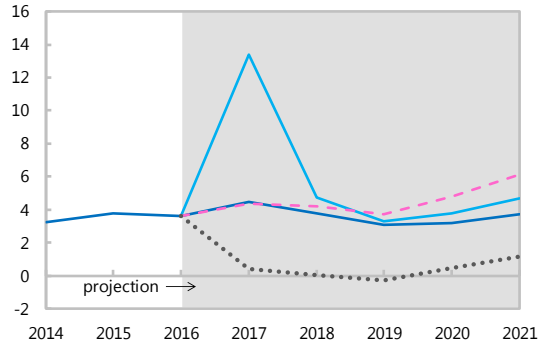
Alternative Scenarios

Baseline
Contingent Liability Shock
Historical
Constant Primary Balance

Gross Nominal Public Debt [1/]
(in percent of GDP)



Public Gross Financing Needs
(in percent of GDP)



Underlying Assumptions
(in percent)

Baseline Scenario	2016	2017	2018	2019	2020	2021
Real GDP growth	1.7	2.0	2.7	3.0	3.1	3.2
Inflation	3.3	1.7	2.8	3.0	3.0	3.1
Primary Balance	-2.8	-2.9	-2.3	-1.7	-1.1	-0.8
Effective interest rate	4.6	4.7	4.8	4.9	4.9	5.0
Constant Primary Balance Scenario						
Real GDP growth	1.7	2.0	2.7	3.0	3.1	3.2
Inflation	3.3	1.7	2.8	3.0	3.0	3.1
Primary Balance	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8
Effective interest rate	4.6	4.3	4.2	4.3	4.6	4.3

Historical Scenario	2016	2017	2018	2019	2020	2021
Real GDP growth	1.7	3.8	3.8	3.8	3.8	3.8
Inflation	3.3	1.7	2.8	3.0	3.0	3.1
Primary Balance	-2.8	1.2	1.2	1.2	1.2	1.2
Effective interest rate	4.6	4.3	4.4	4.6	4.9	4.9
Contingent Liability Shock						
Real GDP growth	1.7	-0.3	0.4	3.0	3.1	3.2
Inflation	3.3	1.1	2.2	3.0	3.0	3.1
Primary Balance	-2.8	-11.5	-2.3	-1.7	-1.1	-0.8
Effective interest rate	4.6	5.2	5.1	5.1	5.3	4.9

Source: Fund staff calculations.

Annex VI. Main Recommendations of the 2015 Article IV Consultation and Authorities' Actions

Fund Recommendations	Policy Actions
Monetary Policy	
Continued monetary accomodation.	Amidst disinflationary pressures and weakening activity, the Central Bank has left the policy rate unchanged at 3 ½ percent since the beginning of the year, and softened its policy guidance in successive policy meetings.
Fiscal Policy	
Starting a process of fiscal consolidation in 2016.	Fiscal policy was expansionary in 2016, but the stance was appropriate given the larger than expected growth slowdown. The 2017 budget has appropriately shifted towards fiscal consolidation.
Structural Reforms	
To minimize the potential for short-term negative effects on growth:	
Ensure that the reform of the labor market improves its efficiency.	Law 20.940 (promulgation August 29, 2016, entry into force April 2017) provides for more balanced industrial relations. However, it also presents legal ambiguities on collective barganing arrangements, possibly giving rise to multi-year judicial processes to settle disputes and elevated implementation costs.
Pursue the education reform with a view to raising the quality of Chile's human capital	Implementation of education reforms has proceeded. Legislative proposals (approved or in train) to reduce seggregation in Chile's primary and secondary school system include law 20.845 on school inclusion; law 20.903 on national teaching policy; law 20.911 on a citizenship training plan; and a draft bill on a new public education system. For tertiary education, law 20.890 grants universal tertiary education (conditional on the availability of public resources), while a draft bill for the reform of tertiary education is currently in Congress.
Clarify procedures of the constitutional reform	A process for moving forward with the constitutional reform has been laid out and a drawn-out consultation process initiated to involve the public in the discourse.
Strengthen public and private sectors' governance and institutions	
Improve corporate governance, investor protection, and market transparency	Pending. This could be achieved, for instance, through the introduction of voluntary stewardship codes.
Mobilize private resources to fill Chile's infrastructure gap, for instance, by an improved PPP framework	A draft bill for the creation of a new Infrastructure Fund is currently in Congress.
Financial Sector Recommendations	
Adopt additional prudential measures if corporate leverage accelerates	Corporate leverage has remained broadly unchanged. The macro-prudential stance has been unchanged since last year, but credit growth has slowed further reducing the need for a tightening.
Pass the General Banking Law (GBL) (Basel III capital standards)	Not passed. Discussions about the adoption of Basel III have been underway since 2013. Proposed amendments to the GBL would bolster the sector's resilience but its adoption could slip into the next administration.
Pass the bill that implements risk-based supervision and new solvency requirements for insurance companies	No passed. The draft law introducing risk-based supervision for the insurance sector is awaiting approval from the Senate since 2013.
Strengthen the supervision of financial conglomerates	The proposed creation of the Financial Markets Commission (FMC) would be an important step towards an integrated view of financial sector supervision that may allow a more effective oversight of financial conglomerates.

Source: IMF Staff.

INTERNATIONAL MONETARY FUND

CHILE

November 23, 2016

STAFF REPORT FOR THE 2016 ARTICLE IV CONSULTATION—INFORMATIONAL ANNEX

Prepared By The Western Hemisphere Department

CONTENTS

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FUND RELATIONS

(As of April 30, 2015)

Membership Status
Joined: December 31, 1945; Article VIII

General Resources Account	SDR Million	Percent Quota
Quota	856.10	100.00
Fund holdings of currency	726.08	84.81
Reserve Tranche Position	130.02	15.19
Lending to the Fund		
New Arrangements to Borrow	138.78	

SDR Department	SDR Million	Percent Allocation
Net cumulative allocation	816.89	100.00
Holdings	745.03	91.20

Outstanding Purchases and Loans
None

Latest Financial Arrangements

Type	Date of Arrangement	Expiration Date	Amount Approved (SDR Million)	Amount Drawn (SDR Million)
Stand-By	Nov 8, 1989	Nov 7, 1990	64.00	64.00
EFF	Aug 15, 1985	Aug 14, 1989	825.00	806.25
Stand-By	Jan 10, 1983	Jan 9, 1985	500.00	500.00

Projected Payments to Fund (in SDR Million)[1]

			Forthcoming		
	2015	2016	2017	2018	2019
Principal					
Charges/Interest	0.03	0.05	0.05	0.05	0.05
Total	**0.03**	**0.05**	**0.05**	**0.05**	**0.05**

Exchange Rate System

Chile has accepted the obligations of Article VIII, Sections 2, 3, and 4 and maintains an exchange rate system free of restrictions on the making of payments and transfers for current international transactions. Chile has a floating exchange rate system.

[1] When a member has overdue financial obligations outstanding for more than three months, the amount of such arrears will be shown in this section.

STATISTICAL ISSUES

(As of July 1, 2015)

Assessment of Data Adequacy for Surveillance	
General: Data provision is adequate for surveillance. The National Institute of Statistics (INE) regularly publishes a full range of economic and financial data. The Central Bank of Chile (CBC) also publishes comprehensive macroeconomic and financial data. The Ministry of Finance publishes fiscal data. Key publicly accessible websites for macroeconomic data and analysis are: National Institute of Statistics: http://www.ine.cl/ Central Bank of Chile: http://www.bcentral.cl/ Ministry of Finance: http://www.minhda.cl/ **Recent Developments:** The Central Bank started to publish housing real estate price data in 2014, and a new series on external debt at market values in 2015 which allows better monitoring and identification of risks. The National Institute of Statistics (INE) has revised the basket and methodology of the Consumer Price Index (CPI) including to address some limitations in the clothing sub-index.	
Data Standards and Quality	
Subscriber to the Fund's Special Data Dissemination Standard (SDDS) since May 17, 1996. In coordination with STA, Chile is in the process to gain adherence to SDSS plus.	A data ROSC was published September 17, 2007.
Reporting to STA (Optional)	
The CBC uses the standardized report forms (SRFs) to report monthly data for the central bank, other depository corporations (ODCs), other financial corporations (OFCs), and monetary aggregates. However, data for the ODCs exclude savings and credit cooperatives and OFCs exclude investment funds, general funds, housing funds, foreign capital investment funds, factoring societies, leasing companies, and financial auxiliaries. The CBC reports all core and 7 of 28 encouraged financial soundness indicators on a monthly basis.	

Chile: Table of Common Indicators Required for Surveillance

(As of July 1, 2015)

	Date of Latest Observation	Date Received	Frequency of Data[6]	Frequency of Reporting[6]	Frequency of Publication[6]	Memo items[7]: Data Quality – Methodological Soundness[8]	Memo items[7]: Data Quality Accuracy and Reliability[9]
Exchange Rates	July 1, 2015	July 1, 2015	D	D	D		
International Reserve Assets and Reserve Liabilities of the Monetary Authorities[1]	June 15, 2015	June 23, 2015	W	W	W		
Reserve/Base Money	June 15, 2015	June 23, 2015	W	W	W	O, O, LO, O	O, O, O, LO, O
Broad Money	May 2015	June 2015	M	M	M		
Central Bank Balance Sheet	January 2014	March 2014	M	M	M		
Consolidated Balance Sheet of the Banking System	January 2014	March 2014	M	M	M		
Interest Rates[2]	July 1, 2015	July 1, 2015	D	D	D		
Consumer Price Index	May 2015	June 8, 2015	M	M	M	LO, LNO, LNO, LO	LO, LO, LO, O, LO
Revenue, Expenditure, Balance and Composition of Financing[3] – General Government[4]	2014	June 30, 2015	A	A	A	O, LO, LNO, LO	LO, O, O, LO, O
Revenue, Expenditure, Balance and Composition of Financing3– Central Government	May 2015	June 30, 2015	M	M	M		
Stocks of Central Government and Central Government – Guaranteed Debt[5]	Q1 2015	June 30, 2015	Q	Q	Q		
External Current Account Balance	Q1 2015	May 18, 2015	Q	Q	Q	O, O, LO, LO	O, O, O, O, O
Exports and Imports of Goods	June 30, 2015	June 23, 2014	M	M	M		
GDP/GNP	Q1 2015	May 18, 2015	Q	Q	Q	O, LO, LO, LO	LO, LO, LO, LO, O
Gross External Debt	March 2015	May 7 , 2015	M	M	M		
International Investment Position[10]	Q1 2015	May 18, 2015	Q	Q	Q		

[1] Any reserve assets that are pledged or otherwise encumbered should be specified separately. Also, data should comprise short-term liabilities linked to a foreign currency but settled by other means as well as the notional values of financial derivatives to pay and to receive foreign currency, including those linked to a foreign currency but settled by other means.
[2] Both market-based and officially-determined, including discount rates, money market rates, rates on treasury bills, notes, and bonds.
[3] Foreign, domestic bank, and domestic nonbank financing.
[4] The general government consists of the central government (budgetary funds, extra budgetary funds, and social security funds) and state and local governments.
[5] Including currency and maturity composition.
[6] Daily (D); weekly (W); monthly (M); quarterly (Q); annually (A); irregular (I); and not available (NA).
[7] Reflects the assessment provided in the data ROSC, (published September 17, 2007 and based on the findings of the mission that took place during April 18-May2, 2007) for the dataset corresponding to the variable in Each row. The assessment indicates whether international standards concerning concepts and definitions, scope, classification/sectorization, and basis for recording are fully observed (O); largely observed (LO); largely not observed (LNO); not observed (NO); and not available (NA).
[8] Same as footnote 7, except referring to international standards concerning source data, assessment of source data, statistical techniques, assessment and validation of intermediate data and statistical outputs, and revision studies.
[9] Same as footnote 8, except referring to international standards concerning source data, statistical techniques, assessment and validation of source data, assessment and validation of intermediate data and statistical outputs, and revision studies.
[10] Includes external gross financial asset and liability positions vis-à-vis nonresidents.

WORLD BANK—FUND COUNTRY-LEVEL WORK PROGRAM UNDER JMAP

Title	Products	Expected Delivery Date*
1. Bank work program	**A. Investment Loans** 1. Chile 2nd Social Inclusion for Shared Prosperity DPL (P158738) 2. Chile - Health Sector Support Project (P161018)	July 2017 July 2017
	B. Technical Assistance 1. Technical Assistance for Geothermal Development in Chile	October 2016
	C. Recipient Executed Trust Fund 1. Sustainable Land Management–GEF (P085621)	September 2014
*Delivery date refers to the Board date in lending projects, to delivery to client in case of AAA and to Grant effective date in case of RETF. Technical assistance includes Reimbursable Advisory Services (RAS).		

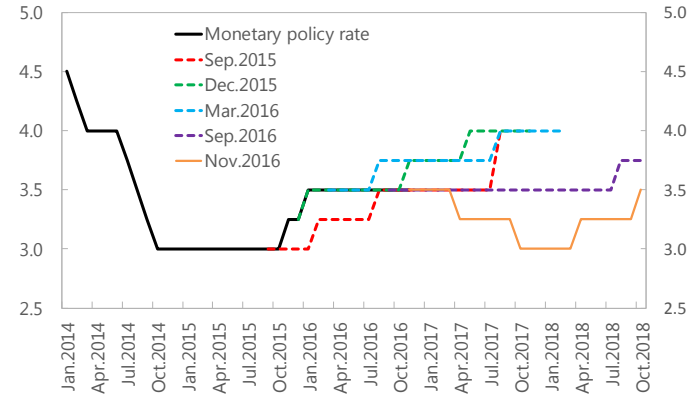
Statement by the IMF Staff Representative on Chile
December 7, 2016

1. This statement reports on information that has become available since the staff report was issued. It does not alter the thrust of the staff appraisal.

2. **Activity remained soft in October due to a contraction in mining**. Chile´s leading economic index IMACEC decreased 0.4 percent year-on-year in October of 2016, following a 1.5 percent rise in September. The mining component declined 7.1 percent while the non-mining index increased 0.3 percent. The latter reflected an increase in services, partly offset by the fall in manufacturing industry.

3. **Markets expect monetary policy to ease.** The November survey of economic expectations showed a shift in expectations. Compared to September, analysts now expect two policy rate cuts in 2017. Inflation expectations for year-end fell by three tenths to 3 percent in November, while remaining stable at 3 percent at both a one- and two-year horizon (BCCh Economic expectations survey).

Monetary Policy Rate and Expectations
(In percent)



Source: Economic Expectations Survey, Central Bank of Chile.

Statement by Mr. Estrella, Executive Director for Chile, and
Mr. Vicuna, Advisor to the Executive Director
December 7, 2016

On behalf of the Chilean authorities, we would like to thank the staff for the Report on the occasion of the 2016 Article IV Consultation. The authorities appreciate the constructive discussions and thoughtful analysis conducted during the consultation process, following the tradition of an open and candid dialogue between the authorities and Fund staff.

Chile's macroeconomic policy framework is based on four long-standing pillars. As a first pillar, the framework includes a structural fiscal rule that takes into account the long-term price of copper and the business cycle. Second, price stability under inflation targeting and a flexible exchange-rate regime implemented by an independent central bank. A third pillar corresponds to a financial system that is well capitalized and adequately regulated and supervised; and the fourth, open trade and financial integration with international markets. Supported by these pillars, the authorities remain committed to sound macroeconomic policies and assign a high priority to continued progress on reforms aimed to achieve higher and more inclusive growth. In pursuing these objectives, they are fully cognizant of the need to carefully weigh the short-run trade-offs involved.

Background and Economic Outlook

In recent years, the Chilean economy has continued to grow, albeit moderately, below its potential. The economic slowdown has been more intense and prolonged than expected, influenced by the end of the commodity super cycle and subdued global growth. The significant fall in copper prices, Chile's main export, from US$ 4.0 in 2011 to US$ 2.5 in 2015, and around US$ 2.15 in 2016, has had a significant negative impact on mining investment, national income, and domestic expenditure. Weak domestic confidence indicators have also delayed a stronger recovery in private expenditure, in particular, non-mining investment.

Medium-term growth estimates have also declined, partly due to the deceleration of aggregate productivity. Additional factors include the lower expansion of the labor force due to demographic trends, and importantly, the weakening of investment in recent years. In this regard, the Chilean economy faces the twofold challenge of transiting through a cyclical adjustment and increasing its capacity for medium-term growth.

The policy mix has played an important role in facilitating the cyclical adjustment, including an accommodative monetary policy by the central bank and fiscal deficits, in line with the fiscal rule and the operation of automatic stabilizers. In turn, a freely floating exchange allowed an

early improvement of the current account deficit, which in 2016 is expected to reach around 1.6 percent of GDP (3.7 percent in 2013).

The ongoing real adjustment implies a resource reallocation from those sectors that benefited from previous high commodity prices, toward those that have become more attractive as result of real exchange rate depreciation. Evidence on relative employment growth in non-mining versus mining zones, higher dynamism in certain agricultural and industry exports and the gradual recovery in non-mining investment confirms that the reallocation of resources is taking place. The economic rebalancing takes time to fully materialize, however, and must be supported by an appropriate policy mix.

The central bank forecasts GDP growth in 2016 within a range between 1.5 percent and 2.0 percent and between 1.75 and 2.75 percent in 2017. Domestic demand is expected to be dampened by a loosening labor market but helped by a gradual improvement in private sentiment and the recovery of investment, while exports are expected to pick-up. A main risk to the outlook stems from China's growth sustainability and its implications for commodity prices and financial markets. Protectionism represents an additional risk for an open economy as Chile. On the positive side, the economy is well placed to take advantage of a global economic upside, considering the absence of macroeconomic imbalances and sound fundamentals.

The authorities coincide with the staff that trend growth has declined in recent years, yet caution that estimates are uncertain and subject to revisions as new data is included. In particular, the recovery in productivity growth could be stronger than projected by staff and closer to long-term averages. The authorities broadly agree on the factors behind declining potential growth and take positive note of the staff's productivity enhancing recommendations.

Monetary Policy

The Central Bank of Chile sets its monetary policy based on a long-standing inflation-targeting framework and a flexible exchange rate regime. The framework has afforded monetary policy the necessary flexibility to respond to economic fluctuations, while preserving inflationary expectations anchored at the 3 percent target within a two-year horizon.

Last July, annual inflation returned to the upper limit of the target band (3 plus/minus 1 percent) and has decreased rapidly thereafter, reaching 2.8 percent in October. The previous period of inflation above the target band was driven by a significant peso depreciation, which has receded during 2016. The transitory nature of an exchange rate shock, the absence of second-round effects from devaluation and well anchored medium-term inflationary expectations have allowed the central bank to pursue an accommodative monetary policy during this cycle. This expansionary policy has been reflected in the low interest rates on central bank bonds and lending rates in the financial system.

In the last monetary policy meeting, the central bank board noted that at short terms, inflation expectations have dropped, but are still well anchored at 3 percent by the end of the projection horizon. In addition, the monetary authorities reiterated their commitment to conduct monetary policy with flexibility, so that projected inflation stands at 3 percent over the policy horizon. Any future changes in the monetary policy rate will depend on the implications of domestic and external macroeconomic conditions on the inflationary outlook.

Fiscal Policy

The fiscal authorities are implementing a gradual fiscal consolidation in order to reach a structural balanced budget position over the medium term, while allowing automatic stabilizers to operate. Accordingly, they are gradually reducing the structural deficit by approximately 0.25 percentage points per year, which in 2016 is estimated to reach 1.7 percent of GDP.

In January this year, the authorities summoned an extraordinary meeting of the committee of experts that define the long-term price of copper used to calculate the structural budget. As a result, the long-term price of copper was reduced by almost 14 percent, increasing the estimated structural deficit for 2016 above the pre-announced objective. In response to lower structural revenues and reaffirming their commitment towards sound public finances, the authorities implemented an extraordinary expenditure reduction, equivalent to 0.25 percent of GDP, mostly on current expenditures.

Congress recently approved the 2017 fiscal budget, with an extended support from all political parties, consistent with the announced fiscal consolidation plan. It considers a prudent expansion of expenditures, equivalent to 2.7 percent, lightly expansionary when compared to the expected GDP growth. Education, healthcare, and citizen security are main spending priorities, while pro-growth public investment remains at historically high levels, around 4 percent of GDP.

Fiscal solvency has allowed the country's risk premium to be among the lowest in emerging markets, with positive effects on financing costs for companies and households. The fiscal authorities agree that maintaining fiscal credibility should be a priority and remain vigilant of the medium-term trajectory of public debt which remains low, although it has increased rapidly in recent years. The authorities also see merit in strengthening the independence and mandate of the Advisory Fiscal Council, but do not see it as an immediate priority in the context of a crowded legislative agenda and already high fiscal credibility.

Financial Sector

The staff finds that financial sector balance sheets are healthy but identifies vulnerabilities from high corporate leverage, household indebtedness, and strong inter-sectoral financial linkages. The authorities do not see significant risks to financial stability originating in the corporate sector, although they note that the real estate sector and SMEs pose pockets of vulnerabilities.

Central bank stress tests find corporate balance sheets to be only mildly sensitive to exchange or interest rate shocks, and that a very large shock to GDP is needed for substantial stresses to emerge. In turn, aggregate household debt ratios continue rising, albeit moderately, in a context of less dynamic output and employment. Although banks' non-performing indicators remain low, a stronger deterioration of the labor market may hinder households' repayment capacity. Any developments on this front are being closely monitored by the authorities.

Bank lending is evolving in line with the business cycle, and non-performing loans remain stable, although with a mild deterioration in the commercial loans portfolio. According to the central bank, the current levels of bank capitalization are sufficient to absorb a severe stress scenario. However, financial buffers have tightened; under a severe stress scenario, all banks remain with a Capital Adequacy Ratio (CAR) above the 8 percent regulatory minimum, but the fraction of banks showing a CAR above 10 percent has declined in recent years.

The authorities coincide with staff on the need to move ahead with the financial sector legislative agenda. In this regard, a new legislation improving the regulatory and supervisory framework for securities and insurance sectors, including the creation of a new Financial Market Commission (FMC), is at the final stage in Congress. As a next step, the authorities intend to initiate the legislative process of the new general banking law (GBL), aligned with Basel III solvency requirements and the objective of a more integrated approach to financial sector supervision.

Reform Agenda

As presented in the Staff Report, structural reforms adopted since 2014 are setting the stage for stronger growth. The authorities remain committed to the educational reform oriented to increase human capital, by improving the quality and access in all levels of the educational system. Reforms to strengthen primary and secondary public education and teachers' careers have already been approved and continue to be implemented gradually, while a new legislation for improving post-secondary education is currently under discussion in Parliament.

An ambitious productivity agenda oriented to enhance the growth capacity and inclusiveness of the economy is also underway. The agenda covers a wide range of legal and administrative initiatives, such as improving workers' skills, expanding firms' access to financing, innovation, productive diversification, energy, infrastructure, state efficiency and competition laws. Measures recently approved by Congress include simplifying procedures for companies, facilitating export services, and broadening financing options for financial companies —among them, insurance and pension fund companies— in non-traditional assets, including infrastructure projects. Also, a new Antitrust law was approved in July. Regarding the energy sector, investment bottlenecks have been lessened and lower energy prices have been secured by successful electricity tenders, with associated cost reductions for the productive sector. In turn, new labor legislation to modernize labor relations within companies was approved in August and will start to be implemented in April 2017. The authorities are currently monitoring and

outreaching companies ahead of scheduled collective bargaining processes to facilitate the implementation process.

Finally, regarding a future pension reform, the authorities agree with the key principles of staff's recommendations and underscore that they are working toward building the maximum consensus amongst stakeholders. They also note that any reform proposal must be carefully evaluated for its implications on growth, though it also needs to generate alleviation for the retired middle class.