ECUADOR

SELECTED ISSUES

October 2015

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ECUADOR

SELECTED ISSUES

September 11, 2015

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ECUADOR: ASSESSMENT OF MACRO-FINANCIAL STABILITY[1, 2]

Ecuador is being hit by external shocks which imply a downward adjustment in growth and financial intermediation. The financial system has been liquid and well-capitalized through 2014, but recently pressures on liquidity positions as well as credit and interest risks have been on the rise. While main financial stability indicators do not show signs of stress in the first half of 2015, the developments warrant close monitoring and rapid reactions if pressures continue.

A. Background

1.   In late 1990s, Ecuador suffered a serious economic and banking crisis, with an economic cost estimated at about 30 percent of GDP. De la Torre, Garcia-Saltos, and Mascaró (2001) argued that the crisis—involving 16 banks out of 40 existing in 1997—was driven by a failure to establish an effective regulatory and supervisory environment in the face of financial liberalization, a credit boom and sudden stop phenomenon, and the exacerbation of financial vulnerability during 1997–98 due to lax fiscal policy and failure to introduce financial reform. Jácome (2004) also discussed the implications of partial financial dollarization in Ecuador's banking system at that time.[3]

2.   In the aftermath of the crisis, in January 2000, the country adopted the US dollar as legal tender. Besides lowering the borrowing costs, full dollarization was expected to reduce the moral hazard (that banks will be bailed out) present in partially dollarized banking systems, as the lack of a lender of last resort encourages changes in the way supervisory and regulatory institutions and banks themselves manage liquidity and solvency risks (see Gale and Vives, 2002). Indeed, the 2004 Financial Sector Assessment Program (FSAP) concluded that full dollarization changed the exposure to macro-financial vulnerabilities of the Ecuadorian banking system. The lack of a lender-of-last-resort facility was in the event seen as minimizing moral hazard and potentially reducing fiscal costs of excessive bank risk taking. Moreover, dollarization eliminated most currency risk; hence banks' direct exposure to currency risk and to the credit risk of un-hedged corporate clients has been dramatically reduced. Absent policy discretion, there was also lower risk of policy mismanagement. However, dollarization imposed important policy constraints that have brought different risks to the financial system. Bank assets are exposed to higher potential losses due to

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[1] This Selected Issue Paper offers a broader perspective of the analysis documented in Annex IV of the Staff Report for the 2015 Article IV Consultation with Ecuador.

[2] Prepared by S. Vtyurina (WHD) and M. Saldias (MCM).

[3] See also Quispe-Agnoli and Whisler (2006) for an analysis of effects of dollarization on the banking systems in Ecuador and El Salvador.

client default since, in the absence of the buffer offered by monetary and exchange rate policies, adjustment to external shocks could take longer. Also, the lack of a lender-of-last-resort leaves banks exposed to systemic liquidity risk, i.e., to potential losses arising from the fire sale of assets in case of deposit withdrawals and higher contagion risk. Of course these are the reasons why moral hazard is lower and banks set aside larger liquidity. The FSAP recommendations thus included strengthening the regulatory framework, supervision, building liquidity buffers, and improving the safety net.

3.   This paper overviews the structure, performance and liquidity management of the banking system since 2007 and assesses its macro-financial stability at present as the economy is hit by severe external shocks. The reason for choosing this period is that, along with some steps to strengthen the resilience of the system under full dollarization, other important changes in the form of administrative restrictions were introduced, which pose important challenges to the stability and liquidity of the system, especially in the presence of external shocks. The paper concludes with advice on how the system's resilience could be strengthened to better withstand risks in the context of full dollarization.

B.   Stylized Facts on the Structure and Performance of the Banking System

4.   Participants: As of December 2014, 25 commercial banks (including one state bank) held about 77 percent of total system credit of about U.S$25 billion, followed by 4 state development banks (17 percent); 4 large mutualists/cooperatives and 9 credit card companies accounted for the remaining 6 percent.[4] There are also about 900 small cooperatives which are supervised separately.

5.   Portfolio: Banking operations are mostly concentrated on lending, financed through deposits, with loan to deposit ratios generally below 100 percent. The credit portfolio (at about 55 percent of total assets as of end-2014) is in large part targeted towards commercial and consumer credit (Figure 1). Up to end-2014, and barring the 2008–09 global financial crisis, credit as a share of GDP has demonstrated a healthy increase from a

Figure 1. Ecuador: Credit Portfolio Composition

Commercial credit 48.7
Consumer credit 34.2
Mortgage credit 8.1
Microfinance credit 7.1
Student credit 1.9
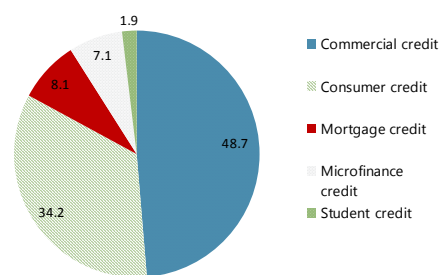
Source: Superindendency of Banks.

Figure 2. Ecuador: Deposit and Credit Growth
(Percent, y/y)

Loan to deposit ratio
Deposit growth (RHS)
Credit growth (RHS)

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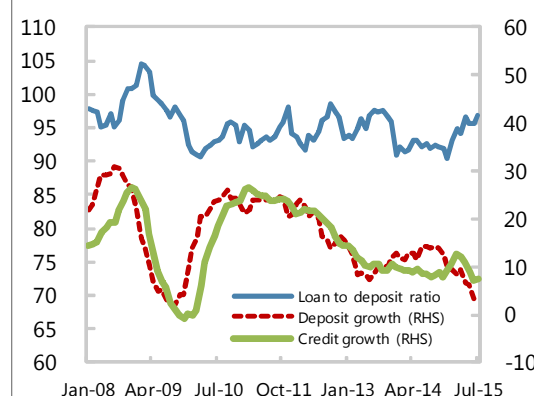
[4] The four largest banks account for about 60 percent of the system's assets.

low level of 22 percent in 2009 to 29 percent by 2014. However, in terms of growth rates, credit provision has progressively slowed since 2012,[5] and has been anemic in the first half of 2015 as banks took caution in expanding their portfolio when deposit growth stagnated as a result of the external shocks, the economic downturn, and the deterioration in confidence (Figures 2, 3 and 4, see also section D). Investment in securities averaged about 15 percent of total assets, with the share of investments in public sector securities doubling to 9 percent over 2007–14. While the credit and securities structure has not changed much since 2007, domestic liquid assets have declined as a share of total assets (from 20 to 15 percent) as banks started to contribute to the Liquidity Fund for the Financial System (FLSF, see below). On the liability side, deposits constituted around 90 percent of total liabilities and this ratio has been fairly stable.

Figure 3. Ecuador: Total System's Assets
(In billions of U.S. dollars)

Source: Superintendency of Banks.

Figure 4. Ecuador: Total System's Liabilities
(In billions of U.S. dollars)

Source: Superintendency of Banks.
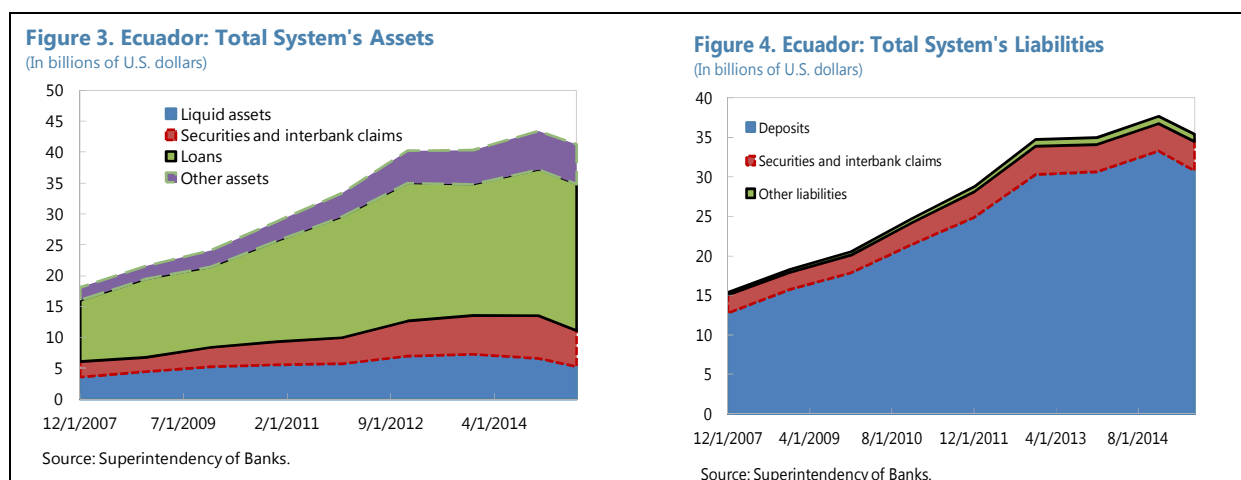
6.   **Operating conditions:** Interest rates are managed by the Central Bank of Ecuador (BCE), which sets ceilings (maximum rates) on all rates (Table 1, Figures 5 and 6). These ceilings have been changed over the years based on the decisions by the BCE in coordination with other government agencies, and are now set by the Monetary and Financial Regulation Policy Board (MFRPB).[6] The effective reference lending and deposit rates are a weighted average (by credit and deposit amounts) of all respective rates, reported to the BCE monthly by all entities (Table 1).[7] As banks have to compete for deposits and loans in this environment, lending rates vary within the administered parameters depending on the size of the bank. Given the recent deposit decline (see section D),

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[5] The Superintendency of Banks (SBS) took measures to reduce consumer credit growth by requiring banks to provision 100 percent on outstanding credit card lines, which caused banks to reduce credit limits to levels more in line with household incomes.

[6] Consists of the Presidency; the BCE; the Deposit Insurance Fund; the Ministry of Coordination of Economic Policy; the Ministry of Coordination of Production, Employment, and Competitiveness; the Ministry of Finance; the Superintendency of Banks; the Superintendency of Companies, Stock Market and Insurance; and the Superintendency of Popular and Solidarity Economy (cooperatives).

[7] By the MFRPB´s Resolution 043-2015-F of March 5, 2015 and 059-2015-F of April 16t, 2015, a new credit segmentation for the Ecuadorian financial market was issued and is currently being, applied delaying the release of some statistics.

banks have slightly raised deposit rates (Figure 7). This has generally implied a compression of banks' margins as lending rates (especially for corporates) are close to or at the ceiling in almost all banks (Figure 6

Table 1. Ecuador: Current and Maximum Interest Rates By Segment and Type					
(Percent)					
Effective Reference Rate	Rate (segment's share in credit)	Maximum Rate	2007-09	2009-10	2010-14
Corporate	8.0 (41.1)	9.3	14.0	9.3	9.3
Enterprises	9.9 (9.8)	10.2		10.2	10.2
Small enterprises	11.02 (8.6)	11.8	20.1	11.8	11.8
Consumer	15.65 (22.4)	16.3	24.6	18.9	16.3
Mortgage	10.4 (3.0)	11.3	14.8	11.3	11.3
Microcredit (wide definition)	22.29 (5.48)	25.5	45.9	33.9	30.5
Microcredit (narrow definition)	25.17 (7.71)	27.5	43.9	33.3	27.5
Microcredit (minority)	27.08 (2.95)	30.5	30.3	25.5	25.5
Reference Deposit Rates			Reference Time Deposit Rates		
Time	5.5	Days 30-60	4.67	Days 121–	6.1
Sight	0.6	Days 61-90	4.6	Days 181–	6.8
Repurchase operations	0.1	Days 91-120	5.8	Days 361+	7.5
Source: Central Bank (rates as of July 2015).					

Figure 5. Ecuador: Banks' Effective Lending Interest Rates by Type
(In percent)
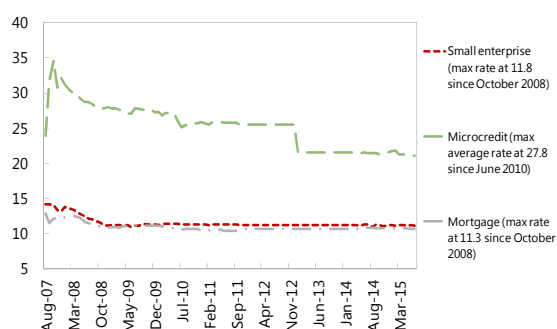
Sources: Central Bank.

Figure 6. Ecuador: Effective and Maximum Corporate and Consumer Lending Rates
(In percent)
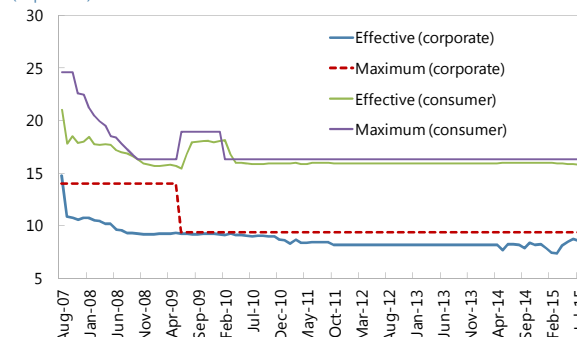
Sources: Central Bank.

Figure 7. Ecuador: Interest Rate Spread
(In percent)
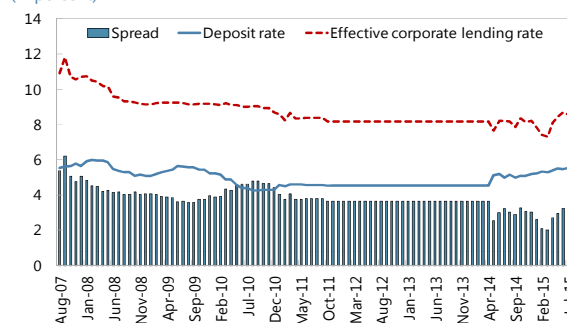
Sources: Central bank; and Fund staff calculations.

7. **Directed lending in mortgages:** The commercial banks' mortgage market is small (Figure 1) in part due to low availability of long-term funding and ceilings on interest rates. The bank of the public pension fund (BIESS) has been a leader in providing mortgages (assets of US$7 billion, close to 7 percent of GDP) at subsidized rates. In part, the dominance of BIESS in the mortgage market is due to its unique ability to collateralize mortgage payments with salaries and to access a stable and large pool of resources, i.e.
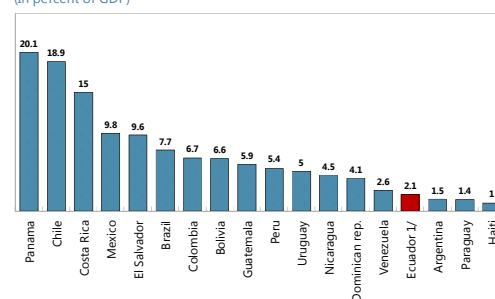
Figure 8. Latin America: Mortgage Credit
(In percent of GDP)

Country	Value
Panama	20.1
Chile	18.9
Costa Rica	15
Mexico	9.8
El Salvador	9.6
Brazil	7.7
Colombia	6.7
Bolivia	6.6
Guatemala	5.9
Peru	5.4
Uruguay	5
Nicaragua	4.5
Dominican rep.	4.1
Venezuela	2.6
Ecuador 1/	2.1
Argentina	1.5
Paraguay	1.4
Haiti	1

Source: Housing Finance Network (data for 2012-13).
1/ Includes lending from BEISS.

pensioners' contributions. In April 2015, the authorities took action to spur credit growth (as a countercyclical policy) but also to raise mortgage financing from low levels in Ecuador (compared to Latin America and OECD, see Figure 8). Indeed the BCE passed a resolution under the Monetary and Financial Code (MFC)[8] that mandated targeting of lending to the construction and housing sectors by commercial banks and cooperatives that provide mortgage financing. This credit is to be allocated in specified amounts on a quarterly basis.[9] These operations will be securitized through a trust and available for purchase by the BCE and other financial entities, including originating banks.

8. **Profitability:** Private banks' profitability has been on a declining trend for a few years, and is lower than in other countries of the region. Profitability has declined over the past few years (Figure 9)—with return on assets (ROA) declining from above 2 percent in 2006–07 to about 1 percent in 2014—as the government eliminated fees and charges on provisions of basic financial services and introduced new tax in 2012 (to finance social spending). The ROA dispersion has decreased over the years, with some banks presenting very low profitability ratios relative to the system (Figure 10). Profitability edged up briefly in 2014, due to higher provisioning by some banks and new service fees introduced by banks (e.g. additional ATM fees, fees for air miles accumulation on credit cards, etc.) as banks tried to make up for lost income.[10] However, it remained the lowest in the region, and it declined again in 2015 (to below 1 percent in July 2015). Gross financial margins as well as operating costs remain high, reflecting high liquidity needs and a high cost of holding liquidity abroad due to high taxes (Figure 11). This is also a result of high provisions due to rigidities in the bankruptcy framework.

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[8] Adopted in 2014, the code was intended to consolidate scattered financial regulation introduced over the last several decades, update some of the outdated features and provisions, and to become an instrument through which modern macro-prudential policy instruments would be introduced.

[9] In 2015, US$420 million has been mandated to be disbursed. Mortgages will be at maturity of longer than 20 years, with a down payment of 5 percent and an adjustable rate of 4.99 percent against comparable market mortgages issues for up to 15 years, at 30 percent interest rate, and 12 percent as down payment.

[10] A maximum ATM fee was set at 50 cents when a customer did not use his own bank's machine and was eliminated if the bank's machine was used. Charges for maintaining checking and savings accounts were eliminated. Maximum fees were established for other financial transactions (issuing credit cards, transfers between banks, etc.). New financial products are now required to be approved by the authorities.

Figure 9. Selected Countries: Return on Assets
(In percentage points)
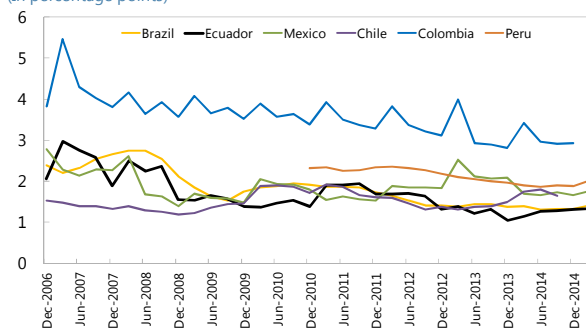
Source: Financial Soundness Indicators

Figure 10. Ecuador: Return on Assets
(In percentage points)
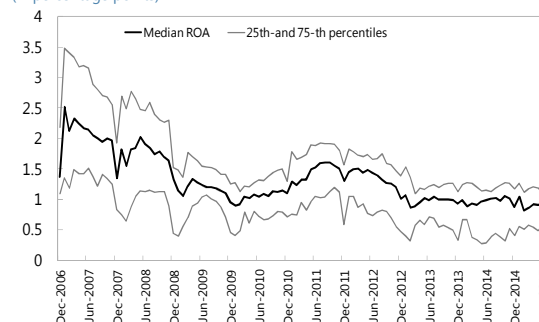
Source: Superintendency of Banks.

Figure 11. Latin America: Selected Financial Indicators, 2014
(Asset weighted average)

Return on Assets
(Percent)
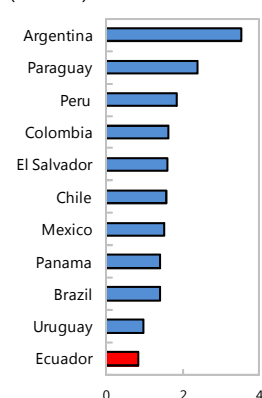
Return on Equity
(Percent)

Gross Financial Margin 1/
(Percent of total assets)
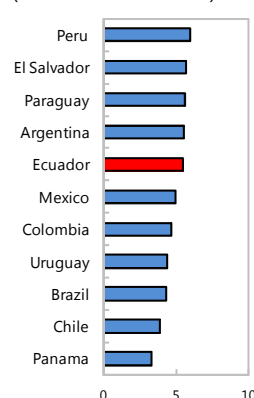
Operating Costs 1/
(Percent of total assets)
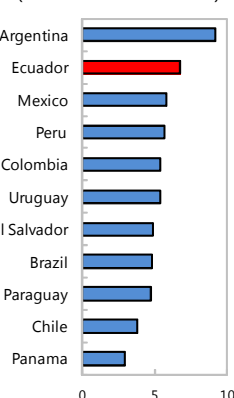
Source: Bankscope.

1/ Operating costs exclude interest; gross financial margin is the net interest revenue.

C.   Main Elements of the Financial Safety Net

9.   Given the lack of a lender of last resort and the inability to issue domestic currency under full dollarization, regulatory liquidity requirements and self-insurance are the main ways to ensure liquidity in the banking system, apart from sovereign credit lines for the purpose of liquidity crisis. For example, Gale and Vives (2002) argued that under full dollarization, the lack of a lender of last resort encourages changes in the way supervisory and regulatory institutions and banks themselves manage liquidity and solvency risks. This is mainly the consequence of the fact that in the absence of such discipline, the system would be prone to instability. At the same time, Chang and Velasco (2000) concluded that full dollarization regime was more prone to bank runs than a currency board. A bank run is possible if the banking system's implicit liabilities (which are in fact obligations in foreign currency) are greater than its liquid assets,

thus creating financial instability. The solution includes creating large pool of liquidity and accessing external lines of credit with banks from abroad, and fiscal reserve funds (see for example, Calvo 2001).

10.   In this respect, Ecuadorean financial institutions are subject to liquidity requirements and also contribute to the FLSF.

Liquidity requirements

- **Legal Reserve Requirement.** This requirement is akin to a regular reserve requirement in a non-dollarized economy. All banks have to deposit 2 percent (reduced from 4 in 2012) of their liabilities (Table 2) at the BCE, and they do not have access to these resources. According to the legislation, the requirement will stay at the current level as long as it "ensures the adequate functioning of the national payment and clearing system", a decision now made by the MFRPB.

- **Minimum Liquidity Requirement (MLR).** This regulation aims at: (i) defining minimum levels of banks' liquidity; (ii) determining the composition of liquid assets; and (iii) supporting the development of the stock market (by requiring investment in domestic securities). Table 2 shows banks' liabilities subject to minimum liquidity regulation and Table 3 indicates the minimum amounts that such liquidity needs be invested in specific instruments. According to the data provided by the BCE, at end-2014, the required MLR corresponds to 18.5 percent of deposits of US$30.5 billion. However, actual liquidity holdings by banks were much higher, at about 33 percent, pointing to the banks' own policies to self insure.

- **Domestic Liquidity Ratio.** To ensure adequate liquidity in the domestic system since the inception of full dollarization and to direct more funds towards productive investment by public corporations, it is mandated that the ratio of domestically held liquidity to total liquid assets should be at least 60 percent (an increase from 45 percent in May 2009).[11] Liquid holdings held aboard are also subject to a tax since 2008 (which was increased from 1 to 3 percent in 2012).

- **Banks are also subject to a tax of 5 percent on transfers abroad.** In order to promote capital inflows, this tax was recently eliminated for transfers associated with bank loans of more than one year for lending to sectors specified in the production code (e.g. housing). In December 2014, financial institutions actually held nearly 80 percent of their liquidly domestically, in response to high cost of holding liquidity abroad. This aggregate coefficient ranges from 76.4 percent for private banks—which have better external access—to nearly 100 percent in the case of cooperative and mutual banks.

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[11] Liquid assets comprises highly liquid assets (lines 1101, to 1105 in SBS balance sheet structure layout), interbank assets (lines 1201 and 1202), securities holdings (lines 1301 to 1307) and line 190286 (Liquidity Fund).

Table 2. Ecuador: Liabilities Subject to Minimum Liquidity Requirement (In percent)		
Liability	**Banks/Credit card companies**	**Mutualists/ Cooperatives**
Interest-earning monetary deposits	25	0
Non-interest-earning monetary deposits	25	0
Monetary deposits from systemically important financial institutions (SIFIs)	25	0
Certified checks	25	0
Savings deposits	25	15
Other deposits	25	0
Cardholders' funds	25	0
Repurchase agreements	25	0
of 1-30 days	25	15
of 31-90 days	10	5
of 91-180 days	5	5
of 181-360 days	1	1
of more than 361 days	1	1
Cashier's checks	25	15
Bonds issued by private SIFIs	1	1
Obligations	1	1
Other securities	1	1
Sources: Central bank and Superindendency of Banks.		

Table 3. Ecuador: Requirements on Investment of Liquidity			
Type of Reserve	**Type of Investment**	**Commercial Banks**	
Domestic reserves	a) Required reserves at the BCE	Minimum: 2 percent	
	b) Deposits in the BCE, BCE securities, securities from public financial institutions	Minimum: 3 percent	
	c) Nonfinancial sector fixed-income securities issued by domestic public entities and acquired on the primary market	Minimum: 2 percent	
	d) Fixed-income securities issued by and originating from domestic entities in the nonfinancial private sector	Minimum: 1 percent	
	e) Cash reserves belonging to the financial institution itself	Until minimum liquidity requirement is reached	
	f) Demand deposits in domestic financial institutions	Until minimum liquidity requirement is reached	
	g) Certificates of deposit from domestic financial institutions of which the remaining time to maturity is no more than 90 days	Until minimum liquidity requirement is reached	
	h) Securities originating from financial system securitization processes	Until minimum liquidity requirement is reached	
	i) Contributions to the liquidity fund	Minimum: 8 percent	
Reserves abroad	j) Rated demand deposits on the international market	Until minimum liquidity requirement is reached	
	k) Rated fixed-income securities on the international market	Until minimum liquidity requirement is reached	
Source: Central bank.			

Liquidity Fund

11.   In February 2009, in line with the FSAP advice, the authorities set up a liquidity fund (FLSF) to improve systemic liquidity risk management.[12]

- **Funding**: The FLSF was created to meet the liquidity needs of those financial institutions which are subject to reserve requirements and deemed solvent. Banks and other financial institutions were initially required to contribute 3 percent of their deposits that were subject to reserve requirements. This amount was increased to 5 percent in 2012, and is scheduled to rise annually, reaching 10 percent by 2017. In July 2015, banks held an equivalent of 8 percent of their deposits in the FLSF, or US$2.3 billion, about 2.3 percent of GDP (Figure 12).

Figure 12 Ecuador: FLFS and COSEDE Assets
(In pecent of GDP)

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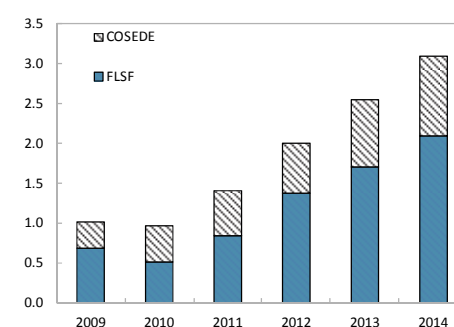
[12] Details available on http://www.bce.fin.ec/documents/pdf/FONDO_DE_LIQUIDEZ.

- **Management and access procedures:** The Deposit Insurance Corporation (COSEDE) is responsible for the operation of the FLSF (see below). The investment of the FLSF's assets is managed by the BCE, its fiduciary. When COSEDE receives a request from a private bank to access its contribution at the FLSF, COSEDE in turn requests the Superintendency of Banks (SBS) to provide an assessment of this bank's liquidity needs; the required collateral is then transferred to the National Financial Corporation (CFN); and thereafter the BCE sends a letter to COSEDE allowing or denying the disbursement of funds. All decisions about the functioning of the FLSF in general are taken by the MFRPB. Since 2014, there are no longer private sector representatives on the COSEDE's Board.

- **Investment:** By the provisions of the MFC, the FLSF assets must be invested "observing the principles of safety, liquidity, diversification and profitability within the framework of the objectives of economic policy and the preservation of deposits". These assets may not be invested in bonds issued by the Ministry of Finance. In line with the regulation, currently the assets are deposited with the Bank of International Settlements and Latin-American Reserve Fund (FLAR). The FLSL assets are the counterparts of the private banks' contributions and cannot be attached to the claims on the sovereign (i.e. used as collateral for international sovereign bonds placed by Ecuador) and cannot be affected by the obligations of contributors, except for the re-payment of loans through the discount window.

- **Types of access:** The FLSF can provide: (1) ordinary loans (with access up to 100 percent of individual contributions over a 1 day period) granted within a line of credit to cover deficiencies in the clearing of the Central Payments System administered by the BCE; (2) extraordinary credits (with access of 50 to 100 percent of individual contributions, with a variable degree of collateral) which may not exceed a period of 365 days; and (3) provide funds to repay the discount window (see above). Resolution #341 states that there can be pooling of funds but collateral has to be 30 percent of bank's technical capital. The terms of liquidity provision are now at the discretion of the MFBRPB. For access of above 100 percent, special collateral requirements have to be met.

Deposit Insurance Scheme

12.   **The FSAP also highlighted that an effective safety net for small depositors would enhance confidence in the banking system.** However, after the resolution of the 1998–99 financial crisis, the Deposit Insurance Agency was not fulfilling its role since it did not provide credible deposit insurance as it used up all of its funds to pay back depositors of liquidated banks.

13. **In line with the FSAP recommendation, COSEDE was created in May 2009**. The new deposit insurance scheme currently insures deposits of individuals and legal entities in the amount of up to US$32,000 per person per financial institution (under the supervision of the SBS). These include sight, savings, guaranteed and restricted deposits held by banks, mutual funds, credit card companies and financial companies. Deposits in cooperatives and credit unions are insured under the Law on Popular and Solidarity Economy. In July 2013, deposit insurance for banks was separated from deposit insurance for cooperatives and credit unions and is regulated by a different entity. The two corporations can cross-lend their funds to each other. The total amount held in COSEDE as of end-2014 was US$1 billion, or 1 percent of GDP, which covers 98 percent of deposits (Figure 12). A fixed fee is paid monthly by banks based on their deposits (6 percent for the year) with 0.5 percent additional depending on the risk of the bank, an assessment made by the SBS. The authorities aim has been to invest the deposit insurance funds in productive domestic assets rather than in low-yielding liquid securities abroad, thus, COSEDE's assets are invested by the BCE mostly in public sector securities (Figure 13). In the case of bank liquidation, collateral is transferred to the CFN and then COSEDE authorizes the BCE (its fiduciary) to disburse funds for payment to depositors.

Figure 13. Ecuador: COSEDE Investment Portfolio
(In percent of total)

Development Bank (BEDE): 9
CFN: 15
Treasury bonds: 55
BCE: 17
Other: 4
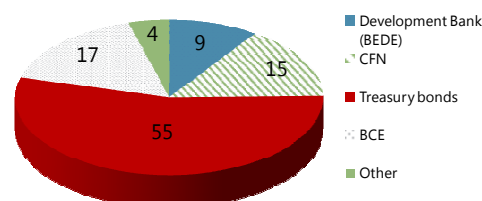
Source: COSEDE (as of June 2015).

Net International Reserves (NIR)

14. **The need for NIR in dollarized economies differs from other countries since the former do not face the risk of exchange rate fluctuations and currency mismatches affecting domestic balance sheets.** In a fully dollarized economy NIR may be viewed as an additional liquidity buffer for both the government and the banking system, as NIR are mainly counterparts of government deposits and banks' deposits, including reserve requirements, at the BCE.

Figure 14. Ecuador: Decompostion of NIR
(In billions of U.S. dollars)

NIR
Local governments
Central government, net credit
Social security, net credit
SOEs
Banks reserves
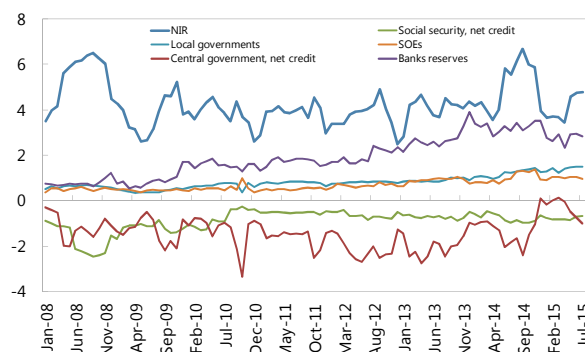
Source: Central bank.

15. **NIR movements have been highly correlated with the movement of central government deposits**. Deposits of the social security agency, local governments and state owned enterprises demonstrate a steady but low growth (Figure 14). Deposits of the central government vary more in line with the disbursement of external borrowing. Commercial banks tend to hold reserves above the legal requirements, and have increased holdings especially after the required domestic liquidity ratio was raised in 2012. Given the recent decline in private deposits and liquidity pressures at banks, banks' own deposits with the BCE have been declining since the beginning of the year. The BCE has been using its "excess" liquidity (defined as cash available after fulfilling monthly operational obligations) to provide credit

to state development banks, with the credit outstanding at about US$1.8 billion as of end-August 2015.[13]

D. Assessment of Financial Stability in a Recent Downturn

16.   As discussed above, Ecuador has been hit by external shocks since mid-2014. This has been followed by downward adjustment in the extent of financial intermediation. The external shocks, and particularly the oil price shock, are reducing the amount of liquidity available in the system. This is a natural adjustment process in a dollarized economy, and can be expected to be reflected in a decline in the rate of growth or in the level of deposits and credit.

17.   Indeed, after an improvement in 2014, Ecuador's financial system conditions have worsened during the first half of 2015. In 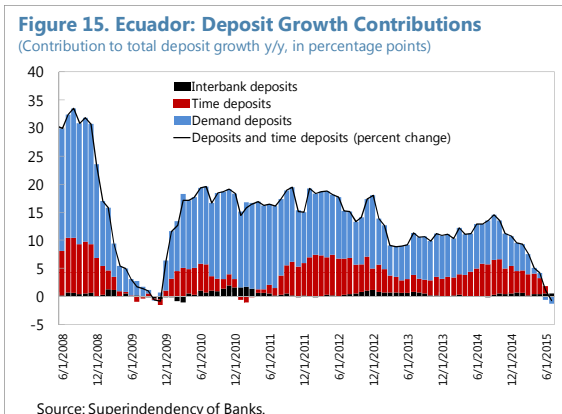2014, financial buffers, such as deposit to loan ratios, profitability and NPLs marginally improved. Capital adequacy ratios continued to be above the legal requirement of 9 percent and Basel's 8 percent, and banks had ample liquidity. However, since the beginning of 2015, deposits, liquidity and credit have progressively declined while the leverage ratio and NPLs have edged up, albeit moderately. In addition, sovereign spreads have increased substantially since end-2014 (by about 800 basis points until July 2015), indicating a much higher risk for government debt which is rated at zero risk under Basel.[14] The following sections offer a description of recent developments, highlighting possible risks (particularly focusing on the key liquidity, credit, and interest rate risks).

Liquidity Risk: Evolution of Deposits, Credit and Liquidity Buffers

18.   Deposit growth decelerated sharply in the first half of 2015, following several years of high growth. From December 2014 to June 2015, total deposits dropped by US$1.9 billion to US$25.7 billion (Figure 15). Growth of private sector demand deposits (70 percent of the total) became negative in June (-0.9 percent), and while this reflects some statistical effect, the downward trend behaves as during the 2009 downturn. Term

Figure 15. Ecuador: Deposit Growth Contributions
(Contribution to total deposit growth y/y, in percentage points)
Source: Superindendency of Banks.

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[13] Article 124 of the BCE Law for the use of "excess" reserves authorizes the BCE to lend to two types of institutions: 1) public financial institutions, and 2) private and "popular and solidarity" financial institutions (e.g. cooperatives, mutual companies, etc.), the latter lending being made against collateral and ultimately guaranteed by the respective contribution in the Liquidity Fund. In contrast to what applies to private borrowers, lending to public financial institutions has no statutory requirement of pledge of collateral. Board Resolution 045-2015 establishes the planned investments of excess liquidity.

[14] The total commercial banking system's credit to the public sector (in the form of securities) is about 7 percent of their assets.

deposits, growing above 10 percent for the last five years, have experienced a sharper slowdown since end-2014, staying flat in July. The deposit decline reflects mainly the adjustment to the economic downturn, but may also reflect confidence-driven shocks.

19.   Banks have responded quickly to deposit decline. They allowed liquid assets to decline by US$1.8 billion between December 2014 and April 2015 (and by 19.5 percent, or US$1.7 billion, between December and July). Since April, banks have also been rationing credit, which declined by almost $0.5 billion between April and July, affecting even the highest quality customers (Figures 2 and 16). Given the higher contraction of deposit growth than credit growth, the loan-to-

Figure 16. Ecuador: Credit Growth Contribution
(Contribution to total credit growth, in percentage points)

Source: Superindendency of Banks.

deposit ratio of the private banking sector started to increase, reversing the 2014 trend. It increased on average from 73.5 percent in 2014 to a historical maximum at 81.7 percent in July 2015, pointing to potential funding pressures in spite of the corresponding slower credit growth.
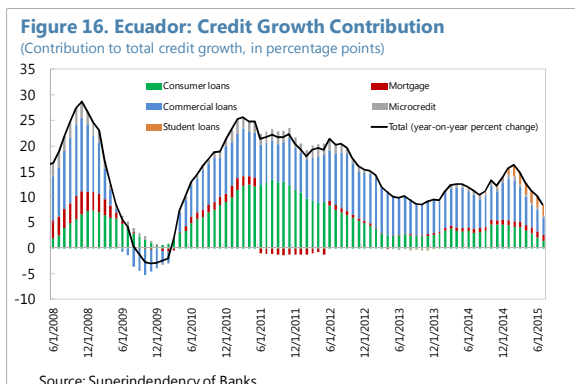
20.   In addition, short-term liquidity in private banks has been declining, in fact, continually since 2008. Short-term liquidity represents around 70 percent of liquid assets; hence short-term liquidity ratios deserve close monitoring (Figure 17). The key ratio (defined as short-term liquid assets to shor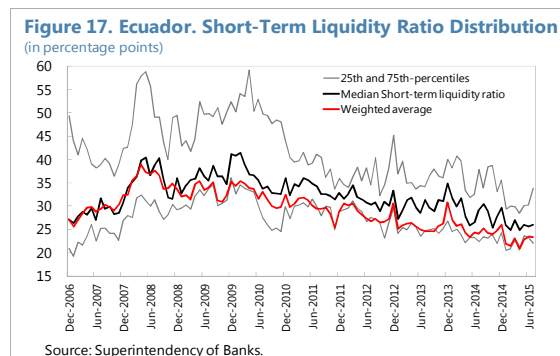t-term liabilities) reached historically low levels in April 2015 (20.9 percent), before slightly recovering (to 23.3 percent) in July 2015.

Figure 17. Ecuador. Short-Term Liquidity Ratio Distribution
(in percentage points)

Source: Superindendency of Banks.

21.   Due to the liquidity cushions accumulated by banks in cash and in deposits at the central bank, the current pace of deposit withdrawal should not cause significant liquidity stress in 2015. A baseline liquidity stress test scenario performed by Fund staff over a six-month horizon shows that if deposits continue to decline at the pace of the first seven months of 2015, and banks can access their liquid assets, no bank would need to access external sources of liquidity—including the FLSF—this year.[15] Obviously, if deposits decline at a significantly faster pace, liquidity needs are more likely to arise. In addition, the liquidity stress test scenarios show that

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[15] The baseline scenario is a mild one and assumes a monthly decline of 1.5 percent in demand deposits and 0.4 percent in term deposits to reflect the average decline registered between December 2014 and July 2015. Based on the following assumptions, the monthly implied liquid assets availability is calculated as the sum of: 100 percent of cash, 95 percent of deposits at the BCE, 80 percent of deposits in foreign and domestic banks and interbank positions, 50 percent of debt holdings and 1 percent of illiquid assets (and it corresponds to about 89 percent of total liquid assets) A faster pace refers to the maximum month-on-month deposits decline recorded in 2015 for each bank.

assumptions about liquidity recovery from deposits held in other domestic banks and especially in government paper play a very important role. The latter is directly linked to the low liquidity of government debt in secondary markets.

Credit risk: Evolution of Non-Performing Loans

22.   Correlation of NPLs with real GDP growth point to potential credit risk during a downturn.[16] While correlation was high between banks' overall NPLs and real GDP over the period 1993–2003 in Ecuador, it is much less so since 2008 (Figure 18). However, consumer and microcredit loans are still highly correlated with real GDP growth, and both their share in the banks' portfolio and their corresponding NPLs are increasing. This suggests that credit risk could rise if the economic downturn persists.
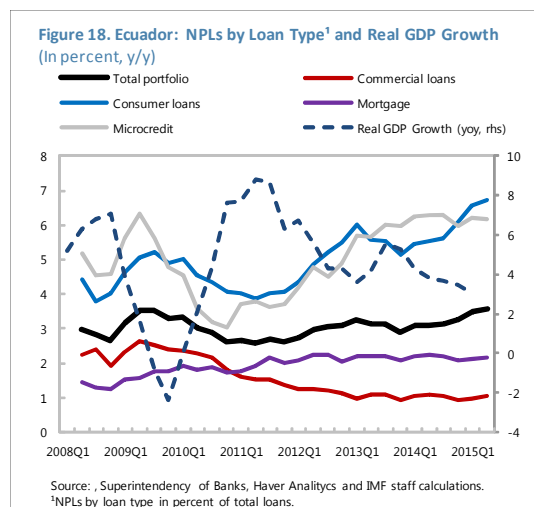
23.   NPLs have edged up in 2015, but they remain reasonably low by international standards in aggregate terms. NPLs in private banks increased from 2.9 in December 2014 to 3.8 in July 2015 and are higher in consumer, microfinance, and education loans. Moreover, their distribution by bank and by loan type now shows that potential losses are unevenly distributed, suggesting that potential credit risks could be more severe in banks with concentrated exposures to specific sectors. Although the general pattern is that smaller banks tend to have larger NPLs, several large and medium sized banks also show high values in some segments (Figure 19).

Figure 18. Ecuador: NPLs by Loan Type[1] and Real GDP Growth (In percent, y/y)
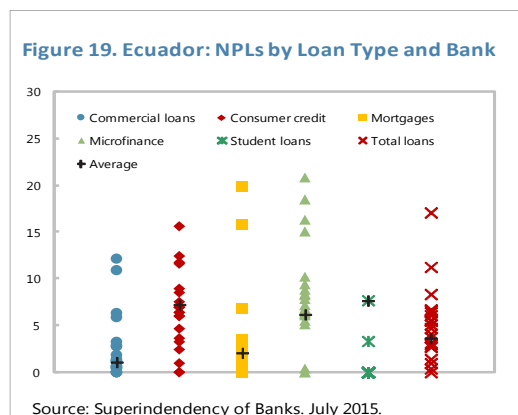
Source: , Superintendency of Banks, Haver Analitycs and IMF staff calculations.
[1] NPLs by loan type in percent of total loans.

Figure 19. Ecuador: NPLs by Loan Type and Bank

Source: Superindendency of Banks. July 2015.

24.   Some banks with larger losses and lower profitability also have a weaker liquidity position. Figure 20 shows that several banks (totaling a non-trivial aggregate asset size) that are experiencing relatively larger non-performing loans and lower return on assets, relative to the system, also face weaker liquidity indicators. **.**

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[16] For empirical evidence on this link see: Mwanza N (2011) "Nonperforming Loans and Macrofinancial Vulnerabilities in Advanced Economies" IMF Working Papers 11/161, International Monetary Fund. and Espinoza, R. and Prasad, A. (2010) "Nonperforming Loans in the GCC Banking System and their Macroeconomic Effects," IMF Working Papers 10/224, International Monetary Fund. Di Bella (2011) "The Impact of the Global Financial Crisis on Microfinance and Policy Implications" IMF Working Papers 11/175, International Monetary Fund provides specific evidence for microfinance loans NPL over the cycle.

Figure 20. Ecuador: Selected Liquidity and Solvency Indicators

Short-term Liquidity Ratio and NPL
(in percent)
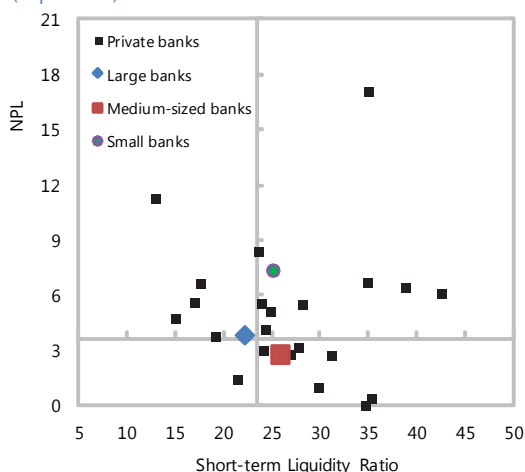
Short-term Liquidity Ratio and ROA
(in percent)
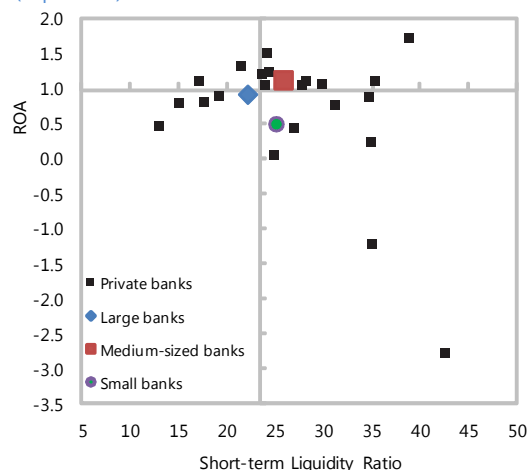
Loans-to-Deposits Ratio and NPL
(in percent)

Loans-to-Deposits and ROA
(in percent)
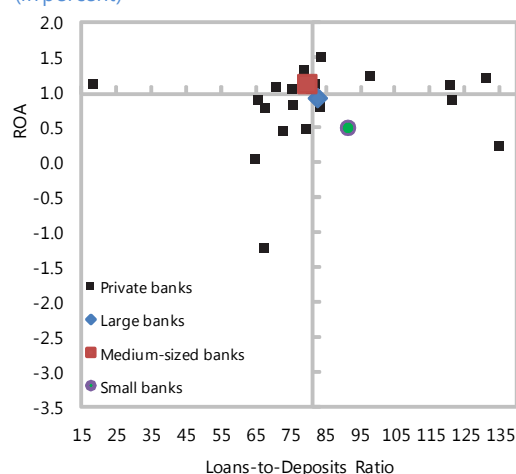
Source: Superindendency of Banks (as of July 2015).

Interest rate risk: Uneven Between Private and Public Sector

25. **Interest rate risk is likely to be more limited for the private domestic financial sector and more prominent for the public sector.** Interest rate risk within the banking sector has traditionally been limited, given the regulatory controls on lending rates. As U.S. monetary policy normalization is expected to raise the international reference interest rates, there may be a pressure to adjust interest rates domestically. However, such pass-through has generally been limited, and interest rate risk should rise mainly to the extent regulated interest rates will be adjusted to reflect international conditions. Nonetheless, the effect of international rates on the terms at which the

government and the private sector can access international funding will certainly be present. Within this context, it is important to note that the sovereign spread has been increasing extensively, as discussed above.

E.   Conclusions and Recommendations

26.   As was the case in 2009, the current external oil shock is testing Ecuador's underlying fundamentals.[17] Main financial stability indicators, including liquidity buffers, do not show signs of stress, but possible lags in responses and the continuing economic slowdown warrant close monitoring of developments, and revisiting any regulations that erodes banks' liquidity positions within the limited options for liquidity support under the dollarization regime.

27.   In particular, supervision of credit risk needs to be heightened, but more so policies should be particularly targeted to ensure liquidity in the system. Some banks with larger losses and lower profitability also have a weaker liquidity positions. Hence, the authorities should remain vigilant and continue to monitor carefully financial trends, particularly if heterogenous developments across banks arise.

28.   If liquidity pressures persist, the authorities should consider the following actions:

- *Reduce banks' reserve requirements at the BCE.* This will release additional funds to banks.

- *Stand ready to provide prompt support with the Liquidity Fund.* Within this context, regulations should explicitly outline the speed and confidentiality of access to the FLSF in order to enhance confidence. It should also be clarified that the assets of the FLSF will continue to be invested only in highly rated international securities, as is the case at present, dispelling public concerns resulting from overlapping regulations on the matter.

29.   Going forward, eliminating distortions and building buffers will make the system more flexible and resilient in responding to shocks. Current policies that affect liquidity—interest rate ceilings, lending by the BCE to the government and state corporations, and directing private credit towards mortgages—should be revisited. Policies that affect banks liquidity management such as the domestic liquidity requirement should also be modified; and compostion of the COSEDE assets should be revisited. At the same time, more buffers will help cope with risks.

- *Gradually eliminating the interest rate ceilings would allow not only to compensate banks for higher risk taking but also bring in those borrowers who were priced out of the market under the current caps thus bolstering financial inclusion.* While some segments (e.g. corporate credit) until recently have been considered to be adequately priced, maximum interest rates in other credit segments may not sufficiently reflect credit risk. Elimination of ceilings would also allow banks

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[17] See 2015 Selected Issues paper "Ecuador: Comparing Economic Effects of External Shocks, 2008−09 and 2014−15".

some margin to increase deposit rates in the context both of declining deposits and the expected U.S. monetary policy normalization, boosting banks' profitability and possibly retained earnings thereby improving capital and liquidity buffers. To mitigate any risks associated with the liberalization of interest rates, introducing risk management tools should be considered such as tailoring concentration limits, adjusting sectoral risk weighted capital requirements, and monitoring loan-to-value ratios and credit gaps.

- *Gradually reduce the rate of the requirement to hold a portion of the liquidity in public sector securities, including the BCE.* This requirement exposes banks to illiquidity risk as there is no active market for trading these securities.

- *Provision of credit by the BCE to public corporations should be discontinued over time so as not to put pressure on the BCE's liquidity and to safeguard banks'deposits.* In the short-term, credit provision should be closely linked to the conservative scenarios of potential liquidity needs of the BCE, to ensure that the BCE's obligations with both private banks and the public sector can be fulfilled on demand.

- *The implications of the special advantage of the public mortgage bank should be reassessed and the recent requirement to direct lending to the mortgage sector by private banks should be discontinued.* An unlevel playing field in the mortgage market distorts competition as discussed above. While is not uncommon to have state development banks channel public sector funds at preferential rates to lower income segments of the society, a leveling of the playing field is advisable. At the same time, mandated activity in private commercial banks is better avoided, as this may undermine banks' risk assessment, profitability, and security of private sector deposits, and crowd out credit to other sectors.

- *The long-standing domestic liquidity requirement on banks should be reconsidered, or at least its rate reduced.* This affects the quality of banks' liquidity as it requires banks to hold substantial liquidity domestically, either at the central bank or in domestic debt instruments which are generally not adequately liquid, thus impairing banks' optimal liquidity management (by limiting how liquid, diversifiable, and safe is the liquidity portfolio), especially for small banks.

- *The composition of the COSEDE assets should be re-targeted away from overexposure to public debt.* COSEDE is heavily exposed to public debt and other domestic assets for which there is not an active secondary market. Best international practices suggest investing these funds in high quality securities, to ensure their liquidity and safety. It is also adviseable that the cross-borrowing arrangements between the two deposit insurance funds (for private banks and cooperatives) are discontinued.

- *Deeper liquidity buffers would help cope with idiosyncratic and systemic risk.* Allowing banks to deepen their liquidity and to choose optimally its allocation is the first line of defense against idiosyncratic shocks. At the same time, continuing to build the liquidity fund (as well as deepening fiscal buffers) would strengthen the resilience of the financial system to systemic shocks.

- *To be prepared for shocks, it would also be important to verify that the resolution framework is adequate.* This should cover not only legal aspects but also institutional arrangements and administrative responsibilities.

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ECUADOR'S EXTERNAL SECTOR ASSESSMENT[1, 2]

The country has been hit by significant external shocks, which have weakened its external position and led to an overvalued real exchange rate. The fall in oil prices has reduced export and fiscal earnings, and the appreciation of the dollar has led to heightened concerns about the country's competitiveness relative to its trading partners and regional neighbors. As a result, the authorities will need to regain competitiveness—including by facilitating further relative wage and price adjustments and enhancing productivity— while creating fiscal space and improving access to credit. This chapter assesses these developments using a range of indicators to examine the country's external position— current account, real exchange rate, capital flows, international investment position, international reserves, and competitiveness rankings. In addition, wages and prices relative to other countries, as well as market share data indicators are reviewed. The analysis also draws on Fund research regarding the relationship between growth and the diversification and complexity of the country's exports, and on an open economy model designed to estimate Ecuador's current account norm.

1.   **Fund metrics indicate a current account imbalance in 2015, and over the medium term the current account deficit (CAD) is expected to remain above the historical average since 2000 (which was about 0) due to weaker competitiveness**. The CAD was small over the last few years and in 2014 it was at 0.6 percent of GDP. The sharp decline in oil prices since late last year, coupled with a sizable real exchange rate appreciation, is placing significant pressure on Ecuador's current account. Even when offset by the compression of imports following the imposition of surcharges, scaled back public spending, and economic slowdown, the CAD is projected to widen to 2.6 percent of GDP in 2015.

2.   **Two standard Fund methodologies (the EBA-lite current account and external sustainability approaches) suggest that the CAD is somewhat wider than warranted by fundamentals**.[3] The EBA-lite exercise is an extension of—and based on—the External Balance Assessment (EBA) exercise, which is a successor to the IMF Consultative Group on Exchange Rates

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[1]This Selected Issue Paper offers a broader perspective of the analysis documented in Annex II of the Staff Report for the 2015 Article IV Consultation with Ecuador.

[2] Prepared by Phil de Imus (SPR), Carlos Goes (WHD), Bin Grace Li, and Ricardo Marto (both RES).

[3] These estimates are sensitive to key parameter assumptions. In particular the EBA-lite current account model estimates a large constant which contributes by about -4 percent of GDP to the current account norm. The large constant suggests the model cannot explain the average excess of investment needs over saving needs across the significant number of emerging and developing countries present in the estimation. Since it is unclear the extent to which such "ignorance" of the model applies to Ecuador, the constant was not included in the calculation of the norm.

(CGER).[4] The CGER and EBA methodologies have been developed for a small set of advanced economies and emerging markets; however, the EBA approach differs from the CGER one in that it takes into account a much broader set of factors—including policies, cyclical conditions, and global capital market conditions—that may influence the CA (and the real exchange rate).[5] EBA-lite extends the EBA methodology to a broader group of countries that are not covered by EBA, particularly to other emerging markets and lower income countries. Like the other approaches, the EBA-lite methodology for the current account is based on panel regression analysis (ECA) and on an ECA and EES methodologies.

Current Account Balance vs. Model Norms (Percent of GDP)

Actual/projected — MB (CGER inspired) — EBA-lite ES — EBA-lite CA — OEM

Source: IMF WEO database and staff estimates
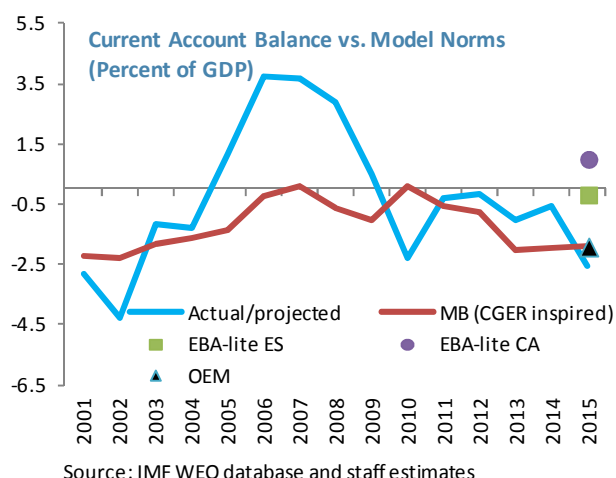
3. **Two other Fund methodologies, the CGER-inspired macro balance (MB) and one that uses a small open economy model (OEM), point to smaller gaps between the CA projection and norms (see Table 1)**. The CGER-inspired approaches are variants of the CGER methodologies, applied again to a wider set of countries than those cover in CGER (see Table 3 for the regression results).[6] Hence the main difference between the CGER-inspired approach and the EBA-lite one is that the second one accounts for a much broader set of factors. The OEM approach is based on the simulation of the theoretical short-term adjustment of the current account consistent with the inter-temporally optimal response of the economy to the oil shock (see Box 1).

4. **However, none of these methodologies takes into account that the 2015 current account would be larger (probably by more than 1 percent of GDP) in the absence of import surcharges**. Hence the current account is substantively worse than warranted by fundamentals and desirable policies (notably, without surcharges)—in a range of 1 percent to 4 percent of GDP. Staff projections indicate that in the absence of a recovery in competitiveness, the current account deficit will remain well above historical standards over the medium term.

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[4] For a description of the EBA methodology, see Phillips, S. et al., "The External Balance Assessment (EBA) Methodology", December 2013", IMF Working Paper No. 13/272. For a description of the CGER methodology, see Lee, J. et al., "Exchange Rate Assessments: CGER Methodologies", April 2008, IMF Occasional Paper No. 261. The EBA-lite methodology will be described in detail in a forthcoming IMF working paper.

[5] Additionally, the EBA approaches make a sharper distinction between a positive (descriptive) understanding of the CA and real exchange rates and normative evaluations.

[6] The CGER-inspired approaches used in this chapter are taken from an internal IMF exercise that updated the analysis done in Lee et al. that was conducted by Francis Vitek, Ruo Chen, and Cristina Constantinescu in April 2015.

5.   The real effective exchange rate (REER) appreciated strongly since mid-2014 and is now stronger than medium-term fundamentals and desirable policies, by about 10 to

30 percent. The REER appreciated by about 16 percent from June 2014 to June 2015 as the currencies of trading partners weakened against the U.S. dollar. The three Fund metrics relying on CPI-based-REER indices (EBA-lite real exchange rate, CGER-inspired real exchange rate, and purchasing power parity methodologies) offer evidence of substantial overvaluation as of the latest REER data in 2015 (see Table 1). The EBA-lite and the CGER-inspired real exchange rate methodologies (ELRER and ERER, respectively) correspond to the aforementioned approaches, but apply to the real exchange rate

Source: IMF WEO database and staff estimates

rather than the current account. The purchasing power parity calculation (PPP) simply evaluates the historical average since 1980. Again, we then calculate the gaps between the actual real exchange rate in June 2015 and the one implied by each of the four methodologies (see Table 1).
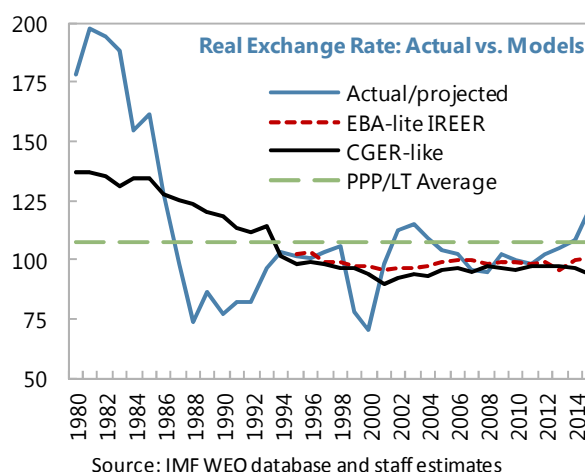
6.   A separate approach based on a panel regression of PPP GDP price levels on PPP GDP per capita (both World Bank series) offer consistent evidence. The level of Ecuadorean prices relative to the U.S. was not found to be out of line with model predictions in 2014.[7] The model uses a panel of the World Bank's internationally-consistent PPP GDP price level data relative to the U.S. regressed against per capita GDP relative to the U.S. Five regression specifications are adopted (pooled, random effects, fixed effects, pooled with time effects, and fixed as well as time effects; see Table 4 for the regression results). In order to derive an

Source: World Bank, IMF WEO database and staff estimates

assessment for 2015, we employ the 2015 projection for GDP per capita and assume that relative price levels rise in the same fashion as the REER appreciation from 2014 to mid-2015. We then average the resulting gaps between the price level in 2015 and the one implied by the 5 models. The result (GDPR, see Table 1) indicate that the price level for Ecuador is higher than predicted by the model.

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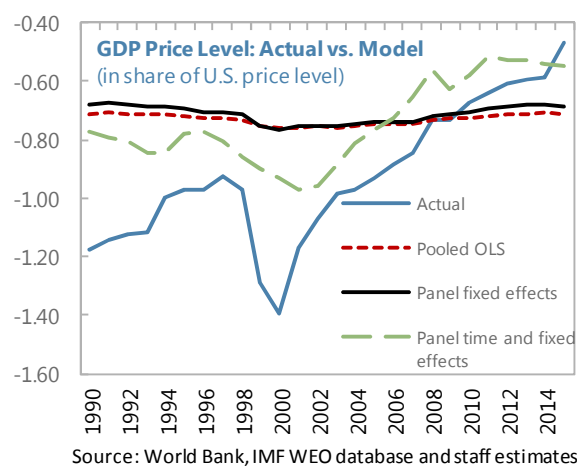
[7] The results are not very different across specifications. The absence of fixed effects allows a full price level comparison across countries, something not feasible with CPI-based REERs; introducing the fixed effects shows whether results would change substantially when considering a possible omitted variable bias.

Table 1. Ecuador: Real Exchange Rate Assessment Results for 2015 (In Percent) 1/

	CA Norm	NFA	NFA-stabilizing CA	Underlying CA	Gap	Elasticity	Misalignment
Macroeconomic Balance Approach (MB)	-1.9			-2.6	-0.6	-18.0	3.6
EBA-lite Current Account (ECA)	1.0			-2.6	-3.6	-18.0	19.8
Open economy CA model (OEM)	-1.9			-2.6	-0.7	-18.0	3.7
EBA-lite External Sustainability (EES)		-18.9	-0.2	-2.6	-2.4	-18.0	13.1
Equilibrium Real Exchange Rate (ERER)							29.1
EBA-lite Real Exchange Rate (ELRER)							18.2
Purchasing Power Parity (PPP)							12.3
GDP price level regression (GDPR)							25.3

Source: Fund staff calculations.

1/ The MB, ECA, and OEM approaches calculate the difference between the CA balance and an estimated CA "norm".
The EES approach calculates the difference between the actual CA balance and the NFA-stabilizing CA balance.
The ERER, ELRER, and PPP approaches calculate the difference between the RER and an estimated RER "norm".
The GDPR gap/misalignment is the difference between the projected log relative GDP price level in PPP terms and a model-based estimate.

Box 1. Ecuador: An Open Economy Model of the Current Account (OEM)[1]

In addition to standard Fund models (EBA-lite, CGER inspired, and External Sustainability) for estimating a current account norm for Ecuador, staff also used a small-open economy, micro-founded model to complement the analysis. This box summarizes the model, which is presented in Araujo et al. (2013)[2] and discusses the impact of an oil price reduction on the current account. The model takes as an input a fall in Ecuador's natural resource GDP to levels below 7 percent of total GDP in the medium term from an average of 12.5 percent over the past five years. It also encompasses the uncertainty regarding the country's ability to increase crude oil production.

Within the context of the OEM approach, the paths of the current account, as well as consumption and investment (both private and public) are the result of the optimal choice of a social planner maximizing social welfare. These paths are therefore not intended to be consistent with the Fund's projections for these variables in the medium-term macroframework, which take into account a broader set of factors (such as the import tariff surcharges) but are not model-based. Instead, social saving and consumption are analyzed within the model, and the results provide an indication of how far from an optimal level these variables could be, given the ensuing oil shock and its transmission mechanism to the macroeconomic aggregates. In particular, the socially optimal choice in the flexible-price setting takes account of (1) the need for infrastructure scaling–up, (2) the inefficiencies and absorptive capacity constraints inherent to private and public investment projects, and (3) the limited access to international capital markets given a long-run level of NFA and with interest rates dependent on external liabilities.

The model was calibrated to fit Ecuador's economy. It assumes that shares of public and private capital in GDP to be at 15 and 25 percent of GDP, respectively; the efficiencies of public and private investment to be 70 and 80 percent; and absorptive capacity constraints to initially weigh below 3 percent of GDP for each type of investment. The model also assumes the depreciation rate to be 5.5 percent for both public and private capital. Households are assumed to have a risk-aversion and habit persistence parameters of 1.3 and 0.7 respectively.[3]

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[1] Authored by Bin Grace Li, Ricardo Marto, and Phil de Imus.

[2] See detailed model setup in Araujo, J., G. Bin Li, M. Poplawski-Ribeiro, and L-F. Zanna, 2013, "Current Account Norms in Natural Resource Rich and Capital Scarce Economies," IMF Working Paper. 13/80.

[3] Other detailed parameterizations are available upon request.

Box 1. Ecuador: An Open Economy Model of the Current Account (OEM) (concluded)

The model suggests a CA norm of -1.9 percent of GDP in 2015 and of -1.2 percent by 2020. This result is broadly in line with those using other Fund models, particularly the CGER-inspired Macroeconomic Balance (MB) methodology. The norm for 2015 is implied by the short-term adjustment of the current account consistent with the inter-temporally optimal response of the economy to the oil shock. The model implies a higher current account norm than the staff projection, or a –0.7 current account gap, which suggests the need for higher government savings or lower public investment resulting from lower oil proceeds. In the medium-term, both the development needs, and fluctuations in resource GDP play an important role, while the country's net international investment position and remaining macroeconomic aggregates adjust to the country's long-term historical averages.

Robustness checks were conducted by changing the model's assumptions, with CA estimates displaying similar paths. However, assuming a lower public investment efficiency than we envisaged in the economy would push the CA norm higher over the medium term, suggesting additional savings needs in the economy. Meanwhile, larger shares of private and public capital in Ecuador's GDP in the model would suggest larger development needs in the economy. In the medium term, the model will induce both private and public investment to be higher, allowing for the CA norm to be more negative in the short to medium term.

Open Economy CA Model Results

Source: World Economic Outlook database, IMF staff estimates

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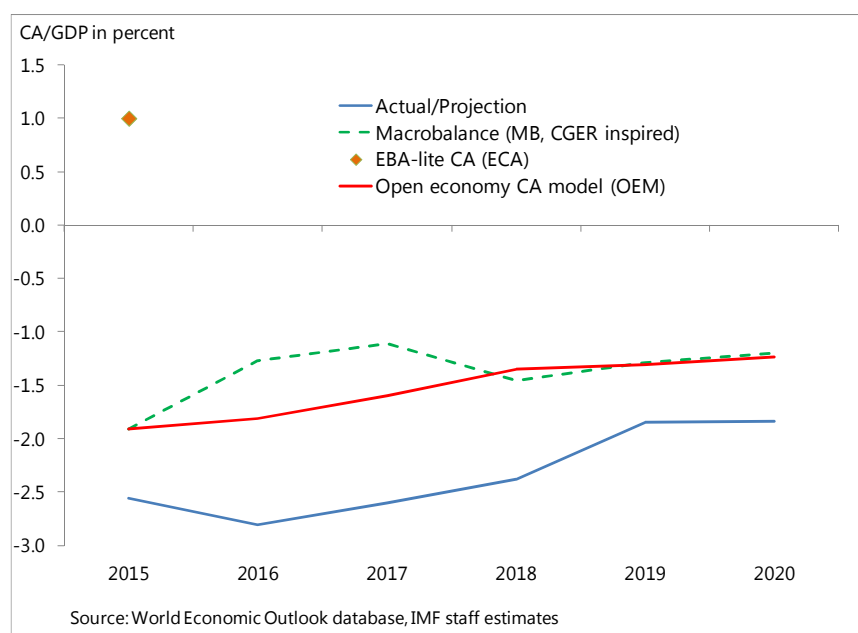
7.   Wages have risen significantly over the last 15 years confirming concerns over cost competitiveness. Since the mid-2000's real wages have grown much faster than labor productivity, and more recently unit labor costs have grown the most compared to its trading partners (see Figure 1). In 2014, Ecuador nominal minimum wage (roughly

Ecuador: Labor Productivity and Real Wages (2004=100)

Source: Haver Analytics IMF WEO database and staff estimates

US$400 a month) was about 30 percent higher than US$288 average of Brazil, Chile, and Colombia (which have the next highest minimum wages among the LA5 countries); as of 2015 Q1, it is 50 percent higher, in part owing to relative exchange rate movements. In terms of minimum wage relative to GDP per capita, Ecuador's ratio in 2014 was over 2 times the average of the same three countries and 60 percent higher than the ratio of Peru (the next highest among the LA5).
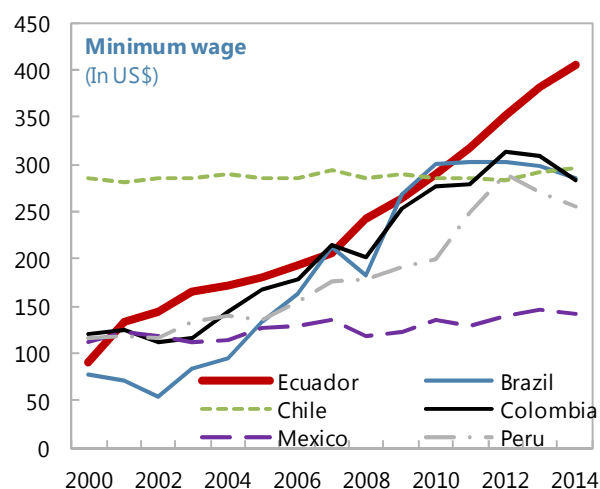
Source: Haver Analytics, IMF staff estimates

8.   Ecuador's global market share in non-oil exports is below a simple GDP-based benchmark, a result that also hints at competitiveness issues. Standard trade theory suggests that the global trade market share of a country should depend on its world GDP share, among other factors. However, Ecuador's market share in 2014 fell short of the value predicted by its world GDP share, by 4 to 13 percent (of the actual share) depending on the empirical specification. The calculation is based on a simple panel regression of the non-oil export market share on the respective share of world GDP (encompassing 175 countries), which has very large

Source: IMF WEO database and staff estimates

explanatory power (see Table 4). Non-oil exports have been rising in recent years as Ecuador entered new markets, such as flowers in Russia and shrimp in Asia. However, the downturn in Russia and the end of a shrimp disease in Asia have made those markets more challenging, affecting non-oil exports this year. Starting in 2016, if Ecuador meets the necessary requirements, a trade agreement with the European Union will come into effect and would help non-oil exports to Europe.
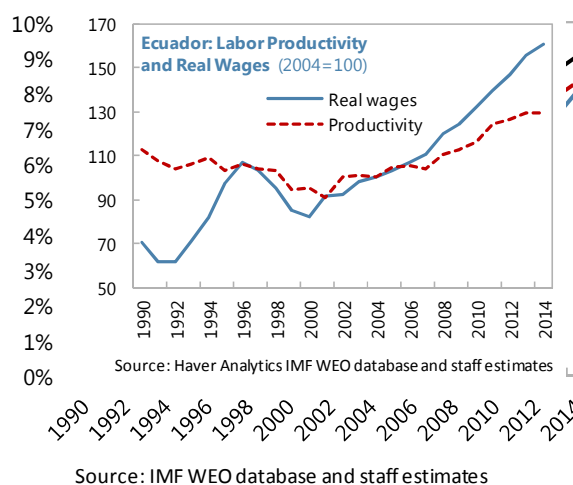
9.   After large external borrowing by the public sector in 2013 and 2014, financing conditions have tightened for Ecuador, mainly because of the expected effect of the fall in oil

prices on public balances. Inflows were coming in from bilateral loans and advance oil sales, notably from China, and loans from multilateral agencies. The sovereign returned to the global bond markets in 2014 with an issuance of US$2 billion in a 10-year bond with a spread over U.S. Treasuries of about 500bps. However, in March and May 2015 the sovereign issued a total of US$1.5 billion in a 5-year bond at an average spread of about 800bps. Since then spread increased further, to about 1300 basis points, owing to a decline in global oil prices, broad-based turbulence in emerging market assets, but also local concerns about potential natural disasters as well as discussions on the domestic reform agenda. Going forward, the cost of financing should also increase, *ceteris paribus*, because of the anticipated tightening of U.S. monetary policy.

10.   Ecuador's Net International Reserves are low.[8] NIR were about US$4.8 billion at end-July 2015 or about 4.8 percent of projected 2015 GDP. This level is below those recommended by a number of standard reserve adequacy metrics. As of July-2015, reserves covered about 45 percent of the IMF's reserve adequacy metric (2.7 months of imports, and 13 percent of broad money). However, for fully dollarized economies like Ecuador it is difficult to precisely calibrate the need for a foreign exchange liquidity buffer. This need differs from other countries since dollarized economies do not face the risk of exchange rate fluctuations and currency mismatches affecting domestic balance sheets. Nonetheless, a fully dollarized economy may need liquidity for two reasons: to protect the financial system from a liquidity shock and as a fiscal buffer against potential government financing gaps. Additionally, commodity intensive economies may have higher precautionary reserve needs since they have more volatile terms of trade and have greater difficulty in adjusting to commodity price shocks due to lower trade elasticities.[9] Hence, even if Ecuador's balance of payments would eventually adjust automatically to an external financing shock via a reduction in liquidity and lower domestic demand, the costly adjustment would take time and buffers remain essential to smooth such adjustment.

11.   The analysis of international investment position (IIP) does not reveal major vulnerabilities at present. Since 2005, Ecuador has experienced an improving IIP from -38 percent of GDP to about -11 percent in 2014, despite recent government borrowing, due to the large current account surpluses in mid-2000s and strong GDP growth. Indeed, the past decade witnessed a rapid accumulation of foreign assets (deposits) and lower growth of investment and debt stocks. The stock of portfolio liabilities has increased as the sovereign regained international market access after defaulting in 2008. The stock of FDI liabilities has been falling consistently since 2005 and was at 14.5 percent of GDP at end-2014. The stock of loan liabilities has increased in each year in 2013 and 2014. It is now at about 19 percent of GDP, the largest position since 2007. There has been a coinciding rise in currency and deposit assets to about 25 percent of GDP.

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[8] NIR are mainly counterparts of government's and banks' deposits (including reserve requirements) held at the central bank *(*BCE).

[9] IMF, Assessing Reserve Adequacy—Specific Proposals, December 2014. Adjusting the IMF metric for petroleum price risk as suggested by the paper, would imply a slightly lower reserve adequacy.

12.   Ecuador's international survey-based competitiveness rankings remain low. Broad survey-based competitiveness indicators (such as those of the World Economic Forum's Global Competitiveness Report) improved in most categories over the last decade, and were in 2014 roughly in line with Latin American peers. However, rankings are still poor: the 2013–14 report highlighted inefficiencies in the functioning of institutions, and in goods, labor, and financial markets, mainly because of insufficient competition. In the 2015 World Bank Ease of Doing Business rankings, Ecuador scored 115th out of 189 countries, similar to the previous year (although under a new methodology). Relative to its regional peers, it ranks worse than the average, but better than Venezuela, Bolivia, Argentina, and Brazil. Ecuador's rank was relatively worse in the areas of business regulation, paying taxes, getting access to credit and electricity.

Ecuador and LA5: Global Competitiveness Indicators
(Index; 7 = best)
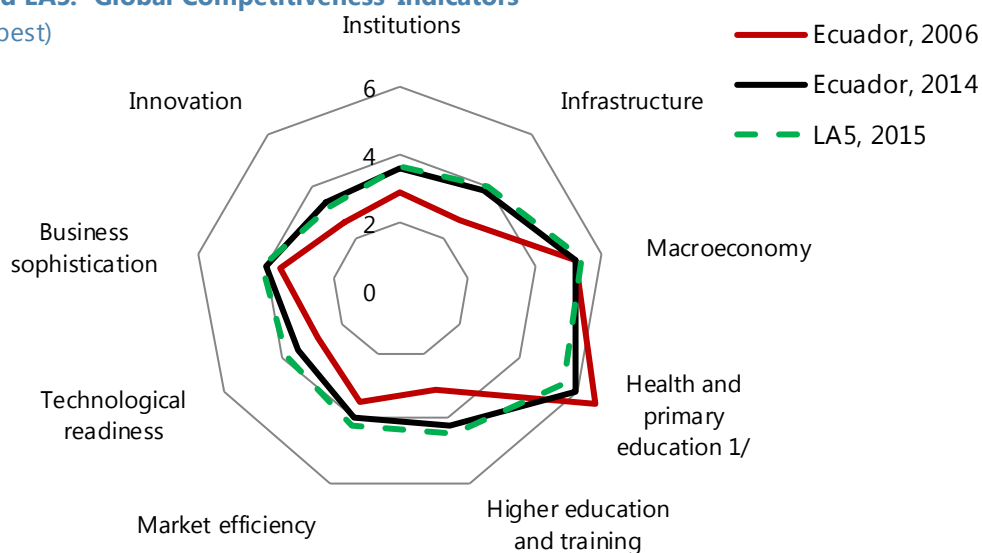
Source: World Economic Forum.
1/ There was a methodological change in the calculation health and primary education score between the two vintages.

Ecuador: Global Competitiveness Indicators, 2014
(Rank out of 148; 1 = best)
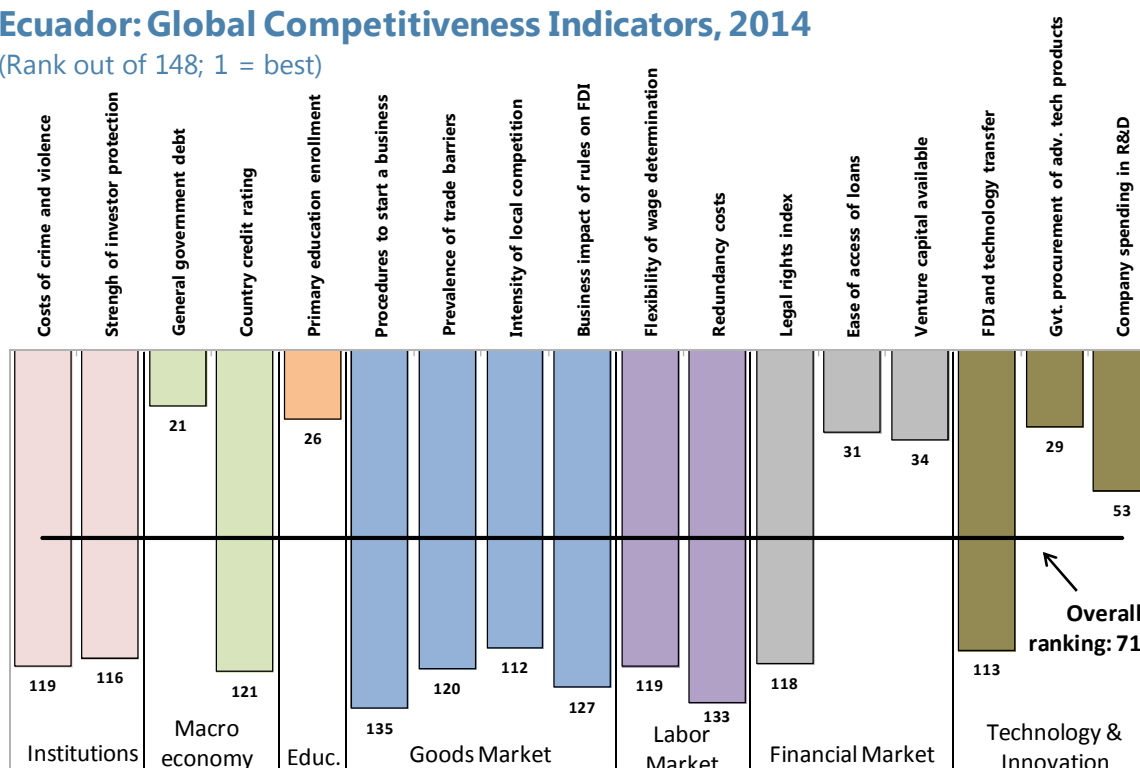
Source: World Economic Forum. Note: Categories listed are those in which Ecuador ranks in the top or bottom quartile of world distribution. Some categories were omitted due to space constrains, namely: (1) Organized crime [129]; (2) Costs of terrorism [122]; (3) Degree of customer orientation [115]; (4) Country capacity to attract talent [35]; (5) Days to start a business [130]; and (6) GG budget balance [35].

13.   Recent research by the Fund also points to Ecuador's poor ranking in economic diversification and complexity.[10] Economic diversification captures the extent to which a country's exports are concentrated in particular goods. Economic complexity incorporates not only the diversity of a country's exports but also how knowledge intensive they are. Economic diversification and complexity are relatively low in Latin American and the Caribbean (LAC), and Ecuador ranks low relative to the rest of the region. A comparison of the country's Herfindahl-Herschman product concentration index, the opposite measure of diversification, demonstrates Ecuador's high product concentration relative to its neighbors. Moreover, Ecuador's Economic complexity index in 2013, while having improved since 2008, ranks among the five lowest in LAC.

Herfindahl-Hirschman Product Concentration Index 1/

Sources: World Integrated Trade Solution (WTIS).
1/ This indicator is a measure of the dispersion of trade value across an exporter's products. A preponderance of trade value concentrated in a very few products imply an index value close to 1.

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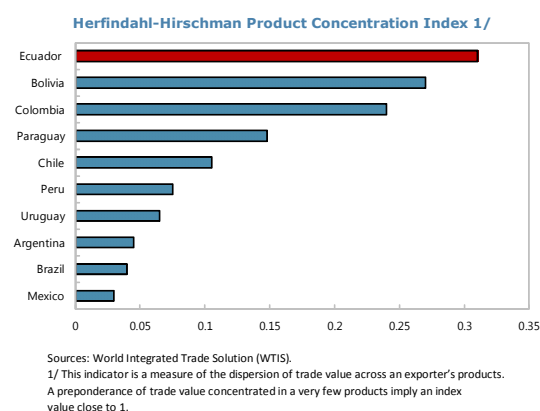
[10] IMF, Regional Economic Outlook: Western Hemisphere, Chapter 5, April 2015.

14.   Economic diversity and complexity matter for long-term growth. Both diversification and complexity are closely correlated with the level of GDP per capita. Studies suggest that diversification helps stabilize export earnings and is especially relevant for countries vulnerable to terms-of-trade shocks. Higher complexity is potentially linked to stronger growth through knowledge spillovers to productivity and investment. Fund research inspired by Hausmann and others (2014)[11] investigate whether diversification and complexity help to predict long-term growth. The researchers conducted a panel regression estimating the relationship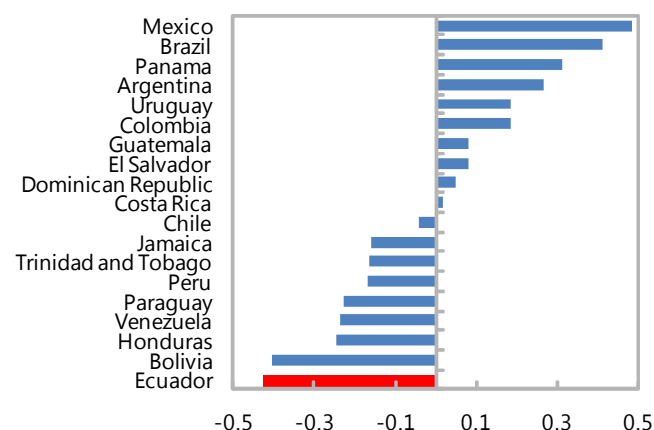 between average annual GDP per capita growth over a decade and predetermined values of diversification and/or complexity indicators, as well as some control variables and fixed effects for 103 countries for the years 1970 to 2010. The results confirm that initial levels of diversification and complexity robustly predict long-term average growth of real GDP per capita, i.e. more complex and diversified economies tend

Net Impact on Predicted GDP per Capita Growth Rates: Own Complexity Versus LAC Average Complexity (In percentage points, annual averages)

Source: Rodrigues Bastos and Wang (2015).

to have higher GDP per capita growth on average over the following decade. The analysis also suggests that complexity measures are more powerful predictors of long-term growth than simple export diversification. The study shows that bringing Ecuador's complexity score to the average of LAC countries would increase growth by approximately 0.4 percentage points.

15.   Recent studies indicate that infrastructure, education, and market openness are keys to inducing greater sophistication in exports and production. Energy availability, tertiary education, and foreign direct investment (FDI) inflows were identified as important variables that have a positive effect on economic complexity.

Correlation between GCI Components and ECI, 2006–13

(Correlation coefficient)

Sources: Hausmann, Hidalgo, et al. (2014); World Economic Forum; and IMF staff calculations.
Note: Macroeconomy: government budget balance, national savings, inflation, public debt, country credit rating.

Relatively high correlations between complexity and the components of the World Economic Forum's Global Competitiveness Indicator are consistent with those studies. Additionally, FDI and trade openness has been highlighted in the literature as a source of knowledge spillovers that could
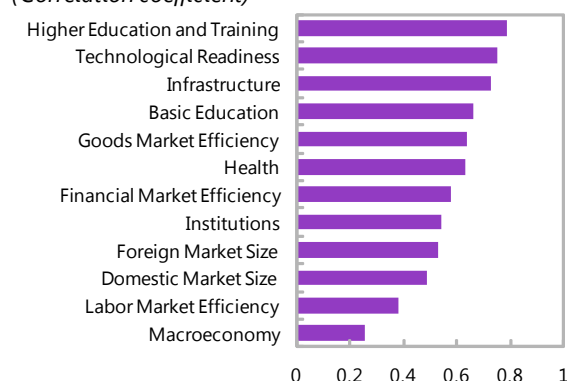
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[11] Hausmann et al., January 2014, Implied Comparative Advantage, CID Working Paper No. 276.

contribute to economic diversification. Ecuador's efforts to increase domestic energy supply and lower energy costs via its hydroelectric projects and those aimed at improving tertiary education could have a positive effect on both complexity and diversification. However, foreign direct investment into the country has been relatively low, so efforts to improve the easing of doing business and attracting foreign investors could enhance the economies complexity and diversification.

Table 2. EBA-Lite Models

Current Account Model (ECA)

Pooled GLS with panel-wide AR(1) correction

	Coefficient		Coefficient
Cyclically adjusted fiscal balance #	0.479***	Aging speed (proj. change in old age dependency ratio) #	0.125**
(Change in reserves)/GDP* K controls #	0.596***	GDP growth-forecast in 5 years #	-0.41***
Demeaned Private Credit/GDP #	-0.045***	Safer institutional/political environment	-0.03
Lagged NFA/Y	0.008***	Dummy=1 if country is a financial center	0.045***
Lagged Output per worker-relative to top 3 economies	-0.041*	Aid/GDP #	-0.28***
Lagged Relative output per worker*capital account	0.12***	Remittance/GDP #	-0.067
Oil and Natural Gas Trade Balance*Resource temporariness #	0.216***	Output gap #	-0.158***
Dependency ratio #	-0.181***	Commodity ToTgap*Trade openness	0.108*
		Constant	-0.0402***
R-squared	0.40		
Cross section observations	146		
Time series observations	14		

= Difference with the world average

* significant at 10%; ** significant at 5%; and *** significant at 1%.

Index Real Exchange Rate Model (ELRER)

Fixed effects OLS and standard errors corrected for autocorrelation and heteroskedasticity

	Coefficient		Coefficient
Change in reserves/GDP X K Controls # (instrumented)	-2.518***	Lagged Trade openness #	-0.389***
Real interest rate X K openness #	0.087***	Lagged NFA/GDP	0.022***
Demeaned private credit/GDP #	0.095***	Output Gap #	0.224**
Lagged Output per worker-relative to top 3 economies	0.60***	Aid/GDP #	-0.170
Lagged Relative output per worker*K openness	-0.162	Remittance/GDP #	-0.001
Lagged Financial home bias #	0.147***	Constant	4.175
Log Terms of Trade Goods - WEO	0.088***	Country-specific constant	0.452
Cross section observations	141		
Time series observations	18		

Source: IMF staff estimates described in forthcoming working paper.

= Difference with the world average

* significant at 10%; ** significant at 5%; and *** significant at 1%.

Table 3. CGER Inspired Models

Macroeconomic balance approach (MB)

Panel GMM accounting for unconditional heteroskedasticity

Coefficients	Unrestricted	Restricted
Relative old age dependency	0.084	...
Relative population growth	-0.293	-0.350***
Relative income	0.009**	0.012****
Relative output growth	-0.216*	-0.203**
Oil trade balance	0.183***	0.187***
Relative fiscal balance	0.295***	0.338****
Initial net foreign assets	0.020**	0.023***
Aid inflows	-0.126**	-0.141**
Remittance inflows	-0.066	...
R-squared	0.362	0.441
Cross section observations	147	170
Time series observations	14	14

Note: One sided statistical significance at the 1 percent, 5 percent, 10 percent and 20 percent levels is indicated by ****, ***, ** and *, respectively.

Equilibrium real exchange rate approach (ERER)

Panel GMM accounting for unconditional heteroskedasticity

Coefficients	Unrestricted	Restricted
Terms of trade	0.109**	0.109**
Relative productivity	0.324****	0.334****
Relative government consumption	0.811*	0.765*
Initial net foreign assets	0.026*	0.026*
Aid inflows	-0.145	...
Remittance inflows	0.881****	0.870****
R-squared	0.456	0.455
Cross section observations	163	163
Time series observations	36	36

Note: One sided statistical significance at the 1 percent, 5 percent, 10 percent and 20 percent levels is indicated by ****, ***, ** and *, respectively.

Source: IMF staff estimates.

Table 4. Other Models

GDP Price Level Regression (GDPR)

Dependent variable	Log price level
Independent variable	Log of per capital GDP
Constant	

Panel Methods	Coefficient	Constant	R-squared
Pooled OLS	0.22***	-0.36***	0.27
Pooled OLS and time fixed effects	0.22***	-0.40***	0.32
Random effects	0.30***	-0.22***	0.27
Country fixed effects	0.35***	-0.13***	0.27
Country and time fixed effects	0.10***	-0.63***	0.28
Cross section observations	189		
Time series observations	24		

* significant at 10%; ** significant at 5%; and *** significant at 1%.

Non-oil Export Market Share

Dependent variable	Non-oil exports as a share of world non-oil exports
Independent variable	Country's GDP as a share of world GDP
Constant	

Panel Methods	Coefficient	Constant	R-squared
Pooled OLS	0.576***	0.252***	0.72
Country fixed effects	0.697***	0.181***	0.97
Random effects	0.683***	0.187***	0.57
Cross section observations	175		
Time series observations	25		

* significant at 10%; ** significant at 5%; and *** significant at 1%.

Source: IMF staff estimates

ECUADOR: COMPARING ECONOMIC EFFECTS OF EXTERNAL SHOCKS, 2008–09 AND 2014–15[1]
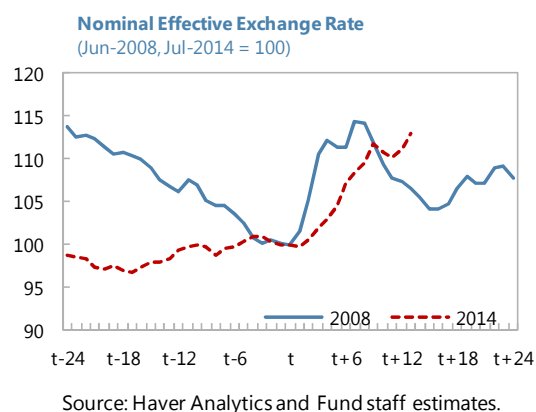
Ecuador is vulnerable to external shocks owing to its oil dependence, limited fiscal buffers, full dollarization, as well as its geography. The country is experiencing two external shocks which are broadly similar to the 2008-09 episode: an oil price decline and a real exchange rate appreciation. This paper briefly compares the two episodes. On the positive side, this time there is not a simultaneous contraction in foreign demand associated with growth in trading partners. On the negative side, this time the shocks have the potential to be more persistent and fiscal buffers are more limited. Limited access to financial markets and fiscal buffers coupled with the lack of an independent monetary policy constrains the possibility of countercyclical policies. The adjustment will need to rely on fiscal consolidation and the correction of relative prices and wages, while preserving liquidity in the financial sector.

A.   Background

1.   Ecuador is experiencing a large drop in oil prices, similar to the one faced during 2008–09 global crisis. Oil prices declined sharply after June 2008 and July 2014, by about 70 percent and 55 percent from the peak to the respective trough. In the 2008–09 episode, they then started a steady recovery, while in the 2014–15, the recovery stalled after a few months.
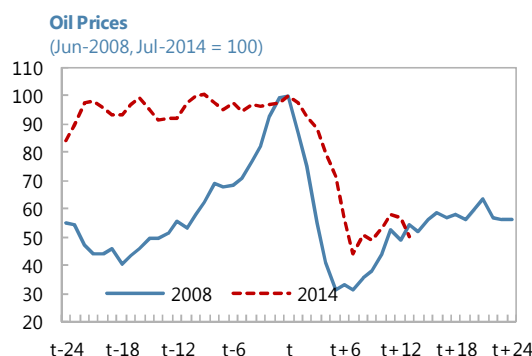
2.   Besides falling oil prices, an additional external shock Ecuador currently faces is the appreciation of the real exchange rate. This is mainly due to the appreciation of the dollar and the dollarization regime of Ecuador. The two shocks implied a pattern (falling terms of trade together with exchange rate appreciation) which is quite unusual, especially in emerging markets, but it is due to the fact that Ecuador adopted the dollar as legal tender. Indeed, in both episodes, Ecuador's real exchange

Oil Prices
(Jun-2008, Jul-2014 = 100)

Source: Haver Analytics and Fund staff estimates.

Nominal Effective Exchange Rate
(Jun-2008, Jul-2014 = 100)

Source: Haver Analytics and Fund staff estimates.

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[1] Prepared By Pablo Druck (WHD).

rate appreciated as the terms of trade deteriorated. Using as base for the comparison the start of the oil price decline (June 2008 and July 2014), on an annual basis, the terms of trade dropped by about 32 percent during 2008−09 and by about 30 percent in 2014−15, while the nominal effective exchange rate appreciated by about 12 percent in 2008−09, and by about 17 percent during 2014−15. This appreciation poses a challenge, in particular for the non-oil sector but also for the Ecuadorean economy more broadly as it needs to rebalance its macroeconomic policies after a sharp drop in oil prices.

3.   An important difference between these two episodes is the performance of Ecuador's economic partners. During the 2008−09 episode, the global crisis contracted economic activity of Ecuador's main economic partners, with their average GDP dropping by about 4 percentage points between 2008 and 2009[2], affecting Ecuador's non-oil exports and remittances. In contrast, in the current episode, Ecuador's main economic partners are expected to experience a slightly increase in their average GDP growth by about 0.1 percentage points in 2015.

4.   Ecuador is vulnerable to external shocks owing to its oil dependence, limited fiscal buffers, full dollarization, as well as its geography. A drop in oil prices is rapidly reflected in falling fiscal revenue and exports, as the oil sector represented about 28 percent of fiscal revenue and about 50 percent of exports in 2014. At the same time, the reduction in export revenues generates a contraction in domestic liquidity and in financial intermediation. Overall, the economy

Selected Indicators

(In percent of GDP)

	2008	2014
Overall fiscal balance	0.5	-5.4
External current account	2.9	-0.6
Total public debt	22.2	29.9

Sources: Ministry of Finance; Central Bank of Ecuador; and Fund staff estimates.

would rapidly contract throughout the adjustment, and experience deterioration in the external account until imports are in line with the new income level of the economy. This drastic adjustment can generally be softened by relying on countercyclical fiscal policy and with access to global financial markets to finance a smoother transition. However, two factors make the adjustment for Ecuador more challenging. First, throughout the positive cycle of high oil prices, Ecuador did not build fiscal buffers. Second, Ecuador was excluded from international capital markets after the 2008 selective external debt default, and only in 2014 it regained market access. However, its access remains limited by high spreads; it is worth noting that despite the lack of access to global financial markets in recent years, Ecuador has been able to borrow externally, mainly from China and, to a lesser extent, from multilaterals. In addition, Ecuador is vulnerable to natural phenomena such as El Niño (see Box 1), which would affect mainly agricultural exports and GDP but also infrastructure, and is located in a seismic area.

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[2] Main trade partners include The Unites States, Colombia, China, Brazil, Germany, Netherlands, and Mexico. This group represents about 45 percent of Ecuador's international trade.

B. Economic and Policy Response to the External Shocks

5.   Ecuador's macroeconomic conditions at the outset of the 2008–09 episode were more favorable than in the recent episode. In 2008, the overall fiscal position was a surplus of about 0.5 percent of GDP, while in 2014 the fiscal deficit reached about 5.4 percent of GDP. Also, public debt was much lower, 22 percent of GDP in 2008 compared to about 30 percent of GDP in 2014. In addition, the external current account had a surplus of about 3 percent of GDP in 2008, while it experienced a deficit of about 0.6 percent of GDP in 2014.

6.   The fiscal policy response was quite different across the two episodes. During the 2008–09 episode, the oil sector's primary fiscal balance deteriorated by about 4 percent of GDP in 2009 compared to the previous year. The authorities did not take corrective measures, which explained the deterioration of the overall primary balance to a deficit of about 4.6 percent of GDP in 2009. In contrast, in the current episode, while the oil primary fiscal balance is expected to deteriorate about 1.2 percent of GDP in 2015 compared to the year earlier, the non-oil primary deficit is expected to improve by about 1.9 percent of GDP, on the back of revenue and expenditure measures. The overall primary balance is expected to improve by about 0.7 percent of GDP in 2015.

Primary Fiscal Balance
(In percent of GDP)

	2008	2009		2014	2015	
	(A)	(B)	(A)-(B)	(C)	(D)	(C)-(D)
Primary oil balance	9.1	5.2	-3.9	2.8	1.7	-1.2
Primary non-oil balance	-7.5	-8.2	-0.7	-7.2	-5.3	1.9
Primary overall balance	1.6	-3.0	-4.6	-4.3	-3.7	0.7

Sources: Ministry of Finance; and Fund staff estimates.

7.   Both episodes of falling oil prices have affected Ecuador in several areas. Despite a full comparison with the 2008−09 experience is not possible as the recent episode is still in its early stage, a preliminary comparison can be based on available quarterly data as well as the 2015 forecasts:

8.   Economic activity decelerated in both episodes, but faster during the 2008–09 global crisis. This is consistent with the fact that during the 2008−09 episode Ecuador was affected, in addition to falling oil prices, via weaker foreign demand for its non-oil products as well as lower remittances, as economic conditions in countries hosting the Ecuadorian Diaspora deteriorated. In terms of GDP growth, while in 2008–09 Ecuador GDP growth dropped by about 6 percentage points, in 2015 GDP growth is expected to drop by about 4 percentage points.

Economic Activity Indicator, SA
(Index, 1998Q1, 2008Q3 and 2014Q3 = 100)
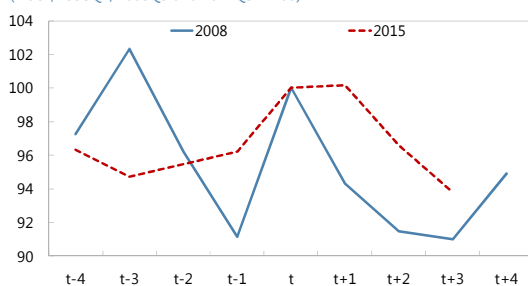
Ecuador Trading Parters: Quarterly Change in Imports
(Index, t = 100) 1/

Source: Haver Analytics and Fund staff estimates.

Source: Fund staff estimates.
1/ Simple average of Ecuador's largest export destinations, namely: United States, Colombia, China, Brazil, Japan, Germany, Netherlands, and Mexico.
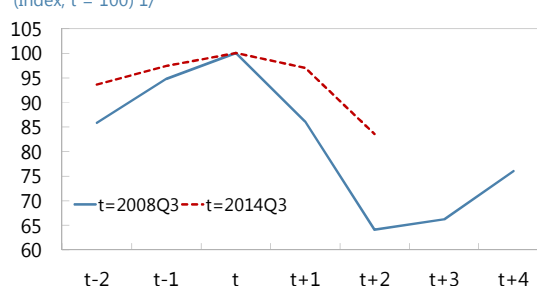
9.   **The Trade balance** deteriorated during both periods, owing to a rapid decline in oil exports while imports reacted with a lag. However, once imports started to react, the trade deficit remained contained within the first year after the initial drop in oil prices. This is in part due to the import surcharges that have been imposed during both episodes.

Exports

10.   **Oil sector.** In line with the falling oil prices, during the first three quarters from the onset of the 2008–09 episode exports dropped about 6 percentage points of GDP in 2009, while they dropped by about 3.3 percentage points of GDP during the first three quarters from the onset of the current episode.

11.   **Non-oil sector.** Also, during the first three quarters from the onset of the 2008–09 episode, non-oil exports declined by about 0.4 percentage points of GDP, as trade partners' economic conditions rapidly deteriorated amid the 2008–09 global crisis. Despite this global slowdown, Ecuador's traditional exports increased about 0.1 percentage points of GDP, meaning that nontraditional exports dropped by about 0.5 percentage points of GDP. In contrast, during the first three quarters from the onset of the current episode, non-oil exports have increased about 0.8 percentage points of GDP, mostly in the traditional sector.

Exports
(in percent of GDP)

	Total	Oil	Non-oil	
			Total	Traditional
Aug. 2007-Apr. 2008	23.0	14.5	8.5	3.6
Aug. 2008-Apr. 2009	16.5	8.4	8.1	3.7
Difference	-6.5	-6.1	-0.4	0.1
Jul. 2013-Mar. 2014	19.8	11.2	8.6	4.3
Jul. 2014-Mar. 2015	17.2	7.9	9.4	4.9
Difference	-2.6	-3.3	0.8	0.6

Sources: Authorities and Fund staff estimates.

Imports

12.   Oil sector. Oil-related imports are mostly gasoline and LPG. During both episodes, the declines in oil-related imports have shown some lags that, according to the authorities, are related to contractual obligations.

13.   Non-oil imports. These initially increased as percent of GDP during both episodes, most likely in response to the rapid appreciation of the currency. However, once the full impact of the negative income effect created by falling oil export revenues as well as of the imposition of imports tariff surcharges took effect; imports fell in the 2008–09 episode.[3] Measured on an annual basis, non-oil imports dropped to about 19 percentage points of GDP in 2009, from about 24 percent of GDP the year earlier. For the current episode, non-oil imports are projected to drop to about 17.1 percent of GDP in 2015, from about 20.1 percent of GDP in 2014.

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[3] In the aftermath of falling oil prices, imports surcharges expiring in one year were imposed in 2008 aiming to reduce imports by about 3 percent of GDP; in 2015, import surcharges were imposed for 15 months with the goal to reduce imports by about 2.2 percent of GDP.

Imports

(in percent of GDP)

	Total	Oil	Non-oil
Aug. 2007-Apr. 2008	19.6	3.7	15.9
Aug. 2008-Apr. 2009	19.9	3.6	16.3
Difference	0.3	-0.1	0.4
Jul. 2013-Mar. 2014	19.6	4.7	14.9
Jul. 2014-Mar. 2015	19.5	4.3	15.2
Difference	-0.1	-0.4	0.3

Sources: Authorities and Fund staff estimates.

14.   Remittances. Broadly reflecting the deterioration of economic conditions in countries hosting the Ecuadorian diaspora (in 2009, GDP in the U.S. and Spain dropped by about 2.7 and 3.8 percentage points, respectively); remittances to Ecuador fell during 2008−09 crisis by about 0.9 percentage points of GDP. Meanwhile, for the current episode and in line an expected improvement in these countries, remittances are projected to increased by about 0.1 percentage points of GDP in 2015.

Capital market access

15.   As mentioned above, Ecuador's access to global financial markets has been adversely affected by falling oil prices. Market perception of Ecuador's risks has increased recently, in line with lower oil prices but also due to concerns about natural disasters and internal debates on policy reforms. In the 2008−09 episode, the spread reacted not only to the oil price increase but also—and to a very large extent—to Ecuador's selective default just after oil prices started to drop in 2008.

Selected Comparator Countries: Sovereign Spread
(In basis points)
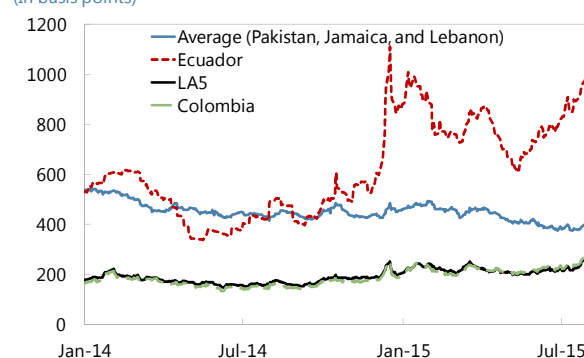
Source: Bloomberg

C.   Conclusions

16.   In summary, despite falling oil prices and real exchange rate appreciation in both episodes, important differences between these episodes relate to the persistence of the shocks, the policy response, and the economic performance of Ecuador's main economic partners. Oil prices dropped about 70 and 55 percent during the 2008−09 and 2014−15 episodes. Owing to full dollarization, Ecuador faces an additional challenge to rebalance its macroeconomic position, as the US dollars appreciated vis-à-vis Ecuador trading partners' currencies. However,

during the 2008–09 episode, Ecuador was additionally affected by weaker foreign demand for non-oil products and lower remittances, as economic conditions in Ecuador's main economic partners deteriorated. Soon after the 2008–09 global crisis started, Ecuador external shocks partly reversed. However, this time there is no expectation that the oil price or the U.S. dollar will return to the levels of the first half of 2014 anytime soon. With a more limited opportunity to rely on the resumption of favorable external conditions, this time Ecuador needs to rely more on its own policy strategy to facilitate the economic and financial adjustment to the shocks, taking a stronger role in supporting economic growth while preserving financial stability. However, limited buffers and access to financial markets coupled with the lack of an independent monetary policy constrains the possibility of countercyclical policies. The adjustment will thus need to rely on fiscal consolidation and the correction of relative prices and wages, while preserving liquidity in the financial sector. A broader discussion of policy recommendations is offered in the Staff Report for the 2015 Article IV Consultation with Ecuador.

Box 1. Effects of El Niño

Ecuador is vulnerable to the effects of El Niño. El Niño is a natural phenomenon caused by raising ocean temperatures that brings a significant amount of rain, which causes flooding. It generally occurs during several months during the fall and winter seasons. In Ecuador, there are large areas prone to flooding, which can damage infrastructure and affect the agricultural sector. The worst episodes suffered by Ecuador in the last 50 years took place in 1970–71, 1981–82, and 1997–98.

Recent increase in water temperature in the pacific suggests that the intensity of El Niño this year could reach the 1997–98's levels, according to the World Climatology Association. This event is expected to affect Ecuador during the last quarter of this year and the first quarter of 2016.

During El Niño in 1997–98 most of the destruction was concentrated in the coastal areas. In the agricultural sector, the most affected crops were rice, corn, coffee, mainly grown by small-scale producers at family-owned farms. In addition the sugar sector and banana plantation have also been affected. However, other sectors, such as shrimp, benefited from el Niño through higher production (warmer waters facilitate an increase in natural larva production). More broadly, the flooding seriously damaged infrastructure such as roads. The net negative effect on GDP was estimated in the 0.6–1.2 percentage points range, with losses (including infrastructure spending) exceeding 2 percent of GDP, depending on a number of assumptions.[1]

In addition, El Niño had a significant social impact. Low-income segments of the population were heavily affected through several channels, and poverty rates rose. Houses were fully or partially destroyed (about 14,000). The sanitation system was damaged, rapidly increasing health risks. Finally, poor self-employed farmers and workers in affected areas had serious difficulties in coping with income losses, given their more limited access to insurance mechanisms and financial smoothing tools.

Ecuador should be ready to cope with El Niño. It is difficult to predict exactly where and how the phenomenon will hit Ecuador. Ecuador has been improving its infrastructure in recent years, which may make it more resilient to natural disasters, but also increase the stock of capital that may be damaged. Should El Niño hit Ecuador, the authorities should rationalize public spending, targeting priority relief and infrastructure investments, ensure adequate liquidity for the banking system which could be affected by defaults, especially in coastal areas, deploy safety nets, and build fiscal buffers in the medium term.

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[1] Efectos Macroeconomicos del Fenomeno el Nino 1997–98, CEPAL, LC/Mex/R.688, February 1999; and Economic and Social Effects of El Nino in Ecuador, 1997–98, IADB, Vos, Velasco and Labastida, July 1999.

THE PENSION SYSTEM IN ECUADOR[1]

Reforming the IESS pension system will prove essential to limiting the government exposure to contingent liabilities in the future as well as the corresponding spending pressure. Without policy changes, the pension system's balance would become negative in 2023. A future reform to the system should contemplate gradually increasing the retirement age (given the aging of the population and the projected decline in the labor force) and adopting a new formula to determine the level of benefits (the current one does not give adequate weight to the amount of contributions), indexing noncontributory pension to inflation, and diversifying the pension portfolio allocation, while efforts to reduce labor market informality should continue.

A. Introduction

1. **This paper analyzes the pension system of the *Instituto Ecuatoriano de Seguridad Social* (IESS) and its financial position.** It also provides an overview of the fiscal and social challenges emanating from this system and proposes some reform options. A system imbalance is not imminent, but bound to materialize within two decades. While the overall pension expenditure is often a matter of national preference and a reflection of the authorities' policies, too rapid an increase in pension spending can pose fiscal risks or crowd out other priority expenditures. In this context, a number of reform options can prevent a significant buildup of fiscal pressures and avoid the need for drastic measures in the future.

2. **The Ecuadorian pension system (pay-as-you-go defined-benefit) would be sustainable if the system's revenues and expenditures were in balance over the long run.**[2] In 2014, pension benefits were fully financed by contributions. However, over the medium term, the system will eventually generate deficits due to population aging as well as key aspects of the pension system, including the retirement age (fixed at 60 years) and the formula to determine the amount of benefits.[3] [4]

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[1] Prepared by R. Fenochietto and M. Soto (all FAD).

[2] Under a defined-benefits system, benefits usually depend on the number of years of contributions and the average covered earnings. Under a defined-contribution system, benefits depend on the contribution history and the returns to these contributions.

[3] The dependency ratio is an age-population measure that includes those who are not in the labor force (the productive part of the population). The old-age dependency ratio usually compares, in percentage, the population aged 65 years or over (the dependent population) with the population aged 15–64. Taking into account the current retirement age in Ecuador (60 ages) the projections of this note uses as dependency ratio the population aged 60 years or over to the population aged 15–59.

[4] A percentage of the insured's average earnings in the five best years of earnings adjusted by the wage salary index.

3.   The reform introduced in April 2015 will partly contain the growth of the pension expenditure of the IESS. Prior to the 2015 pension reform, the annual adjustment to benefits oscillated between 4.3 and 16.1 percent and was inversely proportional to the amount of the benefit. This formula of adjustment was significantly higher than the level of inflation of recent years.[5] With the reform, starting in 2016, benefits will be annually adjusted by inflation.[6]

4.   The remainder of this paper is structured as follows. Section II provides a background analysis of the pension systems in Ecuador. Section III describes the sustainability of the IESS pension system and its main challenges . Finally, Section IV presents a set of reform options that will strengthen the system.

B. Background

5.   The Ecuadorian pension system achieves nearly universal old-age coverage by providing a mix of contributory and noncontributory benefits. Social security is a constitutional right for workers and their families.[7] The system is public and is intended to be universal and mandatory, covering salaried and independent workers. Pensions are administered by separate schemes for formally insured individuals (contributory pensions) and for those who do not qualify for a pension (noncontributory)[8]:

- *IESS*. The IESS provides earnings-related pensions to about 450,000 individuals (40 percent of the population age 65 and older). Average benefits are about 60 percent of GDP per capita.[9] The IESS also provides other benefits for insured workers and retirees, including insurance for work injury, housing financing, and health.

- *Social Pension (Pensión para Adultos Mayores).* About 546,000 elderly (55 percent of the population age 65 and older) receive a flat, noncontributory, mean-tested pension of $50/month (about 7 percent of GDP per capita).[10] This benefit was launched in 2006 and later expanded in 2009 to provide old-age benefits for vulnerable individuals age 65 and older who do not receive other public pensions.

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[5] The simple average rate of the consumer price index (period average) was 4.7 percent between 2005 and 2014.

[6] In 2015, before the reform kicks in (in 2016), pension expenditure is budgeted to increase more than in previous years: 21.0 percent in nominal terms (7.3 percent explained by the increase in the number of pensioners and the rest by the increase on pensions).

[7] See Articles 34, and 367–374 of the Constitution.

[8] Separate schemes for the retired personnel from the Armed Forces (ISSFA) and the Ecuadorian Police Department (ISSPOL) cover about 62,000 individuals (5 percent of the population age 65 and older) who receive pensions from these systems totaling about 0.7 percent of GDP in 2014.

[9] Per capita GDP in dollars adjusted by power purchasing parity constant 2011.

[10] Noncontributory pensions are special assistance programs to the elderly who do not have a pension and living in conditions of poverty. These benefits increased from US$35 per month in 2008 to US$50 in 2013. The number of individuals receiving non-contributory pensions was 594,000 in 2013 (http://bit.ly/1K24MEn).

6.   Participation in the contributory system has increased notably in recent years. About 46 percent of the workforce contributed to the IESS in 2014, up from 27.2 percent in 2007. Despite the huge and successful efforts of the government to reduce labor informality (Box 1), social security coverage does not extend to half of the workforce. This implies that any proposal to balance the system in the medium term (in particular increasing payroll taxes), should take into consideration its effects on workers' incentives to enter into a formal work relationship, and avoid damaging such incentives. An increase in participation would generate a temporary improvement of the system balance in the short term (as new contributors would not collect benefits for sometime). In the long term it would tend to generate two opposite effects: on the one hand labor market formality may be associated with productivity which would influence wages and contributions; on the other hand it would exacerbate the existing imbalance (in the absence of an imbalance it may not have an impact on the sustainability of the pension, as more people would contribute and more people would receive benefits).

7.   Public pension expenditure does not seem an outlier in international comparison. Total public pension spending is about 3.5 percent of GDP, lower than in most Latin American peers and close to the median for the Emerging Economies (Figure 1). Other indicators seem broadly in line with peers (see Table in Appendix I). IESS's pension spending was about 2.4 percent of GDP in 2014, while ISSPOL and ISSFA accounts for 0.7 percent and noncontributory pensions for 0.4 percent.

Figure 1. Pension Expenditure in Emerging Economies
(Percent of GDP)

Source: IMF Staff calculations.
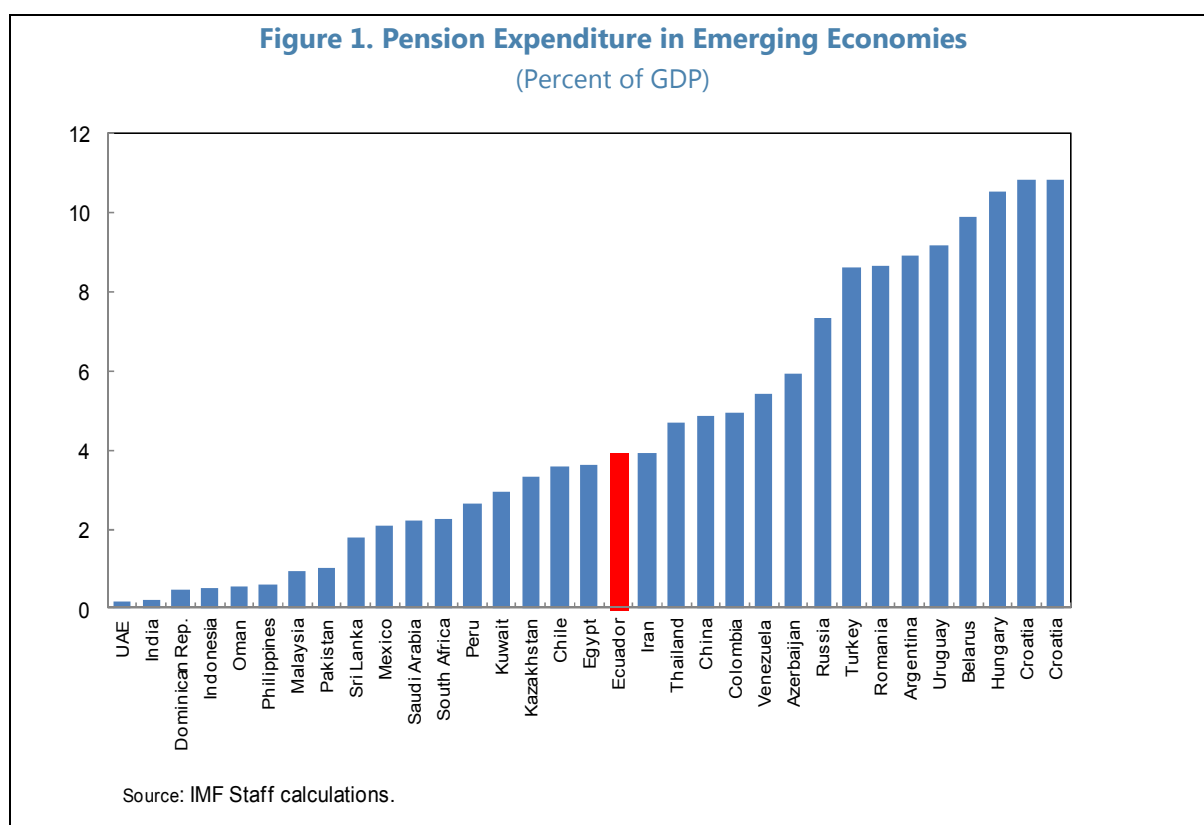
8.   **Ecuador is aging fast**. The relation between contributors and pensioners increased to 8.6 in 2014 from 7.1 in 2007 (IESS 2014). This is mainly explained by the aging of the population; the old-age dependency ratio increased from 9.0 to 11.1 percent between 2007 and 2015, and it is expected to reach 16.0 percent in 2030 (see Box 2).

9.   **A pension reform was approved in April 2015**. Main changes included: (a) a new formula of adjustment pensions: while today benefits are annually adjusted by inflation, before the reform the annual adjustment oscillated between 4.31 percent and 16.15 percent (it was inversely pro-portional to the amount of the benefit); (b) the elimination of the government contribution to the system (40 per cent of total pensions), a change which improves the central government balance but does not affect the general government balance; and (c) the central government now explicitly guarantees the payment of pensions (Box 3).

10.   **Past surpluses have been accumulated in the pension fund to pay for future benefits.** BIESS (*Banco del Instituto Ecuatoriano de Seguridad Social*) is in charge of the investment of the public pension fund under a specific set of investments guidelines.[11] The pension surplus of recent years was largely invested in government bonds, contributing to the financing the fiscal deficit. At the end of 2014, the total funds administered by BIESS reached about US$15.7 billion (of which US$5.7 billion was invested in public bonds). The 'pension fund' was the most important one and reached this year US$9.1 billion[12] (other funds are for reserve, health, injury, and social rural insurance).

C. Long-term Fiscal Sustainability of the IESS Pension Scheme

11.   **The IESS pension scheme showed surplus in 2014.** After years of surpluses, in part due to government contributions (40 percent of total IESS pensions prior to the 2015 reform), the Disability, Old Age, and Survivor Program fund (the 'pension fund' hereinafter) grew up to 9.1 percent of GDP in December 2014 (equivalent to four years of benefits). Today the pension system is financed by contributions from workers (3.1 percent of wages) and employers (6.64 percent, see Box 3), and returns from the pension fund investments (about 0.4 percent of GDP in 2014). Within the context of the recent reform, the 40 percent government contribution was phased-out.

12.   **Thanks to past savings and recent reforms, the IESS pension system is projected to remain broadly in balance in the medium term.** Historically, pensions were adjusted by 4.3–16.15 percent per year. As inflation came down, these adjustments boosted pension payments in real terms—average pensions increased by 35 percent between 2011 and 2014 (while inflation only increased 11.8 percent) and 65 percent since 2007 (IESS 2014). Starting in 2016, pensions will be

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[11] For instance, investment in real estate is only allowed over five years and investment in public securities cannot exceed 75 percent of the market value of the fund.

[12] Source: Superintendencia de Bancos del Ecuador, Balance IESS (http://www.sbs.gob.ec/practg/sbs_index?vp_art_id=489&vp_tip=2&vp_buscr=64#1).

 adjusted in line with inflation. This change is projected to stabilize pension spending at about 3.0 percent of GDP over the next years—the IESS system will remain in balance until 2023 (contributions minus benefits complemented with the net of investment income and administrative costs). When only considering contributions and benefits, the balance would be expected to be in deficit in 2015.

13.   However, the system has a substantial imbalance in the long term related to population aging and to the formulas employed to determine the amount of benefits.[13] The prospects of population aging will put pressures on the IESS pension expenditure, which is projected to increase from 3.0 percent of GDP in 2015 to 3.6 percent of GDP by 2030 and 5.0 percent of GDP by 2045 (see assumptions of this scenario in Box 4). In present discounted value, the imbalance between benefits and contributions is about 25 percent of GDP—more than the value of the fund assets; pension fund would be depleted by 2033 (without including public bonds, the fund will be depleted by 2029).

14.   In addition to the IESS, spending on social pensions is projected to increase fiscal pressures. Assuming noncontributory social pensions increase in line with IESS pensions, the expenditure on social pension will increase from 0.35 percent of GDP in 2014 to 0.55 percent of GDP in 2043.

D.   Reform Options

15.   Reforming the IESS pension system is essential to limit spending pressures and the government exposure to contingent liabilities in the future. Figure 2 shows that, under the assumptions of the baseline scenario described in Box 4, the pension system's balance (contributions plus investment income minus the sum of benefits and administrative expenses) will become negative in 2023 and reach a deficit of about 1.3 percent of GDP by 2033 when the Pension fund will be depleted. A future reform to the system should consider using different instruments to address each of the causes of the contingent financial problems.

16.   With respect to the "IESS pension" a balanced reform strategy could contemplate the following options:

- **Gradually increasing the retirement age.** Given the aging of the population and the projected decline in the labor force, an increase of the retirement age is necessary. The retirement age should increase progressively following the aging pattern of the population. From a fiscal perspective, increasing the retirement age would raise revenues by increasing the years of contribution (as people work longer), and reduce expenditures by reducing the number of years pensions are paid out. Beyond the fiscal considerations, prolonging work lives could also boost economic growth by promoting higher employment levels and consumption (IMF, 2011). The

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[13] A percentage of the insured's average earnings in the five best years of earnings adjusted by the wage salary index.

financial situation of the pension fund is of course sensitive to the retirement age—by increasing the retirement age to 62 for those who retire in 2022 and to 64 for those who retire in 2027, the date of depletion will shift forward by 9 years.

Figure 2. Pension System Balance under a Baseline Scenario
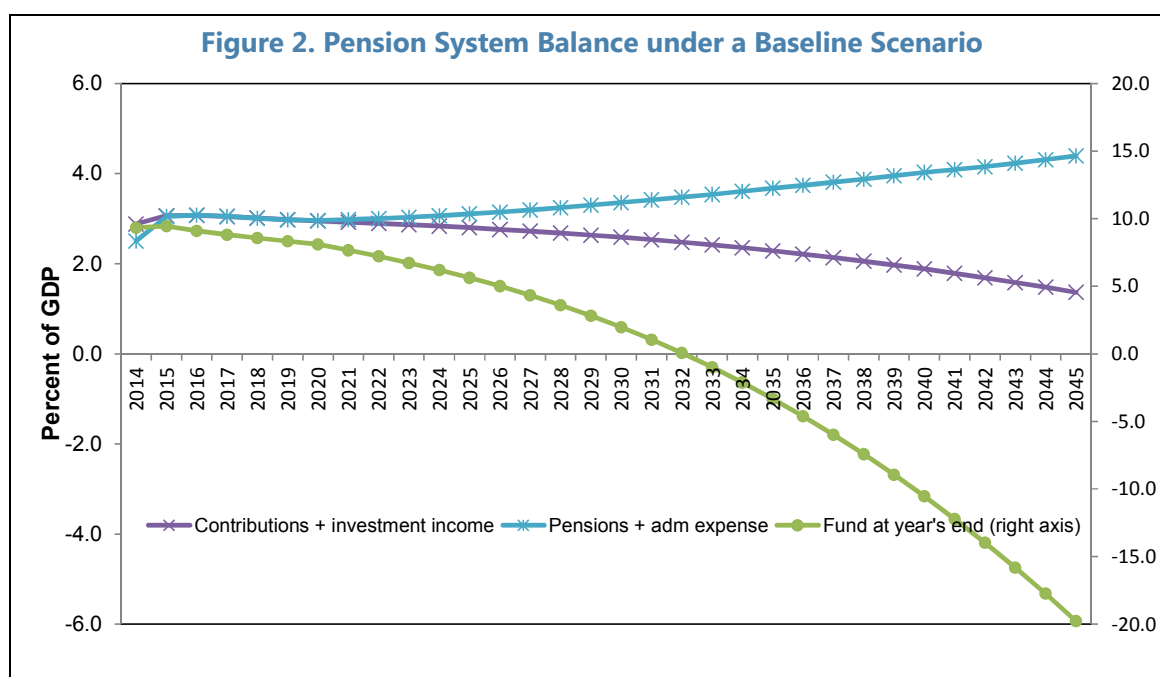
- **Adopting a new benefit formula**. The current formula to determine the level of benefits does not give adequate weight to the amount of overall contributions, because benefits are based on the average earnings in the last five years of earnings, and not on the lifetime income of contributors (Box 3). Benefits should be determined based on lifetime earnings of contributors, or at least, a larger number of years, and not only the last five.

- **Strengthening efforts to reduce labor market informality.** Changes to the level of formalization have a large short term influence on the size of the pension fund. A faster reduction in informality would directly improve the financial situation in the short-term, thereby providing more time to gradually implement reforms. The staff baseline projections assume that the share of contributors in the labor force continue to increase until 2020, reflecting recent efforts to increase social security coverage (Box 1). Absent this reduction of informality, the pension fund will be depleted in 2030 (instead of 2033). As pointed out above, measures that could jeopardize efforts to reduce labor market informality (such as the increase in the contribution rates) should be avoided.

- **Diversifying the portfolio investment**. At the end of 2014, the total fund administered by BIESS reached about US$15.7 billion, of which 37 percent (about US$5.7) was in government holdings. A broader diversification would increase the liquidity of the portfolio and reduce its exposure to sovereign risk.

17.   With respect to the "social pension," key recommendations for reform options include:

- Indexing this noncontributory pension to inflation, in the same way as contributory pensions.

- Maintaining incentives to participate in the contributory system. Noncontributory benefits should be enough to alleviate old age poverty but not too high to discourage participation in the contributory system.


Box 1. Social Security Coverage in Ecuador

In 2006, the Ecuadorian government began a set of programs aimed at extending social protection, including to those who did not have access to social security. These programs had two main objectives: increasing the wage-earning contributory population, and extending pension coverage of low-income people. As a result, social security participation and coverage, both in the contributory and noncontributory systems, increased significantly since 2007. The share of contributors in the labor force increased from 27.2 percent in 2007 to 45.7 percent in 2014. This was due mainly to the formalization of dependent workers. For wage earners, the share of contributors in employment grew from 91 percent to 99 percent in the public sector, and from 32 to 66 percent in the private sector. For self-employed (independent), the rate increased from 13 percent in 2007 to 24 percent in 2014 (the coverage gap remains significant in this sector which is traditionally more difficult to control).

Both public policies (to encourage people to enter in the formal sector) and government control contributed to the reduction of labor informality. For example, the Congress approved constitutional and legal reforms that strengthen workers' rights and obligations of employers (including the criminalization by no affiliation to social security). Policies to encourage formalization also included simplification of IESS procedures to facilitate employee registration, and several audit programs to reduce labor fraud and informality introduced by the Ministry of Labor in coordination with IESS. The future agenda to increase social protection includes strengthening audit plans and inclusion of people that work unpaid at home.

Box 2. Ecuador: Demographic Outlook

Ecuador has started a demographic transition in the early 1960s. The fertility rate has declined from 6.5 children per woman in the 1960s to about 2.7 children per woman in 2010 (Figure). This is the main driver behind the decline in population growth from about 2.9 percent per year in the 1960s to about 1.6 percent per year today. At the same time, life expectancy at sixty has increased from 16.6 years in the 1960s to 23 years in 2015 (Figure). The combination of declining fertility and increasing longevity initially contributed to a "demographic dividend", resulting in higher growth due to an increasing share of working age population in the total population.

Figure. Ecuador Demographic Trends
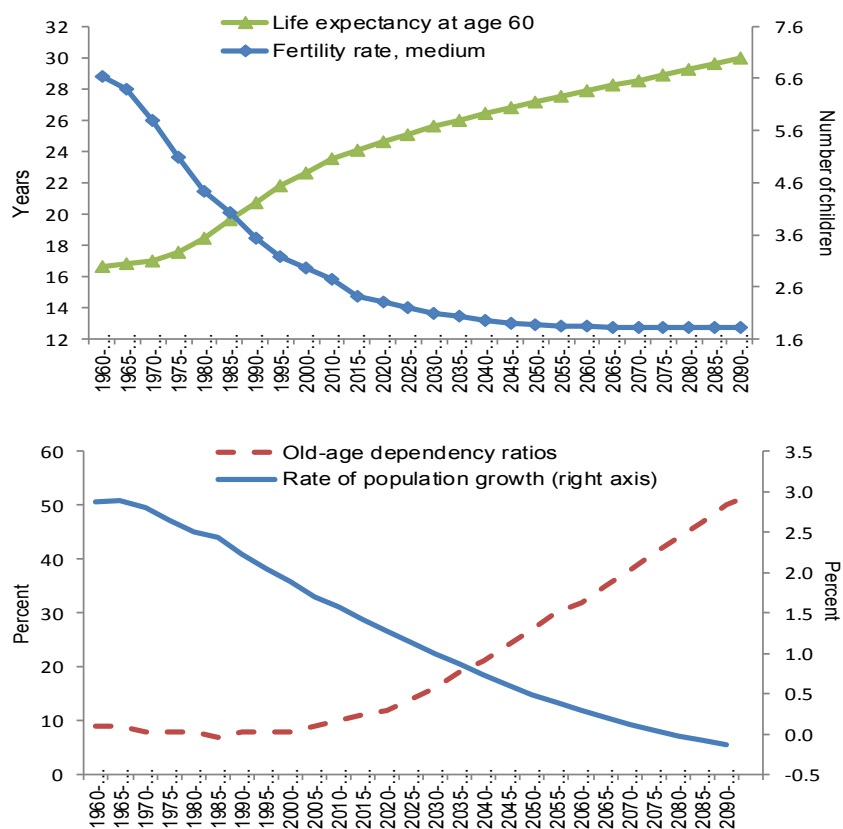
Source: prepared by staff with data from United Nations, Population Division, Department of Economic and Social Affairs.

Box 3. Main Characteristics of the IESS Pension Regime

The IESS pension system receives two contributions. Employees contribute with 6.6 percent of their wages, while the employer must pay another 3.1 percent. Prior to the 2015 reform, there was also a public contribution. Indeed, an initiative to change some parameters of the pension scheme and the system of financing was approved in April 2015. This implied the elimination of the government contribution to the system (40 percent of total pensions). Thus, the pension system should be financed from now by contributions from workers and employers based on an employee's income (Table 1). However, the central government is responsible for the payment of pensions if the system run out of funds and its trust fund is exhausted (*Ley Organica de Justicia Laboral y Reconocimiento del Trabajo en Hogar*).

Table 1. Social Security Contribution Rates for Private Sector Employees, Percent of Salaries 1/

	Employee	Employer	Total
Pensions 2/	6.64	3.10	9.74
Disability	0.10	0.00	0.10
Health 3/	0.00	5.71	5.71
Work injury	0.00	0.55	0.55
unemployment	2.00	1.00	3.00
Agricultural workers insurance	0.35	0.55	0.70
Administrative cost	0.36	0.44	0.80
Total	9.45	11.35	20.60

Source: Prepared by staff with data from IESS.
1/ Excludes: bank employees.
2/ Disability and Old Age.
3/ Additional for spouse 3.41 percent.

- To qualify for an old-age pension at any age a worker needs at least 480 months of contributions; at the age of 60 years at least 360 months of contributions; at the age of 65 at least 180 months of contributions; or at the age of 70 at least 120 months of contributions.[1]

- Pensioners receive 12 monthly payments plus 2 bonuses per year (one equivalent to a monthly pension and another to the basic salary). The amount of the pension is a percentage of the insured's average earnings in the five best years of earnings adjusted by the wage salary index; this percentage increases with the total number of years of contributions (Table 2).[2]

Table 2. Monthly Pension

Number of years of contributions	% Average Monthly of Earnings
10	50.0
30	75.0
35	81.3
40	100.0
More than 40	125.0

Source: Prepared by staff with data from pension law.

- Benefits are adjusted annually by inflation (before the 2015 reform, the annual adjustment oscillated between 4.31 percent and 16.15 percent and was inversely proportional to the amount of the benefit; this explains why the average pension has increased 35 percent between 2011 and 2014 and 65 percent since 2007; see IESS, 2014).

- The basic (minimum salary) to calculate contributions is US$354 in 2015 (there is no maximum salary to calculate contributions). The minimum monthly pension varies between 50 and 100 percent of this basic salary taking into account the number of years of payments. The maximum monthly pension is US$1,947.

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[1] For disability pension, the insured must have at least 60 months of contributions including the six months before the disability began and an assessed loss of more than 50 percent of earning capacity.

[2] Spouse's pension of 40 percent of the old-age or disability pension the deceased received or was entitled to receive is paid to an eligible widow(er) or partner.

Box 4. Main Staff Projection Assumptions

The baseline scenario's main assumptions include:

- The initial rate of growth of benefits is a combination between the rate of growth of wages and the level of inflation. Starting 2016 benefits are adjusted by inflation, following the 2015 reform. Initial pension at separation is assumed to growth with average wages (in line with GDP), implying a constant replacement rate. However, once separated the beneficiary's pension will grow with inflation

- The rate of growth in the number of beneficiaries is assumed to follow the dependency ratio, which is expected to increase rapidly (Box 2).The underlying demographic trends are aligned with those of the United Nations.

- The number of contributors (workers) is assumed to increase faster than the working age population up to 2020 but at a lower rate than the average of the last six years (see in Box 1 as formalization in the public sector reached its maximum limit). After 2020, contributors are projected to increase in line with the working age population and contributions in percent of GDP will remain relatively constant. An alternative scenario with somewhat higher formalization rates (close to the average of the past six years) shows that the fund would be depleted in 2037 (instead of in 2033).

- The model was run starting from 2014 data onwards; in December 2014 the Disability, Old Age, and Survivor Program fund reached US$9.1 billion. The initial amount of the fund also included US$300 million of government contributions of the first quarter of 2015 (the law that phased-out this contribution was in force from April 2015).

- The nominal annual rate of return on pension fund assets is assumed to remain constant at 6.1 percent a year. It is also assumed that the investments of the pension fund can be fully recovered.

- The assumed operational cost is 3 percent of total contributions, similar to the average of the period 2013–15.

Appendix I. Ecuador versus Comparator Groups: Benchmarks of Key Indicators

Table 1. Benchmarks of Key Indicators			
	2015	**2030**	**2050**
Pension Spending (Percent of GDP)			
Ecuador	4.0	5.0	7.0
Advanced Average	8.6	9.6	10.8
Emerging Average	4.9	5.9	7.9
Developing Average	1.7	2.1	3.3
Retirement Ages - Male			
Ecuador	60	60	60
Advanced Average	64	65	65
Emerging Average	61	61	61
Developing Average	59	59	59
Retirement Ages - Female			
Ecuador	60	60	60
Advanced Average	63	65	65
Emerging Average	59	59	59
Developing Average	58	58	58
Old Age Dependency Ratio (Population 65+/Population 15-64)			
Ecuador	11	16	27
Advanced Average	26	36	48
Emerging Average	11	18	29
Developing Average	6	8	12
Average Spending per Pensioners (% of GDP per Population 15-64)			
Ecuador	71%		
Advanced Average	31%		
Emerging Average	56%		
Developing Average	82%		
Contribution Rate, Pensions			
Ecuador	9.7%	9.7%	9.7%
Advanced Average	20.0%	20.0%	20.0%
Emerging Average	15.4%	15.4%	15.4%
Developing Average	13.1%	13.1%	13.1%
Source: prepared by FAD staff form IMF reports, OECD, and Social Security Programs Throughout the World: The Americas, 2013			

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