

**INDONESIA****CURRENT ACCOUNT ASSESSMENT**

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Emerging economies, including Indonesia, witnessed a marked reduction in their current account balances in the aftermath of the 2008-09 global financial crisis, driven by a combination of stronger domestic demand relative to developed countries and international interest rates at historically low levels, which allowed emerging and developing countries to finance consumption and investment by borrowing from abroad relatively cheaply. Growing current account deficits caused financing concerns in a number of countries, especially given the perspective of raising global interest rates following normalization of monetary policy in advanced economies. Appropriate policy responses depend on the structure of the economy and on the underlying drivers of current account dynamics. Understanding these drivers, in conjunction with external developments, is therefore crucial.

The current account balance can be seen in two different and informative ways. First, the current account balance can be expressed as the difference between the value of imports and exports of goods and services plus net factor payments and net transfers. As the trade balance tends to be the largest component of the current account, a current account deficit generally implies a trade deficit, although this need not be the case as countries also earn and pay income and send and receive transfers, most commonly in the form of interest and dividends and remittances. Second, the current account balance can also be expressed as the difference between national saving and investment (both public and private). As such, the current account balance indicates the change in a country's position as international net debtor or creditor.

Although there is no strictly preferable current account position, certain positions are more consistent than others with a country's stage of development. Developing countries tend to be net borrowers because, with less abundant capital, their economies offer higher returns to investment relative to those in developed economies. Particularly large current account deficits, however, may indicate that the economy is overheating, and may make the economy vulnerable to shocks.

In this context, the World Bank's Trade and Competitiveness Global Practice developed a toolkit to better understand the underlying drivers of current account imbalances, the financing structure of such imbalances, as well as their medium-term sustainability. The key objective of this toolkit is to provide policymakers with the deeper understanding of the issue which is necessary to formulate effective policy responses.

The toolkit applies an innovative methodology that constitutes an improvement to existing frameworks used to examine external imbalances. The approach is country-focused. Rather than relying on cross-country panel estimations, the models are country-specific, which increases the policy-relevance of its conclusions. The "model-averaging" methodology used, in addition, addresses the frequently overlooked problem of uncertainty with respect to the true model that best describes the determination of the current account balance.<sup>1</sup>

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<sup>1</sup> In this context, model averaging means that different combinations of the potential current account determinants are used as models. The final estimate is obtained by averaging across all the estimated regressions using a suitable criterion to select model weights.

This report looks at the case of Indonesia through the lens of this toolkit. It aims to inform policy by shedding light on the drivers of its current account dynamics and the sustainability of the sustained deficits that have emerged since 2011. In addition, this report gauges the sustainability of Indonesia's current account balance under benign and adverse external sector developments and in a scenario in which the Government embarked in a large infrastructure development program

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The cut-off date for the data in this report was 2013 for the current account determinants analysis that requires annual data, and 2014Q2 for the rest of the analysis based on quarterly data.

For more information about the World Bank and its activities in Indonesia please visit: [www.worldbank.org/Indonesia](http://www.worldbank.org/Indonesia).

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## Executive summary

### 1. Background

**Rapid GDP growth, weak external demand and declining commodity prices pushed the current account into deficit in late 2011**

Indonesia's current account fell into deficit in late 2011 for the first time since the 1997/8 Asian Financial Crisis. The current account balance subsequently dropped to -2.78 percent of GDP in 2012, to -3.27 percent of GDP in 2013, and -2.97 percent of GDP for the first three quarters of 2014, with most of the deterioration happening in the balance in goods and services trade, which averaged 3.1 percent of GDP in the period 2000-2007, and fell to 1.8 percent during 2008-2013. The goods and services trade balance dropped to -0.2 percent of GDP in 2012, further to -0.7 in 2013, and recovered mildly to -0.4 percent of GDP during the first three quarters of 2014. These changes over the 2011-2014 period were associated with rapid GDP growth, weak external demand and declining commodity prices.

**Current account deficits are not a novelty in Indonesia, and not unusual for emerging and developing countries**

Prior to the 1998 crisis, Indonesia experienced three decades of robust economic growth and reduction in trade barriers, leading to an increase in integration in the global economy. The rapid convergence required significantly higher levels of investment. Indeed, starting at 28.5 percent of GDP in 1980, investment increased to 37.2 percent of GDP by 1997. Constrained by low domestic saving, the increase in investment required and attracted foreign financing, which contributed to current account deficits averaging 3 percent of GDP annually.<sup>2</sup> The foreign financing instruments consisted mainly of short-term loans and portfolio inflows. As the Asian financial crisis unfolded in 1998, external financing suddenly dried up and the current account reverted to a surplus, alongside a collapse in the value of the rupiah. Since then, policy reforms aimed at reducing external debt and building domestic buffers against sudden stops in financial flows. During 1998-2011, Indonesia recorded current account surpluses, averaging 2.44 percent of GDP. These current account surpluses contributed to a substantial reduction in the stock of net foreign liabilities which dropped from 70.2 percent of GDP in 2001, to 38 percent of GDP in 2011.

**The recent shift into deficit reflects both structural developments and policy factors**

The recent shift into deficit has been based on two structural developments and a combination of adverse exogenous and policy shocks. First, since the early 2000s Indonesia's economy has grown faster than its major trading partners. Second, while investment growth has been generally strong, gross national saving have stagnated around 32 percent of GDP since 2009, dropping to 30 percent in 2013. In 2011, Indonesia was hit by a major terms of trade shock as the end of a decade-long commodity "super-cycle" hit exports prices, leading to a sizable drop in the value of Indonesia's commodity exports. The shock was compounded, until mid-2014, by sustained high oil prices relative to non-oil commodities and strong domestic demand for heavily subsidized fuel, as the country recorded a growing oil and gas trade deficit, having become a net oil importer in 2004. Finally, the implementation of the partial ban on raw mineral exports in January 2014 reduced revenues from this source.

**Structurally, this is the result of very**

At a high level, the reduction in the current account balance in the last 10 years is due to a combination of very strong private investment and public sector dissaving.

<sup>2</sup> World Bank, July 2012, "Indonesia Economic Quarterly: Rising to Present and Future Challenges".

**strong private investment and public sector dissaving**

Between 2003 and 2013, the current account balance decreased by 6.7 percentage points of GDP, shifting from a surplus of 3.5 percent of GDP in 2003, to a deficit of 3.3 percent of GDP in 2013. Over the period, public saving dropped from 4.3 percent of GDP to 2.6 against a virtually unchanged public investment share, while private saving increased from 24.7 to 27.8 percent of GDP, well short of the strong increase in private investment from 21.9 to 30 percent of GDP.

**Financing turned to portfolio and other investments, exposing Indonesia to short-term constraints**

As the current account turned negative, financing has come to rely increasingly on portfolio and “other” investments (as opposed to foreign direct investment), exposing Indonesia to short-term financing constraints. Foreign direct investment to Indonesia surged over 2010-2013, yet remained under 2 percent of GDP, and was hence insufficient on its own to finance the current account deficit. Global appetite for emerging market economy (EME) assets has helped maintain strong portfolio inflows into Indonesia, particularly into its higher-yielding government bonds, which since early 2012 have provided the most stable source of portfolio investment.

**The current account however is only a portion of overall external exposures and...**

Although total external debt-to-GDP remains moderate in Indonesia, at 9.3 percent of GDP as of end 2013 and 11.6 percent of GDP as of the Q1-Q3 2014 period, the level of the external debt stock and amortization requirements has grown strongly, particularly for the private sector, from 2011 onwards. Of the estimated total gross external financing needs in 2013 of USD 83 billion, the current account deficit accounted for only 35 percent, while private and public sector debt amortizations accounted for 50 percent and 15 percent respectively. Short-term external funding pressures could therefore emerge not only from a reduction in the availability of external financing relative to the current account deficit, but also external debt amortizations.

**...investing efficiently, maintaining reliable financing and building buffers**

While Indonesia’s current account deficit is not necessarily an inherent concern, it does mean that the country is building up liabilities to the rest of the world. Understanding the drivers of the trend in the current account balance, and what these may reveal about the economy, is crucial for constructive policy responses. In Indonesia’s case, the evidence suggests that a current account deficit is “normal” in the sense that investment needs exceed domestic savings. As long as investments generate sufficient growth, meeting the resulting financing costs should not be a concern. This points to the need to minimize unnecessary dis-saving (for example, by reducing wasteful public spending on fuel subsidies, as intended by recent reforms), raise the efficiency of investments, while managing short-term financing risks by maintaining reliable external financing, and building policy buffers against volatility in international markets.

## 2. Determinants of the current account in Indonesia

**Current account determinants include external shocks, domestic policies, integration, and development stage**

The analysis presented in this report suggests that Indonesia’s recent current account deficit results from the interaction of short, medium and long run factors that can be grouped into four blocks: external shocks, domestic policies, international integration, and stage of development and demographics. Each of these blocks is discussed below. Based on the analysis in the report, a structural current account balance between -3 and 1 percent of GDP is to be expected.

### a. External shocks

**Indonesia's faster growth than that of its trading partners...**

Indonesia's robust growth relative to its main trading partners has contributed to a worsening in the current account balance by almost three quarters of a percentage point of GDP, over the 2009-2014 period. Indonesia's GDP growth has on average exceeded that of its main trading partners by 2.25 percentage points per year. With domestic growth faster than main trading partners' growth, import demand outstripped export demand, leading to a gradual worsening of the trade balance particularly since the global financial crisis in 2008/9. Indonesia's export structure is highly exposed to high income economies, most of which have struggled to emerge decisively from the global financial crisis.

**...compounded by the fall in the prices of Indonesia's export commodities...**

The fall in the prices of Indonesia's export commodities led to a decline in the current account balance of one quarter of a percentage point of GDP since 2012. The price index of Indonesia's 6 main commodity exports, accounting for approximately 50 percent of export revenues, dropped by 28 percent from early 2011 to mid-2014.

**...and the sizable appreciation of the Rupiah, all put external pressure on the current account balance**

Since the year 2000, the Rupiah appreciated by almost 32 percent in real terms, with an appreciation of ten-percent over the previous three years tending to reduce the current account balance by almost half of a percentage point of GDP. Real exchange rate (REER) appreciations encourage imports and inhibit export competitiveness, weighting negatively on the trade balance. In this context, the depreciation of the Rupiah since August 2013 has acted as a shock absorber for the economy and helped to sustain the current account adjustment to date.

### b. Domestic policies

**Domestically, the fuel subsidy spurred domestic demand, contributing to a widening oil and gas deficit...**

The fuel subsidy contributed to a widening oil and gas deficit, reducing the current account balance by 0.81 percent of GDP for every percentage point of GDP increase in the subsidy bill. The fuel subsidy scheme contributed to a widening oil and gas deficit at a time of high oil and gas prices by artificially suppressing the domestic retail price of fuel, while also contributing to public sector dissaving and hence to Indonesia's overall domestic saving deficit. The reduction in budgeted fuel subsidy spending by 2 percent of GDP following reforms enacted in January 2015 mark a major change in government policy, and are expected to help rebalance the current account.

**...while credit expansion fuelled domestic demand and imports**

Credit expanded by 2.38 percent per annum since 2010 contributing to a decline in the current account balance by about one-tenth of a percentage point every year. By the same token, recent tightness in the domestic credit market is expected to alleviate pressure on the current account balance by putting a brake on domestic demand.

### c. Integration in the global marketplace

**Indonesia's integration into the global marketplace has increased the**

Over the last two decades Indonesia has increased its degree of integration into the global marketplace. Indonesia's export and import orientations today are well above the world's average, greater than China and India and substantially above those of Brazil, Turkey and South Africa.<sup>3</sup> Increased trade openness, measured by the ratio of imports and exports to GDP, is systematically associated with increases in the current

<sup>3</sup> Controlling for the size of the internal market, the level of development, and physical characteristics (such as being landlocked, or islands).

**current account balance...** account balance. This implies that further trade integration in the global marketplace relative to its trading partners should have a beneficial effect on the current account.

**...and strong FDI flows attracted self-financing imports that helped the economy grow** Every extra 1 percent of GDP in FDI inflows is associated with a 0.17 percent of GDP reduction in the current account balance in the short run. This is the case as FDI inflows increase demand for imports of intermediates and capital goods and profit repatriations by more than they increase exports or induce import substitution.<sup>4</sup> Such imports are self-financing in the sense that they are the result of investment inflows. Over the long-term, international evidence suggests that increased FDI spurs economic growth.

#### d. Stage of development and demographics

**In the economic catch-up, investment grew faster than saving...** In its process of economic catching up, Indonesia has experienced remarkable growth in investment, contributing to real GDP growth averaging 5.4 percent per annum since 2000. As domestic saving fell short of financing this investment relied, and is likely to continue to rely, on foreign financing. As such, it is to be expected for Indonesia to run a moderate current account deficit in the medium term.

**...saving have been low due to Indonesia's (changing) demographic structure** The population dependency ratio, by reducing national saving, has also been an important structural contributor to the current account deficit. Going forward, stands to benefit from a “demographic dividend”, as the current dependent population reaches working age, leading to higher domestic saving, and hence to an increased current account balance. However, fertility rates in Indonesia do remain high, which is likely to constrain the future reduction in the contribution of demographic factors to the current account deficit.

### 3. Policy discussion

**Indonesia's current account balance is consistent with the structure of its economy...** The deterioration of the current account balance since 2011 has put sustainability in the spotlight for policymakers. This report finds Indonesia's structural current account balance to be in the range of -3 to 1 percent of GDP. Consequently, while Indonesia's current account deficit must be monitored closely, at current levels it is not symptomatic of economic overheating and does not warrant short-term policy actions. Rather, policymakers should continue to focus generally on sound macroeconomic management, and on tackling the long-run determinants of the deficit, such as enhancing public investment efficiency, private sector competitiveness, and deepening the financial sector so as to mobilize more domestic savings and reduce financing risks.

**Simulations show that an infrastructure push should be sustainable from an external balance perspective...** Simulations of the path of the current account and net international investment position (NIIP) in the face of benign or adverse external conditions show relatively small deviations from the baseline projections. In the event that the government embarked on a major infrastructure development program, simulations show that the current account balance would decrease initially under the pressure of increased imports and domestic demand but set itself on an increasing path thereafter, on the back of increased trade integration and export competitiveness. Higher expected returns to the domestic economy would also attract complementary foreign funding to finance the temporary decrease in the current account balance.

<sup>4</sup> A similar result is obtained when examining the link between lagged FDI and the trade balance, suggesting that the effect of FDI on net exports is negative even before adding profit repatriation.

<b>Macroeconomic management will be crucial to reduce vulnerability to external shocks...</b>	Exchange rate flexibility has proved to be an effective shock absorber and is helping the adjustment of the trade balance to weaker commodity export prices. This has been aided by Bank Indonesia's more "hands off" approach to managing the currency since mid-2013, and its measures to support liquidity in the domestic foreign exchange market and to attract portfolio inflows.
<b>...as more efficient government spending can help spur growth</b>	Although the overall fiscal stance appears prudent at a macro level, the composition and quality of spending also matter. Public investment levels remain low by international standards, and adds rigidities to the process of adjustment following shocks. Increasing public investment is a high priority for the government, which has doubled the allocation of capital spending in the revised 2015 budget. Execution of this increased infrastructure budget might cause a deterioration in the current account balance and NIIP in the short run (as shown in the simulations in the last section of this paper), but improved infrastructure can also attract investment flows and provide a boost to international competitiveness.
<b>Integration in global markets can generate exports, jobs and investment...</b>	Integration in global markets is key for competitiveness, productivity, and helps manage external balances. Indonesia is highly integrated in global markets. A supporting trade regime helps domestic firms grow in the region and beyond, and ultimately provide more and better quality jobs to Indonesians. Supporting integration will require continuous effort in reducing barriers to trade while improving competitiveness of Indonesian firms will entail addressing issues of infrastructure, cost of logistics, and availability of services inputs such as access to finance, and a skilled labor force. <sup>5</sup>
<b>...although targeted policies, will be needed for Indonesian labor to benefit fully...</b>	Indonesia's predominantly low-skilled labor force can benefit from increased trade openness, but targeted policies will be needed for Indonesian labor to benefit fully. Active policies to stimulate innovation and human capital accumulation help ensure that greater integration translates into technology diffusion and learning; increased efficiency, diversification and sophistication of the production structure, which will reduce the vulnerability to commodity price shocks and the volatile nature of trade flows.
<b>...and to increase FDI, the least outflow-prone source of finance...</b>	FDI is the external funding source least prone to sudden stops or outflows, and generates important positive spillovers through technology transfers to domestic firms. FDI is associated with increased imports, and the possibility of a temporary deterioration in the trade balance (as found in this paper), as it also tends to crowd in further domestic investment, increasing aggregate demand. Increased import levels, however, tend to be self-financing and contribute to economic growth in a virtuous cycle in which high FDI generates import demand and economic growth, which in turns attracts more FDI and lowers dependency on more volatile and potentially more expensive portfolio inflows.
<b>...which might come under short-term pressure future due to a number of factors...</b>	Although resilient, FDI has been underpinned by three factors that may come under pressure. First, the large resource base, whose attractiveness has suffered in recent years due to moderation in commodity prices. Second, the large and growing domestic market, though constrained by needed policy responses since 2013 to support adjustment to the commodity price shock and mitigate external financing risks. Third,

<sup>5</sup> See Duggan, Rahardja and Varela, 2013 and Cattaneo, Gereffi, Miroudot and Taglioni, 2013 for evidence of how reliable energy and services inputs help increase firms' sophistication and competitiveness in global value chains.

Indonesia's potential as a regional production hub in Asia, which has been undercut by regulatory uncertainties and skills and infrastructure gaps. To boost Indonesia's attractiveness as an FDI recipient, improvement in the investment climate is needed.<sup>6</sup>

**...including policy uncertainty, as exemplified by the introduction of a partial ban on raw minerals**

The introduction of a partial ban on exports of unprocessed minerals added to pressures on the current account in the short term, while bringing uncertain long run benefits, and at a potentially high cost for the wider business environment. With the intention of increasing the value of commodity exports, the government of Indonesia imposed since the beginning of 2014 imposed a ban on the export of certain raw minerals.<sup>7</sup> In addition to causing a loss in export revenues and weighing on an already weakening current account, the lengthy and unclear process leading to the introduction of the revised regulation increased uncertainty in the mining sector, weakening Indonesia's mining and related industry investment climate. From a long run perspective, this could prove to be a larger burden for the prospects of moving up the value chain in natural resource-intensive production.

**Finally, financial deepening would reduce dependency on foreign funding**

In the medium term, reducing pressure from the current account deficit can be achieved also via increasing the portion of domestic financing for investment. Increasing the saving rate in Indonesia will require measures to deepen the financial markets, improve access to finance and improve confidence in the domestic financial and banking sector.

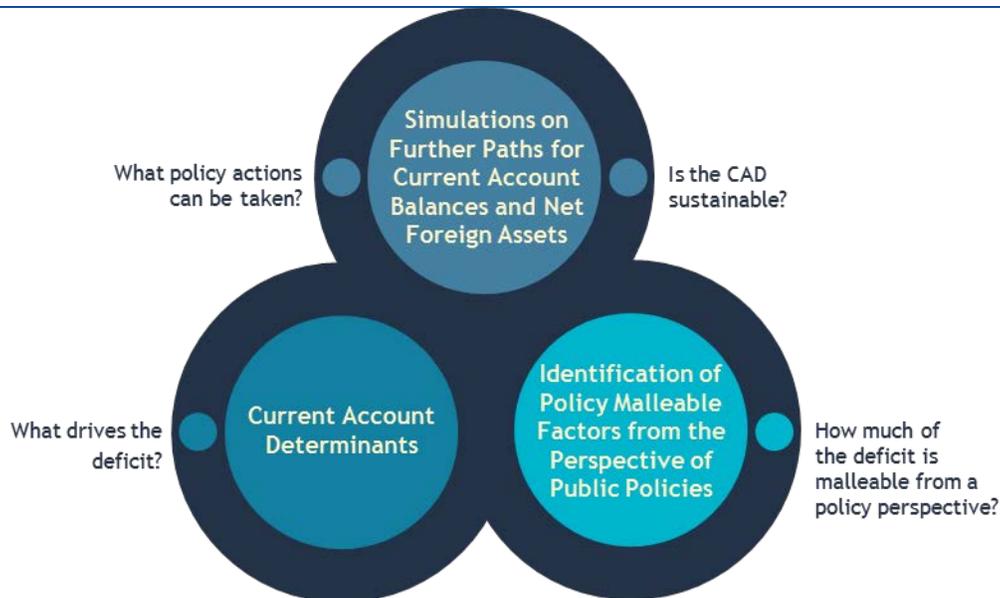
<sup>6</sup> Indonesia currently ranks 120 out of 189 economies in the World Bank Group's Doing Business 2014 rankings, below the regional average and peer countries' performance such as China, Thailand and Malaysia.

<sup>7</sup> For a discussion of the near-term impact of the ban on unprocessed minerals and its expected outcome, see World Bank, 2013, "Indonesia Economic Quarterly: Slower Growth, High Risks".

## A. Structure of the report

This report is structured as follows. First, it provides an overall description of trends and developments in Indonesia's current account over the last twenty five years. Second, it presents an econometric analysis of the determinants of the current account, identifying the contributions of each. In doing so, this report discusses the scope for policy action. Third, taking a more structural approach, it analyses the underlying drivers of the current account balance: saving and investment. It separates their structural and cyclical components and identifies the determinants of each. Finally, it simulates the possible path of the current account and NIIP under a number of external developments and policy scenarios.

Figure 1: Framework of the current account imbalances toolkit



Source: Authors' elaboration based on Cusolito, A. & M. Nedeljkovic (2013)

## B. CONTEXT

### Box 1: What does the current account balance show?

From a balance of payments perspective, the current account comprises three subcomponents: the trade balance, the income balance and the transfer balance.<sup>8</sup>

The trade balance records all transactions with the rest of the world related to the exchange of goods and services. The income balance records net interest and dividend payments, while the last component, the transfer balance reflects net payments (that do not correspond to purchases of any good, service, or asset) received or sent to the rest of the world, among which, the most notable corresponds to remittances received from nationals working abroad, and sent by foreigners working domestically.

**Current Account = Trade Balance + Income Balance + Current Transfers Balance**

From a national accounts perspective, the current account results from the difference between what an economy produces and what it consumes and invests in a given period (or alternatively, the difference between saving and investment). When countries consume and invest more than what they produce, they need to borrow from the rest of the world to finance that gap. The current account deficit reflects that amount that a country borrows from the rest of the world to finance the investment and consumption in excess of its level of production.

**Current Account Balance = [Output (GDP) – Consumption] – Investment Or Saving – Investment**

**If Saving > Investment → The economy is a net lender of the rest of the world**

**If Saving < Investment → The economy is a net borrower of the rest of the world**

The saving and investments can be decomposed further into the portions that are attributable to the public and the private sectors. Thus, the current account balance can be expressed as the sum of the private sector's surplus (private saving minus private investment,  $S_p - I_p$ ) and the government's surplus (tax revenues minus government expenditures,  $T - G$ ). This is why current account deficits and fiscal deficits are often referred as the “twin deficits”. Given the private sector balance ( $S_p - I_p$ ), increases in fiscal deficits co-move with increases in current account deficits.

**Current Account Balance = (Saving<sub>p</sub> - Investment<sub>p</sub>) + (Tax – Government Expenditures)**

From the relationship shown above, it is possible to see how a positive or a negative current account balance is not a bad thing per se, and it depends on the country's specific circumstances. For example, if a relatively poor country in its path to growth, and constrained by low levels of domestic saving, finances its high investment rates through foreign capital, it might run into a current account deficit. This deficit may be inevitable for economic development, that requires firms building up capital stocks, and often the public sector investing in, for example, infrastructure upgrading.<sup>9</sup> Conversely, current account deficits can also arise from booming private or public consumption. When governments spend more than what they collect in taxes, or the private sector consumes more than it produces, countries can run into current account deficits. These deficits, however, are unlikely associated to faster future growth, and will generate concerns about their sustainability.

These simple examples stress the importance of identifying the underlying sources of the current account deficit: is it mainly driven by fiscal deficits, by low private saving rates, or by high private investment rates?

Source: Authors' elaboration.

<sup>8</sup> Under the new IMF guidelines (Balance of Payments Manual 6, BPM6), to which Indonesia adhered in 2014, the current account comprises the following components: the “trade balance”, the “primary income balance” (equivalent to the income balance under BPM5), and the “secondary balance” (equivalent to the transfer balance under BPM5). Given that the analysis in this report focuses on the period in which Indonesia followed the BPM5, this structure is used to describe trends and interpret results. For more on the specific changes that the conversion from BPM5 to BPM6 entails, see IMF, 2013, “Sixth Edition of the IMF's Balance of Payments and International Investment Position (BPM6)”.

<sup>9</sup> Recent IMF analysis showed effects of public infrastructure investments on growth. In the context of industrial economies, the IMF finds that when the investment is financed by borrowing, an increase in public investment equivalent to 1 percent of GDP boosts GDP by 0.9 points in the first year and 2.9 percent in the fourth. The effects are bigger in slow-growing economies when rates are low and competition for loans is subdued. Under those conditions, the boost in public investment leads to a 1.5 percent increase in GDP in the first year and 3 percent in the fourth (Chapter 3 in IMF, 2014) “Is it time for an infrastructure push? The macroeconomic effects of public investment”.

## 1. Recent developments in Indonesia's current account

### Indonesia's current account balance turned negative towards the end of 2011...

Indonesia's current account balance turned negative towards the end of 2011, and remains negative to date, initiating the longest streak of negative current account records since 1998. Current account deficits are not a novelty in Indonesia, as the country maintained a negative current account balance, averaging -2.7 percent of GDP between 1986 and end-1997. This reversed in the aftermath of the 1998 crisis up until 2011, when Indonesia recorded positive, though generally modest, current account balances averaging 1.7 percent of GDP from 2005 until the global financial crisis, and 1.3 percent until the end-2011 swing into deficit.

### ...due to two structural developments...

First, since the early 2000s Indonesia's economy has tended to grow faster than its major trading partners. Domestic demand outstripped external demand and import growth has been faster than export growth, particularly since the global financial crisis in 2008/9. Second, while investment growth has been generally strong, gross national saving have stagnated around 32 percent of GDP since 2009, dropping to 30 percent in 2013. These dynamics have led to a rise, in dollar terms, of Indonesia's net foreign liabilities, the returns to which have pushed the income account deeper into deficit, from about USD -3 billion in the 2005-2009 period to USD -6 billion thereafter, adding a structural drag on the current account balance.

### ...and a combination of adverse exogenous and policy shocks...

Indonesia's once ample goods trade surplus suffered from a number of shocks since 2011. First, in 2011, a major terms of trade shock following what has been described as the end of a decade-long commodities "super-cycle" hit exports. The price index of Indonesia's 6 main commodity exports, accounting for just below 50 percent of export revenues, dropped by 28 percent from February 2011 to July 2014, and has subsequently continued falling.

Second, Indonesia's trade balance has been affected by a growing oil and gas trade deficit since becoming a net oil importer in 2004, when domestic demand outstripped declining exports. Oil exports have been on a long-declining trend, due to lack of investment and new discoveries in the sector. Until the drop in crude oil prices over the second half of 2014, this was aggravated by sustained high oil prices relative to non-oil commodities, and strong domestic demand for heavily subsidized fuel.

Third, the implementation of the mineral export ban in January 2014 caused most of the affected raw mineral exports to grind to a halt. Although some of the blockages have been removed since August 2014, a number of mineral products continue to be affected, and the longer-term impacts of the policy on the commodity sector remain uncertain.

**Box 2: Accounting relationships in Indonesia’s balance of payments**

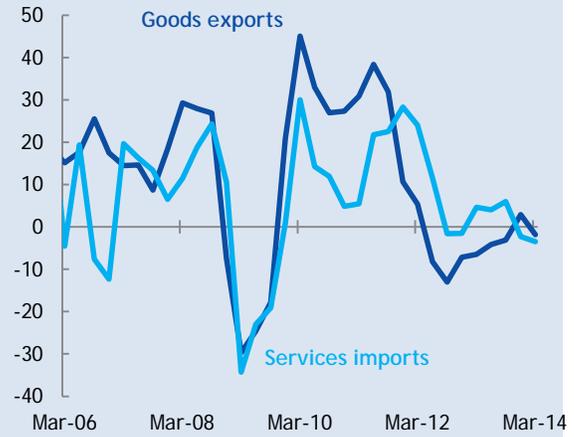
The services and income components of Indonesia’s current account are fairly stable and structurally negative.

The services balance records all service related transactions between residents and non-residents. Service related transactions can be imports or exports of freight financial or telecom services as well as tourism flows. In the last 3 years, services imports have outstripped exports by about USD 2.7 billion per quarter, a figure almost entirely explained by freight imports, which averaged USD 2.3 billion over the same period. Although Indonesia is a large exporter – chiefly of bulky commodities – most freighting services are handled by foreign operators, which results in freighting transactions between residents and non-residents for every export shipment. The correlation is clearly visible in Figure 2.

The income balance, similarly, records all income related transactions – that is payments of interest, coupons or dividends between residents and non-residents. Outbound income payments in the last 3 years outstripped inbound payments by about USD 6.7 billion – causing, together with the service deficit, a structural drag on the current account of about USD 9.5 billion per quarter. Approximately USD 4.3 billion of the income payments are equity-related payments of dividends and USD 1.2 billion debt-related payments of interest and coupons. On the equity side, the large stock of foreign investor equity holdings gives rise to dividends to non-residents when corporate profits are high, for example, due to high exports or strong domestic income growth (Figure 3). In addition, the balance of payments treatment of retained earnings pertaining to non-residents is to consider them as paid to non-residents (causing a current account outflow) and invested by non-residents as FDI (causing a financial account inflow), creating an accounting relationship between outflows due to payments on equity and FDI Inflows (Figure 4).

**Figure 2: Services imports are a function of goods exports**

*(year-on-year growth, percent)*



Source: CEIC; World Bank staff calculations

**Figure 3: Equity income payments are linked to growth**

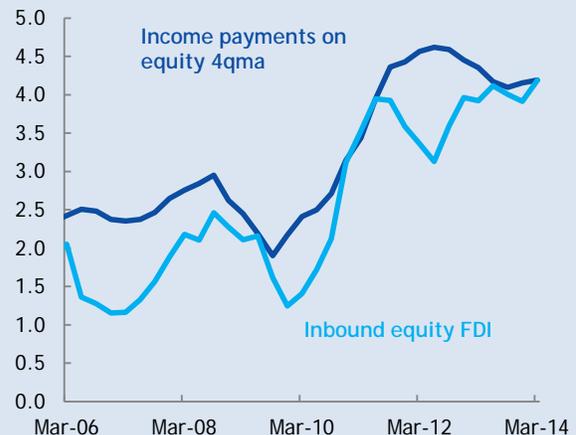
*(year-on-year growth in nominal USD terms, percent)*



Source: CEIC; World Bank staff calculations

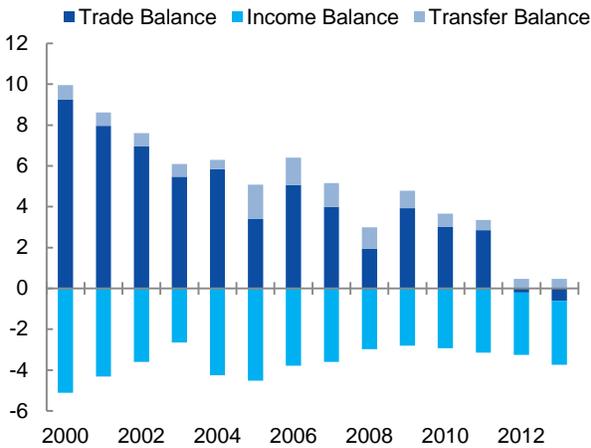
**Figure 4: Outflows from income payments on FDI equity are the flipside of inflows from FDI**

*(billion, USD)*



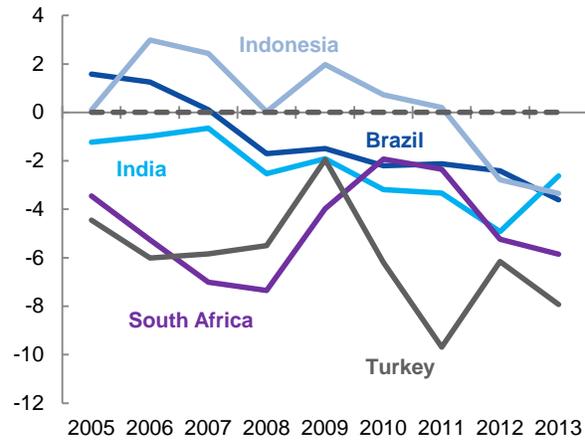
Source: CEIC; World Bank staff calculations

**Figure 5: The deterioration in Indonesia’s current account balance...**  
(balances, USD bn)



Source: WEO

**Figure 6: ...started much later than in the other “fragile five” countries**  
(balances, USD bn)



Source: WEO

**a. Putting the recent decline in Indonesia’s current account balance in context**

**Comparing Indonesia with the rest of the “fragile five”...**

Indonesia, Brazil, India, South Africa and Turkey were characterized in 2013 as the “fragile five”<sup>10</sup> due to their sizable current account deficits, the financing of which depended on volatile capital flows. Comparing Indonesia to its “fragile” peers is informative and helps put magnitudes into perspective.

**...Reveals Indonesia’s position may not be as “fragile” as suggested, although it deserves careful attention**

However, there are sizable differences between the “fragile five”, and Indonesia’s position may not be as fragile as suggested, although it deserves careful attention. Indonesia’s current account balance deteriorated rapidly since 2011, but in 2013, the deficit was still lower relative to GDP than in Brazil, South Africa and Turkey. Indeed, Indonesia only started registering current account deficits in 2012, while Turkey, South Africa, India and Brazil have been accumulating current account deficits since as early as 2002 (Figure 6).<sup>11</sup> Indonesia’s net stock of foreign liabilities, however, is the second largest of this group of countries, reaching 42.4 percent of GDP in 2012, after Turkey’s that reached 53.4 percent of GDP in 2013.<sup>12</sup>

**Trade balances had been falling since before the commodities price falls since 2011**

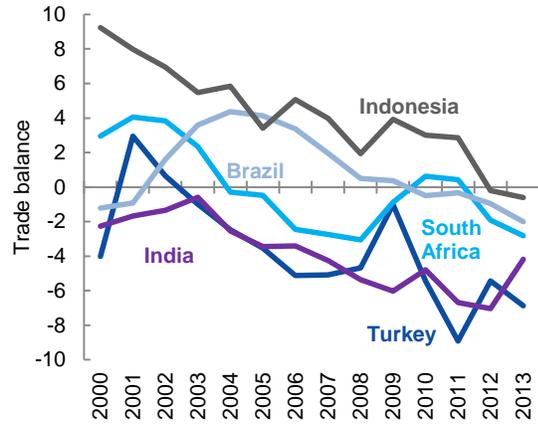
Trade balances have deteriorated across the “fragile five” since 2000 despite strong commodity prices through 2011, with weak commodities pushing them further down subsequently (excluding India in 2013, Figure 7). As Figure 8, shows Indonesia’s trade balance in goods declined steadily over a decade that showed volatile yet raising commodity prices, pointing to the presence other (non-commodity price) factors affecting the trade balance.

<sup>10</sup> The term was coined by market analysts at Morgan Stanley in the summer of 2013.

<sup>11</sup> Current account balances turned negative in 2002 in Turkey, 2003 in South Africa, 2004 in India and 2007 in Brazil.

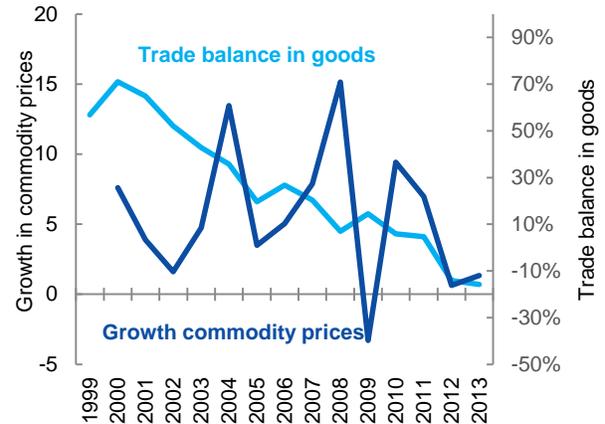
<sup>12</sup> In Brazil, net foreign liabilities reached 36.7 percent of GDP in 2013, in India 17.5 percent and for South Africa, they reached 4.1 percent in the same year (source: IMF).

**Figure 7: Indonesia’s trade deficit remains narrower than its “fragile five” peers...**  
(balances, percent of GDP, USD bn)



Source: WEO

**Figure 8: ...and its decline over time has not been simply a product of swings in commodity prices**  
(lhs: balance, percent of GDP; rhs percentage change, percentage points)

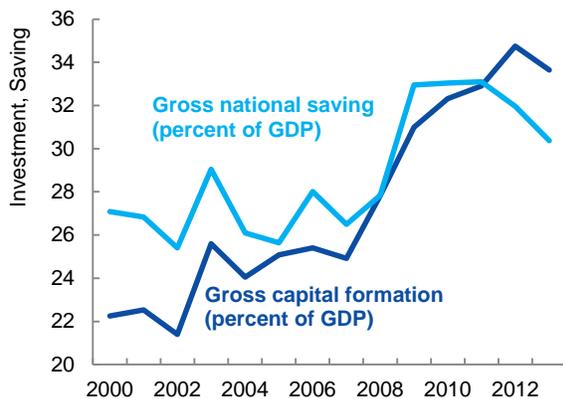


Source: WEO and World Bank

**Through the saving-investment lens, Indonesia’s current account deficit results from a sustained increase in investment, and a decline in saving...**

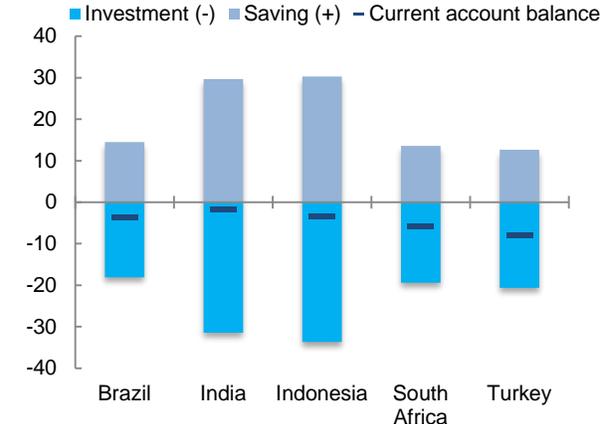
As the current account balance reflects the difference between saving and investment in an economy (see Box 1), it is important to understand whether the current account deficit in Indonesia is associated with high investment, low saving, or a combination of both. Although in 2013 the investment rate fell by more than one percentage point (from 34.7 percent of GDP in 2012 to 33.6 percent of GDP in 2013), the decline of saving rates was greater than that (from 32 percent of GDP to 30.4 percent of GDP over the same period, Figure 9). Looking across the so-called “fragile five”, it is clear that very different saving-investment combinations have given rise to similar current account deficits (Figure 10); Indonesia and India show the highest rates both of investment and saving (above 30 percent), while Brazil, Turkey’s, and South Africa’s are in the 15-20 percent of GDP range.

**Figure 9: Investment outpaced savings in Indonesia around 2011 giving rise to a current account deficit**  
(percent of GDP, percentage points)



Source: WEO

**Figure 10: The composition of the deficit differs across the “fragile five”**  
(percent of GDP, percentage points)



Source: World Bank staff calculations based on WEO

**..in particular, by strong private investment and**

Data from the IMF World Economic Outlook decomposes consumption, investment and saving into private and public components, providing an insightful breakdown of

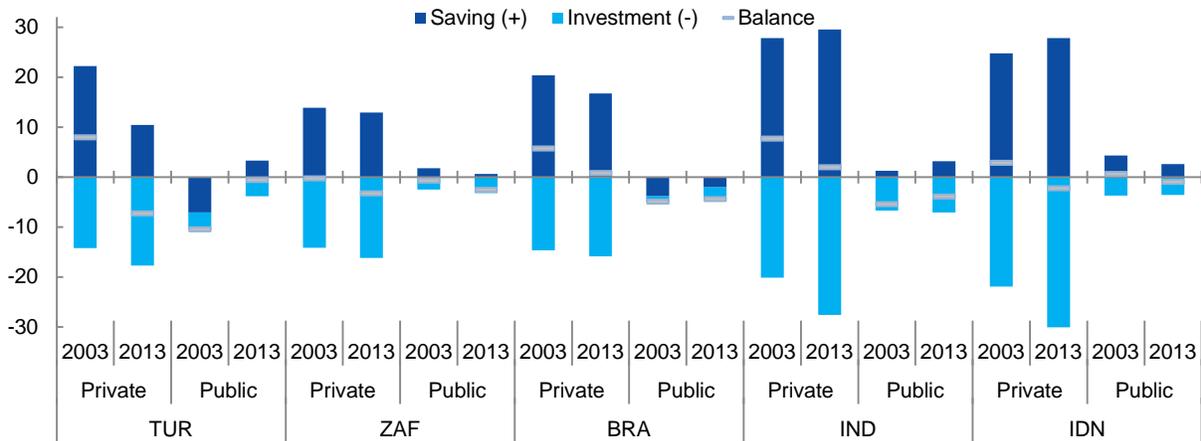
**public sector  
dissaving...**

the current account.<sup>13</sup> Comparing the year 2003, in which the current account balance reached 3.5 percent of GDP, and 2013, with a current account balance of -3.3 percent of GDP is revealing. The current account deteriorated by 6.7 percentage points over the period, with public saving dropping from 4.3 percent of GDP to 2.6 against virtually unchanged public investment, and private savings increased from 24.7 to 27.8 percent to GDP, although failing to offset an increase in private investment from 21.9 to 30 percent of GDP (Figure 11).

**...while the  
underlying drivers of  
current account  
deficits in the  
remaining “fragile  
five” are quite  
diverse**

In Turkey, the increase in the current account deficit is mainly explained by an increase in the private sector deficit that was only partially offset by a contraction in the public sector deficit. Indeed, the gap between private saving and private investment shifted from a surplus of 7.9 percent of GDP in 2003 to a deficit of 7.3 percent of GDP in 2013. Over the same period, the public sector gap shrank substantially from a 10.4 percent deficit to a 0.57 percent deficit. In Brazil, the private sector surplus contracted from 5.7 percent of GDP in 2003 to 0.8 percent of GDP in 2013, while the public sector continued to run a deficit (4.9 percent in 2003 and 4.4 percent in 2013). In India, the private sector’s investment expansion contributed to increase the deficit despite the contraction in the public sector deficit. The 7.5 percentage point increase in private investment rates observed in the period 2003-2013 was not matched by increases in private saving, leading to a contraction in the private sector surplus from 7.7 in 2003 to 1.9 in 2013. During the same period, the public sector reduced its deficit from 5.4 percent of GDP in 2003 to 3.9 percent of GDP. In South Africa, both private sector and the public sector deficit expansions contributed to increase the current account deficit (Figure 11).

**Figure 11: Current account balance, private and public saving and investment in 2003 and in 2013**  
(percent of GDP, percentage points)



Source: World Bank staff calculations based on WEO

**b. Financing of Indonesia’s current account**

**When a country runs  
a current account  
deficit, it borrows**

When a country runs a current account deficit or, equivalently, when it invests more than it saves, it must borrow from the rest of the world (or use its own foreign exchange reserves) to finance that deficit. Conversely, when it runs a current account

<sup>13</sup> To break down consumption, investment, and saving into public and private components, the WEO data combine data from National Accounts and Fiscal Accounts.

**from the rest of the world...**

surplus, it will either lend its excess saving to the rest of the world, potentially in part by accumulating foreign exchange reserves. Indonesia's recent current account deficits make it a net borrower in international markets.

**...and the composition of Indonesia's current account financing has changed over the years**

In the two decades following 1980, "Other" investments – largely constituting currency, deposits and bank loan inflows, provided the bulk of current account financing. These turned around sharply around in the aftermath of the Asian Financial Crisis, with large outflows of both on the assets and liabilities side and remained a small but very volatile component of financing since. Foreign direct investment provided a steadily increasing share of financing up to the Asia Financial Crisis, collapsing with the crisis and recovering in the subsequent five years. During the mid-2013 mini-crisis, described in more detail below, the basic balance (the sum of the current account and FDI) turned negative, indicating that the financing of the current account depends on portfolio investment. Portfolio investment only started playing a role in financing Indonesia's current account deficit in the last decade, prominently through increased foreign purchases of domestic debt securities.

**The mid-2013 volatility is an example of how external conditions can cause concerns around current account financing**

Indonesia's ability to meet its external financing needs was challenged in May-August 2013. During this period global risk appetite towards EMEs fell as investors priced in US monetary policy normalization ("tapering" of the Fed's quantitative easing program beginning in late 2013 and anticipation of continued normalization of accommodative monetary policy). This coincided with the widening of the quarterly current account deficit to a record USD 10.1 billion (4.5 percent of GDP). During this episode, Indonesian equities fell by 24 percent from peak (20 May) to trough (27 August), Rupiah-denominated government bond yields rose by almost 400bp to touch levels last seen in early 2011, and the Rupiah depreciated by 26 percent against the US Dollar.

**Indonesia's position improved since the 2013 mini-crisis, but the adjustment is still incomplete...**

Bank Indonesia's response in tightening credit conditions contributed to a domestic demand slowdown while facilitating, together with a weaker Rupiah, the adjustment of the trade balance. Higher domestic interest rates increased the attractiveness of portfolio assets, encouraged the return of capital flows and helped rebuild reserve assets. To date, reserves have been rebuilt to more comfortable levels, but the current account adjustment remains incomplete – mostly driven by import compression, while non-commodity exports have failed to compensate for the ongoing weakness of commodity exports.

**...the current account however is only a portion of overall external exposures...**

Current account financing should be considered in the context of overall gross external financing needs, that is current account financing and total short term debt liabilities. Total external debt-to-GDP, the sum of the current account balance and external debt amortizations, which is a measure of external exposure, remains moderate in Indonesia, at 11.6 percent of GDP as of the Q1-Q3 2014 period, but the level of the external debt stock and associated amortization requirements has grown strongly, particularly for the private sector, for 2011 onwards. Overall, Indonesia's gross external financing needs have risen significantly over recent years, to finance the current account deficit, and to meet external debt amortizations. Indeed, of the estimated total gross external financing needs in 2013 of USD 83 billion, the current account deficit accounted for only 35 percent, while private and public sector debt amortizations accounted for 50 percent and 15 percent respectively. Short-term external funding pressures could therefore emerge not only from a shift in the availability of external financing in general but also from a rise in financing needs as

a result of not only of a widening of the current account deficit but also if there were to be a rise in external debt amortizations.

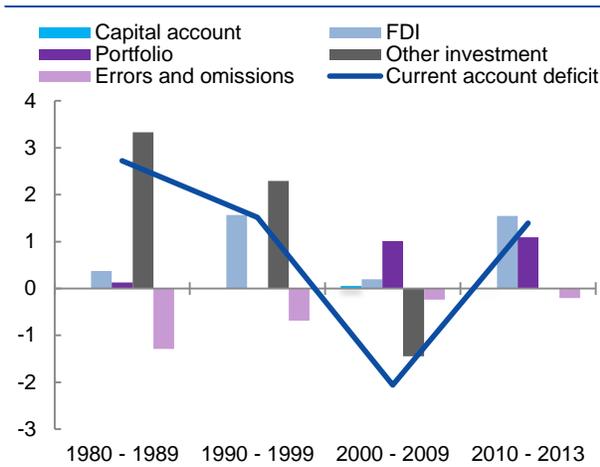
**...but the greatest source of change for Indonesia relative to the “fragile five” has been the swing into current account deficit...**

Comparing the evolution of gross external financing needs across the “fragile five” it is evident that the most important development in Indonesia is the emergence of a current account deficit (Figure 15). Indonesia gross external exposures relative to GDP are well below the “fragile five” average, which are driven by the much larger external exposures of Turkey and South Africa, but are still larger than Brazil’s and India’s. While the bulk of gross external financing needs still come from debt amortization, the big driver of the increase in gross external financing needs for Indonesia since 2010 has been the emergence of a current account deficit.

**..stressing the importance of securing a reliable mix of external funding, including FDI**

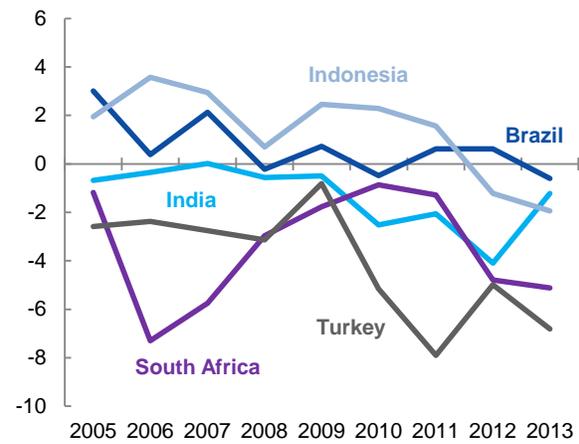
The country’s current account deficit, while not at unsustainable levels, has added to gross external financing needs, and stresses the importance of securing a reliable mix of external funding, including FDI. As less outflow-prone FDI has fallen short of covering the current account deficit, Indonesia has remained dependent on more volatile portfolio capital flows. Encouraging the sustained growth of typically less volatile FDI inflows will require more steps to support investment in general, including by increasing productivity and enhancing the overall business environment.

**Figure 12: Indonesia’s current account financing**  
(balances, USD bn)



Source: IMF WEO

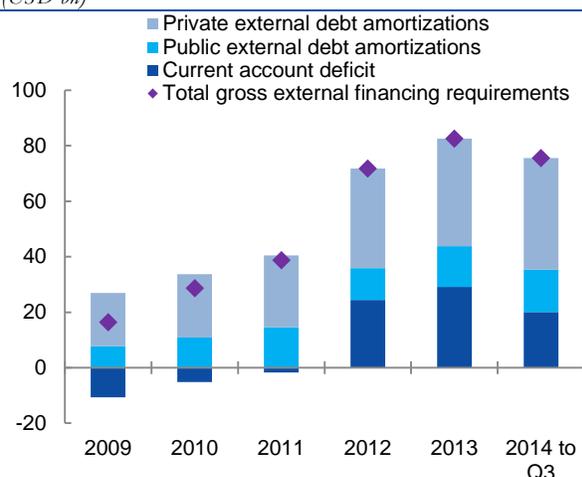
**Figure 13: The decline in Indonesia’s basic balance is a relatively recent phenomenon**  
(balances, USD bn)



Note: Basic Balance is the difference between the current account balance and Net Direct Investment  
Source: IMF WEO

Figure 14: The rise in Indonesia's gross external financing needs...

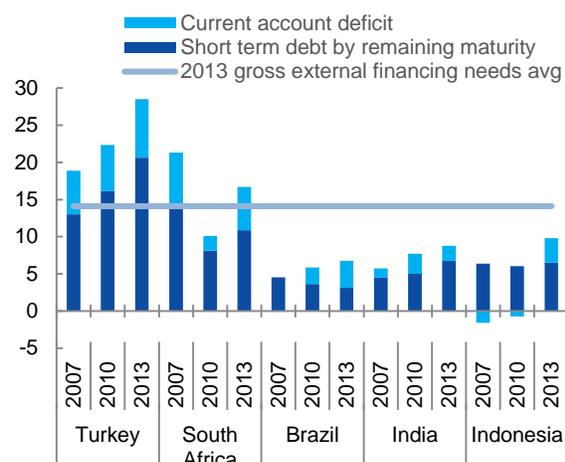
(USD bn)



Source: CEIC; World Bank staff calculations

Figure 15: ...has been driven by the recent current account deficit

(USD bn)



Source: IMF WEO

**Box 3: Current account deficits, reversals and sudden stops: how costly?**

Large current account deficits do not intrinsically represent an economic imbalance, but can rather be consistent with a country stage of development. However, large current account deficits tend to increase a country's vulnerability to sudden stops in foreign financing.

When external financing dries up, these large deficits need to be reduced abruptly. This phenomenon, often referred to as "current account reversals", can be disruptive and costly for an economy and has received a lot of attention in academic and policy circles following the balance of payments and currency crises of the 1990s and early 2000s in developing economies.

Sudden stops of external financing happen in response to changes in economic fundamentals or in market sentiment. They typically induce a sharp depreciation of the real exchange rate, and a reduction in imports, leading to the reversal of the current account to a surplus position (or to a substantial reduction of the deficit). The probability of a reversal, in turn, has been associated with high current account deficits, high external debt and service costs, a rapid rate of growth of domestic credit and low levels of international reserves.<sup>14</sup>

Indonesia's experience in 1997/98 provides an example of how disruptive current account reversals induced by sudden stops can be. Indonesia grew robustly during the period 1990-1996, led by private sector investment, with fiscal accounts in surplus, and strong inflows of FDI, and more volatile short term capital flows that helped financing an apparently manageable current account deficit. Bank Indonesia set the value of the rupiah against a basket of currencies, and intervened in the market around that central rate, which depreciated gradually so as to stabilize the real exchange rate. A band was introduced in 1994 to allow some flexibility, and its width was progressively widened over time. This buoyant economy and ample foreign investment encouraged domestic firms to borrow directly offshore and through banks onshore in foreign currency, without hedging against foreign exchange risk, probably taking for granted that Bank Indonesia would defend the weaker edge of the band, at least long enough for them to hedge their foreign exchange exposure.<sup>15</sup> A number of shocks starting in the mid-1990s led to a progressive deterioration in market sentiment: the Mexican peso crisis, a slowdown in exports, more adverse terms of trade, and, finally, the collapse of the Thai baht. This was combined with a number of vulnerabilities that the Indonesian economy exhibited: growing overinvestment, financial fragility – rapid growth in risky lending, and the aforementioned currency mismatches in corporate and banks' balance sheets.<sup>16</sup> Sporadic speculative pressure occurred, and the collapse of the

<sup>14</sup> Edwards, 2004b.

<sup>15</sup> See page 87 in Kenward, 1999, "Assessing Vulnerability of Financial Crisis: Evidence from Indonesia", Bulletin of Indonesian Economic Studies, vol. 35 No. 3. Pp.71-95.

<sup>16</sup> See Moreno, 2008, "Experiences with Current Account Deficits in Southeast Asia" in Current Account and External Financing, eds: Cowan, K., S. Edwards, and R. Valdes.

baht in July 1997 triggered sharp depreciations of the Indonesian rupiah – putting pressure on firms with dollar debt, and creating gloomy growth prospects. FDI and portfolio inflows dried up, and turned into outflows in the first quarter of 1998. The current account deficit of 2.2 percent of GDP in 1997 reversed dramatically to a 4.1 percent surplus. Real GDP declined by 13 percent in 1998. Investment fell faster than GDP, with the Investment/GDP ratio declining by 3 percentage points from 1997 to 1998, and falling a further 5 percentage points in 1999. CPI inflation escalated up to 58.5 percent in 1998, relative to a moderate 6.15 percent in 1997, with food prices soaring, affecting the poor disproportionately.

The literature shows many episodes of these phenomena occurring in the developing world, apart from Indonesia. Calvo, Izquierdo, and Talvi (2006) looked at episodes of sudden stops and current account reversals in a number of countries. The authors found that output in Mexico declined by 4.8 percent between 1981 and 1983 and by 6.2 percent between 1994 and 1995 (both periods corresponding to sudden stops and current account reversals), while in South Korea output declined by 6.9 percent between 1997 and 1998, and in Thailand by 11.7 percent between 1996 and 1998. During these episodes, asset prices, such as the exchange rate and equity prices, also tend to experience large falls, wiping out wealth.<sup>17</sup>

The exchange rate regime in place also matters for the size of the real effects of these reversals induced by sudden stops of capital flows. Flexible exchange rates tend to act as shock absorbers. For example, through gradual depreciations, economies maintain export competitiveness and discourage offshore borrowing, which allows countries to accommodate better this type of external shock, and avoid the costly currency crises that are often times associated with reversals and sudden stops.<sup>18</sup> Indeed, Komárek and Melecký (2005) looked at the impact of these shocks on economic growth and found that the largest negative effects are associated with the combination of reversals and currency crises (that is, when the impact of the sudden stop on the real exchange rate is large).

The effects on current account reversals differ across sectors. Craighead and Hinline (2013), for example, look at the effect of reversals by sector for a sample of industrial economies, finding that it matters how investment-intensive the sector is, and whether it is tradable. Investment-related sectors, such as construction, mechanical engineering and shipbuilding suffer significant contractions, while other sectors, particularly those related to tradable commodities, and particularly those that are also not heavily dependent on investment, may even benefit. These dynamics are consistent with real exchange rate depreciations and credit crunches accompanying reversals.

Debt-dollarization makes current account reversals and sudden stops even more costly. When firms hold unhedged dollar-debt, as it was the case in Indonesia in 1997/98, their net worth falls since the sudden stop leads to a sharp depreciation of the real exchange rate. This often means that firms struggle to service their debts, which may have systemic consequences on the payments system. Public finances can also be severely hit by sudden stops. To the extent that in developing countries and large portion of public debt is denominated in dollars, sudden stops often increase the burden of public debt repayment, expressed in domestic currency. To maintain servicing of that debt, the authorities will have to run higher primary surpluses, with negative implications for aggregate demand and economic activity.

Source: Authors' elaboration

### c. Export competitiveness

**Export competitiveness is key to reducing vulnerability**

Open economies like Indonesia are exposed to shocks in the global marketplace that affect their ability to earn foreign exchange through exporting and thus their current account position. Diversification of destination and product dimensions helps to reduce these vulnerabilities.

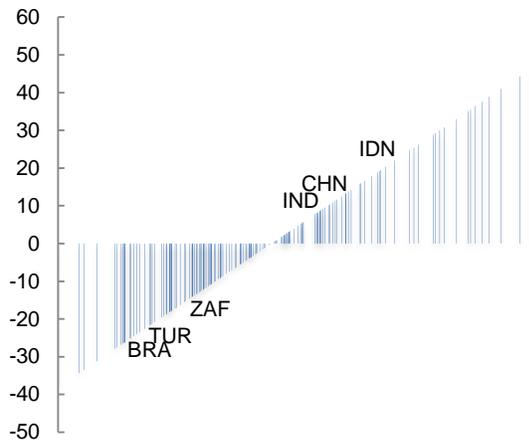
<sup>17</sup> Empirical studies also suggest that the output effects of sudden stops vary substantially by country, depending on a number of factors including openness and exchange rate misalignments prior to the sudden stops. When exchange rates are aligned with equilibrium levels prior to the sudden stop, then the induced effect of the shock is not as large, and nor are the real effects on the economy. For more on the effects of sudden stops, see for example Milesi-Ferreti and Razin, 2000 or Freund and Warnock, 2007.

<sup>18</sup> See Edwards, 2004. Also Edwards, 2004a and Mello et al, 2011, look at the effect of current account reversals on growth and find economically and statistically significant negative effects.

**Indonesia is an active participant in international trade markets...**

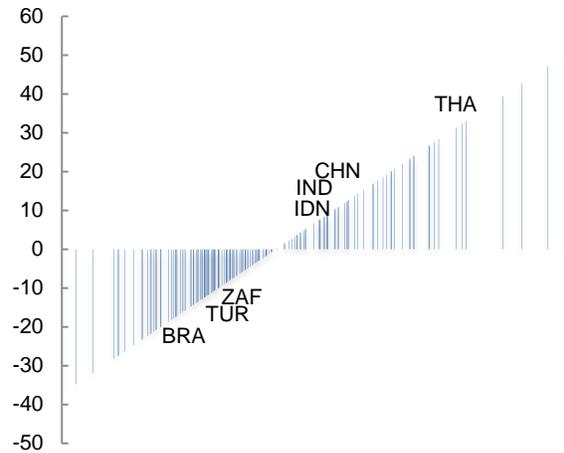
During the period 2000-2013, Indonesia’s exports and imports of goods and services as a share of GDP averaged 30.2 and 26.3 respectively.<sup>19</sup> These indicators are slightly below the average that other countries with similar or even lower levels of development exhibit, such as Vietnam (63.5 and 70.2 respectively). However, assessing integration into the global marketplace by just looking at export and import ratios to GDP can be misleading. Many factors determine a country’s opportunities to participate in international trade markets, apart from its relative level of development. These include, for example, the size of its internal market, which affect domestic firms’ incentives to trade, or whether these countries are landlocked or islands, which affect transportation costs. Figure 16 and Figure 17 show country rankings of export and import orientation indices that factor in these elements. These indices are zero when the actual ratio of export to GDP matches what would be predicted given the aforementioned characteristics (i.e. if exports to GDP are at the average level of those countries with similar characteristics).<sup>20</sup> When exports to GDP are above average, then the index is positive (and vice versa). Indonesia’s export orientation is well above the average, greater than China and India, and substantially above those of Brazil, Turkey and South Africa. With respect to import orientation, Indonesia is just above average, close to the scores of India, and China.

**Figure 16: 2000-2013 Exports/GDP**



Source: World Bank staff calculations based on WDI

**Figure 17: 2000-2013 Imports/GDP**



Source: World Bank staff calculations based on WDI

<sup>19</sup> Exports, imports and GDP are measured in nominal terms.

<sup>20</sup> To calculate the export and import orientation index, average export to GDP ratios over the period 2000-2013 are regressed against averages over the same period as for the log of real GDP, the log of population, a landlockedness dummy and an island dummy.

...but growth in exports has lagged some of its peers...

The value of Indonesia's merchandise exports (measured in current USD) grew at an average annual rate of 11.2 percent during the period 2002-2013. In this respect, Indonesia's performance lags behind that of the other so-called "fragile five" emerging economies such as India, with export growth rates of 19 percent, Turkey, with 14.4 percent, Brazil, with 13.4 percent, and South Africa with 13.3 percent, and also behind other countries in the region such

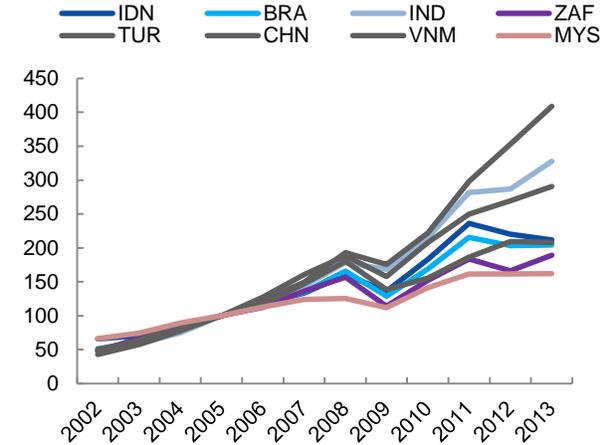
as China, with 19 percent and Vietnam with 21 percent growth per annum. Since 2011, Indonesia's export growth slowed down substantially, on the back of sluggish export demand and decreasing prices for its key commodities. Since 2011, Indonesian exports of merchandise fell at a rate of 5.3 percent, while those of India, for example, grew at a rate of 7.9 percent (Figure 18 and Figure 19).

...and import deceleration followed export deceleration

Considering the most recent 2012-2014 period, and examine both merchandise export and import trends we observe, first, that export deceleration was followed, with a lag, by import deceleration. This pattern is predictable. Previous World Bank analysis shows both a short and long run relationship between imports and exports.<sup>21</sup> Indeed, a large portion of the slowdown in import growth observed during 2012 is explained by the contraction in exports (while the demand for imported inputs to export production is estimated to have contributed almost all import growth in 2013). As a consequence, during 2012-2014, the merchandise trade balance remained relatively unchanged despite the reduction in import growth.

Figure 18: Merchandise Export Values

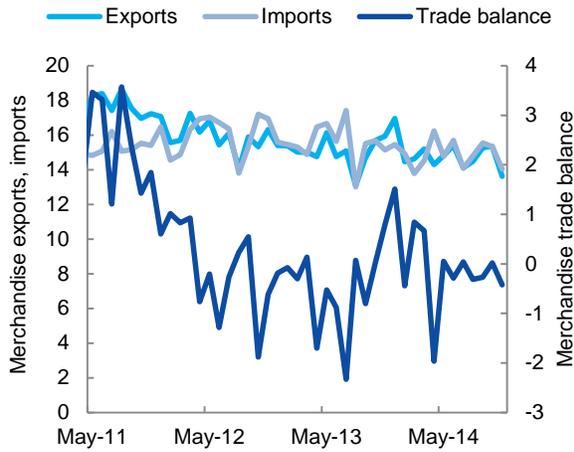
(index base=100 in 2005)



Source: UN Comtrade

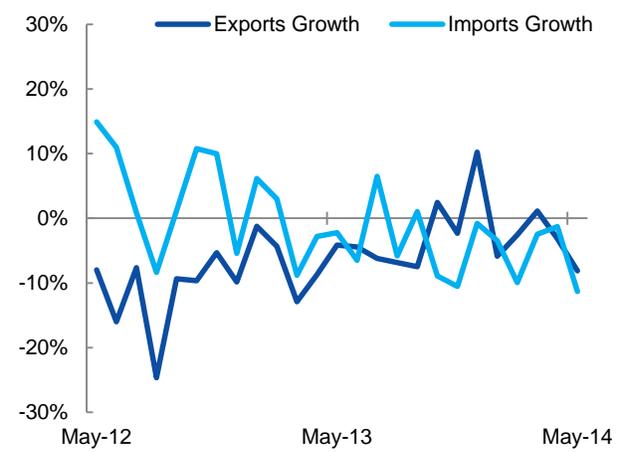
<sup>21</sup> World Bank, March 2014, "Indonesia Economic Quarterly: Investment in Flux".

**Figure 19: Merchandise exports and imports since 2011 – monthly series**  
(USD bn)



Source: GTIS

**Figure 20: Growth of merchandise exports and imports**  
(growth rates, percent)

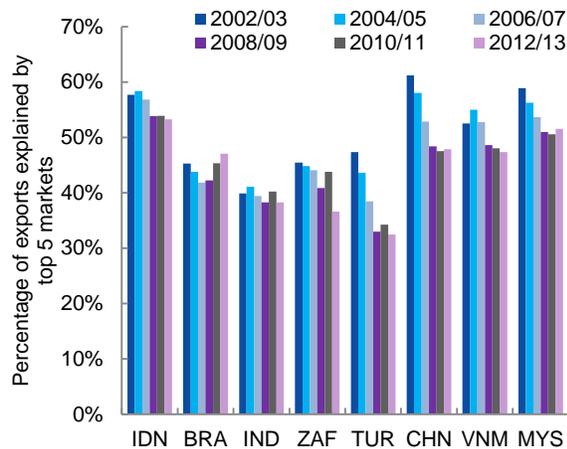


Source: GTIS

**The last 10 years saw a decline in the concentration of exports in the largest five destinations, reducing vulnerabilities to country-specific shocks...**

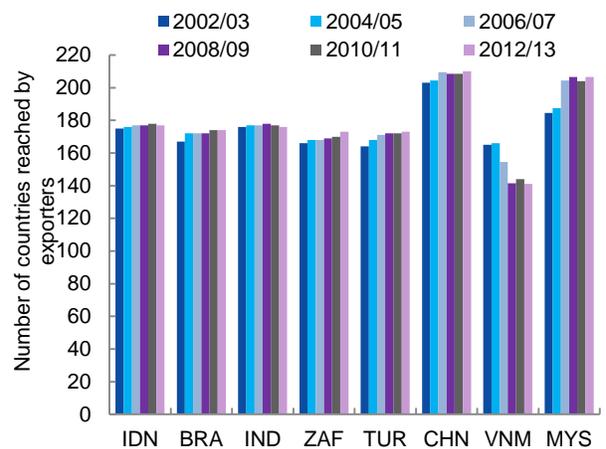
In 2002/03, Indonesia’s five largest export destinations (Japan, USA, Singapore, Korea, Rep., and China) accounted for 58 percent of total exports. In 2012/13, the largest five (with India now replacing Korea) accounted for 53 percent. The decline in the concentration of export earnings is substantial, although the level of concentration remains relatively high (Figure 21). Despite more than 50 percent of export earnings being concentrated in five export destinations, Indonesian exporters sold into 177 markets in 2012/13. This number is relatively large (Figure 22), and higher than those reached by Brazilian, Indian, South African, Turkish and Vietnamese exporters, although lower than those reached by Chinese or Malaysian ones.

**Figure 21: The share of the top 5 export destinations decreased...**  
(percent, percent)



Source: UN Comtrade

**Figure 22: ...While the overall number of export destinations increased slowly**  
(count)



Source: UN Comtrade

**...but exports became more concentrated along**

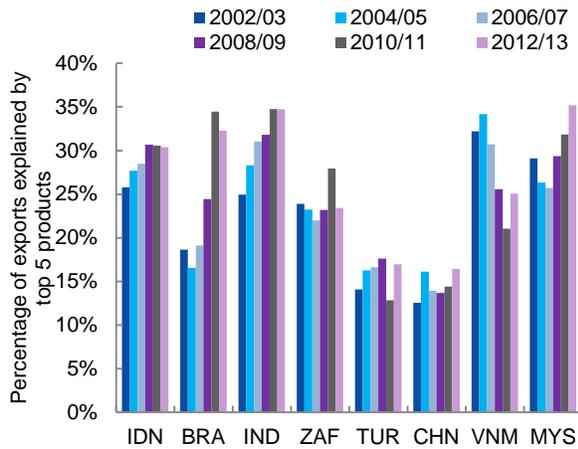
The product diversification trend is opposite to that observed above with respect to destinations. Indonesia has increased its exposure to its 5 most important export products (natural gas, coal, petroleum oils, palm oil and rubber in 2011-2013), from

**the product dimension, increasing risk of product-specific shocks**

25.8 percent to 30.3 percent of total exports (an increase is also observed in India and Brazil) (Figure 23). This concentration is the expected consequence of increasing commodity prices. They have an immediate effect on the values exported of these commodities, and a further effect that takes longer to materialize, via volumes. As commodity prices increase, resources are reallocated away from other activities and into the production of that commodity. The process of concentration is also evident when looking at the trends in number of export product varieties, which fell, from 3,297 in 2002/03 to 3,146 in 2012/13. Among the group of comparators, Indonesia shows one of the lowest product scopes (Figure 24).

**Figure 23: The concentration of exports in the top 5 products increased....**

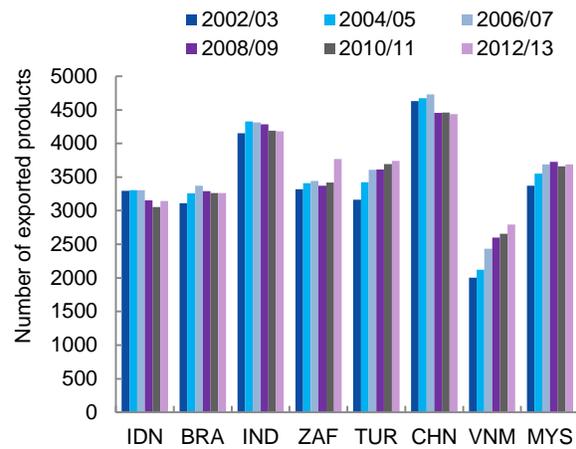
(percent, percent)



Source: UN Comtrade

**Figure 24: ...while the overall number of export products declined**

(count, units)



Source: UN Comtrade

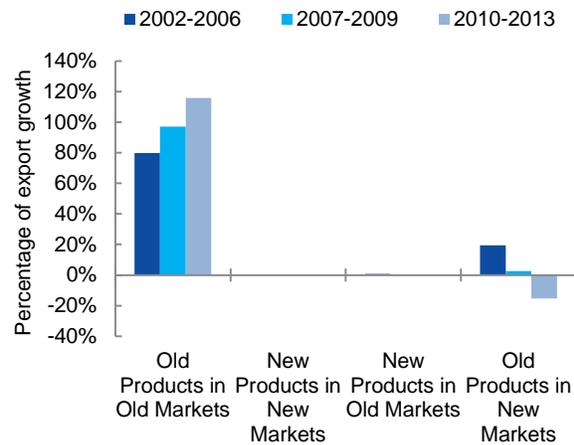
**As observed in most large countries, most export growth in Indonesia consists of more exports of the same products to the same markets**

When we decompose Indonesian export growth into a portion from selling more of the same products to the same destinations (intensive margin), and selling new products to new markets, new products to old markets, or the same existing products to new markets (extensive margin), we observe that more than 95 percent of export growth is accounted for by the intensive margin. This is not surprising for a large economy such as Indonesia; when a country

already trades a wide variety of products, with numerous other countries, diversifying is costly. This is because it typically implies overcoming technological or input-related constraints that prevented firms from producing these products in the first place, or market access barriers that prevented firms from penetrating those

**Figure 25: Export growth has been concentrated in existing products in old markets**

(percent, percent)



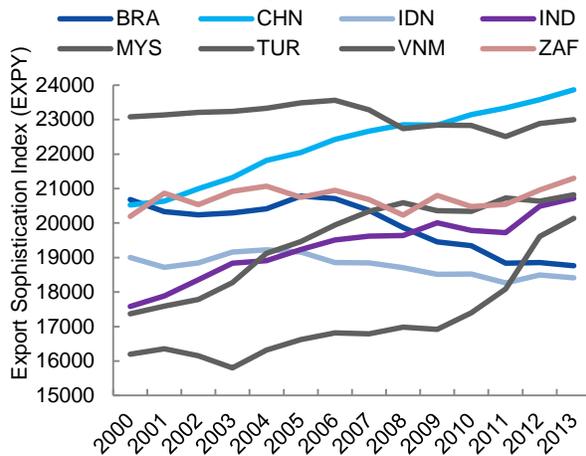
Source: UN Comtrade

markets earlier. However, the pattern observed in Figure 25 is a confirmation of what was revealed by Figure 23 and Figure 24. Diversification along the product dimension decreased from low to null when comparing the pre-commodity boom period 2002-2006, with the commodity boom and the post-boom periods 2007-2009 and 2010-2013. Even the contribution of diversification along the destination dimension to export growth has fallen over the years.

**Sophistication appears to be declining...**

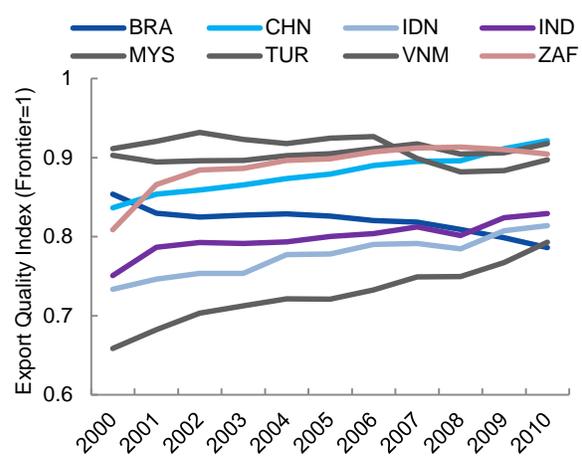
The sophistication of Indonesia’s export basket, as measured by Hausmann, Hwang and Rodrik (2006)’s EXPY indicator has been declining even before the increases in commodity prices.<sup>22</sup> Comparing the export sophistication trends with other natural resource abundant countries, such as Brazil and South Africa, suggests that the decrease is not due only to rising commodity prices. For these two latter countries, the downward trend in sophistication starts in the mid-2000s – the period of the commodity price boom - while for Indonesia, the negative trend pre-dates the boom period and is more or less continuous (Figure 26).

**Figure 26: Indonesia’s export sophistication has been declining...**  
(index)



Source: WDI, UN Comtrade

**Figure 27: ...while quality of exports has increased slowly**  
(index)



Source: IMF-WTO Database

**...but quality, although still low, is increasing**

An indicator of quality based on the prices that export products obtain in international markets reveal that Indonesia’s export quality is low, both when compared to the “fragile five” club, and when compared to other East Asian economies (Figure 27). Until 2008, the average export quality was below that of India, Brazil, China, Malaysia, Turkey, South Africa, and Korea. Despite the low export quality level, Indonesia’s

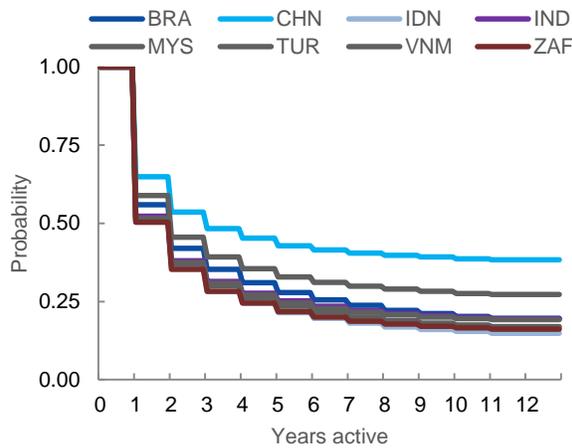
<sup>22</sup> The EXPY indicator estimates the sophistication of products on the basis of income levels of countries that produce (and export) these products. If a product, say, internal combustion engines, is largely produced by rich countries, that product would be revealed to be “rich” and sophisticated. This outcome-based measure of sophistication for each product, called PRODY, is a weighted average of the per capita GDP of countries producing that good. PRODY values of all products that a country exports are then weighted by the products’ share in the country’s total export basket, and summed to derive a country’s level of GDP per capita as inferred from the sophistication of its export basket. Called EXPY, this measures the income content of a country’s export basket, and it is the indicator used in this report. The indicator is regarded as a more inclusive measure of sophistication than intensity in technology or R&D, and it is a predictor of a country’s future growth rates. Indeed, countries with high EXPY tend to have higher growth rates in the future – countries “become” what they export by converging to the income level implied by their export baskets.

export bundle has been systematically upgrading in quality since 2000, now being slightly above of that of Brazil.<sup>23</sup>

**Export survival is amongst the lower in the group**

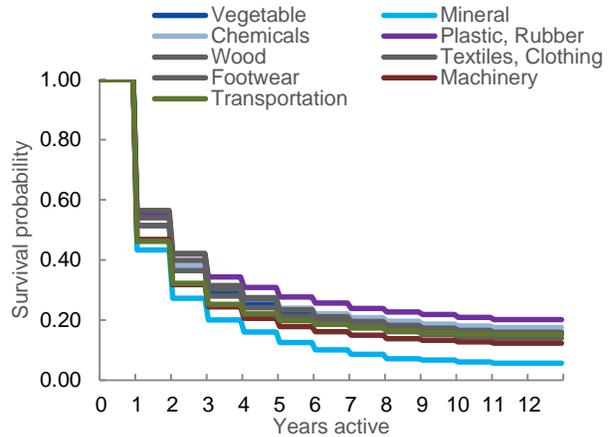
The chances of Indonesian export flows that start in a given year to remain active past the first year is among the lowest, together with that of South Africa, among the comparator group. For countries to achieve fast export growth and diversification, both successful entry into export markets and survival of export flows are crucial. In fact, the literature finds exporting to be an extremely risky activity, and particularly so in less advanced countries. In Indonesia, the chances that a specific product exported to a given destination remains active for at least one year is 51 percent, similar to those exhibited by South African (50 percent), Vietnamese (51 percent), Malaysian (52 percent) or Indian (52 percent) products, and substantially below those displayed by Brazilian (56.4 percent), Turkish (59 percent) or Chinese (65 percent) products. The probability of Indonesian export flows persisting for five years or more is the lowest in the group (21 percent).<sup>24</sup> Among different types of products exported, Indonesia’s footwear, rubber, and wood products are those with the highest chances of remaining active for longer. More sophisticated products, like machinery and equipment and transport equipment show the lowest survival rates. International empirical evidence shows that networks and productivity are crucial for export survival. Firms that are more productive tend to be more resilient to negative shocks, and to maintain their exports for longer. In addition, networks have been found to positively affect export survival by increasing the circulation of information related to compliance with standards required to export specific products or to specific destinations.<sup>25</sup>

**Figure 28: Indonesia’s export survival is amongst the lower in the group...**  
(probability)



Source: WDI, UN Comtrade

**Figure 29: ...with some products performing better than others**  
(probability)



Source: WDI, UN Comtrade

<sup>23</sup> The export quality index is obtained from the IMF-WTO database on export quality and is based on unit values obtained by a given country for a given product relative to the unit value obtained by the country that exports that product at the highest unit value (the quality “frontier”). The quality frontier is normalized to unity.

<sup>24</sup> The 95 percent confidence interval for Indonesia’s export survival probability is (0.504, 0.508). This implies that Indonesia’s survival probabilities are statistically significantly lower than those of India, Brazil, Turkey, China, Malaysia and Vietnam (and only marginally greater than those of South Africa).

<sup>25</sup> For more on links between export survival and productivity, see Martuscelli, A. and G. Varela, 2015. For more on networks and survival, see Cadot, O. et al, 2013.

## C. What is behind Indonesia's current account deficit?

This section analyses the determinants of the current account deficit over the period 1988-2013. First, it discusses the estimated coefficients for a number of determinants (see Box 4, and Cusolito and Nedeljkovic [2013] for more on the methodology). Second, it combines information on the estimated sensitivities with the evolution of these determinants to calculate their contributions to the dynamics of the current account deficit.

### Box 4: Conceptual framework for the analysis of determinants of the current account balance

We begin with the notion, developed in Box 1, that the current account balance reveals the difference between national saving (private and public) and national investments (private and public). To identify the underlying drivers of the current account balance, we relate that balance with the drivers of national saving, investments, government deficits and trade competitiveness factors that may affect the current account directly (with indirect effects on saving and investment):

$$CA(X_{CA}) = S_P(X_S) - I_P(X_I) + S_G - I_G$$

where  $X_S$  are private consumption/saving determinants,  $X_I$  denotes factors that affect private investment and  $X_{CA}$  denotes factors that may influence the current account directly (for example, the export/import determinants, past FDI inflows). Assuming exogeneity of the trade drivers  $X_{CA}$  the current account balance is defined as:

$$CA = g(X_S, X_I, S_G, I_G, X_{CA})$$

and the function  $g(\bullet)$  is assumed linear. The prospective determinants are classified according to their sensitivity to policy decisions, and the sign of their expected effect on the current account balance (Table 1).

**Table 1: Prospective determinants of the current account balance in Indonesia**  
*expected effect on the current account balance*

	Positive	Negative	Ambiguous
<b>SENSITIVITY TO POLICY DECISIONS</b>			
Sensitive to policy in the short run		Government expenditures, REER, credit, energy subsidies	
Sensitive to policy in the medium run			Openness, FDI
Sensitive to policy in the long run	Relative income		GDP growth
External	Growth of main trading partners, Commodity prices, terms of trade	Oil prices	Global uncertainty
Others	Lagged current account/GDP	Dependency ratio	NIIP

Source: Authors' elaboration based on Cusolito, A. and M. Nedeljkovic (2013)

The dependent variable in the analysis is the ratio of the current account balance to GDP.

The explanatory variables and their relationship with the current account balance are described below:

- **Lagged current account balance:** At an annual frequency, current account balances tend to show high persistence, associated with habit formation in consumption and saving, or agglomeration effects in investment.
- **Lagged Net International Investment Position (NIIP):** net foreign assets can affect the current account balance in two ways. First, a large stock of foreign liabilities will require a country to run current account surpluses to pay them off. Second, the country will still pay interest on those liabilities, generating outbound income payments and thus tilting the current account towards a deficit.

- Oil prices: for a net oil importer like Indonesia, oil prices directly affect the oil import bill, thus the current account. As Indonesia turned into a net oil importer only since 2002, oil prices are interacted with a dummy variable that takes value 1 from 2002 onwards, and zero otherwise.
- Commodity prices: a positive terms of trade (ToT) shock can improve the current account via increased saving due to larger current income relative to permanent income (the Harberger-Laursen-Metzler effect). On the other hand, ToT shocks can also affect the optimal capital stock and change investment plans, leading to bigger current account deficits. The greater the persistence of the shock, the more dominant is the investment effect.
- Government expenditures: rising government expenditures increase aggregate demand and depress national saving. Increased demand will be partly satisfied by additional imports (Ahmed 1996). The financing strategy of these expenditures (taxes versus debt) may matter if current generations do not internalize future government debt repayments (Obstfeld and Rogoff 1996).
- Openness: trade openness has ambiguous effects on the current account balance. Less open economies may import less, which may reduce the current account deficit. However, the same countries may have difficulties servicing external liabilities, resulting in higher debt service costs and a greater current account imbalance. On the other hand, greater openness typically allows countries to undertake more investment and to finance the resulting current account deficits with capital flows from abroad. International trade is also a conduit for the transfer of technology, leading in the long run to economic development, thereby improving the current account balance.
- Real Effective Exchange Rates (REER): REER appreciations induce an expenditure switching effect away from domestic goods and into foreign goods, for a given level of expenditure, which increases the current account deficit, all else equal.
- Foreign Direct Investment (FDI): FDI has ambiguous effects on private domestic investment and the current account. It can crowd out domestic investment when local and offshore firms compete for scarce domestic resources (e.g. labor or finance). FDI may also generate local spillovers that “crowd in” domestic investment. Gross FDI may also worsen the current account, depending on the balance of the import content and the amount of profits repatriated on one hand, and the export orientation of multinationals as well as the increase in their production that may substitute imports for domestic consumption.
- Relative GDP growth: the effect on the current account balance depends on agents’ expectations about the implications of growth for future income. If agents consider it permanent, then saving rates could decline, increasing the current account deficit. If instead it is perceived as temporary, saving will increase and the current account balance will increase. GDP growth is computed relative to Indonesia’s main trading partners. Faster trading partners’ growth boosts demand for exports, increasing the current account balance.
- Credit to the Private Sector: proxies financial deepening, and aggregate demand. Relaxed borrowing constraints can reduce private saving (increase current account deficits). Also, if it reduces transaction costs and improves risk management, credit may encourage private saving (decrease current account deficits).
- Relative income: developing economies are expected to run current account deficits as they accumulate capital goods. Eventually, the country will be sufficiently developed to pay its debts by running current account surpluses.
- Global uncertainty (proxied with VXO index<sup>26</sup>): an indicator of global uncertainty in financial markets, increases in the VXO index are expected to increase saving and reduce investments, according to the buffer stock theory. Moreover, higher global financial market volatility is associated with lower availability of foreign financing for emerging markets, thereby contributing positively to the current account balance.
- Energy subsidies: a subcomponent of government expenditures, energy subsidies are expected to also increase aggregate demand. The negative effect of energy subsidies on the current account balance is expected to be larger than that of general government expenditures, as these subsidies directly affect the consumption of imported goods (such as oil).

Some of the factors proposed as potential determinants are in fact jointly determined with the current account balance notably including the real exchange rate, for example. To deal with this “simultaneity” problem, we instrument variables that are likely to be endogenously determined with the current account balance. The instruments consist of lagged values of the variable in question, which are predetermined at time  $t$ .<sup>27</sup> Pre-determination, however, does not necessarily imply “exogeneity” if anticipation effects are present. For these reasons, a caveat is necessary: the results presented here should be read as conditional associations between variables, rather than as strict causal relationships.

Source: Authors’ elaboration based on “Toolkit for the Analysis of Current Account Imbalances” (Cusolito, A. and M. Nedeljkovic)

<sup>26</sup> The VXO index is the Chicago Board Options Exchange Market Volatility Index based on S&P 100 (OEX) options. Given a longer available time history the index is preferred to the more conventional VIX index (computed based on traded S&P 500 [SPX] options).

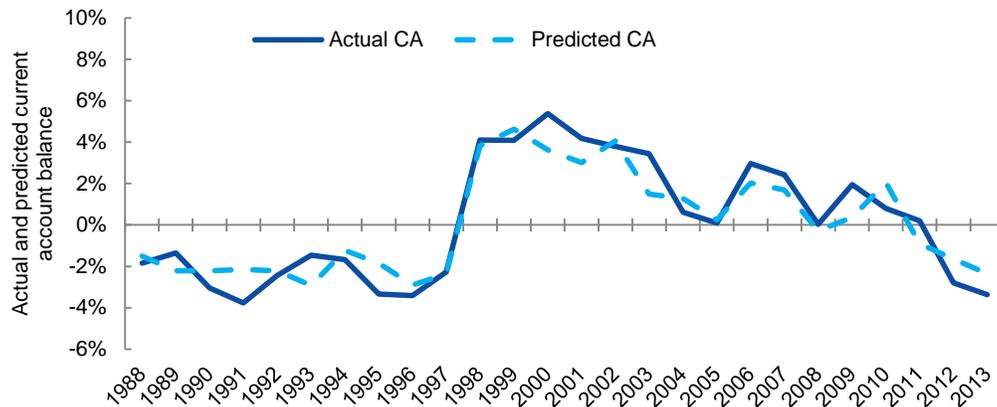
<sup>27</sup> This methodological choice is based on data availability (both in terms of the scope of potential additional explanatory variables, and on the time period available).

## 1. Determinants of Indonesia's current account

**The model we use to explain the current account dynamics fits the data well...**

Results of the model in Figure 30 are summarized in Table 2 below. The model performs generally well, with the difference between the annual or three year averages of the implied current account balance and the observed balance remaining relatively small throughout the period (Figure 30). The only exception is the current account balance improvement over 2005-06 which is only partially explained. The specification captures the most recent deterioration of the current account balance, although its magnitude is slightly under-predicted.

**Figure 30: Actual and predicted current account balances**  
(percent of GDP)



Source: World Bank staff calculations

**A reduction in the energy subsidy bill supports the current account balance**

A one percentage of GDP reduction in the energy subsidy spend increases the current account balance by 0.81 percentage points of GDP. Among the group of variables that are, to some extent, under the control of the policy maker in the short run, Indonesia's current account balance is highly sensitive to a specific portion of government expenditure: energy subsidies. It is likely that recent fuel subsidy reforms will help reduce the current account deficit, by reducing the demand for oil, which accounts for a sizable portion of imports. The dynamics of all other government expenditures were found to be not statistically significant in the main specification, although the result may be due to the small variation in expenditure as a percentage of GDP in the non-fuel subsidy portion of government expenditure. The results from the second specification (last three columns in Table 2), instead, show the expected negative sign of the government expenditure coefficient, suggesting that increases in expenditures are associated with decreases in the current account balance.

**A depreciation of the REER reduces the current account balance**

A ten-percent average currency depreciation over the previous three years is estimated to increase the current account balance by almost half of a percentage point of GDP. Real exchange rate (REER) depreciations make domestic goods relatively cheaper than foreign goods, inducing an expenditure switching effect away from foreign into domestic production. As the structure of the regression indicates, however, the effect takes time to materialize.<sup>28</sup> The modest REER depreciation since 2013, therefore, is expected to be supportive of Indonesia's external balancing.

<sup>28</sup> The magnitude of the effect doubles if instead of looking at the relationship between the real effective exchange rate and the current account balance, we focus on the links between the bilateral real exchange rate of the rupiah/dollar and the current account balance.

**An expansion in the credit stock decreases the current account balance**

A one percent of GDP expansion of the credit stock decreases the current account balance by 0.05 percent of GDP. The rapid expansion of credit in the years through 2012 is thus estimated to have pushed down the current account balance; for example in 2013 by 0.13 percent of GDP. Slower credit growth since 2013 should help alleviate current account pressures.

**Trade integration into the global marketplace increases the current account balance**

Indonesia’s trade integration in the global marketplace relative to its trading partners, as measured by the ratio of imports and exports to GDP, has been systematically associated with increases in the current account balance, after controlling for commodity prices. The effect of openness on the current account balance estimated for Indonesia is in line with the findings for both developed and developing countries reported in Gruber and Kamin (2007) and Chinn and Ito (2007). This implies that further trade integration in the global marketplace relative to its trading partners should have a beneficial effect on the current account.

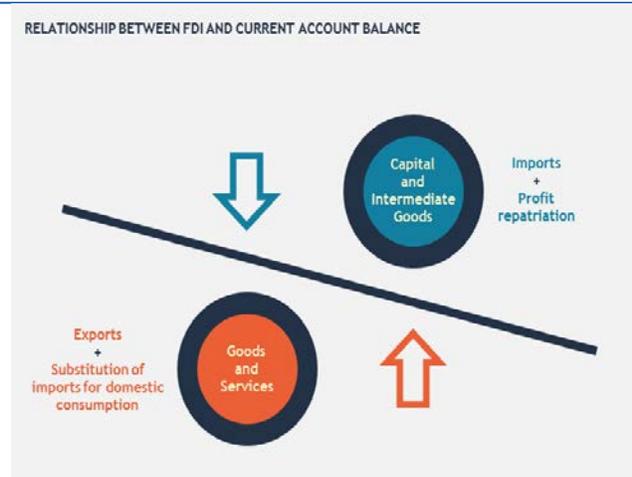
**Foreign direct investment attracted complementary, self-financing imports**

An average increase in FDI inflows by 1 percentage point of GDP during the previous three years leads to a decrease in the current account balance by 0.17 percent of GDP. This implies that FDI inflows increase demand for imports of intermediates and capital goods and profit repatriations by more than they increase exports or induce import substitution. A similar result is obtained when examining the link between lagged FDI and the trade balance, suggesting that the effect of FDI on net-exports is negative even before adding profit repatriations.

**There is ample evidence that Indonesia has gained from increased FDI inflows**

The benefits from FDI should not be solely assessed by its impact on the current account, but by the welfare gains that it brings the population. For example, Blalock and Gertler (2008) find evidence of FDI spillovers to local suppliers. Examining Indonesian manufacturing establishments, the authors show that local firms that supply foreign entrants gain productivity as they face greater competition, which results in lower prices of inputs, not only for those foreign entrants, but also for domestic firms operating in the same market, which also benefit. Duggan, Rahardja and Varela (2013) find that reducing barriers to FDI in the services sector leads to increases in the productivity of manufacturers that use services inputs more intensively, with gains larger when restrictions are reduced in transport and telecommunications sectors.

**Figure 31: Relationship between FDI and current account deficits**



Source: Authors’ elaboration

**Indonesia’s faster growth than its trading partners”**

Real GDP growth in excess to trading partners by 1 percent, leads to a decline in the current account balance by 0.3 percent of GDP. As domestic demand, and consequently import demand, grows faster than external demand for exports, the trade balance deteriorates, putting pressure on the current account. In this sense,

<b>decreases the current account balance</b>	Indonesia's long span of above-trading-partners'-growth has contributed to the reduction in the current account balance.
<b>Increasing relative income has increased the current account balance</b>	Relative income, measured by the ratio of real GDP per capita in PPP terms to trading partners, has a positive impact on the current account balance. This result is expected, since due to diminishing marginal returns to capital accumulation, countries' need to import capital declines as their average income increases. However, as Indonesia's relative income per head remains low, the positive contribution of income convergence to the current account balance has been small over the sample period.
<b>Demographic change supports an increase in the current account balance</b>	Demographic changes, measured by the average five year dependency ratio, have a negative sign of small magnitude, which is expected given the longer horizon over which the demographic trends tend to materialize. The overall impact on the current account balance of demographic change in Indonesia is positive, in line with the decline in the dependency ratio.
<b>Commodity price changes are important in the short and medium run.</b>	Changes in the non-fuel commodity price index have a positive contemporaneous impact on the current account balance. In addition, a positive sign of the coefficient for the three year average terms of trade gains signals a higher positive impact of the commodity price changes on domestic saving related to investment in the medium run, thus contributing to the current account improvements beyond the direct trade impact. <sup>29</sup> The sign of the effect also implies the perceived transitory character of the past terms of trade movements. <sup>30</sup>
<b>Global macroeconomic uncertainty increases the current account balance</b>	Higher global uncertainty, measured by the change in the VXO index has a positive (but not statistically significant) effect on the current account balance. This is expected and in line with the positive impact of the uncertainty on saving and negative on investment due to precautionary behavior of the risk-averse household and the asymmetric nature of firm's adjustment costs. Moreover, higher global uncertainty is associated with lower global liquidity and lower availability of foreign capital for financing current account deficit.
<b>Current account persistence matters</b>	The current account balance in a given year is highly dependent on its previous levels. This can be related to habit formation in consumption and saving or agglomeration effects in investment, which suggests a certain degree of inertia in the current account following its reversal. <sup>31</sup> The size of the persistence effect is in line with the literature on other developing and emerging markets (0.37-0.59). <sup>32</sup> It is however higher relative to some advanced emerging markets (e.g. Turkey or Poland, where this analysis has also been conducted) implying a slower current account adjustment after transitory shocks in Indonesia.
<b>The size of the past NIIP is an important determinant of the future current account balances</b>	The size of the past NIIP is an important determinant of the future current account balances and the estimated coefficient (0.009) is slightly lower than those typically found in the literature for other developing and emerging markets (0.02-0.04), but well above that of some advanced emerging markets where this toolkit was implemented (Turkey, Poland). Both the current account balance and the NIIP are defined in nominal terms, hence a positive coefficient implies that increases in the

<sup>29</sup> The Harberger-Laursen-Metzler effect, due to Harberger, 1950 and Laursen and Metzler, 1950.

<sup>30</sup> An alternative model presented in Table 2 incorporates oil prices, and reveals a small but negative effect of oil prices changes on the current account balance.

<sup>31</sup> The result also provides further evidence on the stationarity of the current account balance.

<sup>32</sup> See Table 1 and Table A2 in Beidas-Strom and Cashin, 2011 for overview of the literature.

NIIP (reductions in net liabilities) result in increases in the current account balance, and vice versa. The positive coefficient suggests two channels of influence on the current account. First, the accumulated level of the NIIP has not presented a strong external borrowing constraint for most of the past period. In order to control for strong decline of the NIIP during the 1998 crises we include the interaction dummy for the period 1998-2001. The estimated coefficient for the interaction term is negative, implying a reduced impact of the NIIP on the current account deficit for high levels of the NIIP. Second, the NIIP accumulation also leads to income outflows in the current account, related to profit repatriations and the interest repayments on debt instruments. This is in line with the difference in the magnitude of the coefficients for the level and the interaction term (implying an additional impact beyond the borrowing constraint) and the increasing contribution of the NIIP to the current account balance over the most recent period which we discuss below.

**Table 2: Estimated coefficients of current account balance models***(dependent variable is the current account balance in percent of GDP)*

Variable	Coefficient	Standard error	Standardized coefficient	CI 90 percent Lower bound	CI 90 percent Upper bound	Coefficient	Standard error	Standardized coefficient	CI 90 percent Lower bound	CI 90 percent Upper bound
Credit in percent of GDP (change)	-0.0453*	0.0204	-0.1190	-0.0800	-0.0106	-0.0456*	0.0199	-0.1198	-0.0818	-0.0094
REER (ln change, 3 year average)	-0.044	0.0220	-0.1260	-0.0895	0.0006	-0.05*	0.0227	-0.1427	-0.0985	-0.0021
WEO non-fuel commodity price index (ln change)	0.048*	0.0180	0.1749	0.0183	0.0778	0.06*	0.0301	0.2192	0.0097	0.1108
Relative GDP growth	-0.3184*	0.0645	-0.3789	-0.4302	-0.2066	-0.26*	0.0862	-0.3094	-0.4131	-0.1069
Dependency ratio (5 year average)	-0.013	0.0042	-0.0300	-0.0368	0.0106	-0.011*	0.0045	-0.0251	-0.0199	-0.0021
FDI in percent of GDP (3 year average)	-0.1658*	0.0219	-0.0790	-0.2842	-0.0474	-0.1526*	0.0152	-0.0727	-0.1898	-0.1154
Relative openness	0.0155*	0.0038	0.1080	0.0012	0.0299	0.0174*	0.0045	0.1210	0.0093	0.0255
Relative income	0.02	0.0068	0.0146	-0.0127	0.0535	0.0176*	0.0063	0.0126	0.0044	0.0308
VXO index (ln change)	0.009*	0.0041	0.0799	0.0011	0.0168	0.003*	0.0010	0.0275	0.0015	0.0047
Government expenditure in percent of GDP (change)	0	0	0	0	0	-0.018*	0.0078	-0.0081	-0.0310	-0.0052
3 year average terms of trade (ln change)	0.1058*	0.0260	0.1713	0.0518	0.1598	0.116*	0.0391	0.1882	0.0516	0.1809
Lagged current account	0.48*	0.0470	0.4760	0.3897	0.5699	0.5134*	0.0428	0.5093	0.4409	0.5859
NIIP in percent of GDP (beginning of period)	0.009*	0.0019	0.0769	0.0001	0.0179	0.0146*	0.0025	0.1247	0.0100	0.0192
NIIP*Crises dummy	-0.004	0.0013	-0.0582	-0.0118	0.0031	-0.0112*	0.0011	-0.1505	-0.0138	-0.0086
Energy subsidy in percent of GDP (change) * Post 2002 dummy	-0.5847*	0.1524	-0.1975	-0.9120	-0.2574					
Oil prices (change) * Post 2002 dummy						-0.022*	0.0119	-0.1173	-0.0415	-0.0030
Energy subsidy in percent of GDP (change)	-0.23*	0.0603	-0.0907	-0.4018	-0.0568					
Oil prices (change)						-0.012*	0.0052	-0.0947	-0.0205	-0.0042

Note: \*indicates significance at 90 percent confidence level

Source: World Bank staff calculations

## 2. Contributions to Indonesia's current account dynamics

<b>What have been the key contributing factors to current account dynamics?</b>	In addition to understanding the determinants of Indonesia's current account, and the current accounts sensitivity to each determinant, as described in the previous section, this section explores the contribution of each determinant to current account dynamics. <sup>33</sup>
<b>REER appreciation contributed to the decrease in the current account balance</b>	REER appreciation over 2010-11 had a mild, lagged negative contribution to the buildup of the current account deficit in 2012. The subsequent real depreciation of the rupiah since 2012, however, has helped to partially offset the deficit during 2013. Further REER depreciation, though modest, should support further current account adjustment, though with a lag as its effect takes time to impact on agents' decisions.
<b>Indonesia's trade integration contributed positively</b>	As Indonesia integrated into the global economy faster than its main trading partners over the period 1988-1995, the contribution of integration to increase the current account balance also increased, to add up to 1.5 percentage points to the current account balance. During the past decade, however, this contribution decreased substantially to below 1 percentage point, since, relative to its peers, Indonesia is becoming less integrated into the global marketplace.
<b>FDI inflows had a narrow negative contribution through self-financing imports</b>	FDI inflows have made a mild negative contribution to the current account balance, by generating more import demand and dividend payments than they generate exports in the short run. However, FDI is generally associated with increased productivity in the domestic economy, increased diversification and sophistication of the production and export bundles, thus reducing vulnerabilities associated with current account deficits, as well as benefiting the economy beyond its direct, short-term impact on the current account balance.
<b>Stronger growth than in trading partners contributed to a decrease in the current account balance</b>	Periods of strong growth of the Indonesian economy relative to the rest of the world have boosted demand for imports beyond the increased demand for Indonesia's exports. Higher relative GDP growth made a substantial negative contribution to the current account balance during 1990-92 and 1993-95, when Indonesia's growth was stronger than its main trading partners. A combination of continued solid economic growth and a sluggish world economy caused an increasingly large negative contribution of relative GDP growth during recent years. In 2011-2013, for example, this variable added, on average, 0.8 percent of GDP to the current account deficit.
<b>Rising relative income made a positive contribution to the current account balance</b>	The stage of the economic development, measured by relative income, has had a slowly increasing positive effect over the entire period of analysis. This suggests that the income convergence process is still at an early stage in Indonesia and its importance is expected to increase in the future.

<sup>33</sup> The distinction between the sensitivity and contribution of a given determinant is important. The former illustrates by how much the current account changes given a small change in one of the determinants. The latter combines information on the sensitivity to a given determinant with the changes in such a determinant over the period, and illustrates how much of the current account deficit observed during a given period is attributable to changes in determinants. Take the case of credit. Indonesia's current account is *sensitive* to credit growth, which increases the deficit, all else constant. However, the *contribution* of credit growth to the current account deficit of Indonesia has fluctuated over the period of analysis. Credit contractions led to improvements in the current account balance over the 1998-2001 crises period, while credit expansions helped increasing the expanding current account deficit over the most recent period through 2013, given by the *relative changes* in the contributions illustrated in Figure 32.

**The dependency ratio, reducing national saving, contributed to the decrease in the current account balance**

The surge in commodity prices had a strong and positive contribution over 2005-2011. In this respect, it has been argued that Indonesia will benefit from a “demographic dividend”, as the current dependent population reaches working age. Reaping the “demographic dividend” benefits related to the current account require declining fertility rates, so that dependency ratios decrease (that is, the working age population grows at a faster rate than the overall population). This, all else equal is expected to increase national saving, and with it, the current account balance.

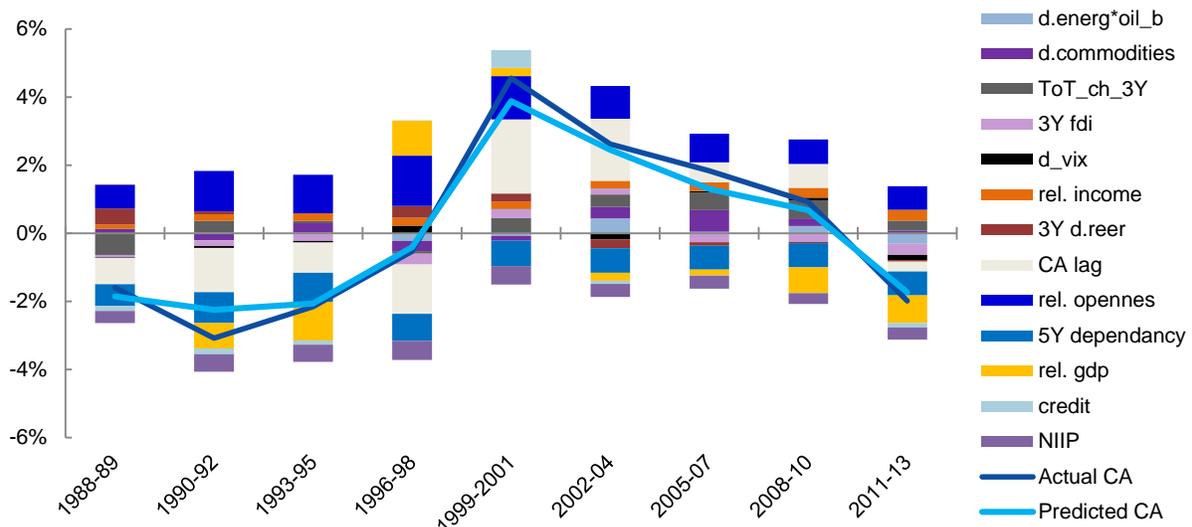
**The surge in commodity prices had a strong and positive contribution over 2005-2011.**

The surge in commodity prices had a strong and positive contribution over 2005-2011. In particular, the commodity price boom of the period 2005-2007, added two thirds of a percentage point of GDP to the current account balance during the period. The contribution shrank by a factor of ten toward the period 2011-2013, when commodity prices only contributed a 0.07 percent of GDP to the current account balance.

**The average contribution of the accumulated net international investment position to the current account balance increased over the post 2008 period**

Finally, the average contribution of the accumulated net international investment position to the current account balance increased over the post 2008 period, although the size of its contribution is still lower relative to the pre-1998 period. The finding reflects a strong buildup of foreign gross liabilities, which increased from USD 228 billion in 2008 to USD 560 billion in 2013, including an increase in the FDI stock from USD 72 billion to USD 251 billion. These developments imply further financial integration in addition to higher potential growth due to foreign investment, with the consequent decrease in the income balance over the same period (from -2.77 to -3.13 percent of GDP). As the share of Rupiah-denominated liabilities (mostly government bonds and equities) increases, exchange rate movements will have a lesser effect on the income balance.

**Figure 32: Contributions to the current account deficit**  
(percent of GDP)



Note: findings of model version where fuel subsidy bill is interacted with 2002 step dummy variable  
Source: World Bank staff calculations

## D. Are recent shifts in Indonesia’s current account structural or cyclical?

### Adding a structural versus cyclical perspective

The analysis of the current account determinants presented so far identified key drivers of the current account but did not distinguish either their origin (national saving or national investment changes), nor the cyclical or structural nature of their impact. This section investigates the cyclical and structural determinants of the saving and investment components of the current account, estimating an approximation to the cyclical and structural dynamics of the current account itself, which is helpful to assess whether the current account is in line with its fundamental value.

#### Box 5: Methodology for the estimation of dynamics and determinants of saving and investment

To analyze the persistence of the variables and the influence of the corresponding drivers we assume that the net national saving and net national investment (seasonally adjusted in percentage of GDP,  $Y$ ) are the sum of its structural, cyclical and irregular components:

$$Y_t = Y_t^S + Y_t^C + \varepsilon_t$$

Further, in order to identify the individual components of the variable  $Y$  we use additional information embedded in the structural and cyclical determinants of the variable (discussed in Box 6) and specify the following law of motion for the components:

$$Y_t^C = \theta Y_{t-1}^C + \beta X_t^C + \varepsilon_t^C$$

$$Y_t^S = \phi Y_{t-1}^S + \delta X_t^S + \varepsilon_t^S$$

where  $\varepsilon_t^S$ ,  $\varepsilon_t^C$  are structural and cyclical shocks which are assumed to be zero mean, normally distributed, serially and cross uncorrelated.  $X_t^S$  and  $X_t^C$ , denote variables which affect the structural and the cyclical component of the variable  $Y$ , respectively. By using additional information embedded in the structural and cyclical determinants within the state space, the estimates  $\hat{Y}_t^S$ ,  $\hat{Y}_t^C$  should be closer to the underlying economic movements in the variable in comparison to purely statistical measures of  $\hat{Y}_t^S$ ,  $\hat{Y}_t^C$ . The choice of whether a variable impacts the structural or temporary segment of the variable  $Y$  is made *a priori* and is based on the results in the existing literature or statistical properties of the drivers. For example, variables which may have both a long-run and temporary impact (e.g. commodity price index) are decomposed into slow-moving (3 year rolling average) and cyclical components (current or lagged change) and the two are used as separate drivers of the two components of saving (investment).

Both components and the parameters are estimated jointly in an extended state space specification. A Kalman filter with diffuse initialization is used for estimation of the state space. The application of the Kalman filter requires further assumptions on some parameters of the model. Following the literature on estimation of the natural rate of unemployment, we assume two “signal to noise” ratios – a ratio of the variance of the structural component to the variance of irregular component of 0.15 and a ratio of the variance of the temporary or cyclical component to the variance of irregular component of 0.4.<sup>34</sup> Alternative specifications of the ratio do not materially change the results. Due to the relatively small length of the sample and a large number of potential determinants, different specifications were estimated and the final specification is that which minimizes the AIC and BIC criterion.

<sup>34</sup> The ratio allows imposing a constraint on the smoothness of the component. Lower values of the ratio imply lower volatility of the components.

Following the estimation of the structural and cyclical component of the saving and investment component of the current account, the structural and cyclical components of the current account itself are calculated as the difference.

Quarterly data over the Q1 1992-Q3 2014 period is collected from various sources. The sample size and the choice of variables below reflect data availability, as discussed further in Box 6.

Source: Authors' elaboration

### Box 6: Determinants of structural and cyclical investment and saving

Table 3: Determinants of structural and cyclical investment and saving

	Structural	Cyclical
Investment	<ul style="list-style-type: none"> <li>Two-year average growth of output per worker as a proxy for productivity growth<sup>35</sup></li> <li>Three-year average level of the ICRG index as a composite measure of quality of institutions, the business environment and political and macroeconomic risks</li> <li>Three-year average FDI inflows (in percentage of GDP)</li> <li>Three-year average change of the commodity price index</li> <li>Three-year average house price index as to capture construction investment trends, which have been positive during the period</li> </ul>	<ul style="list-style-type: none"> <li>Change in the real lending rate<sup>36</sup> as a proxy for the user cost of capital</li> <li>Lagged credit expansion (seasonally adjusted) measured by the change in credit to GDP ratio</li> <li>Lagged real exchange rate change, lagged change in the commodity price index</li> <li>Yield on a 10-year US government bond, as an indicator of international liquidity.</li> </ul>
Saving	<ul style="list-style-type: none"> <li>Two year average growth of the GDP per capita as a proxy for income effects;</li> <li>Three-year average level of the ICRG economy index as a composite measure of the macroeconomic conditions<sup>37</sup>;</li> <li>Demographic changes (dependency ratio)</li> <li>Two -year average change of the commodity price index as a proxy for the terms of trade effects</li> </ul>	<ul style="list-style-type: none"> <li>Change in real deposit rate, GDP per capita growth as a proxy for short term income increases</li> <li>Previous credit expansion measured by the change in the (seasonally adjusted) credit to GDP ratio</li> <li>Previous change in the commodity price index</li> <li>GDP per capita growth as a proxy for a short term income increases,</li> <li>Change in VXO index as a measure for global uncertainty</li> <li>Previous one year and three month return on stock price index</li> <li>Change in inflation volatility as a proxy for short-term macro uncertainty</li> </ul>

Data for a number of potentially important determinants of structural investment and saving were unfortunately not available or not compatible with the frequency and time period of the analysis. For structural investment, data were not available on labor cost dynamics (average wages or real wages), labor market policies (ratio of minimum to average wage, gross unemployment replacement rate) and the business and product market environment variables were not available for the period of study. For structural saving, data were unavailable on social security programs (public social or health spending), labor market policies (ratio of minimum to average wage, gross unemployment replacement rate) and urbanization.

In the cyclical investment and saving components, some of the variables entered the specification with lags in order to capture the time-varying effects in investment and saving decisions. The specification also includes a dummy variable for the quarters with significant changes in the investment to GDP ratio during the 1998 crisis (1998 Q1-Q2), and in the saving to GDP ratio (1998 Q1-Q3).

Source: Authors' elaboration

<sup>35</sup> Total factor productivity data were not available at quarterly frequency. Data on total employment are interpolated (using cubic splines) to quarterly periodicity for construction of the output per worker series. The results are similar using a three year average growth.

<sup>36</sup> A measure of expected inflation is constructed using Consensus forecast data after 1995 and the past three year rolling average inflation for the 1992-1995 period.

<sup>37</sup> Note that in comparison to the analysis of investment determinants we use ICRG index which focuses on the state of the economy rather than a broad index which includes quality of the institutions and the business environment as the latter have less impact on saving decisions.

## 1. Determinants of investment in Indonesia

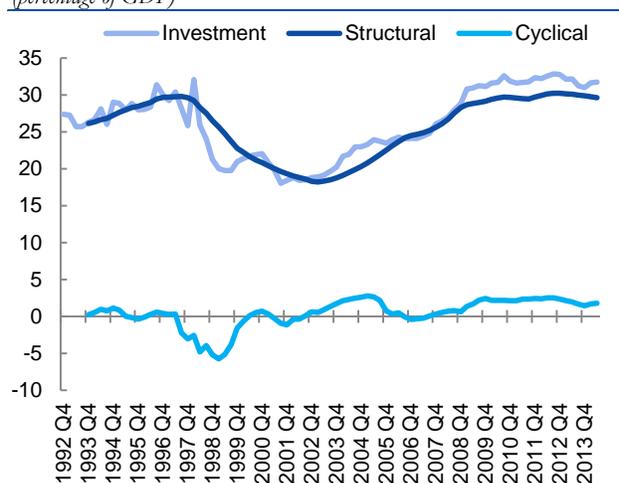
**Structural investment declined at the onset of the 1998 crisis, recovering only in 2003 and stabilizing at around 29 percent of GDP in 2010**

Figure 33 shows the breakdown of investment in Indonesia into its cyclical and structural components. The structural component of investment took a declining path at the onset of the 1998 crisis, which continued for the subsequent four years. The decline in structural investment was driven by heightened macroeconomic uncertainty, and falls in economic activity and FDI inflows. The structural component picked up around the year 2003, driven by favorable commodity prices and an improved macroeconomic environment, encouraging the return of FDI inflows. The contribution of productivity to structural investment became stronger after 2008, while investment stabilized at a level of around 29 percent of GDP from 2010 onwards.

**Cyclical investment appears to have peaked in 2012**

Cyclical dynamics exhibit a similar behavior. The cyclical component of investment fell sharply during and after the 1998 crisis. It subsequently recovered, with a positive cycle from 2002-05, and period of relative decline in 2005-07. Since the year 2007 the movements in the cyclical component have been more positive, peaking around 3 percent of GDP in 2012. The last quarters of 2013 saw a slowdown in the cyclical component following a slowdown in commodity prices and credit growth, with a minor rebound in the first two quarters of 2014.

**Figure 33: Components of aggregate investment**  
(percentage of GDP)



Source: Authors' estimates

**Table 4: Determinants of aggregate investment**

	Variable	Coefficient	Standard Error
structural	Lagged value	0.9083	0.0394
	GDP growth per worker (2Y average)	0.2477	0.1381
	ICRG (log, 3Y average)	0.3031	0.1535
	FDI (in percent of GDP, 3Y average, 1Y lag)	0.1291	0.0542
	CommPixog (3Y average change)	0.0542	0.0220
	House price index (3Y average change, 1Y lag)	0.0394	0.0212
cyclical	Lagged value	0.9119	0.0341
	Real exchange rate (change, 3Q lag)	-0.0200	0.0103
	Yield on 10 year US government bond (change, 4Q lag)	-0.0033	0.0026
	CommPixog (change, 4Q lag)	0.0129	0.0064
	Credit (in percent of GDP, change, seasonally adjusted 1Q lag)	0.1322	0.0288
	Real lending rate (change)	-0.6216	0.0947
	Dummy (1998Q1,Q2)	0.0389	0.0145
Log likelihood			-98.803
AIC			225.607
BIC			259.471

Source: Authors' estimates

### a. Structural component of investment

<b>Productivity growth boosts structural investment...</b>	Productivity growth is found to be a determinant of the structural component of investment. Rising medium-term productivity growth increases firms' profit expectations and consequently investment.
<b>...as does macroeconomic stability...</b>	Macroeconomic stability is positively associated with structural investment. Reduced macroeconomic and political risks and improvements in structural characteristics of the economy (as captured by the ICRG indicator) lead to higher investment. This result is in line with that previously reported by the IMF (2012). <sup>38</sup>
<b>...favorable commodity and housing prices...</b>	Due to the large size of the commodity sector, commodity prices play a structural role in investment. Commodity price changes over the medium-term tend to impact the investment behavior of firms, reflecting the large importance of the commodity sector for the overall dynamics of investment, and of economic activity in general. The structural component of investment in Indonesia is also positively associated with medium run trends in house prices.
<b>...and past FDI inflows help crowd-in domestic investment</b>	Lagged FDI inflows are positively associated with the structural component of investment rates. An increase in the average of the previous three years of FDI inflows by 1 percent of GDP, increases gross investment rates by 0.13 percent of GDP. This may be indicative of "crowding in" effects of past FDI on national investment, given that the model controls for output growth and commodity prices. This helps explain the finding of the previous section suggesting that increases in FDI flows into Indonesia are associated with subsequent increases in the current account deficit. As FDI increases crowd in further domestic investment, this increases the needs for foreign financing, and therefore increases the current account deficit. The result may also be capturing a "momentum" effect that operates beyond commodity price effects or booms in economic activity. For example, if investment promotion efforts are clustered together in a particular time period, then past FDI booms may be correlated with current booms in investment (and the converse is also true).

### b. Cyclical component of investment

<b>Lower cost of capital, and credit expansions, boost cyclical investment...</b>	A fall in the lending rate lowers the user cost of capital and leads to higher investment. <sup>39</sup> The positive estimated impact of the credit expansion that took place through 2013 is in line with the experience of other emerging markets (consistent with a still shallow financial market and the prevalence of bank credit as the source of external finance for firms). <sup>40</sup>
<b>...as do real currency depreciations...</b>	Increases in the cyclical component of investment are positively associated with real exchange rate depreciation. A negative sign for the real exchange rate change suggests that improvements in price competitiveness lead to export-led investment that tends to dominate the increased cost of imported capital and intermediate goods. Real exchange rate depreciations also encourage investment to substitute away from more expensive imports.

<sup>38</sup> The IMF explored the impact of two specific sources of macroeconomic volatility on aggregate investment: interest rates and exchange rates. They found a negative correlation between the two volatility indicators and aggregate investment. These two variables are included under the cyclical component of investment

<sup>39</sup> IMF (2012) reports a similar result on the growth of aggregate investment.

<sup>40</sup> For example, in Turkey and Georgia, two countries in which this toolkit was also piloted, revealed similar responses of the cyclical component of investment to credit expansions. In Turkey, the estimated coefficient was 0.1388, while in Georgia it was estimated at 0.0345.

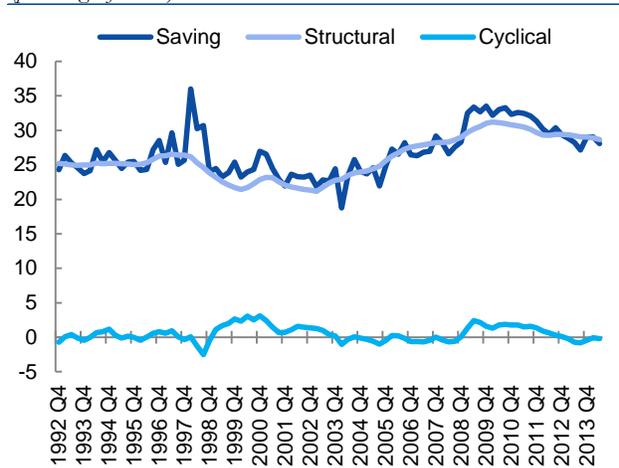
- ...upswings in global commodity prices...** Commodity price gains are associated with increases in the cyclical component of investment, with a one year lag. Increases in the index of Indonesia's main 6 commodity prices excluding oil and gas tend to increase investment over the cycle. Higher commodity prices incentivize investments in the commodity-producing sector as its relative profitability increases. In addition, they also impact on the availability of investable funds, thus relaxing credit constraints that may be impeding investment in that sector or elsewhere.
- ...and lower cost of international financing** Lower yields on US bonds are associated with a lagged increase in cyclical investment. This finding is consistent with reallocation of international portfolios in search for higher yields.

## 2. Determinants of saving in Indonesia

**The structural component of saving has declined since 2009...**

The estimated cyclical and structural components of saving are shown in Figure 34. The estimated structural component dropped from 26 percent of GDP at the onset of the 1998 crisis to slightly above 21 percent in 2000. It fluctuated over 2000-02 and increased continuously thereafter, until 2009, driven by improvements in all key determinants. The post-2009 decline in saving was a consequence of both structural and cyclical factors, driven on the structural side by declining GDP growth and the extended fall in commodity prices.

**Figure 34: Components of aggregate saving**  
(percentage of GDP)



Source: Authors' estimates

**..together with the cyclical component**

The cyclical behavior over the post crises periods implies relatively long cycles of five years: a positive cycle following the 1998 crisis, negative cycle over 2004-08, and a positive cycle post 2008, which is showing signs of moderation.

**Table 5: Determinants of aggregate saving**

	Variable	Coefficient	Standard Error
structural	Lagged value	0.8901	0.0401
	CommPixog (2Y average change, 1Y lag)	0.0502	0.0226
	GDP per capita growth (2Y average)	0.2685	0.2137
	ICRG (log, 3Y average, 1Y lag)	0.0125	0.0058
	Dependency ratio (3Y average, 1Y lag)	-0.0318	0.0211
cyclical	Lagged value	0.8151	0.1216
	Credit (in percent of GDP, change, seasonally adjusted 1Q lag)	-0.0011	0.0005
	Three month return on stock market index	0.0203	0.0092
	CommPixog (change, 1Q lag)	-0.0192	0.0147
	GDP per capita growth (2Q lag)	0.0189	0.1202
	Dummy (1998Q1,Q2)	0.0815	0.0159
Log likelihood			-159.490
AIC			342.990
BIC			372.720

Source: Authors' estimates

### a. Structural component of saving

**Increasing real income per capita adds to the structural component of saving...**

An increase in real income (GDP per capita) over the medium term is associated with increases in the structural component of saving. The positive sign of the relationship is consistent with the empirical evidence for developing countries (Carroll and Weil 1994) that in growth-accelerating episodes, higher growth tends to precede and statistically cause higher saving, while the opposite tends to be the case in developed countries.

**...together with economic stability...**

Improvements in the overall state of the economy increase the structural component of saving. The positive impact of the indicator of economic stability (proxied by ICRG) on saving rates contrasts with the results typically found in the literature. Generally, as uncertainty increases households and firms tend to save more for precautionary reasons, and vice versa. However, in the case of Indonesia, the result is the opposite. It is possible that if agents lost confidence in the banking sector and financial markets as saving channels during the 1998 crises, subsequent reductions in economic uncertainty led to an increase in confidence in the banking and financial system, and therefore to increased saving rates.

**...favorable commodity prices...**

Commodity price gains over the medium horizon support savings-formation. Two-year averages of commodity price gains have a positive impact on the structural component of saving, consistent with the gains being perceived as temporary (as discussed in the current account determinants section).

**...and a decline in the dependency ratio**

Structural saving is positively affected by a reduction in the proportion of the dependent population. The three-year average dependency ratio has the expected negative sign, in line with standard life-cycle models. As the ratio of dependents to the working population declines, saving will tend to increase.

### b. Cyclical component of saving

**Reduced by credit expansions, and boosted by GDP growth and stock market returns...**

Greater access to credit reduces saving over the cycle, by softening household and corporate liquidity constraints. Equity returns and the growth of real GDP per capita, conversely, have a positive impact on the cyclical component of saving through income effects and increases in profitability, although the latter variable is not statistically significant.

**...and reduced by short term commodity price gains**

Commodity price gains lead to lower cyclical saving, suggesting feedback from higher income from commodities to increases in consumption. The estimated effects of commodity price changes on the cyclical and on the structural component of saving go in opposite directions. It is possible that if agents face liquidity constraints, then even if they perceive that the revenues originating in a commodity price boom will be temporary, they may consume a portion of it in the short run, to bring their consumption levels closer to the desired level.

## 3. Structural and cyclical components of the current account balance

**The structural component of the current account balance is estimated to be at -1 percent of**

The reduction in the current account balance, particularly since 2011, reflects a deterioration of both cyclical and structural factors, suggesting a structural current account balance of almost -1 percent of GDP, with a 90 percent confidence interval of  $\pm 2$  percentage points of GDP (i.e. between -3 and 1 percent of GDP). As Figure 35 shows, the fall in the medium term component is driven by the strong increase

**GDP, ±2 percentage points of GDP**

(catch-up) in investment after 2005, driven by improved growth prospects, commodity price gains, and a slowdown in saving since 2009. Further, the strong cyclical expansion of investment and the recent slowdown in saving contributed significantly to the worsening of the cyclical component of the current account.

**Credit expansion decreased (increased) cyclical savings (investment)**

Credit expansions lead to both a decrease in the cyclical component of saving and an increase in the cyclical component of investment, thus leading to a higher current account deficit in the short-run. This result is consistent with the findings on current account determinants reported in Section 2.

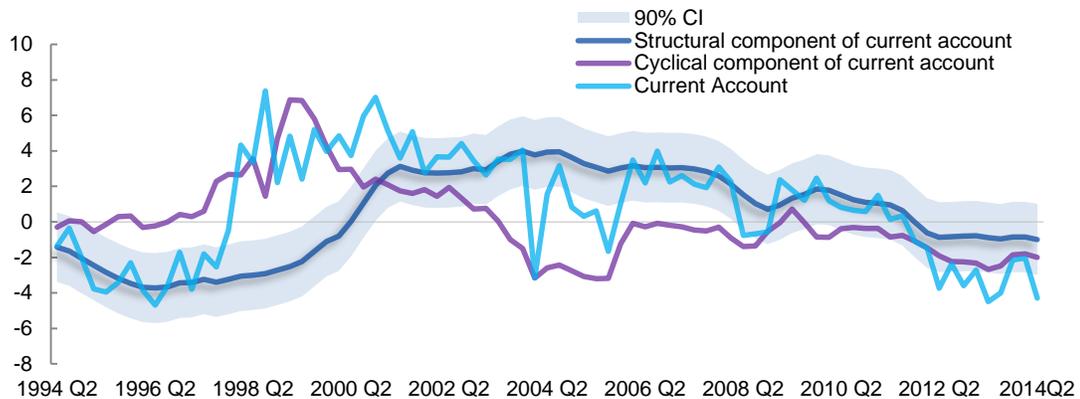
**The effect of commodity prices gains differs in the long and the short run**

The effects of commodity prices on the current account balance are more complex. Commodity price increases lead directly to increases in the trade balance and thus on the current account balance. Their effects on investment and saving differ when we focus on the short run (cyclical components) or long run (structural component). In the short run, commodity price gains lead to both a decrease in the cyclical component of saving and an increase in the cyclical component of investment, thus leading to a short run increase in the current account deficit. Over the long run, commodity price increases induce an increase in saving that predominates over the induced positive effect on investment, leading to an overall positive impact on the current account.

**Increased real income affects the current account via saving, while FDI crowds in domestic investment**

The positive impact of real income growth on saving suggests that the positive impact of relative income on the current account balance is working through increased saving. The negative association between lagged FDI inflows and the current account described in Section 2 is likely associated with the fact that FDI inflows tend to crowd-in further domestic investment, thus increasing the foreign financing needs of the economy and increasing the current account deficit, at least in the short-run.

**Figure 35: Components of current account balance**  
(percentage of GDP)



Source: Authors' estimates

## E. How far can the Current Account and the Net International Investment Position (NIIP) deviate from their path?

This section uses the estimates described above to simulate the deviations of the current account and NIIP from a baseline projection<sup>41</sup>, which can be thought of as no major change, under three alternative scenarios: a “benign” world, an “adverse” world, and the case in which the government embarks in a large infrastructure investment program.

### Box 7: Simulating Indonesia’s current account balance and its net international investment position

The current account balance and NIIP are simulated over the medium term using projections of the determinants of the current account from the IMF’s World Economic Outlook (WEO), and the World Bank Indonesia country office, together with assumptions on rates of return and relative valuation effects of foreign assets and liabilities.

This simulation is akin to a static “what if” analysis rather than a forecast and it should not be read as such. First, estimated parameters from the model are kept constant over a relatively long horizon, while a more sophisticated, general equilibrium analysis might allow these to change. Second, the underlying model is descriptive in nature, hence built to provide an accurate representation of the determinants of the current account balance, rather than to minimize forecast errors. Third, projections of some key determinants, such as GDP and commodity prices, have continued to shift since the time that this report was prepared (in late 2014).

The methodology applied does not impose steady-state assumptions on the economy as these do not typically hold for emerging countries (Cusolito and Nedeljkovic (2013)), but rather focuses on the reasoning that the current account deficit may be sustained as long as international investors are willing to finance it. This depends, ultimately, on the accumulated level of the NIIP.

The methodology consists of following steps:

1. Simulations of the current account balance are generated from 2014 onwards using the coefficients from the current account determinants equation and the projected values of determinants.
2. The NIIP stock is calculated using the current account projections described above, the stock of foreign assets and liabilities in the previous year, projections of capital flows and calibrated rates of return on foreign equity assets and liabilities.
3. The steps above are repeated recursively to generate the paths of the current account and the NIIP until 2019, and the analysis is repeated for different scenarios.

<sup>41</sup> A brief description of the simulation methodology is provided in Box 6 and a more detailed discussion is relegated to the Appendix.

No capital gains on reserves, other investment assets and liabilities, portfolio debt assets and liabilities and the debt component of FDI are assumed, since their returns enter the current account directly. The growth rate of prices on portfolio equity liabilities and assets is set at 5.5 percent and 7 percent respectively. This assumption is based on the past 5-year average total return on the MSCI Indonesia and MSCI World indices, adjusted for nominal GDP growth.

As the projected rate of returns to assets and liabilities are tilted in favor of Indonesia it is important to gauge to what extent this assumption drives the results. The assumption has little impact on the dynamics of the current account, changing it by a maximum of 0.1 percent of GDP per year for a 1.5 percentage point increase in liability returns or a 1.5 percentage point decrease in asset returns. The NIIP dynamics on the other hand are moderately sensitive to the net returns.

Figure 36 shows the pattern of the simulated NIIP under alternative assumptions on the rates of returns on assets and liabilities. Assuming an equal rate of return on assets and liabilities, leads to a more negative NIIP by at most 0.7 percent of GDP per year. Finally, The NIIP dynamics are mechanically sensitive to the assumed rate of return on the equity liabilities, increasing the annual rate of return by 100 basis points worsens the NIIP position by a cumulative 4 percentage points of GDP by 2019.

The growth rate of FDI prices is calibrated following Tille (2008), assuming a nominal interest rate of 7.5 percent on liabilities and 5 percent on assets; and the ratio of reinvested to distributed earnings on FDI to be equal to 0.5, in line with the average yield on long-run government bonds and the observed income outflows, respectively.

The nominal GDP growth for the 2014-2019 is consistent with the World Bank Indonesia country office Medium Term Fiscal Framework (MTFF) allowing for (realistic) possibility that the economy has not reached the steady-state and hence a constant nominal GDP growth rate. All additional projections and sources are reported in Table 6 below.

**Table 6: Projections and sources for relevant variables**

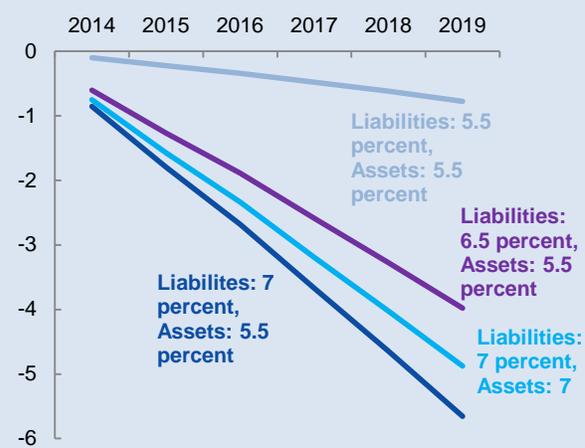
	Unit	2014	2015	2016	2017	2018	2019	Source
Real GDP growth	pc	5.40	5.60	6.00	6.00	6.00	6.00	WEO
Nominal GDP growth	pc	-0.88	10.39	11.09	5.24	8.67	8.72	WBIDN
Nominal credit growth	pc	17.00	15.00	15.00	15.00	15.00	15.00	WBIDN
Government expenditure (change)	pp	0.20	0.20	0.20	0.20	0.20	0.20	WBIDN
Dependency ratio	p	0.529	0.526	0.524	0.521	0.519	0.516	Authors
Real GDP growth of major trading partners*	pc	3.75	3.80	3.80	3.80	3.80	3.80	WBIDN
REER appreciation	pc	-2.00	-2.00	1.00	1.00	1.00	1.00	WBIDN
Crude oil price	USD	96.2	53.2	56.3	60.8	65	69.4	WB
Non-fuel commodity prices	pc	-3.54	-4.01	-1.00	-0.45	-0.48	-0.65	WEO
Terms of trade	pc	-0.88	-0.01	-2.50	-1.32	-1.57	-0.74	WEO
Relative trade openness (change)	pGDP	0.88	0.82	-0.04	-0.06	-0.12	-0.15	WEO
Relative income	p	16.2	16.6	17	17.4	17.8	18.2	WEO/WBIDN
Gross FDI inflows	pGDP	2.12	2.10	2.03	2.05	1.98	2.00	WEO
VxO	index	13.30	14.64	15.98	17.32	18.66	20.00	Authors

\* These are: Australia, China, Germany, India, Italy, Japan, Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand, US

Note: pc = percentage change, p = percent, pGDP= percent of GDP. WEO = IMF World Economic Outlook, WB = World Bank commodity outlook, WBIDN = World Bank Indonesia country office

Source: Authors' elaboration

**Figure 36: Sensitivity of NIIP simulation to different rates of return relative to baseline**



Source: World Bank staff calculations

**The current account balance and NIIP are simulated under a “benign” scenario**

Under the scenario of benign external conditions, oil prices continue declining relative to the World Bank’s commodity outlook projections, falling an additional 20 percent. Non-oil commodity prices, on the other hand, recover somewhat from the recent decline, gaining 15 percent. Indonesia’s terms of trade thus improve consistently and the global risk indicator (VxO) falls by 15 percent relative to the baseline, indicating favorable global risk appetite and financing conditions.

**...an “adverse” scenario...**

The adverse world scenario is designed as the opposite of the benign scenario described above. In this world, oil prices recover faster than anticipated, non-oil commodity prices decline faster than anticipated, Indonesia’s terms of trade deteriorate and the global risk indicator spikes by 15 percent relative to baseline, along the lines of the increase in international market volatility experienced during the mid-2013 mini-crisis.

**... and a “policy push” scenario**

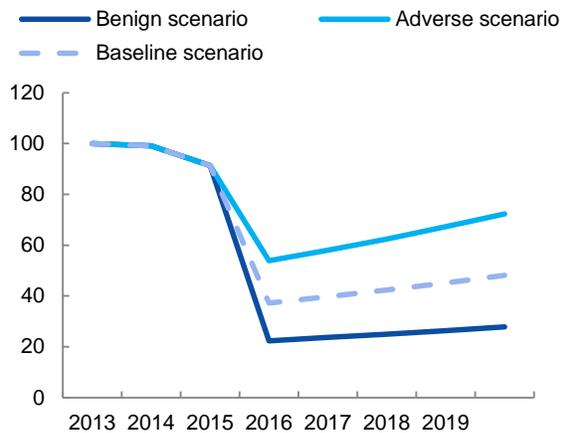
The policy push scenario keeps external conditions unchanged relative to the baseline and simulates the impact of a large increase in infrastructure investment from the government. Under this scenario, infrastructure investment increases, generating a 0.5 percentage point increase in GDP growth. Increased domestic demand spurs credit growth, which increases by 1 percentage point relative to baseline. Increased investment (and an improved capital stock) attracts additional FDI, which increases by 0.7 percentage points, corresponding to an additional USD 2 billion per quarter; the import content of FDI increases trade openness by a total of 0.4 percent of GDP. The three scenarios are summarized in Table 7 below and the evolution of external conditions for the first two scenarios are depicted in Figure 36 to Figure 39.

**Table 7: Simulation scenarios**

Variable	Benign world	Adverse world	Policy push:
Oil price	20 percent lower	20 percent higher	--
Non-oil commodities	15 percent higher	15 percent higher	--
Terms of trade	Stronger*	Weaker*	--
VxO	15 percent lower	15 percent higher,	--
Credit growth	--	--	1pp higher
Relative GDP growth	--	--	0.5pp higher
FDI in percent of GDP	--	--	0.7pp higher
Relative openness	--	--	0.4 percent of GDP

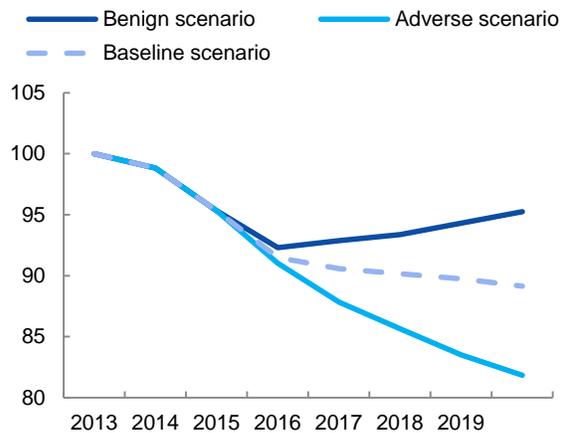
Note: \* as implied by relative prices of crude oil and non-oil commodities. Values relative to baseline.

**Figure 37: Simulation crude oil price**  
(index: 2013 = 100)



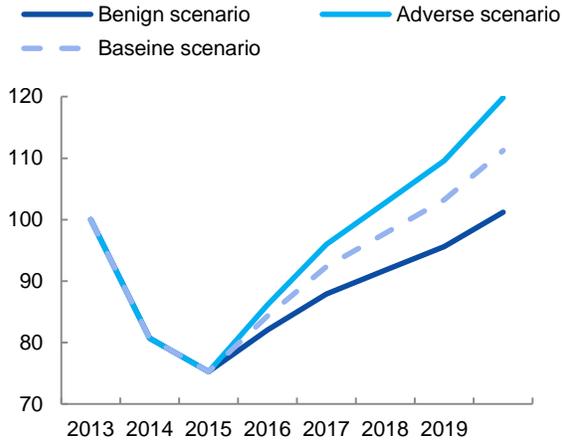
Source: World Bank staff calculations

**Figure 38: Simulation: non-oil commodity prices**  
(index: 2013 = 100)



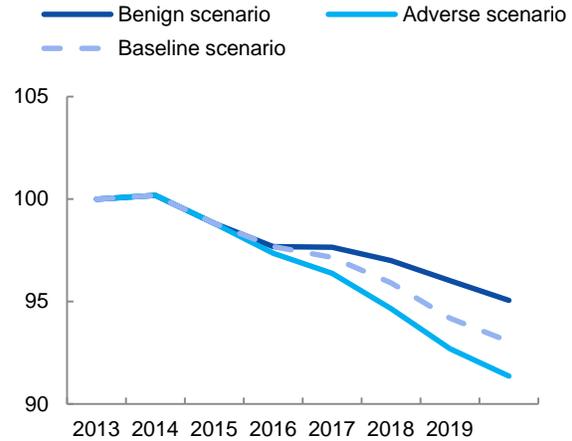
Source: World Bank staff calculations

**Figure 39: Simulation ViX/VxO**  
(index: 2013 = 100)



Source: World Bank staff calculations

**Figure 40: Simulation terms of trade**  
(index: 2013 = 100)



Source: World Bank staff calculations

**Under the baseline, the current account balance is expected to remain mildly negative**

In the baseline scenario, detailed underlying projections for which are provided in Box 7, the current account deficit is expected to narrow over the medium run and, in the absence of additional policy actions, to stabilize around -2.5 percent of GDP. This is well within the confidence interval of the structural estimate presented in the previous section. While consistent with other projections of the structural current account<sup>42</sup>, it must be stressed that these are “raw” model estimates from a descriptive model that is not updated or optimized for forward projections. What is most informative is deviations that different scenarios generate from the projected baseline, to which we now turn.

**In a benign scenario the current account balance and NIIP increase vs. the baseline**

Under the benign scenario, the current account balance could increase quickly by about 0.6 percent of GDP relative to the baseline and decline slowly thereafter, settling at approximately 0.4 percent of GDP above the baseline (i.e. a narrower current account deficit than projected in the baseline). A higher current account balance than in the baseline would mechanically lead to a lower stock of net foreign liabilities by approximately 2.2 percent of GDP relative to baseline by 2019.

**In an adverse scenario, conversely, they could decrease to still sustainable levels...**

Under the adverse scenario, the current account balance could decrease slowly relative to the baseline, settling 0.4 percent of GDP below the baseline (i.e. a larger current account deficit than projected in the baseline). A lower current account balance than in the baseline would lead to a larger stock of foreign liabilities, by approximately 1.7 percent of GDP by 2019. Despite the relatively significant deterioration in the external conditions envisaged by this scenario, the pattern of the current account and NIIP is not radically different.

**Under the “policy push” scenario, the current account balance would decrease first, then recover slowly, but increased potential**

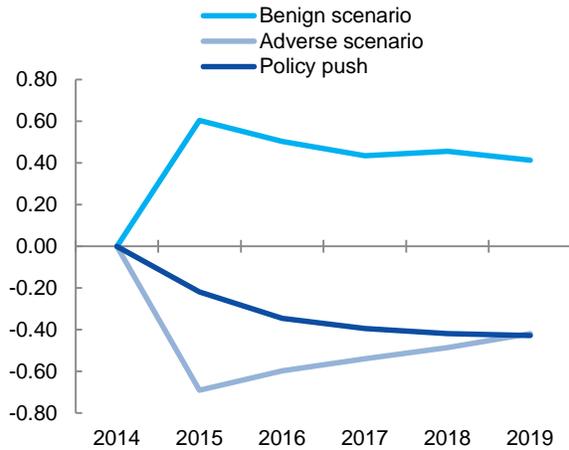
Under the “policy push” scenario, in which the government, embarks successfully on a large infrastructure development program, the current account balance would decrease in the near term under the push of stronger domestic demand and imports, and increase gradually thereafter, reaping the benefits from increased trade integration and export competitiveness. Under this scenario, the stock of foreign liabilities would be higher by 2.9 percent relative to baseline, but possibly reduce in the future on the back of a continued increase in the current account balance. In this scenario, investor

<sup>42</sup> See in particular the IMF’s external balance assessment for Indonesia

**future returns are likely to attract foreign financing**

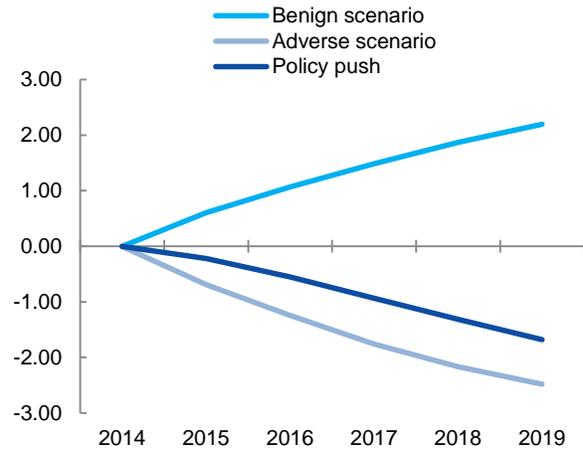
perceptions of the lower current account balance and increased stock of foreign liabilities would likely be quite different from that of the “adverse” scenario, as heavy infrastructure investment would be expected to increase the productive capacity (and hence returns) to Indonesia’s economy, supporting foreign investment.

**Figure 41: Simulated current account relative to baseline**



Source: World Bank staff calculations

**Figure 42: Simulated NIIP position relative to baseline**



Source: World Bank staff calculations

**Box 8: Is the level and the composition of Indonesia’s net foreign liabilities problematic?**

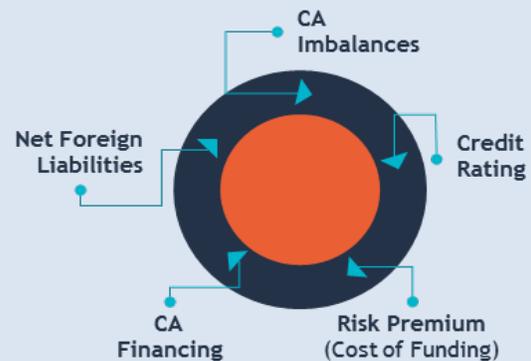
Net foreign liabilities (or analogously, the net international investment position [NIIP]) of a country link today’s current account deficit to the deficit that future generations will face. A present current account deficit builds into the stock of net foreign liabilities, generating a stream of debt servicing and amortization payments that will fall on future generations.

The accumulation of a large and negative NIIP can pose a risk to the sustainability of a large and persistent current account deficit. Accumulated foreign liabilities lead directly to a worsening in future current account balances through larger income outflows while increasing the perception of country risk, reducing the attractiveness to foreign investors. In a recent cross-country study of external crises over the period 1970-2011, Catao and Milesi-Ferretti (2013) show that the risk of a balance of payments crisis is related to the stock of net foreign liabilities, and particularly so when these exceed 50 percent of GDP or their historical average by more than 20 percent.

Equity liabilities have historically been less crisis-prone. Liabilities can take the form of debt or equity, and the prevalence of one type of liability affects the probability of a balance of payments crisis. Debt liabilities have tended to introduce currency mismatches (in cases where most debt is foreign currency-denominated) or maturity mismatches (in cases where a large part of the debt is short term). Equity liabilities, being national-currency-denominated residual claims are less likely to introduce such risks (Fernandez Arias and Hausmann (2001)). Increasing

Within equity, FDI is commonly seen as the most desirable form of foreign liability. FDI is widely acknowledged to be related to technological and knowledge transfers, increased competition, and job creation and upgrading. In

**Figure 43: Links between current account deficits, credit ratings and net foreign liabilities**



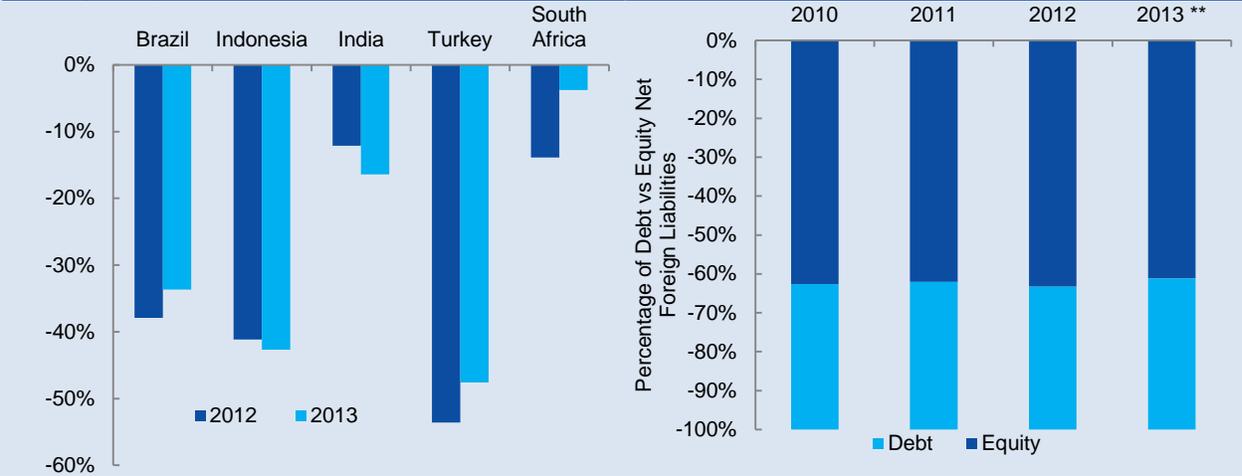
Note: Bar chart labels refer to export volumes in million tons (MT)  
 Source: Indonesian Ministry of Energy and Mineral Resources; World Bank staff calculations

addition, FDI is a less-outflow-prone source of foreign financing compared to portfolio investment. This is because FDI involves a long-term commitment.<sup>43</sup> FDI is also less subject to capital reversals and contagion that affect other flows, since the presence of large, fixed, illiquid assets makes rapid disinvestments more difficult than the sale of stock holdings (Fernandez Arias and Hausmann (2001)). Empirical tests find supporting evidence that the composition of external liabilities affects the risk of external crises for developing countries; in particular, non-FDI liabilities are more crisis prone than FDI. In a recent study, Catao and Milesi Ferretti (2013) find that the composition of the NIIP matters for vulnerability. Increased debt liabilities are associated with higher risks of external crises, the results for non-FDI equity liabilities are weaker, and when foreign liabilities take the form of FDI, increases in these liabilities are not associated with increases in the risk of external crises.

Indonesia’s net foreign liabilities increased from 41.15 percent of GDP in 2012 to 42.67 percent of GDP in 2013. This increase is the result of a current account deficit of 2.8 percent of GDP, and of valuation gains of net foreign assets relative to GDP, and will imply increases in the associated debt servicing, interest payments and profit repatriation in years to come. Comparatively, and as a share of GDP, Indonesia’s net foreign liabilities are the second highest, after Turkey, among the group of the “fragile five” (Figure 44).

**Figure 44: Net foreign assets as percentage of GDP for the fragile five (2012 and 2013)** **Figure 45: Equity and debt structure of Indonesia’s net foreign liabilities**

(NIIP as percentage of GDP)



Source: World Bank staff calculations based on Central Bank data of respective countries

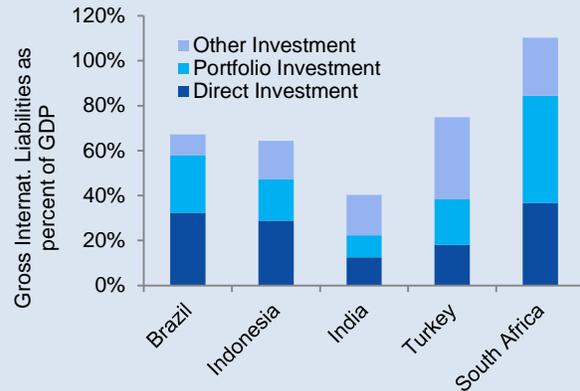
Source: World Bank staff calculations based on Central Bank data of respective countries

<sup>43</sup> This “bolted down” hypothesis has been disputed. Hausmann and Fernandez Arias (2000) argue that FDI is not a physical asset of a firm, but only one of its liabilities. The firm has other liabilities and assets, and some assets may be “bolted down”, but “financial claims backed by “bolted down” physical capital can easily fly away” (page 36). Foreign investors could hedge their earnings and protect the value of their assets, or speculate, by borrowing in domestic currency and pledging physical capital as collateral. Put differently, outflows may be generated under an account other than FDI. The volatility of FDI thus provides limited information on the overall volatility of the financial account.

About 60 percent of Indonesia's net liabilities are accounted for by equity-based instruments. This proportion has not changed substantially over the last four years (Figure 45). Figure 46 focuses instead on gross liabilities, showing the different subcomponents as a percentage of GDP for 2013, and comparing with the other "fragile five" countries.

In Indonesia, FDI liabilities account for a sizable share of gross liabilities. 45 percent of gross foreign liabilities are FDI-related, portfolio investment accounts for 29 percent, while the remaining 26 percent is accounted for by other investment-related liabilities. Among the fragile five, the FDI share in Indonesia is only lower than that in Brazil (48 percent), but higher than that in India (31 percent), in Turkey (24 percent) and in South Africa (33 percent).

**Figure 46: Gross foreign liabilities as percentage of GDP for the fragile five (2013)**



Source: World Bank staff calculations based on Central Bank data of respective countries

Source: Authors' elaboration based on Hausmann and Fernandez Arias (2000), Fernandez Arias and Hausmann (2001), and Catao and Milesi-Ferretti (2013).

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## APPENDIX I

## Conceptual framework and methodology for the estimation of current account determinants

By focusing on the underlying determinants of saving and investments, the specification used in this report is partially related to the inter-temporal approach to the current account (Sachs, 1981, Obstfeld and Rogoff, 1996).<sup>44</sup> Our specification below, however, constitutes an augmented version of these models. This is because its aim is to capture as many potential influences on the current account as possible, to disentangle the drivers of the deficit, rather than discriminating between the competing intertemporal models by choosing a limited number of variables in the reduced form that correspond to a particular model in empirical exercise.

$$CA_t = \alpha + \beta_1 CA_{t-1} + \beta_2 NIIP_{t-1} + \beta_3 GovExp_t + \beta_4 FuelSubsidyBill_t + \beta_5 NonFuelsCommP_t + \beta_6 g\ RelIncome_t + \beta_7 REER_t + \beta_8 FinDeep_t + \beta_9 Openness_t + \beta_{10} RelgGDP_t + \beta_{11} FDI_t + \beta_{12} VXO_t + \beta_{13} DepRatio_t + \beta_{14} ToT_t + \beta_{15} NIIP * CrisisD + \beta_{16} FuelSubsidyBill * Post2002D + \varepsilon_t$$

$$CA_t = \alpha + \beta_1 CA_{t-1} + \beta_2 NIIP_{t-1} + \beta_3 GovExp_t + \beta_4 Oil\ Prices_t + \beta_5 NonFuelsCommP_t + \beta_6 g\ RelIncome_t + \beta_7 REER_t + \beta_8 FinDeep_t + \beta_9 Openness_t + \beta_{10} RelgGDP_t + \beta_{11} FDI_t + \beta_{12} VXO_t + \beta_{13} DepRatio_t + \beta_{14} ToT_t + \beta_{15} NIIP * CrisisD + \beta_{16} Oil\ Prices * Post2002D + \varepsilon_t$$

Where current account<sub>t</sub> is the current account balance in t, NIIP<sub>t-1</sub> is the net international investment position in t-1, GovExp are government expenditures (as a share of GDP), FuelSubsidyBill is the cost of fuel subsidies as a share of GDP, NonFuelsCommP is the weighted average of non-fuel commodity prices (in changes), RelIncome is GDP per capita in PPP prices, expressed in deviations from the average of Indonesia's main trading partners, REER is the real exchange rate (in changes), FinDeep is a proxy of financial deepening (credit to the private sector as a share of GDP, in changes), Openness is the ratio of trade/GDP in deviations from the average of Indonesia's main trading partners, RelgGDP is relative GDP growth of Indonesia with respect to that of its main trading partners, FDI are foreign direct investment inflows (as a share of GDP), VXO is an index of global uncertainty, DepRatio is the dependency ratio, ToT are the terms of trade (in changes), NIIP\*CrisisD is the interaction of the NIIP with a Crisis Dummy for 1998, FuelSubsidyBill\*Post2002D is the interaction of the cost of fuel subsidies as a share of GDP and a Dummy variable that takes value one from 2002 onwards, and epsilon is an error term. An alternative specification uses oil prices instead of the fuel subsidy bill.

These two models are also estimated on the trade balance, instead of on the current account balance. Results are reported in Table 8.

<sup>44</sup> The inter-temporal models treat current account balances as an outcome of consumption and investment decisions made over a long-term horizon under forward looking expectations. More concretely, with an infinitely lived representative agent who smoothens consumption by lending or borrowing abroad, the standard inter-temporal model implies that the movements in the current account should reflect factors that affect country's underlying saving and investment positions. Assuming free capital movements, the current account will absorb any temporary shocks to the net national cash flow thus allowing domestic agents to smooth their consumption over time. Although theoretically rigorous, inter-temporal models tend to exhibit a poor empirical fit – while the model-predicted and the actual series were usually positively correlated, the latter series were substantially more volatile (see, inter alia, Sheffrin and Woo (1990), Otto (1992) for early applications and Campa and Gavlan, 2011 for other references). In addition, with the focus on the long-run, the models are of limited applicability for assessing the current account sustainability, at least from the short to medium run perspective.

The reduced-form specification is related to a large empirical literature, which uses various econometric techniques to identify the relationships between the current account and a set of macro and socio-economic variables (see DeBelle and Faruqee, 1996, Calderon, et al., 2002, Chinn and Prasad, 2003, for early applications in this expanding literature). The aim behind the specification (2) is to capture as many potential influences on the current account as possible using a large number of variables in the empirical analysis.<sup>45</sup>

Since annual data are used, estimation of the single-country determinants puts relatively strong limits on the number of variables to be included in standard OLS regression, even in the first step of general-to-specific exercise. Along the lines of Haddad and Nedeljkovic (2012), a preferable solution for confronting parametric model uncertainty and limited number of observations is model averaging. Model averaging in the present context means that the different combinations of the potential current account determinants (not all at once) are used as particular models and each combination is estimated by OLS. The final estimate is obtained by averaging across all the estimated regressions using a suitable criterion to select individual model's weights. We use the recently proposed Jackknife Model Averaging (JMA) estimator for non-nested and heteroscedastic models (Hansen and Racine, 2012) where the weights are chosen by minimizing a leave-one-out cross-validation criterion (see Appendix for a detailed description). In this way, a large number of variables can be included, whilst, at the same time, only single country estimation is performed (thus eliminating a heterogeneity-induced bias in the resulting parameter estimates of panel studies, Robertson and Symons, 1992, Pesaran and Smith, 1995).

### Methodology for the estimation of dynamics and determinants of saving and investment

Quarterly data over 1992Q1-2014Q2 period are collected from various sources. The sample size and the choice of variables above reflect the data availability.

$$Y_t = Y_t^f + Y_t^i + aD_t + \varepsilon_t$$

Further, in order to identify the individual components of the flows we use additional information embedded in the structural and cyclical determinants of the saving and investment and specify the following law of motion for the components:

$$\begin{aligned} Y_t^C &= \theta Y_{t-1}^C + \beta X_t^C + \varepsilon_t^C \\ Y_t^S &= \phi Y_{t-1}^S + \delta X_t^S + \varepsilon_t^S \end{aligned}$$

where  $\varepsilon_t^S$ ,  $\varepsilon_t^C$  are structural and cyclical shocks which are assumed to be zero mean, normally distributed, serially and cross-equation uncorrelated.  $X_t^S$  and  $X_t^C$ , denote variables which affect the structural and the cyclical component of the variable  $Y$ , respectively. The components of the flows and the parameters are estimated jointly in the extended state space specification. Kalman filter with diffuse initialization is used for estimation of the state space. Application of the Kalman filter requires further assumptions on some

<sup>45</sup> By focusing on the underlying determinants of saving and investments the specification is partially related to the intertemporal approach to the current account (Sachs, 1981, Obstfeld and Rogoff, 1996). The intertemporal model treats current account as an outcome of consumption and investment decisions made over a long-term horizon under forward looking expectations. More concretely, with an infinitely lived representative agent who smooths consumption by lending or borrowing abroad, the standard intertemporal model implies that the movements in the current account reflect factors that affect country's underlying saving and investment positions. Assuming free capital movements, the current account will absorb any temporary shocks to the net national cash flow thus allowing domestic agents to smooth their consumption over time. Although theoretically rigorous, intertemporal models tend to exhibit a poor empirical fit – while the model-predicted and the actual series were usually positively correlated, the latter series were substantially more volatile (see, inter alia, Sheffrin and Woo (1990), Otto (1992) for early applications and Campa and Gavlan, 2011 for other references). In addition, with the focus on the long-run, the models are of limited applicability for assessing the current account sustainability, at least from the short to medium run perspective. Moreover, rather than choosing a limited number of variables in the reduced form that correspond to a particular model, in the empirical exercise the focus is on a broad set of potential determinants.

parameters of the model. Following the literature on estimation of the natural rate of unemployment, we assume two “signal to noise ratio” – ratio of the variance of the structural component to the variance of irregular component – of 0.15 and ratio of the variance of the temporary or cyclical component to the variance of irregular component – of 0.4.<sup>46</sup> Alternative specifications of the ratio do not change the results. Due to a relatively small length of the sample and a large number of potential determinants different specifications were estimated and the final specification is the one which minimizes the AIC and BIC criterion.

### Methodology for the external sustainability analysis

Here we ask, given the identified influences of macro-variables on the current account and the current stock (end-2013) of foreign assets and liabilities of the country, what will be the future paths of NIIP under different scenarios? This methodology does not impose any steady-state assumption on the evolution of the economy—which might not hold for an emerging country; it represents the other side of the sustainability coin—the current account may be sustainable as long as the foreigners are willing to finance it, which is ultimately connected to the accumulated level of NIIP. Moreover, given the experience from the recent crises, market perceptions of what constitutes a sustainable level of NIIP (often proxied by external debt) may change in the short-run, which signals the importance of focusing on the front part of the horizon.

The procedure consists of four steps. First, we use the estimated coefficients from the current account determinants analysis and the projected values of determinants to generate projections of the current account balance at the end of 2014. Given: (i) the current account projection from step 1, (ii) the stock of foreign assets and liabilities in 2013, (iii) projections of the relative movements in capital inflows and outflows and calibrated rates of return on foreign equity assets and liabilities for 2014; generate the stock of the NIIP at the end of 2014. Then, using the calculated stock of NIIP at the end of 2014, steps 1-2 are recursively repeated generating the paths of the current account and the NIIP until 2018. Different projections of the selected variables are alternated to obtain the range of potential scenarios and assess the risk implications.

The composition of the net foreign position of Indonesia matters for this analysis and it is explicitly taken into account by introducing the valuation gains associated with that composition, which involves introducing the rates of return on foreign equity assets and liabilities in each year (Tille, 2008). Incorporating valuation effects is key. The case of the USA provides a concrete example. The USA has a big external balance-sheet, with its foreign liabilities exceeding its overseas assets. Although this may seem worrisome, this statement conceals the fact that while USA’s foreign assets are unusually lucrative; its liabilities are liquid, safe and low-yielding.<sup>47</sup> Over time, these return differentials will contribute to a self-correction of the net foreign liabilities of the USA. A simple, abstract example illustrates the importance of net foreign liabilities’ composition and valuation effects. Consider a country with the balanced trade and constant GDP. Suppose the country holds equity assets amounting to 100 percent of GDP, has bond liabilities of the equal relative amount and let both types of assets earn the same annual return of 5 percent of GDP. The current account deficit of 5 percent of GDP then does not deteriorate the NIIP position of the country. The key idea here is the difference in recording and valuation of returns on different types of assets. While the returns on bonds take the form of the interest payments, which enter the current account, the gains on equity do not enter the current account, but offset the interest outflows in the NIIP. Similarly, a country that is in the growing phase may see its external position deteriorating more than what the accumulated current account deficits show due to equity price inflation relative to its debtors. In Indonesia, at the end of 2013 FDI equities constitute a sizable portion of total liabilities in its net international investment

<sup>46</sup> The ratio allows imposing a constraint on the smoothness of the component. Lower values of the ratio imply smaller volatility of the components.

<sup>47</sup> Prasad, E., 2014, “The Dollar Trap”.

position (while the rest is accounted by debt). This fact highlights the importance of taking into account the composition of the net foreign position and differences in returns in evaluation of the external position.

**Table 8: Dependent Variable is the Trade Balance**

Variable	Coefficient	Standard error	Coefficient	Standard error
Credit in percent of GDP (change)	-0.03122	0.02202	-0.0242	0.0241
3 year average REER (ln change)	-0.16301	0.02580	-0.1758	0.0325
WEO non-fuel commodity price index (ln change)	0.04969	0.02212	0.0508	0.0309
Relative GDP growth	-0.18453	0.06457	-0.1478	0.0841
Dependency ratio (5 year average)	-0.01220	0.00512	-0.0106	0.0054
FDI in percent of GDP (3 year average)	-0.67039	0.06623	-0.5416	0.0364
Relative openness	0.10917	0.00563	0.1117	0.0050
Relative income	0.0209	0.0035	0	0
VXO index (ln change)	0.0032	0.0017	0.0036	0.0023
Government expenditure in percent of GDP (change)	0	0	0	0
3 year average terms of trade (ln change)	0.10640	0.00458	0.1019	0.0080
Lagged trade balance	0.66092	0.05533	0.7953	0.0575
NIIP in percent of GDP (beginning of period)	0	0	0	0
NIIP*Crises dummy	0	0	0	0
Energy subsidy in percent of GDP (change) * Post 2002 dummy	-0.4650	0.1777		
Oil prices (change) * Post 2002 dummy			-0.0088	0.0117
Energy subsidy in percent of GDP (change)	0.0837	0.1190	-0.0120	0.0053
Oil prices (change)				