



Assessing reserve management during economic crises

Lessons from Indonesia and Nigeria

Phyllis Papadavid

Key messages

- A number of emerging and developing economies are still facing multiple economic shocks, including weak oil prices, higher US interest rates and a slower Chinese economy.
- More open emerging and developing economies could be further supported by central banks increasingly engaging in more proactive reserve management policy and financial deepening.
- Indonesia's economy benefitted from diversification away from the oil sector. Alongside this, financial deepening after the 1979 oil price shock, and the South-East Asian crisis, improved its resilience to future shocks.
- Nigeria, also an oil producer, now faces similar challenges. Alongside a freely floating naira, its reform agenda should include stronger reserve management, namely through its sovereign wealth fund.

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Executive summary

There is a concern that a continued ‘lift off’ effect (from the expectation of higher US interest rates) will harm capital inflows into emerging market economies, particularly amid the additional transition of lower oil prices and a slowing Chinese economy. There is a raft of policies to increase economic resilience in the face of such uncertainty, with the most important ones being on the real side, including diversification, but financial policies are also important, especially in the short term. There are means to protect an economy in times of uncertainty: countries that had built up their reserves fared better when capital inflows slowed between 2010 and 2015. And reserve management is key in resource-dependent economies, in that they are more vulnerable to commodity and oil price swings. Comparing the two economies of Indonesia and Nigeria is useful in that they are the largest economies in the South-East Asian and sub-Saharan African regions, and both are oil producers that have countered successive crises in differing ways.

Reserve developments

This report argues that emerging and developing country central banks should be more proactive in their reserve and exchange rate policies as their balance sheets become more exposed to global financial markets. Section 2 of this report explores the drivers of reserve accumulation, including the continued need for developing economies to self-insure against future crises. The successful re-accumulation of reserves after the South-East Asian (SEA) crisis was, in part, the product of financial deepening and maintaining undervalued exchange rates. We consider how exchange rate policies helped rebuild reserves following the SEA crisis and conclude that oil producers, such as Nigeria, that floated their currencies in order to stem reserve depletion, could look to Indonesia’s policy of smoothing currency volatility and building domestic financial breadth, to aid recovery.

The Indonesian experience during the SEA crisis

Indonesia has enacted successful reforms to strengthen its financial system and its reserves. Having weathered a number of economic crises, including the oil price shocks of the 1970s and the SEA financial crisis, as an oil-exporting economy, Indonesia diverted its resources to the non-oil sector early on after the second oil price shock

of 1979 and deepened central bank usage of money market instruments to stabilise its economy. These reforms enabled it to rapidly recover from the SEA crisis, along with a more flexible rupiah exchange rate policy. Section 3 looks at the financial, institutional and exchange rate policies that Indonesia put in place following the SEA crisis, with a particular focus on the central bank’s rupiah policy and the financial deepening that followed the crisis.

Nigeria’s economic recession

Nigeria’s current recession has largely been caused by a terms-of-trade shock stemming from the decline in the oil price, which accounts for the bulk of its export revenues and which was exacerbated by the 2008 financial crisis and the economic slowdown in China, Nigeria’s biggest trading partner. The deterioration in domestic economic activity and in foreign exchange revenues saw subsequent pressure on the naira exchange rate that led to the eventual abandonment of the naira peg in May. Section 4 assesses the current state of Nigeria’s macro-economy and concludes that the depth and breadth of Nigeria’s financial market and the introduction of new financial instruments to limit exchange rate volatility should help stabilise the economy. However, the Central Bank of Nigeria (CBN) needs to move quickly to a credible floating exchange rate regime.

The political economy of reserve management

There are varying political economic country contexts that can be defined by different distributions of political power and wealth. The distribution of political power is important, in part, as it can determine the income allocated to foreign exchange reserves. Section 5 puts forward the argument that Indonesia operated a reserve management policy that critically supported the broader economy, whereas Nigeria has not successfully used its reserves to diversify into the non-oil sector. Both economies have instituted sovereign wealth funds (SWFs). Indonesia has sought to invest in infrastructure and introduce market-based funding for its state-owned enterprises. The Nigerian sovereign investment authority (NSIA) has similar priorities (including in infrastructure). And yet, its stabilisation fund would benefit from reform, including in its liquidity management.

Policy options

A number of policy options could be explored at the global level that would build resilience against shocks. Global factors are important in the light of the fact that much of the reason that countries have built up precautionary reserves is to 'self-insure' against shocks in the absence of adequate global governance. Section 6 scratches the surface and suggests three policy options at the global level.

- First, development finance institutions (DFIs) could help broaden usage of financial tools in developing economies to expand domestic financial capacity and mitigate some of the risk that countries face during times of crisis, including in Nigeria.
- Second, the International forum of sovereign wealth funds (IFSWF) could strengthen its best practices, for the conduct of SWF investment practices particularly for funding and withdrawals, in order to strengthen reserve management.
- Third, the Bank for International Settlements (BIS) markets committee could expand its range of analysis to include the transmission of high-frequency trading (HFT) on emerging and developing countries' currencies and domestic financial systems.

Looking to Nigeria, the current economic recession will deepen further, with a lack of reform action, particularly given the muted outlook for oil prices. There are three policy options that Nigeria could pursue to enhance its long-term domestic macroeconomic stability. The CBN should move to a freely floating naira – without any

further directional intervention. CBN financial policy could usefully be coordinated with privatisation to facilitate broader-based growth and to divert financial resources to the non-oil sector, including through the new Development Bank of Nigeria. Finally, the NSIA should manage its Stabilisation Fund instead of outsourcing it to a number of large investment banks in order to enhance its internal capacity to respond to shocks in close coordination with other domestic macroeconomic policies.

Conclusion

Our analysis suggests that Indonesia's policy-makers realised the benefits of supporting the non-oil sector early on, around the global oil price shock of 1979, which then meant that their macroeconomic policies started to represent a wider range of economic interests. In contrast, Nigeria's oil industry grew in its economic and financial dominance, with the benefits of the oil sector not being fully shared in the economy. These developments have had knock-on impacts on the domestic institutions whose aim is to manage financial shocks, such as their SWFs. Amid continued finance-led globalisation, open emerging and developing economies will need to be more proactive in the management of their domestic foreign exchange reserves, in order to protect against shocks. Economies in recession, such as Nigeria's, that are increasingly exposed to financial shocks should look to increase the breadth of their financial systems to effectively employ financial tools in aid of reserve accumulation, and to maintain freely floating exchange rates with currency interventions aimed solely at limiting volatility and disorderly market moves.

1. Introduction

In the aftermath of the 2008 global financial crisis, a number of advanced economy central banks started a period of unconventional monetary policy, some of which is still ongoing (Draghi, 2016; BOJ, 2016). The United States Federal Reserve, the European Central Bank, the Bank of England and the Bank of Japan were among those that embarked on quantitative easing (QE) in the light of the fact that a number of these banks had started to approach the ‘zero lower bound’ in conventional policy interest rates.¹ This form of QE was implemented through asset purchases, which facilitated direct injections of liquidity into the various sectors of the economy – the scale of which was unprecedented.

This increased global liquidity has led to, among other things, nearly a decade of low interest rates, and in some cases, negative real (inflation-adjusted) interest rates. Low US yields encouraged investors to seek higher returns, at higher risk, and catalysed investment flows into emerging and developing countries (Fratzcher et al., 2012; Forbes and Warnock, 2012). In some cases, in the past, these types of flows have led to higher short-term debt-to-reserves ratios that caused financial crises and sharp reversals in investment inflows (Benmelech and Dvir, 2013; Rodrik and Velasco, 1999; Calvo, 1995). In this paper, we compare two oil-producing economies, Indonesia and Nigeria, and draw lessons from Indonesia’s management of its crises.

The importance of reserve growth

There is a raft of policies to address crises, with the most important ones being on the real side, including diversification, but financial policies are also important especially in the short term. Now that the US Federal Reserve has scaled back QE and will continue to increase interest rates, emerging and developing economies that have external imbalances look vulnerable. There is a concern that a continued ‘lift off’ effect (from the expectation of higher US interest rates) will harm capital inflows into emerging market economies (Ahmed, 2015), particularly amid lower oil prices and a slowing Chinese economy (Papadavid 2016a). Countries that had built up

their reserves fared better when capital inflows slowed between 2010 and 2015.² Relative to the past, in the 2010-2015 slowdown in emerging market investment flows, reserves played a critically important buffer role (IMF, 2016a).

Reserve management is key in resource-dependent economies, in that they are more vulnerable to commodity and oil price swings. The two case studies we examine in this report are illustrative: Indonesia and Nigeria. Both are comparable in that they are oil producers that have countered successive crises entailing multiple exchange rate and balance-of-payment shocks. Following the 1973 and 1979 oil price shocks, Bank Indonesia (BI) deepened its financial sector and diversified its economy away from oil. In the aftermath of the SEA crisis, its policies included a freely floating rupiah, supporting reserve re-accumulation. By contrast, Nigeria’s oil dependence has persisted and has meant that the recent oil price downturn has significantly reduced its foreign exchange reserves.

The main drivers of reserve demand

Reserve growth can be categorised into two broad spheres: growth on account of the need to self-insure against shocks, or precautionary demand, and reserve growth in response to rapid export growth aided in part by a lack of flexibility in the exchange rate, or mercantilist policy. The absence of a credible international lender of last resort and the output costs of liquidity shocks (Aizenman and Lee, 2005) are two factors that suggest that self-insurance, in the form of precautionary reserve demand, has been the main driver of countries’ reserve demand, rather than the export-driven mercantilist motive. The build-up in emerging and developing country reserves following the 2008 financial crisis is such an example (BIS, 2016).

There are multiple costs to holding foreign exchange reserves, which limit demand (see Box 1 on pg. 11 for further details). This type of self-insurance in holding reserves can be costly for some sub-Saharan African (SSA) countries (Elhiraika and Ndikumana, 2007) given their foregone usage for domestic investment. And yet, there is

1 In December 2008, the US Federal Reserve cut the federal funds policy rate to a range of between 0% and 25%. By May 2009, the European Central Bank reduced its main refinancing rate and its deposit facility rates from 4.25% and 3.25% in October 2008 to 1% and 0.25% respectively.

2 For emerging markets as a whole, for each dollar decline in net capital inflows from 2010 through to the third quarter of 2015, the current account balance increased by only 7 cents, while 93 cents came from the change in the pace of reserve accumulation. Only in 2015 did emerging markets start to run down the liquidity buffers they had accumulated during the capital inflow boom episode that preceded the financial crisis (2001-2007). During 2010-2014, reserves were accumulated but at a decreasing pace (IMF, 2016a).

a need to build up extra liquidity buffers (IMF, 2016c), the size of which will depend on a number of factors, including the economy's vulnerability to shocks, and the cost of the tools in place to counter those shocks. For example, funding a fixed exchange rate regime is costly, and even costlier when facing speculative selling.

Reserve management in times of crisis

To understand the significance of having adequate reserves in times of crisis, we first consider the SEA crisis, where the decline in reserves was as high as 40% (in Korea) between 1996 and 1997. The policy responses to the crisis played a significant role in rebalancing reserves, and adjusting current account imbalances as the economies recovered (Radelet and Sachs, 2000; Shrestha and Wansi, 2014). Their ongoing liberalisation, and increased openness to capital inflows – and outflows – increased the need for liquidity buffers (Edwards, 2005). Given this, the crisis led SEA countries to re-calculate the costs of not having reserves, so changed the balance between those costs and the costs of holding them (Schroder, 2015).

Within this context, oil-exporting economies have been particularly subjected to uncertainty. In addition to the US Federal Reserve raising its interest rates, the 2014-2015 oil price decline constituted a terms-of-trade (TOT) shock that further exacerbated their balance-of-payment positions. For example, Nigeria's specific vulnerability has been its high export dependence on petroleum. Moreover, its additional liquidity needs arising from the oil and commodity price decline have not been adequately addressed through the central bank of Nigeria's (CBN) reserve management, including through their sovereign wealth fund (SWF) the Nigerian sovereign investment authority (NSIA).

Structure of this paper

In exploring reserve management and exchange rate policies, we first consider the case of Indonesia, whose policy-makers successfully transformed the economy from its oil dependence by supporting broader export

growth though keeping the rupiah at a low competitive level against the US dollar. As a result of these policies, during and in the immediate aftermath of the oil price shocks of 1973 and 1979, as well as a reform agenda that included fiscal expenditure reductions and financial sector deepening, Indonesia was in a position to recover more quickly from the SEA crisis, which included a significant re-accumulation of foreign exchange reserves.

We draw some lessons from Indonesia's experience, and its recovery from successive crises, and consider a second case study of an oil exporter that is currently countering multiple shocks – Nigeria. Its recession has largely been caused by a TOT shock stemming from the 60% decline in the oil price (which accounts for 90% of export revenues (OPEC, 2015)), the 2008 financial crisis (Nkoro and Uko, 2012), and the economic slowdown in China. As a consequence, a downturn in credit and investment inflows led to the CBN abandoning its naira-US dollar peg. We assess the current state of Nigeria's macro-economy and explore the policy steps that have been taken by the CBN and Nigeria's SWF.

We first look at the macroeconomic adjustment in reserve management and in exchange rate policy following the SEA crisis and the more recent 2014-2015 oil price downturn. In Section 2 we explore the economic and political economy drivers of reserve accumulation and reserve management. This is followed by a comparative analysis of two oil-producing country case studies – that of Indonesia and Nigeria – in Sections 3 and 4. Aspects of Nigeria and Indonesia's political economies are outlined in Section 5, with the discussion of their political economic contexts touching on how their SWF management has affected their economic outlooks and reserve accumulation. Section 6 puts forward potential policy options, including those that could help Nigeria manage future financial shocks better through lessons learned in reserve management from Indonesia following the SEA crisis. Finally, Section 7 concludes.

2. The Evolution of Reserves

Emerging and developing country central banks should become more proactive in their reserve and exchange rate policies as their balance sheets become more exposed to global financial markets. In this section, we explore the drivers of reserve accumulation, including the need for developing economies to self-insure against future crises. Exchange rate policy is then discussed in relation to the management of foreign exchange reserves by looking at the period following the SEA crisis and comparing it to more recent developments for oil-producing economies. We consider how flexible exchange rate policies helped rebuild reserves following the SEA crisis and conclude that oil producers, such as Nigeria, that floated their currencies in order to stem reserve depletion, could look to Indonesia's policy of smoothing currency volatility and building domestic financial breadth, to aid recovery.

2.1 Reserve management in macroeconomic policy

We consider reserve accumulation through a dual lens, which then informs the subsequent analysis of Indonesia and Nigeria's experiences. First, part of successful reserve management means the ability to deal with financial and economic shocks. And equally, greater shocks make successful management more difficult given that they might test confidence in monetary or exchange rate policy. The need for reserve management, and maintaining adequate liquidity may also depend on expected shocks. Financial vulnerability, or susceptibility to financial or balance-of-payments crises, motivates central banks to hold more precautionary reserves, or 'liquidity war chests' (Levy Yeyati, 2010) with non-accumulating countries sometimes at a relative disadvantage (Steiner, 2012).

Precautionary demand to self-insure against shocks is thought to be the dominant source of reserve demand. And yet, a second lens suggests that this has not always been the case, particularly when considering the Asian region (Dooley et al. 2003). Reliance on capital controls, an undervalued exchange rate to promote exports and subsequent reserve accumulation were hallmarks of past policy – particularly in China. This type of policy helps

improve competitiveness by subsidising the cost of capital (Roger, 1993; Aizenman and Lee 2005, 2008). Other Latin American economies, such as Brazil's, saw reserve accumulation owing to central bank currency intervention (Carvalho and Fry-McKibbin (2014). Various drivers for reserve accumulation are considered in Box 1 against the costs of holding reserves, as well as the importance of reserve adequacy.

Box 1. Assessing reserve accumulation and adequacy

Both endogenous economic factors and exogenous policy determine reserve accumulation. From an endogenous perspective, increases in reserve demand will be driven by longer-term country-specific determinants, such as economic growth and trade. Faster growing economies have been associated with a more rapid accumulation of foreign exchange reserves. There is also a growth feedback loop: the accumulation of reserves that can be used to induce real exchange rate depreciation that can boost the tradeable sector, which further boosts growth. And, the usage of reserves to provide liquidity during crises also amplifies the impact of reserves on growth (Gosselin and Parent, 2005; Benigno and Fornaro, 2012).

Reserve management is important for enhancing national safety nets, as a substitute for global ones. This is consistent with a body of literature that suggests reserves are held for precautionary motives (Mendoza, 2004). The optimal size of reserves depends on the balance between the macroeconomic adjustment costs arising from reserves depletion and the opportunity cost of holding reserves (Heller, 1966). The measurement of costs of holding reserves is a complicated exercise and beyond the scope of this paper. Nonetheless, it is worth distinguishing between the macroeconomic costs (the costs to the whole economy) and the balance sheet costs to the central bank, of holding reserves.

From a macroeconomic perspective, if a country has borrowed to build up its reserves, cost calculations are based on the difference between the cost of borrowing for the government on international markets, and the return the bank earns on its reserves. If a country has accumulated its reserves through successive current account

surpluses, estimating the costs of holding those reserves could be through the opportunity cost of not using those reserves to invest in the economy. This could be represented by the yield on government bonds. However, this would lead to an underestimation if it is below the marginal productivity of capital (de Beaufort Wijnholds and Sondergaard, 2007).

Reserves can aid countries' macroeconomic adjustment, along with other macroeconomic policies, as a tool for an economy to manage its interest rate, capital flows and its exchange rate: its core policy 'tri-lemma'. Balance sheet costs associated with different reserve management strategies, and with maintaining a particular exchange rate regime, will also have an impact. There is a cost for a central bank in an open economy, which is experiencing outflows, under a fixed exchange rate: it must sell its foreign exchange reserves to prevent the exchange rate from depreciating. Furthermore, sterilisation of the money supply, associated with a foreign exchange inflow, is a direct financial cost for a central bank.

Reserve adequacy is important. A slowdown in the accumulation of reserves could be indicative of balance-of-payments deterioration or a financial crisis. Under the basic 'buffer stock approach' adequate reserves are measured by months of imports, with 4 months constituting sufficient coverage (Dabla-Norris et al., 2011). And yet, reserve adequacy is not a magic number, but a broader concept that can change significantly in relation to a country's circumstances, including the probability of sudden cessation of capital flows, or 'sudden stop' (Calvo et al., 2012) a country's financial depth, the extent of its capital controls (IMF, 2016c) and, for emerging markets in particular, the impact of a commodity terms-of-trade (TOT) shock on the real effective exchange rate (REER) (Aizenman et al., 2012).

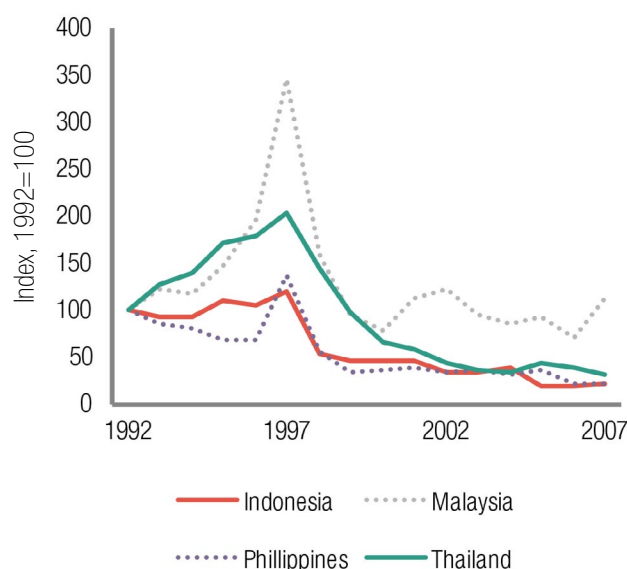
2.2 Post-crisis reserve developments

In this section, we consider regional reserve developments over two periods to illustrate the difference in the drivers behind the respective reserve accumulation. The first period is the aftermath of the SEA crisis; the second period is the oil price decline over the mid-2014 to mid-2015 period. We assess real exchange rate and reserve developments in emerging and developing oil-exporting countries, and find that although the source of each crisis differed – a balance-of-payments crisis in the first instance, and a TOT shock in the latter – utilising a more flexible exchange rate policy, as well as building financial breadth, is an important factor in the preservation and re-accumulation of reserves.

2.2.1 South-East Asia's 1997-1998 crisis

The SEA crisis is important to consider when thinking about reserve management given that the particular economies that were hit by the crisis, were rapidly growing and liberalising their financial systems. As substantial investment inflows entered Indonesia, Korea, Malaysia and Thailand, the region's 'boom cycle' attracted more funds despite weak banking systems, poor corporate governance and little domestic absorptive capacity to channel the foreign funds (Aghevli, 1999). Short-term debt was a key vulnerability (Figure 1) within weak financial institutional systems (Edison et al., 1998; Cline, 2015). Widespread corruption and inadequate legal foundations were magnifying factors that had been 'masked' by the capital inflows preceding the crisis (Moreno, 1998; Radelet and Sachs, 2000).

Figure 1: Short-term debt in selected South-East Asian economies, % of total reserves



Source: World Bank World Development Indicators.

The trigger for crisis transmission between the SEA economies was through their exchange rates. The devaluation of the Thai baht on 2 July 1997 triggered domino devaluations in Malaysia, on 14 July 1997, and in Indonesia, on 14 August 1997 (Carson and Clark, 2013). Concerns about successive economies' macroeconomic and financial stability triggered expectation shifts that destabilised their (fixed and semi-fixed) exchange-rate pegs and caused speculative currency attacks.³ The regional depreciations varied as a result of the speed of central

³ A speculative currency attack results in a sharp depreciation in the value of a currency that can force the authorities to sell foreign exchange reserves and/or raise domestic interest rates to defend the domestic currency (Glick and Hutchinson, 2011).

banks' intervention (Kihwan, 2006) and the types of capital controls that were put in place (Hasan, 2002). Indonesia's economy was one of the worst hit, contracting by 14% in 1998 and seeing the rupiah depreciate from Rp2,909 to Rp10,014 per US dollar between 1997 and 1998 (Radelet 1999).

The SEA crisis illustrates the fact that, once the financial crisis hit, and spread, the investment outflows associated with the speculative attacks were larger than the ability of any individual central bank to offset them with the reserves they had accumulated, or to counter currency weakness, or to uphold their currency pegs – underscoring the unsustainable 'tri-lemma' of monetary independence, a fixed exchange rate and mobile capital flows (Mundell, 1963) whereby unrestricted capital flows and independent monetary policy require flexible exchange rates. Most SEA economies introduced flexible exchange rates (except for Malaysia's) that triggered initial currency volatility in the REER. Indonesia's exchange rate volatility in particular, in the post-crisis period, exceeded the volatility of its reserves (Hernandez and Montiel, 2001). However, ultimately, the flexibility in the rupiah led to a stabilisation in Indonesia's foreign exchange reserves.

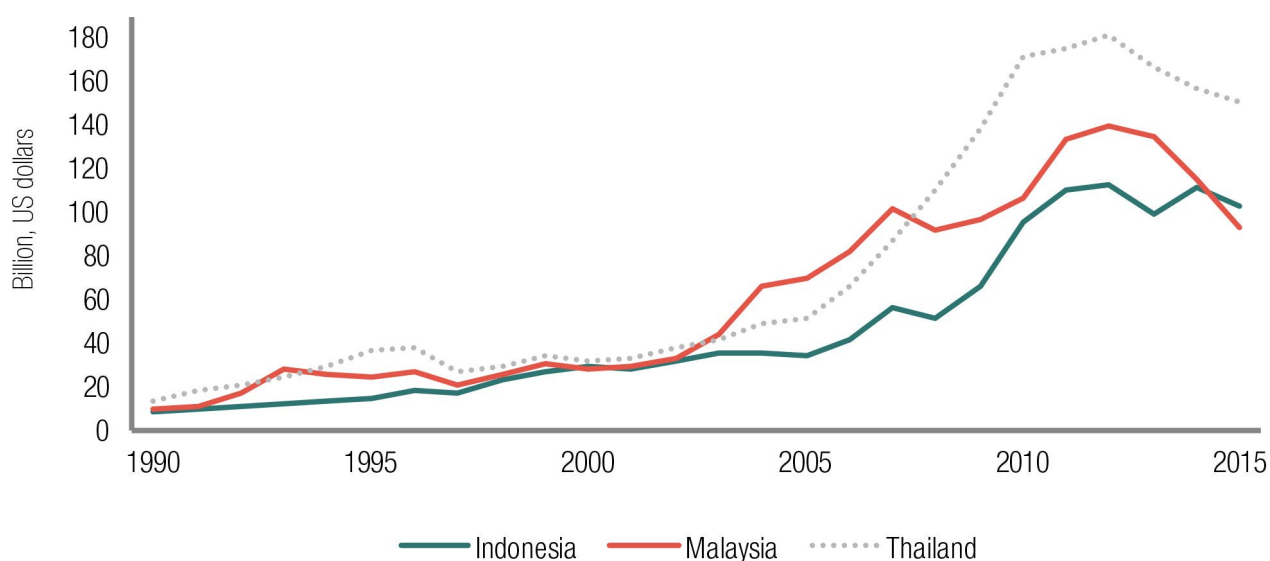
Post-crisis exchange rate policies in SEA were central in generating a recovery in real economic activity and in reserves. Collectively they were broadly characterised as floating regimes and yet central banks actively smoothed the volatility in the nominal effective exchange rate (NEER), resisted real exchange rate appreciation and employed smoothing interventions consistent with a

build-up of reserves. The resulting reserve accumulation and relative depreciation in the SEA REERs enhanced competitiveness and contributed to recovery in real activity by encouraging exports (Hernandez and Montiel, 2001). As a result, SEA's strong export growth (that outpaced its GDP growth at the time) led to sizeable current-account surpluses, and foreign-exchange reserve accumulation.

Alongside its exchange rate and reserve management policies, increased depth and breadth in SEA's financial markets also contributed to the region's economic recovery and the macroeconomic stabilisation in the post-crisis period. Financial breadth – the gauge of the relative importance of banks to capital markets (equities and bonds) – signified that the SEA economies have continued to diversify their financial systems from banking to broader usage of capital markets (Estrada et al., 2010). In Indonesia, for example, this was important because it gave policy-makers and BI the ability to use a wider variety of tools (such as bond issuance) to manage domestic liquidity, to support its exchange rate smoothing interventions and to more easily and directly engage in macroeconomic stabilisation.

A key feature of the crisis was that although SEA foreign exchange reserves fell dramatically, the subsequent post-crisis recovery in foreign exchange reserves was even more notable. By the end of 1997, foreign exchange reserves had declined by 23%, 31% and 40% in Malaysia, Thailand and Korea respectively. However, owing to the reserve management and exchange rate policies employed, from 1998, Indonesia's foreign exchange reserves increased from

Figure 2: Reserve growth, post-1997-1998 South-East Asian crisis



Source: World Bank World Development Indicators.

\$17.4 billion to over \$100 billion in 2008, with other SEA economies also seeing a significant accumulation (Figure 2). Significant accumulation could also be seen in Thailand – its foreign exchange reserves peaked close to \$200 billion, up from a low in July 1997 of \$26 billion.

2.2.2 The 2014-2015 decline in oil prices and SSA

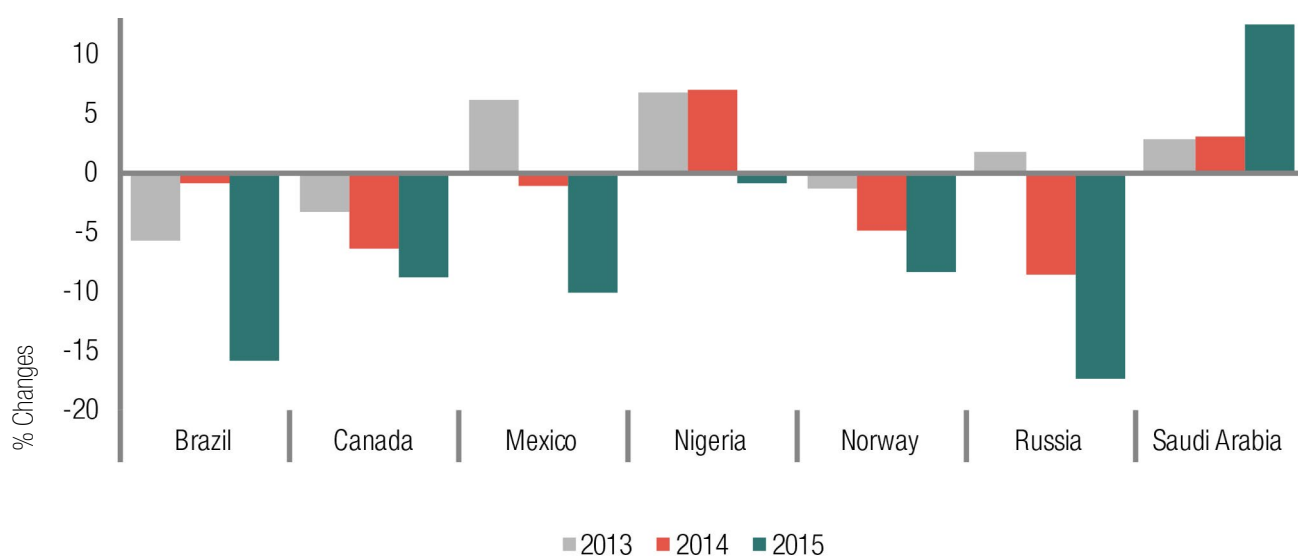
Global oil prices remain weak. Following a 50% decline between mid-2014 and mid-2015, the West Texas Intermediate (WTI) measure of oil prices has hovered at around \$40-\$50 per barrel, down from its 2014 peak of \$107 per barrel. The decline in oil prices has reflected a number of structural factors, including reduced demand from China and US energy independence (Papadavid 2016a). Given this, a number of oil-producing countries have seen significant reductions in their fiscal and foreign exchange revenues, including in some SSA economies (IMF, 2016d) where the export cost has been estimated as high as \$63 billion, or 5% of its GDP (Hou et al., 2015).

The oil price decline caused a widespread TOT deterioration amongst oil-producers, most of which allowed their currencies to act as shock absorbers for the

oil price shock. Oil-producing economies with fixed or managed exchange rate regimes, such as Nigeria, Saudi Arabia and Russia saw larger reductions in their foreign exchange reserve positions from their respective peaks, relative to oil-producing economies with freely floating exchange rates (Figure 3). Nigeria saw a 42% reduction in its reserves from its 2008 peak. This owed to both to the fall in revenues and the CBN's attempts to stabilise the naira exchange rate against the US dollar. Its REER appreciated 26% during that period, one of the largest appreciations for an oil-producing economy during the oil price fall of 2014-2015.

Facing a depletion in its reserves, when Nigeria announced that it was abandoning its exchange rate peg (Central Bank of Nigeria 2016b) it faced the common problem for a newly de-pegged currency: managing naira volatility along with the underlying question of where the naira will settle. Not all central banks can influence exchange rates, nor are they all good judges of where their currencies are fairly valued. Following the de-pegging, the NEER has corrected to a level consistent with lower oil prices (Figure 4).

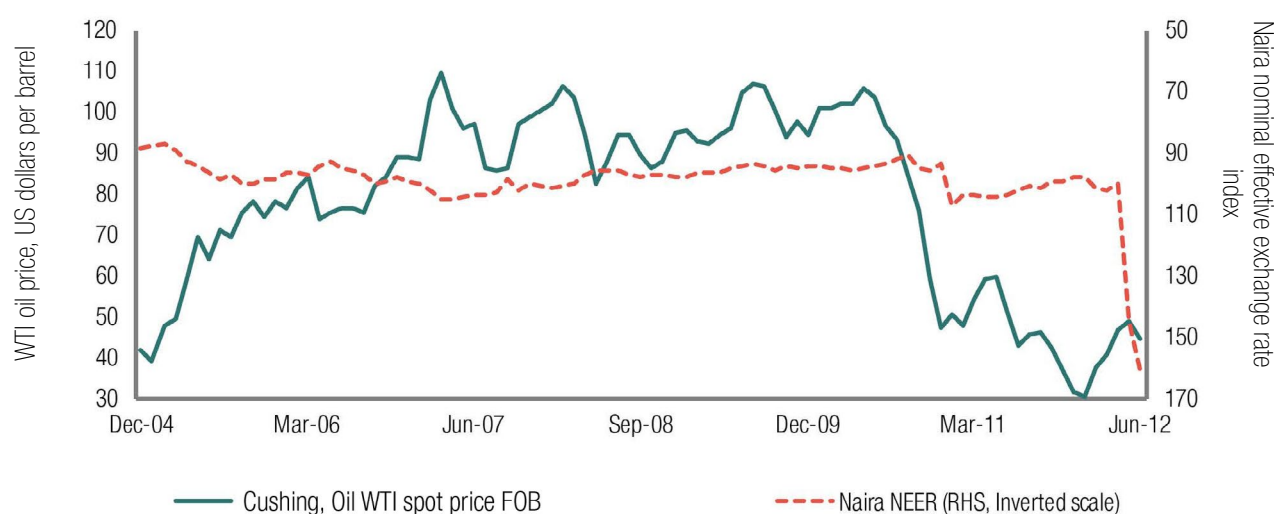
Figure 3: Oil producers' real effective exchange rates



Source: World Bank World Development Indicators.

Note: data denotes total reserves excluding gold.

Figure 4: The naira nominal effective exchange rate vs. WTI oil prices, 2009-2016



Source: Central Bank of Nigeria and US Energy Information Administration.

However, continued volatility in investment flows could create deviations of the exchange rate from its medium-term equilibrium value⁴ that can increase the risk of further crises (Gourinchas and Obstfeld, 2011). This is still a risk for Nigeria, as its economy experiences a contraction in investment flows; equity transactions were down 40% in the period between January and September 2016 compared to 2015, according to Nigerian stock exchange data.

Post-crisis reserve falls both in the aftermath of the SEA crisis, and after the oil price fall, underscore the importance of reserve and currency management. In a situation of volatile currency moves, the SEA crisis showed that currency intervention can be an important tool to smooth currency movements and, in some instances, help re-accumulate reserves. BI used such a strategy to recover from the SEA crisis and continues to use the rupiah as a tool in its monetary policy mix (Warjiyo, 2013). Amid the ‘middle ground’ of managed exchange rates (Aizenman and Ito, 2011; Ostry et al., 2012) and the ‘fear of floating’ (Calvo and Reinhart, 2000), having been hard hit by the oil price decline, Nigeria has a similar choice to make in how it utilises its exchange rate policy, and its

reserves management to rebuild its reserve position, for a sustainable economic recovery. We examine Indonesia and Nigeria’s experiences in closer detail in Sections 3 and 4.

2.3 Reserve developments: conclusion

The accumulation of reserves is both driven by central bank precautionary demand to ‘self-insure’ against future crises, but in other instances, it has also been driven by a reliance on an undervalued exchange rate to promote exports, and subsequent reserve accumulation. A consideration of the SEA crisis suggests that more flexible exchange rate policies, with some reliance on exchange rate smoothing, and undervalued exchange rates, were significant in economies’ reserve recovery following the crisis. More recently, the reserve depletion for the world’s largest oil producers has been greater for economies with fixed exchange rates. Now that Nigeria has floated the naira, the CBN could look to some of the policies that were implemented in Indonesia pertaining to exchange rate smoothing and increasing domestic financial breadth.

4 One such metric for an equilibrium exchange rate value could be the fundamental equilibrium exchange rate value as conceptualised by Williamson (1994): ‘an exchange rate would be overvalued if it is above the value consistent with external balance and internal balance in the domestic economy’.

3. Indonesia

Having weathered a number of economic crises, including the oil price shocks of the 1970s and the SEA financial crisis, as an oil-exporting economy, Indonesia succeeded in transforming its macroeconomic policies and its institutions to strengthen its domestic economy and enable the successful accumulation of reserves. This section considers Indonesia's experience during and in the aftermath of the SEA crisis. We look at the financial, institutional and exchange rate policies that were put in place following the crisis, with a particular focus on BI's rupiah policy and the financial deepening that followed the crisis. This section concludes that BI's early introduction of money market instruments and its financial deregulation were important in building its reserve position and stabilising the domestic economy.

3.1 Indonesia's experience

Following Thailand's July 1997 devaluation, Indonesia found itself in the middle of a pronounced financial crisis, along with Malaysia, the Philippines and South Korea. Between 1990-1996, Indonesia's average annual growth had been more than 7%. In 1998, its economy experienced one of the sharpest downturns in the SEA region, contracting by around 14%, and its investment share of GDP falling by over 10 percentage points between 1997 and 1999 from 32% to 20%; Indonesia's financial crisis was also complicated by protracted political instability and political regime change, which slowed economic recovery (Hill and Shiraishi, 2007).

A significant vulnerability for Indonesia's economy was its dependence on short-term foreign borrowing – this exacerbated the depletion of its reserve position and the weakness in its domestic banking system at the outset of the crisis (Enoch et al., 2001). By mid-1997, Indonesia's total debt outstanding owed to foreign commercial banks amounted to \$59 billion, \$35 billion of which was short-term debt due within one year and significantly more than it could

afford from its \$20 billion in foreign exchange reserves at the time (Radelet, 1999).

In the first half of 1998, Indonesia's authorities temporarily lost control of monetary aggregates. This stemmed from BI having injected liquidity into the banking system – amounting to more than half of its GDP – in an attempt to keep its banks operational amid rupiah exchange rate volatility and reduced profits.⁵ Although the liquidity supported the commercial banks from collapse, inflation accelerated and domestic interest rates climbed sharply from 22% in January 1998 to a high of 70% in September of the same year (Goeltom, 2008).

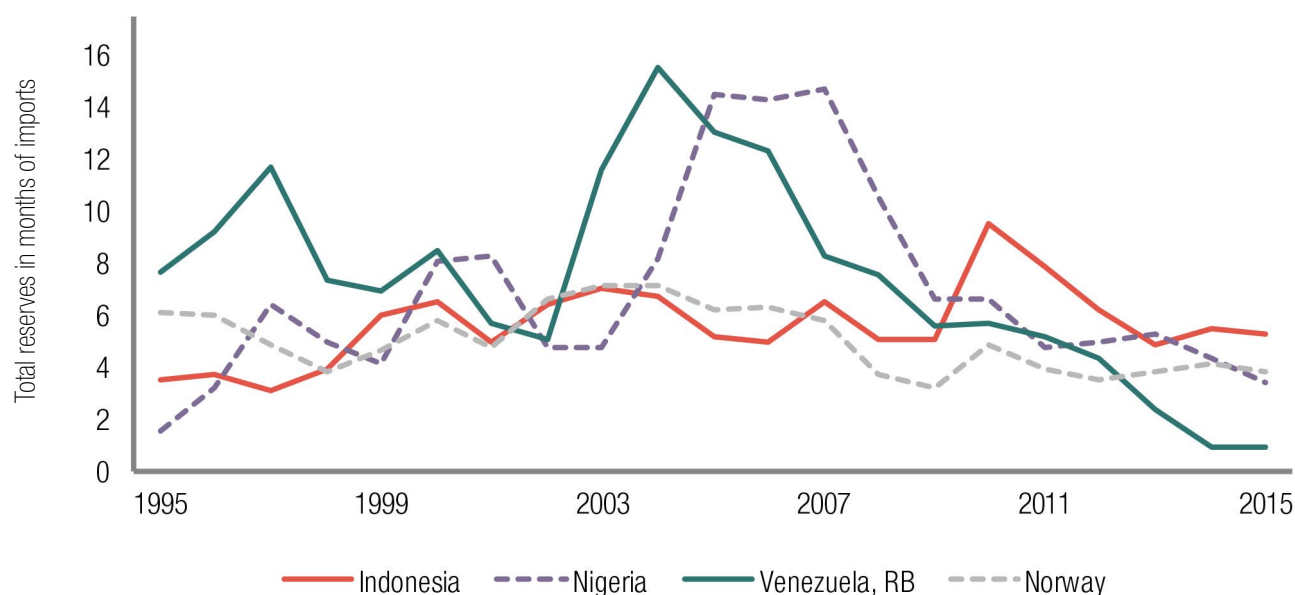
Following the peak of the crisis in 1998, Indonesia's real GDP growth returned to 3.3% in 1999 and recovered to an average 4.5% rate for the period between 2002 and 2005.⁶ By 2007, a decade after the crisis, Indonesia's external position had improved significantly. In 2006, its current account registered a 2.6% of GDP surplus – this is compared with a 3% deficit of GDP in 1996. While in 2006, its foreign exchange reserves covered 5.3 months of imports – compared to a pre-crisis ratio of 3.15 months. Further still, during this period, Indonesia had managed to keep its import cover steady compared to its other oil-producing counterparts (Figure 5).

Exchange rate stability and debt reduction also characterised Indonesia's recovery. Before the crisis, from 1967 to 1997, BI had operated managed, floating and fixed exchange rate regimes implementing eight devaluations against the US dollar during this period. As the SEA crisis spread, with portfolio outflows picking up, and short-term debt climbing to 187.9% of reserves in 1997, policy-makers floated the rupiah in 1997. After the end of the May 1998 riots caused by the economic crisis that led to the fall of President Suharto, the rupiah started to stabilise and recover in the latter half of the year. Since the end of the crisis, short-term debt as a percentage of Indonesia's reserves was 33% in 2007, and 85.2% of reserves in 1998, only one year after the crisis, according to World Bank statistics.

5 Between the end of October and mid-December 1997, liquidity support rose from Rp 6.5 trillion to Rp 31.7 trillion, and to Rp 97.8 trillion by March 1998. This triggered double-digit base money growth, currency depreciation and a surge in Indonesia's inflation (Boorman and Hume, 2003).

6 <http://www.imf.org/external/np/sec/pn/2006/pn0618.htm>

Figure 5: Selected oil producers' import cover, 1995-2015



Source: World Bank World Development Indicators.

3.2 Indonesia's policies

In the aftermath of the SEA crisis, Indonesia implemented significant institutional changes that built on previous structural reforms in the 1980s following the second oil price shock of 1979. Some observers highlighted that mismanagement of the crisis by the International Monetary Fund (IMF), which assisted from 1997 to 2003, actually deepened the crisis. Among other actions taken, the recommended initial fiscal tightening added to economic contraction, undercut investor confidence and added to the capital flight that was underway. And yet institutional changes such as enhancing BI independence in 1999 helped shift to a regime of inflation targeting and renewed economic policy discipline, underpinned by fiscal prudence. This section examines Indonesia's financial and institutional deepening, outlining the rupiah policy implemented by BI in the aftermath of the SEA crisis, and evaluating its effectiveness.

3.2.1 Indonesia's financial and institutional deepening

Indonesia's previous efforts towards financial sector deepening, through deregulation of its credit controls, improved the ability of the central bank to counter the 1973 and 1979 oil price shocks. The central bank's policy was three-pronged. First, in 1979 BI introduced and utilised foreign exchange swap contracts; second, in 1984, new money market securities were issued by the central

bank (Sertifikat Bank Indonesia (SBI) at 30- and 90-day maturities); third in 1985, BI introduced a new money market instrument, the SBPU (Surat Berharga Pasar Uang), that was a short-term security issued by a business or bank that BI was prepared to purchase at a discount (Lane et al. 1993).

BI's three-pronged policy was important in facilitating the central bank's ability to control reserves and liquidity in the domestic banking system. BI's swap facility encouraged the repatriation of working balances and increased BI foreign asset holdings; SBIs were indirect instruments that helped BI shore up its reserves from the banking system. SBPUs, by contrast, were used to increase banks' reserves. Collectively, these policy instruments were important because they were used reactively by BI, to respond to prevailing market conditions, and particularly, to fix reserve shortages. Nigeria too has an array of money market instruments at its disposal, and has instituted swap facilities, including with China (Fick, 2016), though they have not been employed with the aim of accumulating reserves.

BI money market instruments facilitated a financial deepening which partly helped the recapitalisation of Indonesia's banking system, which was suffering from increasingly poor credit quality between 1988 and 1997 with rising non-performing loans, bank failures, and a bank run in 1997 (World Bank, 2016a). The adoption of the IMF's recommendation to close 16 banks

before a deposit guarantee system was in place,⁷ triggered an estimated \$2 billion withdrawal from Indonesia's banking system (Radelet, 1999). However, restructuring measures, such as the eventual closure of 15 banks in 1998 and a reassessment of capital adequacy assessment measures supported a turnaround in Indonesia's banking system.

On the macroeconomic policy front, the introduction of a freely floating rupiah in 1997 caused deterioration in the asset position of banks. However, a floating rupiah, explicit money supply targeting in 1998 and a newly independent inflation-targeting central bank in 1999 (Singh, 2000) were important in stabilising the macro-economy, and the loss of control in Indonesia's monetary growth. BI raised the interest rate on SBI bonds it was issuing, which reached 60% in 1998 and was crucial in restoring public confidence (Santoso, 2000). BI was also able to provide liquidity support through its other previously instituted money market instruments, including through open market operations during the crisis, bringing interest rates down dramatically along with falling risk premia, notwithstanding the suspension of its IMF programme in September 1999 (IMF, 2000).

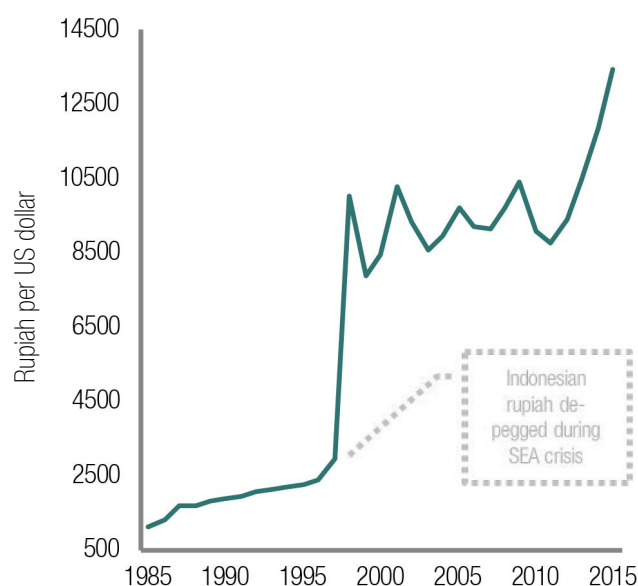
3.2.2 Bank Indonesia's rupiah policy

The development of BI's money market instruments also reflected a stance against speculation in its currency policy. These instruments offset the effects of inflows or outflows, through targeting and limiting the liquidity position of the (state-owned) banks that were speculating against the rupiah; these included reductions in the ceilings on interbank borrowing and increasing credit provision, which halted the rupiah depreciation in 1984 (Lane et al., 1993). Additionally, interbank interest rates and SBI auction rates became a reflection of devaluation expectations for the rupiah given that the money market instruments were employed to alter the reserve holdings of the BI vis-à-vis the domestic banking system.

The principles guiding BI's currency management during the SEA crisis were similar to the 1980s: they were aimed in large part at controlling the rupiah's depreciation and limiting speculation. This was not evident from the outset given the volatility ensuing from the 1997 devaluation. The rupiah intervention band was widened, and then floated in August 1997. By October 1997, it had depreciated by 30%. Following both banking sector instability and the fall of President Suharto, by the end of July 1998, the rupiah had further fallen by around 65% relative to end-1997 (Figure 6) (IMF, 2000).

Following the devaluation, BI's currency policies succeeded in stabilising the rupiah. Its strategy was initially to tighten the money supply, given its loss of control in monetary growth. To limit speculation in the rupiah once the devaluation occurred, among its raft of policies, in 1997, BI limited forward trading (to \$5 million per transaction) for international investors. In addition, Indonesia's swap and derivatives market with longer maturity profiles facilitated financial sector depth and breadth. Since then, intervention has largely been used to stabilise the rupiah, which resulted in currency stability, at least until 2013 when it depreciated amid expectations of higher US interest rates and a stronger US dollar.

Figure 6: The Indonesian rupiah, 1985-2015



Source: Bloomberg.

Despite these multiple shocks and a weaker rupiah, policy-makers still believe that they can access global finance. However, the importance of managing financial risk remains critical to achieving stability. Much like other developing and emerging economies, Indonesia continues to face multiple shocks. This includes higher US interest rates and a higher dollar, which has led to depreciation in

7 The key objective in bank restructuring efforts was to capitalise all the banks, including through the provision of public funds, and to move to a self-financed deposit insurance scheme (IMF, 2000).

the rupiah. In his comments at the recent annual IMF-WB⁸ meetings, Deputy Governor Perry Warjiyo highlighted that the central bank is in close communication with the markets and committed to further financial deepening via infrastructure bonds – both critical in managing an open economy.

3.3 Conclusion: Indonesia

The serious economic crises that Indonesia suffered in the 1970s led to significant diversification of Indonesia's real economy, but it also led to institutional reforms that helped the economy recover from the 1997-1998 SEA crisis. These included financial deepening and instituting

financial instruments that enabled BI to provide liquidity to the banking system, and to control domestic currency speculation. Moreover, the SEA crisis led to further reforms that have enabled policy-makers to better navigate today's financial obstacles. Following the abandonment of the rupiah in 1997, a newly independent central bank in 1999 with an inflation-targeting mandate, was instrumental in arresting the deterioration in the macro-economy and regaining control over Indonesia's monetary aggregates following the SEA crisis. Institutionally, banking sector recapitalisation, deregulation and an effective bankruptcy system were key reforms that now help safeguard the domestic financial system.

⁸ Remarks given at 'Managing global financial risks in uncertain times'. Civil Society Policy Forum, IMF and World Bank annual meetings, 5 October, 2016.

4. Nigeria

Nigeria's current recession has largely been caused by a TOT shock stemming from the decline in the oil price, which accounts for the bulk of its export revenues and which was exacerbated by the 2008 financial crisis and the economic slowdown in China, Nigeria's biggest trading partner. The deterioration in economic activity and in foreign exchange revenues saw subsequent pressure on the naira exchange rate that led to the eventual abandonment of the naira peg in May. This section assesses the current state of Nigeria's macro-economy and concludes that the breadth of Nigeria's financial market and the introduction of new financial instruments to limit exchange rate volatility have been encouraging. However, as seen in Indonesia's experience, money market tools should be used more responsively to market conditions to increase reserves. The CBN could also move more quickly to a credible fully floating exchange rate regime.

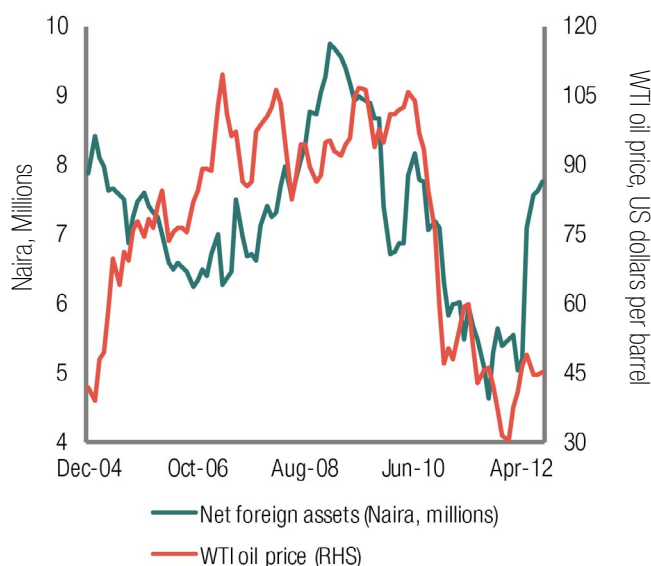
4.1 Nigeria's recent experience

Nigeria's current recession has largely been caused by a TOT shock stemming from the decline in the oil price, which accounts for 90% of its export revenues (OPEC, 2015). The 2008 financial crisis (Nkoro and Uko, 2012) and the economic slowdown in China – Nigeria's biggest trading partner (Egbula and Zheng, 2011) – have also contributed to the economic slowdown and subsequent pressure on the naira exchange rate. After the CBN announced that it was de-pegging the naira in mid-2016 (Central Bank of Nigeria, 2016b) the nominal effective exchange is around 77% below its peak in October 2014. This has not eased the foreign exchange shortages that have exacerbated the downward trend in the overall manufacturing capacity utilisation rate.⁹ The IMF expects a current account deficit of 2.8% of GDP in 2016 – the lowest since 1998.

The liberalisation of the naira peg was driven, in part, by the depletion of Nigeria's foreign exchange reserves that have declined from a peak of \$62 billion in September 2008, to \$25 billion as of September 2016. CBN data have suggested that past deterioration in the excess crude account (ECA)¹⁰ to a low of \$2.3 billion (from \$11 billion in 2012) has been detrimental. The generally low

level of the oil price also suggests risks to Nigeria's net foreign asset position (Figure 7). The decline in reserves precipitated concerns around the CBN's ability to defend the naira-US dollar peg, and a consequent widening between the parallel market naira rate and the official rate (Figure 8). This was then followed by an announcement of a freely floating naira in mid-2016, the impact of which has been limited on Nigeria's reserves given that the CBN continues to intermittently sell US dollars to limit naira depreciation.

Figure 7: Nigeria net foreign asset position vs. WTI oil prices, 2009-2016



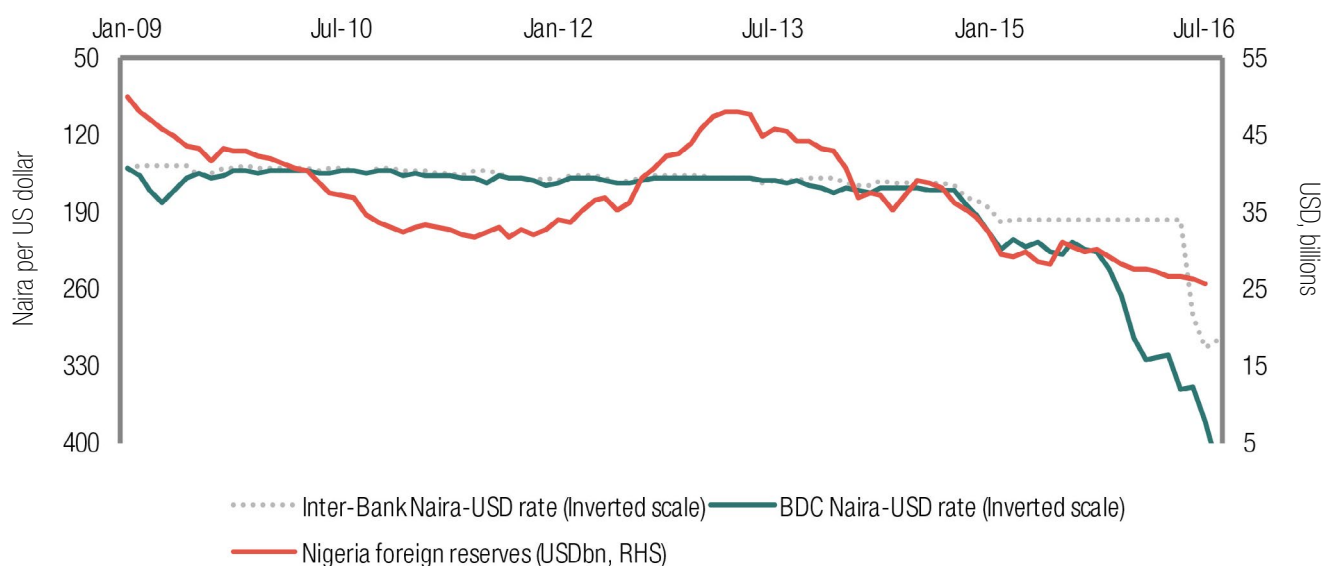
Source: Central Bank of Nigeria and US Energy Information Administration.

⁹ Nigeria's manufacturing capacity utilisation rate has declined from 60% in mid-2014 to 50% in mid-2016 (Central Bank of Nigeria, 2016a).

¹⁰ The ECA is an account that was set up by the Nigerian government in 2004, as an instrument to cushion the effect of production shortfalls on oil revenue, enabling the government to draw from any surpluses to stabilise fiscal shortfalls (Brown et al., 2014).

Figure 8: The naira's link with Nigeria's reserves, 2009-2016

Naira per USD (inverted scale) and reserves in billions, USD



Source: Central Bank of Nigeria.

Financial market fragility persists in Nigeria: the Nigerian Stock Exchange (NSE) is down 60% from its March 2008 peak, and 40% lower from its July 2014 peak, according to NSE data. With financial uncertainty high and economic growth having slowed, for the first time in six years, the CBN cut its policy rate (to 11% from 13%) in November 2015. Despite CBN plans to fully liberalise the naira, the CBN remains the main seller of US dollars. The gap between its commitment to fully float and its actual interventions could mean continued 'jump risk' for the naira, making the near-term exchange rate outlook uncertain. The continued management of the naira with the aim of mitigating depreciation could also limit the policy credibility of the new exchange rate regime.

4.2 Nigeria's policies

Nigeria has implemented multiple stabilisation policies to limit exchange rate volatility. To stimulate the slowing economy, the CBN expanded special intervention schemes, including forward contracts to limit exchange rate volatility, and since November 2015, has eased the monetary policy rate notwithstanding inflation rising above its medium-term target range. The following discussion examines the necessity of the CBN in stabilising its reserves, and will look at some of the challenges involved with operationalising Nigeria's new naira regime.

4.2.1 Nigeria's financial deepening and reserve stabilisation

A significant policy problem for Nigeria at the current juncture is that, at an estimated \$25 billion, Nigeria's reserves fall short of CBN estimates of a minimum adequate reserve level of \$32 billion, to absorb further external shocks to the economy (Tule et al., 2015), which is also the equivalent of 7.2 months of import cover at current prices. Therefore, a further deterioration in Nigeria's reserves would heighten perceived risk, leading to outflows that would hurt Nigeria's balance-of-payment position further. This constitutes a central risk to its macroeconomic stability, especially in the light of the uncertain outlook for oil prices, which remains the economy's major revenue earner (World Bank, 2016b). Improving the depth and resilience of the financial sector is important. A key constraint for Nigeria has been its past usage of official reserves to finance domestic foreign exchange needs, restricting the domestic monetary environment (Chinaemerem and Ebiringa, 2012) and Nigeria's financial sector. In the past, the CBN has rationed domestic foreign exchange and has used various instruments in an attempt to meet multiple objectives, which have included restrictions on commercial banks' FX trading and channelling transactions to the interbank market. In addition, owing to the magnitude of foreign liabilities, naira depreciation has weakened corporate

balance sheets and the asset quality of the banking system, which accounts for 90% of total financial assets.¹¹ Further reserve deterioration and currency depreciation would impair the provision of credit to the economy.

There is some evidence that deeper financial sector reform would support Nigeria's economy given that the banking sector has not contributed significantly to Nigeria's growth and development, and because the link between the financial and the real sectors remains weak given that Nigeria's banks have focused on short-term lending rather than long-term investments in the real economy (Olusegun et al., 2013). This has been due to undercapitalisation and non-performing loans, which increased 158% between end-December 2015 and June 2016 (Central Bank of Nigeria, 2016c). This falls, in large part, under the remit of the CBN and the Nigerian deposit insurance corporation (NDIC): both are Nigeria's banking regulators and ensure the soundness and stability of the financial system and license microfinance banks.

Like Indonesia, the CBN has also targeted monetary aggregates through its open market operations (OMOs) to pursue price stability, since 1993. The CBN's aim in building its money market instruments was also, in part, to stem the outflow of funds to foreign money markets. Treasury certificates were issued in 1968, followed by Special CBN deposits and Certificates of Deposit (CDs) between 1974 and 1976. The money market today includes the interbank funds market and the short-term securities market with the Debt Management Office (DMO). Nigeria's treasury bills (TBs) and treasury certificates (TCs) are key money market securities that provide the government with a highly flexible source of liquidity while commercial papers (CP) help finance large corporations.

Despite similarities, the narrative of how Nigeria has used its money market tools in response to crises has differed to Indonesia's. In 2009, for example, the CBN was not as proactive in using its instruments to sterilise the impact of investment inflows (attracted to Nigeria's higher yields) on domestic liquidity and inflation. This in turn imposed risks on the economy's reserves given the subsequent risk of capital repatriation (Afemo, 2013). A second difference to Indonesia's fiscally neutral stance has been that Nigeria's primary money market has sometimes been dominated by government borrowing for deficit financing. A third example is Nigeria's large margin between lending and deposit rates – owing perhaps to a relative scarcity in private sector instruments limiting the supply of money market products.

4.2.2 The CBN's naira strategy

At the most recent annual autumn IMF meetings,¹² CBN Deputy Governor Dr. Sarah Alade, noted the need for policy consistency and commented that the naira still finds itself in a transition phase. In June 2016, the CBN announced the reintroduction of a flexible exchange rate (Central Bank of Nigeria, 2016b), intended, in part, to stem the decline in Nigeria's foreign exchange reserves. The details of the new policy specified a 'purely market-driven' exchange rate with the proviso that the bank could intervene periodically, 'as needed'. This proviso of conditional intervention ultimately undermined the credibility of the new regime from the start amid speculative pressures.

Along with freely floating the naira exchange rate, the CBN responded to the need to limit naira volatility and also introduced financial instruments that could be issued to limit naira volatility and shift non-urgent FX demand to the futures market. The specific measures that were announced included the introduction of FX forward contracts of 6- to 12-months. These included non-deliverable, over-the-counter and naira-settled futures, with daily rates on the CBN-approved trading and reporting system. The introduction of these new instruments would allow the central bank to smooth out currency volatility in the exchange rate and to manage liquidity in the domestic financial system.

Operationalising a new naira regime has been problematic. Nigeria has seen a one-off notable inflow: in August 2016, there was a \$270 million inflow into local currency bonds, over five times the average daily trading in the naira market, which is typically \$50 million.¹³ Yet despite this, there has been a continued shortage of dollars in the official and parallel currency markets. Intermittent CBN US dollar selling (reaching as much as \$60 million per day) has supported the naira, despite appointment of FX primary dealers. This has led to a crucial uncertainty, particularly in financial markets, as to the timing and extent to which the CBN actually plans to let the naira fully float (Papadavid, 2016b).

4.3 Conclusion: Nigeria

Nigeria's economic crisis has been the product of multiple economic headwinds. Its recession was triggered by the collapse in oil prices; although there has been a recovery in oil prices, the cumulative decline in fiscal, export and foreign exchange reserves has meant that the economy is in

11 The statistics pertain to the period between 1987 and 2012 (Mamman and Hashim, 2014).

12 Remarks given at 'Managing global financial risks in uncertain times'. Civil Society Policy Forum, IMF and World Bank annual meetings, 5 October, 2016.

13 *Financial Times* (2015) 'Unanswered questions on Nigeria's missing oil revenue billions' 13 May. <https://next.ft.com/content/e337c7a4-f4a2-11e4-8a42-00144feab7de>

recession and experiencing a credit crunch. The decision to float the naira exchange rate relieved pressure on Nigeria's declining foreign exchange reserves. The depth and breadth of Nigeria's financial market and the introduction of new financial instruments to limit exchange rate volatility

should help manage liquidity and stabilise the economy. However, the CBN needs to move quickly to a fully floating exchange rate regime in order to gain credibility for its new exchange rate policy and to safeguard its reserves.

5. The political economy of reserve management

There are varying political economies that can be defined by different distributions of political power and wealth. This distribution of political power is important in an economy as it can determine the income allocated to reserves as well as a country's exchange rate regime. The SEA crisis was significant in that it marked a turning point in reserve management in the SEA economies. In focus, Indonesia engaged in active reserve management policies to accumulate reserves that made its financial system resilient. This section puts forward the argument that Indonesia operated a currency and reserve management policy that critically supported the broader economy, whereas Nigeria has not successfully used its reserves to diversify into the non-oil sector. We discuss reserve management in the context of central bank financial independence and consider the political economy of Indonesia's and Nigeria's reserve management policies respectively.

5.1 Reserve management and financial independence

Central bank independence is a key element of a country's political economy, in that it endows the central bank with the power to make decisions that are free from political influence. Developing countries' central bank independence is important to achieve the targets that they have been set – such as price stability. In addition to legal, or operational independence, building financial independence of developing country central banks (such as no monetary financing) is a key policy issue given the increasing impact of global financial volatility on banks' balance sheets (Ivanovic, 2014). Some financial independence also represents the power and independence to allocate capital and to effectively carry out reserve management and exchange rate policies, particularly in times of crisis.

In addition to central bank independence, political economy – or the particular distribution of power and wealth – is important when it comes to exchange rate and reserve management given that they can result in vastly different distributions of income within an economy. The following sections argue that, to some extent, Nigeria's financial development under a fixed exchange rate benefitted a relatively small group of financial and oil sector actors, incentivising the accumulation of foreign reserves. While on the other hand of the political economy

spectrum, we argue that in Indonesia, a focus on broader export performance early on after the oil price shock of 1979 benefitted relatively larger groups of people in the economy.

5.2 Indonesia's political economy

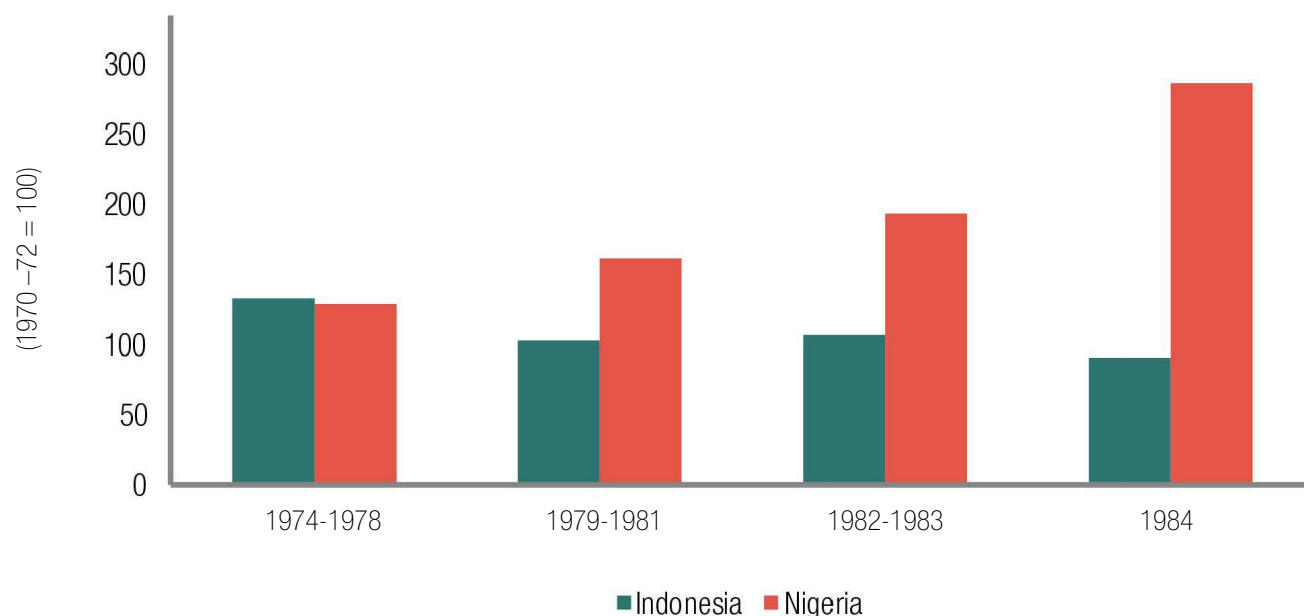
In the aftermath of the SEA crisis, Indonesia engaged in active reserve management policies to accumulate reserves. BI did this, in part, through selling the rupiah as well as accumulating foreign exchange reserves from its currency interventions. As a result, Indonesia ran successive current account surpluses in its balance of payments in the decade following the SEA crisis. Indonesia has also instituted a SWF that seeks to invest funds in line with the government's strategic priorities, such as infrastructure. This sub-section considers the political economy of BI's independence and also considers the drivers behind Indonesia's reserve accumulation and Indonesia's SWF.

5.2.1 Bank Indonesia policy, independence and strategy

Indonesia's central bank independence was enhanced, at least by law, following the SEA crisis with the 1999 Central Bank Law that guaranteed BI independence from the government, including through the prohibition of BI purchasing government bonds. However, the effectiveness of BI policy has fluctuated with each governor. One year after the passage of the law, President Wahid jailed and then exonerated the BI governor at the time (Hill and Shiraishi, 2007). Macroeconomic stability was in part restored under president Megawati (between July 2001 and October 2004) to the extent that Indonesia was able to exit its IMF programme in July 2003 (Boorman and Hume, 2003).

More recently, during the 2008 financial crisis, increased independence and institutional strength has meant that the BI has been successful in its liquidity-based interventions to stabilise its financial system, and in implementing bank regulation (Mustika et al., 2013). In 2008, BI instituted surveillance and monitoring of the banking sector's internal capital adequacy (Bank Indonesia, 2008). Crucially, its use of a bilateral swap facility with Bank of Japan, Bank of Korea and Bank of China allowed it to stabilise its balance-of-payments position (Bank Indonesia, 2008).

Figure 9: Comparing Nigeria and Indonesia's real effective exchange rates, 1970-1984



Source: Gelb, 1988.

Furthermore, BI engaged in dual intervention (purchasing both rupiah and rupiah-denominated bonds) to increase liquidity in the commercial banking sector and stabilise the rupiah – notwithstanding the government's contrary policy of issuing securities and tightening bank liquidity (IMF, 2015).

5.2.2 Drivers behind Indonesia's reserve accumulation

The mercantilist motive has been an important driver behind Indonesia's reserve accumulation in past crises. In this respect, the political economy of Indonesia's early exchange rate policy contrasts with Nigeria. Following the oil price shock of 1973, Indonesia's exchange rate appreciation between 1974 and 1978 was equally as pronounced than that of Nigeria's (Figure 9). However, fearing the impact of domestic costs on labour-intensive non-oil export sectors, and having doubts about the sustainability of the 'oil boom' at the time, Indonesia devalued the rupiah by 50% and then subsequently allowed the currency to depreciate until it was devalued again in 1983. Crucially, Indonesia implemented a fiscal expenditure reduction before the fading of the second oil boom (Gelb, 1988).

The fact that BI had built up its reserves is linked to the fact that it devalued its fixed exchange rate regime when it no longer had the capacity to defend its regime, and to the fact that it abandoned the fixed exchange rate in 1997 when it was no longer sustainable amid volatile capital flows and unsustainably high short-term debt (Filardo and Yetman, 2012). While an overvalued exchange rate benefits anyone seeking to increase their purchasing power, a depreciated rupiah had a different set of benefits, which allowed policy-makers to stimulate broader export growth in the economy, during the SEA crisis.

Since the SEA financial crisis, monetary authorities in the region have not only increased their foreign exchange reserve holdings, there has been a paradigm change in their behaviour towards more actively accumulating reserves (Aizenman and Marion, 2003; Filardo and Siklos, 2015). Although there had been an element of mercantilism in influencing Indonesia towards reserve accumulation, triggered by export competitiveness concerns (Dooley et al., 2003), the SEA crisis was important in that it changed the incentives for reserve accumulation to being more precautionary in nature; the intention being to reduce vulnerability to future crises (Brugger, 2015).

5.2.3 Indonesia's sovereign wealth fund

From a political economy perspective, SWFs can be a powerful investment tool to increase a country's income, or its central bank reserves, and can be sourced from various economic sectors, including resource exports, privatisations, or balance-of-payment surpluses. Indonesia's SWF, the Government Investment Unit (GIU), was established in 2007 and oversees an estimated \$500 million in assets.¹⁴ Like most SWFs, it is a state-owned investment fund; it is managed by the Indonesian Ministry of Finance and invests in a variety of asset classes including equity, debt, infrastructure and clean energy. Another SWF will likely control \$320 billion in assets by 2019 and will replace the state-owned enterprise (SOE) ministry to manage and raise finance for Indonesia's 199 largest SOEs (Braunstein and Caoili, 2016).

Additionally, from a political economy perspective, the creation of SWFs can also be an effective means through which Indonesia's government can increase strategic, or political, control over SOEs, while reducing SOE dependence on the fiscal budget, given their market-based funding. This would increase the political influence of the government, and the financial influence of financial markets, the latter possibly making for more efficient investment. The overriding focus of Indonesia's GIU has been to promote the government's strategic initiatives, such as cutting carbon emissions and renewable energy initiatives, through its focus on infrastructure investment. Similarly, the new investment holding company for SOEs will target state banks and energy firms (Chatterjee and Purnomo, 2016).

5.3 Nigeria's political economy

In comparison to Indonesia, discussion around Nigeria's political economy centres on the more narrowly defined economic benefits that have stemmed from its oil sector. Like Indonesia, the independence of the central bank has sometimes been in question, particularly given suggestions of political appointees within the CBN. The need to establish a more diversified SWF, in order to effectively manage Nigeria's foreign exchange reserves, is important given their vulnerability to fluctuations in the oil price. This sub-section examines the political economy of CBN independence, followed by a discussion on the drivers of Nigeria's reserve accumulation and an examination of Nigeria's SWF.

5.3.1 Central Bank of Nigeria policy and independence

CBN independence has been tested both on an operational and on a financial level, which has sometimes affected its ability to execute its functions. Most recently, CBN independence was in question when proposed legislation in 2012 would have forced it to submit its budget for approval to the national assembly. This would effectively result in bringing the CBN under political influence, potentially compromising the economic credibility of the central bank's policy tasks (Stella, 2005). While a second bill introduced in the lower house of Nigeria's parliament proposed that board members be allowed to be replaced with political appointees (Rice, 2012). In 2014, CBN governor Sanusi was suspended after he flagged a \$20 billion oil revenue shortfall owed to Nigeria's treasury (Wallis, 2014).

The erosion of CBN financial and operational independence has also often been detrimental to the ability of the bank to carry out its core functions, including its ability to stabilise the economy, beyond its more narrowly defined inflation-targeting function. There is operational autonomy in the CBN's inflation-targeting function.¹⁵ And yet, some of its other functions do not have the same independence from, often misguided, political interference that exacerbates attempts at economic stabilisation. Again earlier this year, President Buhari opposed naira devaluation, stating that he would not 'kill the naira' in January 2016 (Wallace and Onu, 2016) aimed in large part at protecting the purchasing power of Nigeria's consumer base and the sectors (oil and finance) that benefit from a strong naira. This intervention led to a delay in the eventual transition to a more flexible exchange rate regime in mid-2016, costing the CBN further in terms of its foreign exchange reserves to defend the naira peg.

5.3.2 Drivers behind Nigeria's reserve accumulation

From a revenue perspective, oil market developments, and the oil price 'boom' have played a dominant role in Nigeria's reserve accumulation until 2014 (George, 2007; Chinaemerem and Ebiringa 2012). Nigeria's key categories of revenue from crude oil production and sales have included: direct sales from the Nigerian national petroleum corporation (NNPC), petroleum profit tax (from oil companies), royalties, the ECA – established in 2004 to enable the government to use and deploy surplus oil reserves (Brown et al., 2014). The CBN portion of oil revenues consists of funds that have been monetised and shared largely from crude oil sales. It is from this portion of the reserves that the bank conducts its monetary policy and defends the value of the naira.

14 <http://www.sovereignwealthcenter.com/fund/80/Government-Investment-Unit-of-Indonesia-New.html#.WAcIn9yNfV4>

15 <https://www.cbn.gov.ng/AboutCBN/history.asp>

Elements of authoritarianism persist in Nigeria's institutions that foster a narrow set of interests, and ultimately, the government is still controlled by oil. A strong indication of this is that to protect these concentrated interest groups, reserves were accumulated, rather than invested. The decades-long dominance of the oil sector remains and has benefitted ethnic majority elites at the expense of larger groups of ethnic minorities, including those from the oil-bearing Niger Delta region (Omeje, 2006). In the joint ventures operated by the federal government and foreign oil multinational companies, 90% of employed personnel have been Nigerian nationals (Omeje, 2011). However, unlike in Indonesia, reserves were not diverted to support the non-oil sector (Agbaeze et al., 2015).

5.3.3 Nigeria's sovereign wealth fund

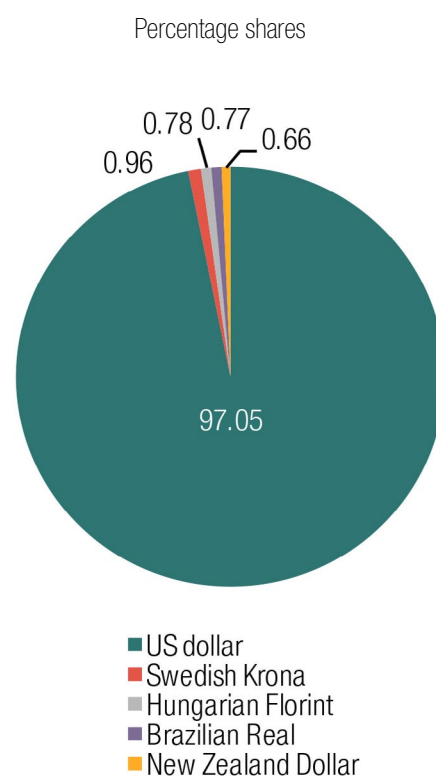
From a political economy perspective, Nigeria's SWF, the NSIA was largely established to safeguard its oil wealth and was established in the later stages of the recent commodity and oil price boom, in May 2011, with seed funding of \$1 billion. Its aim was to build a savings base for the Nigerian people, to enhance domestic infrastructure and provide stabilisation amid crisis. The NSIA is comprised of the Stabilisation Fund (SF), the Future Generations Fund and the Nigeria Infrastructure Fund. The SF has a short-term horizon of up to three years, while the Future Generations Fund and Nigeria Infrastructure Fund have horizons of a minimum of 20 years. The respective investment allocation shares are 20%, 40% and 40%.¹⁶

Of the NSIA's three funds, the SF is designed to provide liquidity in times of economic distress. And yet, its structure might be making decision-making difficult and leading to sub-optimal investment decisions, and declines in Nigeria's invested income. An example of this could be the rule that allows for discretionary withdrawals by the Ministry of Finance from the SF. A second example of undue political influence in the management of the NSIA is the inclusion of the president of Nigeria and Nigeria's 36 state governors in the NSIA governing council, making political autonomy and decision-making difficult in the light of some of the governors' push for decentralised distribution of the economy's oil reserves (Nwankwo and Ikpor, 2014).

At the same time, the outsourcing of the SF investment management to foreign investment banks could also be seen as sub-optimal given the poor assessment of global risk vis-à-vis Nigeria's domestic economy. There is a question as to whether particular decision-making processes have led to an over-investment in the US dollar and US treasuries, which has ultimately been a source of

risk given the prospect of Federal Reserve interest rate rises. Currency exposure to the US dollar as at end-2015 was 97%, according to the NSIA annual report (Figure 10) and the SF yielded -1.7% in 2015, which was lower than the benchmark.¹⁷ This indicates that outsourcing to external investment managers could have a detrimental impact on Nigeria's reserve position given that they may not be able to adequately assess global risks vis-à-vis Nigeria's domestic economic situation.

Figure 10: The NSIA's top five currency exposures, 2015



Source: Nigeria Sovereign Investment Authority.

5.4 The political economy of reserve management: conclusion

Our analysis suggests that Indonesia's policy-makers realised the benefits of supporting their non-oil sector early on, and diverted resources to support broader growth. In contrast, Nigeria's oil industry grew in its economic and financial dominance, with the benefits of the industry not having been fully redistributed. Equally,

¹⁶ <http://nsia.com.ng/faqs/>

¹⁷ NSIA Annual report for 2015: http://nsia.com.ng/wp-content/uploads/2016/10/NSIA_Annual-Report_online-2015.pdf

the political economy associated with the countries' respective exchange rate policies also differed: while an overvalued exchange rate benefitted those seeking to increase purchasing power in Nigeria, a depreciated rupiah allowed policy-makers to stimulate broader export growth in Indonesia's economy, during the SEA crisis. These developments have had a knock-on effect on the domestic

institutions whose aim is to manage financial shocks, such as their respective sovereign wealth funds. Although both SWFs have infrastructure investment as a priority, there are notable differences. Indonesia's SWF has been instituted to promote market-based SOE funding, while Nigeria's NSIA is subject to undue political influence which has, in part, reduced its success in stabilising its reserves.

6. Policy options

A number of policy options could be explored at the global level that would build resilience against shocks. This is important in the light of the fact that much of the reason that countries have built up precautionary reserves is to 'self-insure' in the absence of adequate global financial governance. This section examines global policy options to support investment such as the increasing involvement of development finance institutions (DFIs), improving best practices for SWFs and information exchange with the international finance sector. Global policy options have some links to country-level macro-financial policies. In looking to Nigeria, we consider policy options that would build institutional capacity to counter shocks. These would include transitioning to a freely floating naira, reforming Nigeria's reserve management policies and the NSIA taking over management of its SF.

6.1 Policy options for Nigeria

There is a clear recognition by Nigerian policy-makers that the economy finds itself in a transition period. The current economic recession will deepen further, with a lack of reform action, particularly given the muted outlook for oil prices. Yet despite this, there is an opportunity for policy-makers to reform Nigeria's institutions in a way that strengthens the capacity of the economy to respond to future shocks and crises. There are three policies that Nigeria could pursue in order to help achieve this:

- **The CBN should move to a freely floating naira – without any further delay.** Nigeria's policy-makers have expressed a desire to transition to a new exchange rate regime, announcing that they will, in due course, freely float the naira. The CBN needs to avoid any delay in credibly floating the currency; in delaying a full float, they will be undermining the credibility of their stated exchange rate regime while also running down their foreign exchange reserves, which will weaken investor and business confidence and reduce portfolio and investment inflows into the economy. There could be further depreciation with a full float, and the CBN will need to let the currency settle at its new market-determined equilibrium value, in order to move on to broader-based growth. A gradual free-float is worse given that Nigeria is already experiencing a credit crunch (Tyson, 2016). In the absence of a clear and credible message regarding its exchange rate policy, speculation will prevail, to the

detriment of Nigeria's financial system and its public finances.

- **CBN financial policy coordinated with privatisation** could facilitate broader-based growth. Nigeria's continued dependence on oil suggests that there is a need for policy-makers to take a broader range of economic interests into account, and to focus on diverting financial resources to building the non-oil sector. As the manufacturers' association of Nigeria has suggested, this could be achieved through the privatisation of government assets, such as the National Petroleum Corporation's oil refineries. Privatisation revenues could be used to promote investment in the non-oil manufacturing sector. Access to finance could also be facilitated through special funding windows for high-skilled sectors, such as information and communication technology (ICT). NSIA could further increase its long-term investments in non-oil sector industries given its vision to promote Nigeria's economic development.
- **The NSIA should manage its SF** instead of outsourcing it to a number of large investment banks. The SF's aims are to provide liquidity and capital preservation in times of crisis. Its ability to respond to shocks is best when in close coordination with macroeconomic and financial policies (Al-Hassan et al., 2013), and is maximised when the core capacity of investment management is institutionalised within the domestic financial institution. This ability is compromised when the investment function is outsourced to external investment banks, such as those that have been mandated by NSIA. Building domestic institutional expertise would enable faster and flexible responses to changes in financial markets by employing NSIA staff that have country-specific expertise, and can therefore invest in a manner that is more attuned to the stabilisation needs of the fund and the economy. This would enhance the long-term ability of the SWF to effectively invest the resources of the economy and build institutional memory to increase returns from resource-related revenues.

Nigeria's macroeconomic policy agenda has multiple policy challenges that require a multi-pronged approach. These policies would start to mitigate some of the uncertainty associated with Nigeria's macroeconomic adjustment as it transitions to what is likely to be a lower

naira exchange rate, and as it plans to stimulate a broader growth path. Having a flexible exchange rate policy, making growth and its financial system more inclusive, and expanding its domestic capacity to manage its SWF Stabilisation Fund are ways in which it could start to achieve a more sustainable economic outlook.

6.2 Global policies towards sustainable investment

Much of the onus placed on domestic monetary institutions to counter financial shocks has arisen from the fact that there is a lack of global safety nets to help low- and middle-income economies that find themselves in crisis, or having to manage a challenging economic transition. The lack of breadth in global liquidity, and inward investment, during times of crisis, suggests that the trend towards 'self-insurance' is likely to continue. On this basis, options for expanding current initiatives to improve access to investment, and liquidity are as follows:

- **Development finance institutions (DFIs) to help build usage of financial tools in developing economies.** DFIs from both emerging and developed economies could help catalyse longer-term investment in less developed countries (LDCs) (Savoy et al., 2016) as they can be a key conduit between the private (and financial) sector and governments. The instruments that DFIs can help build, would create domestic financial capacity and mitigate some of the financial and liquidity risk that vulnerable countries face during times of crisis. Introducing the institutional capacity for broader usage of financial derivative instruments would enhance the ability to scale up investments. Development banks, such as the new Development Bank of Nigeria, can also support such efforts.
- **The International Forum of Sovereign Wealth Funds (IFSWF) could strengthen its best practices** for the conduct of SWF investment practices particularly in their funding and withdrawals. SWFs help promote growth by undertaking cross-border investments and are central in their importance to achieving macroeconomic stability given their longer-term investments. The 2008 Santiago set of generally accepted principles and practices (GAPP) aimed, in part, to enhance their benefits to global financial

stability (IWG, 2008). All IFSWF GAPP countries¹⁸ should publicly disclose their specific policies and rules in relation to funding and withdrawals from their SWFs, and implement those rules according to specific earmarks, and their respective fiscal budgets. A number of members have not implemented or disclosed specific funding and withdrawal rules, even though they have committed to do so under the Santiago principles. This would increase accountability for the SWFs, and their capacity to promote macroeconomic stability.

- **Broader monitoring of high frequency trading (HFT) on developing countries** by the Bank for International Settlements (BIS) whose remit is to serve central banks in their pursuit of monetary and financial stability and to foster international cooperation. The BIS markets committee has found that electronic automated trading, of which HFT is a part, can pose risks to market liquidity and functioning and needs to be monitored by policy-makers. HFT has generated increased activity and yet, it has tested the resilience of the foreign exchange market given that it has increased volatility (BIS, 2011). The BIS markets committee could usefully expand its range of analysis to include the transmission of HFT on developing countries' currencies, financial systems and macroeconomic stability.¹⁹

6.3 Policies: conclusion

At a time when global economic growth is showing little sign of acceleration and financial risks are elevated, the onus is on developed and developing country banks to employ tools that mitigate and counter financial shocks. Post-crisis periods show that institutional reform, financial sector deepening and exchange rate liberalisation are important. One way to mitigate risks is to help economies further develop financial instruments to counter risk and scale up investment: DFIs could play an even more instrumental role in this process. Stronger global guidelines to ensure the accountability of SWFs are important to explore as their assets under management grow. Economies managing multiple challenges, like Nigeria's, should not delay institutional and macroeconomic reforms, such as diversifying its economy from the oil sector and moving to a more credible freely floating exchange rate regime.

18 The IFSWF has 30 member funds from Angola, Australia, Azerbaijan, Botswana, Canada, Chile, China, Iran, Ireland, Italy, Kazakhstan, Korea, Kuwait, Libya, Malaysia, Mexico, Morocco, New Zealand, Nigeria, Oman, Palestine, Qatar, Russia, Rwanda, Singapore, Timor-Leste, Trinidad and Tobago, United Arab Emirates and the United States.

19 The BIS markets committee comprises senior officials responsible for market operations in 21 central banks, seven of which are emerging market central banks, including the Central Bank of Brazil, People's Bank of China, Hong Kong Monetary Authority, Reserve Bank of India, Bank of Korea, Bank of Mexico and Monetary Authority of Singapore.

7. Conclusion

Emerging and developing countries are increasingly proactive in their reserve management and exchange rate policies, in part, a reflection of the fact that their balance sheets are more exposed to global financial markets. Global financial shocks and intermittent financial crises have been an important driver for building up precautionary reserves in emerging markets, particularly in Asia following the SEA crisis. In comparing the recovery of SEA foreign exchange reserves to the challenge ahead for some oil exporters, we find that some SSA oil exporters have not implemented a successful reserve management strategy. While managed foreign exchange regimes will often come at the cost of further depleting the foreign exchange reserves in major oil exporters, such as Nigeria.

After having weathered multiple crises, Indonesia has successfully implemented incremental reforms in the deployment of its macroeconomic policy. As an oil exporter, it has been subject to TOT shocks, yet reduced fiscal expenditures and the introduction of money market instruments after the 1979 oil price shock, led to macroeconomic stabilisation and to broad-based growth. Additionally, the deepening, recapitalisation and restructuring of Indonesia's banking sector has been catalytic in its recoveries. After the SEA crisis, the introduction of a freely floating exchange rate, along with a newly independent central bank with an inflation targeting mandate, was instrumental in arresting the deterioration in the rupiah and the loss of control in monetary aggregates. Increased usage of financial instruments to limit rupiah speculation and volatility has also helped in achieving stability.

Nigeria's economic crisis has been the product of multiple economic and financial headwinds, including higher US interest rates and the ongoing slowdown in China's economy. Its recession was triggered by the 2014-2015 decline in oil prices, and although there has been a recovery in oil prices, Nigeria's precipitous and cumulative decline in fiscal, export and foreign exchange reserves has meant that the economy is now in recession and experiencing a credit crunch. The CBN decision to

float the naira exchange rate relieved some pressure on Nigeria's declining foreign exchange reserves. And yet, the authorities need to move quickly to a fully floating exchange rate regime in order to gain credibility for their new exchange rate policy.

Our analysis suggests that Indonesia's policy-makers realised the benefits of supporting their non-oil sector early on, before the second oil price shock of 1979, which then meant that their macroeconomic policies started to represent a wider range of economic interests. In contrast, Nigeria's oil industry grew in its economic and financial dominance, with the benefits of the oil sector not being fully shared in the economy. These developments have had a knock-on effect on the domestic institutions whose aims are to manage financial shocks such as through their respective SWFs. Open emerging and developing economies that are increasingly exposed to financial shocks should look to increase the breadth of their financial systems in order to develop the financial tools that will aid in reserve accumulation. Countries with managed or fixed exchange rates should question the cost of maintaining those regimes, in terms of lost reserves and maintaining policy credibility.

In exploring policy options ahead, the onus is on developed and developing country banks to employ tools that mitigate and counter financial shocks. Post-crisis periods show that institutional reform, financial sector deepening and exchange rate liberalisation are important. One way to mitigate risks is to help economies further develop financial instruments to counter risk and scale up investment: DFIs could play an even more instrumental role in this process of building domestic financial capacity. Stronger global best practice guidelines to ensure the accountability of SWFs are important to explore as their assets under management grow. Economies managing multiple challenges, like Nigeria's, should not delay institutional and macroeconomic reforms, such as diversifying its economy from the oil sector and moving to a more credible freely floating exchange rate regime.

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