

SOUTH AFRICA'S SUSCEPTIBILITY TO CRISES

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Abstract

South Africa has to address the challenges of slow economic growth, poverty and inequality in the face of precarious macroeconomic imbalances – foreign capital funds deficits of savings to investment, tax income to government spending and exports to imports. Burger (2008) showed that economic volatility decreased during “the great moderation” in the U.S. and other G-7 economies, but Smit, Grobler and Nel (2014) showed that a sharp slowdown in foreign capital flows and the subsequent reversal of current deficits would have a severe impact on the economy. South Africa has been grouped with the “fragile-5” and “suspect-6” countries. Recently, the tapering of quantitative easing has strengthened the U.S. dollar and put upward pressure of emerging market bond yields. But just how susceptible is the South African economy to an external shock? This paper sets out to extend a “resilience indicator” developed by Rojas-Suarez (2015) to the case of South Africa. We will construct the indicator for South Africa and compare the values before and after the financial crisis with those of a number of emerging market economies. Susceptibility to an external shock means that the credibility of policy and policymakers in South Africa, is more important than ever.

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1. INTRODUCTION

South Africa has to address the challenges of slow economic growth, poverty and inequality in the face of precarious macroeconomic imbalances – foreign capital inflows are required to balance deficits of savings to investment, of tax income to government spending and exports to imports. This leaves the economy vulnerable to slowdowns in foreign capital flows. Smit *et al.* (2014) have showed that if current deficits had to be reversed through contractionary policy, the impact on the economy would be severe. In the context of the tapering of quantitative easing in the U.S. and the flow of funds away from emerging markets, South Africa has been grouped with the so-called “fragile-5” and “suspect-6” countries.

But just how susceptible is the South African economy to a shock to foreign capital flows? This paper sets out to extend a “resilience indicator” developed by Rojas-Suarez (2015) to the case of South Africa. We will construct the indicator for South Africa and compare the values before and after the financial crisis with those of a number of emerging market economies.

The paper is structured as follows. Section 2 presents an overview of the literature focusing on current account imbalance as an indicator of the vulnerability to changes in foreign capital flows and bringing it into the context of South African studies of macroeconomic imbalances. Section 3 explains the resilience indicator developed by Rojas-Suarez (2015) that this paper extends to the case of South Africa. Section 4 gives an overview of the data and presents the results obtained through the calculation of the resilience indicator. Conclusions follow in section 5.

2. LITERATURE REVIEW

An imbalance is described as a significant and sustained deviation in asset prices or other financial variables from its long-run trend. A large and persistent trade deficit, or current account deficit is typically seen as a macroeconomic imbalance (Kahn, 2010, Bean, 2003). Global imbalances cannot be reduced to only a large current account deficit in a single country, but are rather a result of various factors such as saving, investment and portfolio choices (Obstfeld and Rogoff, 2005). Global imbalances have important implications for national and international financial markets, the level of long-run interest rates, and the stability of financial markets (Boissay, 2011, Llewellyn, 2006).

Recent literature on the topics of global imbalances and financial crises argues that the current period of global imbalances differs from past episodes in that: (i) capital flows now flow mostly from emerging markets to industrialised countries, (ii) there exists greater financial integration with more integrated global financial markets and greater opportunities for international diversification, and (iii) a favourable global macroeconomic and financial environment with high growth rates, low volatility and easy global financing until the financial crisis (Bracke, Bussière, Fidora and Straub, 2010, Caballero, Farhi and Gourinchas, 2006). Bracke *et al.* (2010) wrote that a combination of structural and cyclical determinants have led to the increase in global imbalances. Structural factors are related to imperfections in financial markets of rapidly growing emerging economies which have an impact on the size and direction of global capital flows from emerging to industrial markets. Cyclical factors are related to saving and investment patterns in the private and public sector.

The current account is held by many as the key measure, or symptom of global imbalances. There are four basic models of the current account: the intertemporal approach, the absorption approach, the saving-investment balance approach, and the elasticities approach.

The current account, as per the definition by Abel, Bernanke and Croushore (2008), measures the trade of currently produced goods and services of a country and unilateral transfers between countries. The current account can be divided into three components, net export of goods and services, net income from abroad, and net unilateral transfers (Caballero *et al.*, 2006, Abel *et al.*, 2008, Llewellyn, 2006). The current account is therefore equal to exports less imports but also net capital gains on foreign assets. From World War I until the nineties, countries had limited foreign assets. The current account was therefore mainly seen as the net export balance, which caused some economists to view relative international prices as the central determinant of the current account. This view led to the elasticities approach to the current account.

2.1 The elasticities approach

In this approach, price elasticities of supply and demand determine the flow of capital globally with determinants of global expenditure and income held fixed (Obstfeld and Rogoff, 1995). The elasticities approach views the current account (CA) as the gap between imports (M) and exports (X) (Svensson and Razin, 1983). The quantities of imports (Q_M) and exports (Q_X) are determined as follows:

$$Q_M = f\left(Y, \frac{EP^*}{P}\right), \quad f_1 > 0, f_2 > 0 \quad (2.1)$$

$$Q_X = g\left(Y^*, \frac{EP^*}{P}\right), \quad g_1 > 0, g_2 > 0 \quad (2.2)$$

with E as the nominal exchange rate, P as the domestic price, and P^* as the foreign price.

The quantities of exports and imports are determined by domestic or foreign income, and the real exchange rate. The terms f_1, f_2, g_1, g_2 are partial derivatives. If P is taken as the export price and P^* as the import price, then:

$$CA = PQ_X - (EP^*)Q_M \quad (2.3)$$

The current account is therefore the price multiplied by quantity of exports, minus the price multiplied by the quantity of imports.

In order to reduce a current account deficit, following the elasticities approach, the domestic currency (P) should depreciate. The price elasticities of imports and exports determine the extent to which a depreciation can reduce the deficit. The condition for effective depreciation of the nominal exchange rate, called the Marshall-Lerner condition, is:

$$|\text{price elasticity of exports}| + |\text{price elasticity of imports}| > 1 \quad (2.4)$$

The drawback of the elasticities approach is that it is a partial-equilibrium analysis and therefore assumes that other key variables remain constant when the exchange rate changes.

2.2 *The absorption approach*

The current account can also be seen as national saving less domestic investment (Obstfeld and Rogoff, 1995). If savings is less than desired investment the result is also a current account deficit, which has to be balanced by foreign savings. The absorption approach emphasises how macroeconomic factors determine global borrowing and lending. The current account balance and foreign lending of a country are therefore closely linked to its domestic spending and production (Abel *et al.*, 2008, Milesi-Ferretti and Razin, 1996a, Llewellyn, 2006).

The absorption approach follows from the national income identity:

$$Y = C + I + G + X - Z \quad (2.5)$$

with national income (Y), private consumption (C), gross private domestic investment (I), government expenditure (G), exports less imports ($X - Z$).

$C + I + G$ represents domestic demand or absorption (A). The current account (CA) is $(X - Z)$, therefore:

$$CA = Y - A \quad (2.6)$$

The current account is therefore the surplus of national income over absorption or the difference between what a country produces and what it consumes. According to the absorption approach the only way to reduce a current account deficit is by increasing national income or reducing absorption. Increasing national income is a supply-side issue, whereas reducing absorption is a demand-side issue. Reducing absorption would normally mean contractionary policy.

The intertemporal approach, which is discussed next, can however be regarded as a stronger model as it satisfies the macroeconomic identities and assumes optimisation.

2.3 *The intertemporal approach*

The intertemporal approach to the current account is an extension of the absorption approach which also takes into account the elasticities view. Following the intertemporal approach, private saving and investment decisions and government decisions may be a result of, for example, expectations of future productivity growth, government spending and real interest rates. The intertemporal approach therefore accounts for the macroeconomic determinants of relative prices and the impact of current and future prices on saving and investment (Obstfeld and Rogoff, 1995).

A current account surplus means that a country is producing more than it spends (it exports more than it imports) and is a net lender to the world. A deficit means a country spends more than it produces (it imports more than it exports) and is a net borrower from the world. The intertemporal approach views this lending and borrowing as optimal, unless there is a market failure or distortive official intervention. The relative price between borrowing and lending is the interest rate.

2.4 *The savings-investment balance approach*

The saving-investment approach is similar to the absorption approach:

$$Y = C + I + G + X - Z \quad (2.7)$$

The national income identity on the disposal side, with saving (S) and taxes (T), is:

$$Y = C + S + T \quad (2.8)$$

From these two equations it can be written that net exports equal total saving (private and public saving):

$$(X - Z) = (S - I) + (T - G) \quad (2.9)$$

Net exports ($X - Z$) represents the current account balance, ($S - I$) the saving-investment balance, and ($T - G$) the fiscal balance.

From this approach a current account deficit would imply that either the public sector and/or the private sector are dissaving. To reduce the current account deficit net private savings or net public savings need to be increased. To increase net private saving, investment would need to be discouraged, which is not beneficial. Public saving may otherwise need to be increased by increasing taxes or reducing government consumption.

2.5 *The fiscal balance*

The fiscal balance is the difference between government income and government expenditure (Abel *et al.*, 2008). The government receives income mainly through property income, taxes and borrowing on the local and international capital markets or from the central bank. Fiscal policy, i.e. the level and composition of government expenditure, taxes and borrowing, can have a large impact on macroeconomic variables such as total production, income and employment (Tcherneva, 2012). Fiscal policy is deemed as sustainable if the present value of current and future tax income covers the present value of current and future government spending and the initial government debt (Sørensen and Whitta-Jacobsen, 2010). Fiscal policy is important as it is used to stimulate economic growth and employment.

Two viewpoints are used to interpret the relationship between the fiscal deficit and the current account deficit known as the twin deficit hypothesis (Alleyne, Lugay and Dookie, 2011). The first viewpoint is based on the Mundell-Fleming model and suggests that the current account deficit is caused by the fiscal deficit (Alleyne *et al.*, 2011). Under flexible exchange rates and constant money supply an increase in government spending, financed by borrowing (budget deficit), will lead to increased imports (current account deficit) through increasing consumer income (Mundell, 1963, Fleming, 1962).

The second viewpoint is that the relationship between the fiscal deficit and the current account deficit is very weak due to various factors. This viewpoint is based on the Ricardian equivalence hypothesis attributed to Barro (1989). This hypothesis states that changes between taxes and the fiscal deficit do not have an effect on the real interest rate, investment or the current account balance (Barro, 1989). Fiscal deficits will therefore not lead to current account deficits from this view.

2.6 Intertemporal solvency

Intertemporal solvency is presented by using standard accounting identities with specific emphasis on interest rates, the real exchange rate and the role of growth. Intertemporal solvency links current account imbalances with intertemporal consumption and investment decisions. Intertemporal solvency is defined by Milesi-Ferretti and Razin (1996a) as a situation where the country and every economic unit within the country abide by their own intertemporal budget constraints. The current account plays an important role in the overall resource constraint of a country as it is a measure of the change in a country's net foreign asset position.

The following is based on Milesi-Ferretti and Razin (1996b):

Assume $\gamma < r$ as the given growth rate of the domestic economy, with γ , the growth rate and r , the real interest rate. Let s_t, p_t, p_t^* and i_t^* respectively be the nominal exchange rate, the domestic GDP deflator, the foreign GDP deflator, and the world nominal interest rate. Define the real exchange rate as $q_t = p_t/s_t p_t^*$. The current account identity can be written as:

$$s_t p_t^* F_t - s_t p_{t-1}^* F_{t-1} = p_t (Y_t - C_t - G_t - I_t) + i_t^* s_t p_{t-1}^* F_{t-1} \quad (2.10)$$

where F_t is the stock of foreign assets denominated in foreign goods, Y is GDP, C is private consumption, G is government current expenditure, and I is total private and public investment. Equation (2.10) can be written so that the current account balance is made equal to the difference between total savings and total investment. Let the foreign assets-to-output ratio f_t be equal to $F_{t-1}/q_t Y_t$. Dividing both sides of equation (2.10) by nominal GDP, $p_t Y_t$, and rearranging the terms, one obtains:

$$f_{t+1} - f_t = \frac{1}{(1 + \gamma_t)(1 + \epsilon_t)} [tb_t + f_t(r^* - \epsilon_t - \gamma_t - \gamma_t \epsilon_t)] \quad (2.11)$$

where $f_t = F_{t-1}/Y_t$ and other lowercase letter indicate the ratio of the respective variables to GDP, and ϵ is the rate of real appreciation of the domestic currency. The term $\gamma\epsilon$ is a discrete time residual. Equation (2.11) states that changes in the ratio of foreign assets to GDP are determined by trade imbalances and by a debt dynamics term proportional to $f(r^* - \gamma - \epsilon)$. This term rises with the world interest rate, r^* , and falls with the rate of real exchange rate appreciation and the growth rate of the domestic economy.

Consider the economy in steady-state, in which consumption (c), investment (i), public expenditure (g) and the stock of foreign assets or liabilities are constant as a fraction of GDP. The long-run net resource transfer (trade surplus) which an indebted country requires in order to keep the debt to output ratio constant, is given by equation (2.12):

$$tb = 1 - i - c - g = -f(r^* - \epsilon - \gamma) \quad (2.12)$$

where tb is the long-run trade balance. Equation (2.12) highlights the role of the average future value of world interest rates, domestic growth, and the long-run trend in the real exchange rate in determining the resource transfers necessary to keep the debt to GDP ratio from increasing. If the long-run real exchange rate is constant ($\epsilon = 0$), then equation (2.12) indicates that the country's long-run absorption can be higher than its income only if the country is a net creditor. In this case the country will run a trade deficit equal to $f(r - \gamma)$, but a current account surplus equal to γf due to the interest the country earns on its foreign assets. Permanent current account deficits in the presence of economic growth can therefore be consistent with solvency, even if the growth rate is below the world interest rate given that this is accompanied by sufficiently large trade surpluses.

If the long-run growth rate of the economy is zero, then the current account must be balanced in order for the foreign debt to GDP ratio to be constant. A country which is a debtor in the long-run will have to run a trade surplus equal to $-rf$ to pay the interest on its external liabilities. A country which is a long-run creditor will therefore run a trade deficit.

As per the Balassa-Samuelson effect (Samuelson, 1964, Balassa, 1964), the dynamics of the real exchange rate can be assumed to be driven by the evolution of productivity differentials between the traded and non-traded goods in the domestic economy and in the rest of the world in the long-run. We can define d as the log of the relative price of traded goods across countries,

and a^T and a^N as the log of the productivity level in the traded and non-traded sectors respectively. Changes in the real exchange rate are determined as follows:

$$\epsilon = d + (1 - \beta) \left[\frac{v}{\alpha} (\dot{a}_T - \dot{a}_T^*) - (\dot{a}_N - \dot{a}_N^*) \right] \quad (2.13)$$

where a star indicates foreign variables, α is the labour share in the traded goods sector, v is the labour share in the non-traded goods sector, and β is the share of traded goods in the price index used for the calculation of the real exchange rate. Countries with more rapid productivity increases in the traded goods sector than its trading partners for given behaviour of productivity in the non-traded goods sector will, *ceteris paribus*, experience a real exchange rate appreciation and can therefore sustain a larger debt to output ratio.

In sum, these different models of the current account all show the current account as balance of production, consumption and prices in the economy. There is an empirical literature that examined the idea of balance and imbalance as a predictor of crisis.

2.7 *Current account imbalances as a predictor of crisis*

Many crises have been preceded by large current account deficits: Chile in 1981, Finland in 1991, Mexico in 1994, Thailand in 1997, the United States in 2007, Iceland in 2008, and Greece in 2010 (Obstfeld, 2012). Many countries, however, experience large current account imbalances without experiencing financial crises. There are also countries who have experienced financial crises without preceding large current account deficits, such as the banking crises in Switzerland and Germany during 2007-2009. The empirical literature has not conclusively established a strong predictive relationship of the current account for subsequent financial crises. This sub-section presents an overview of some recent contributions to this field.

Frankel and Rose (1996) used the current account balance as percentage of GDP as a measure for vulnerability to external shocks (currency crashes) in emerging markets. They found that large current account deficits did not significantly increase vulnerability to subsequent external shocks. Edwards (2002) supported the finding from Frankel and Rose (1996) finding that the current account does not significantly increase vulnerability to subsequent currency crises when control variables, for example, that the current account is not financed by traditional means. Upon further analyses Edwards (2002) finds that larger current account deficits

significantly increase the likelihood of subsequent crises when the current account is allowed to be financed through traditional means. An important finding was that the effects of larger current account deficits on financial crises are dependent on the definition of a crisis and the world regions included in the analyses.

Frankel and Saravelos (2010) reviewed the early-warning-indicators literature and found that the current account had some power in predicting financial crises, but less so than variables such as international reserves and real exchange rate overvaluation.

Gourinchas and Obstfeld (2012) investigated the dynamics of various macroeconomic variables before, during and after different types of financial crises. They distinguished between the experiences of advanced and developing economies during the 2007-2009 financial crisis and the post-1973 crises. One of the variables investigated was the current account. They found that current account deficits often precede crises, but that the current account was not statistically significant in predicting financial crises. Catão and Milesi-Ferretti (2013) studied the determinants of external crises using data from 1970-2011 for advanced and developing economies. In opposition to Gourinchas and Obstfeld (2012), they found that the ratio of net foreign liabilities to gross domestic product as well as current account deficits are significant crisis predictors.

In earlier work Borio and Lowe (2002) conducted a study on indicators of banking crises for developed and emerging market economies from 1960-1999. They found that an increase in the ratio of private sector debt to gross domestic product and a drop in equity prices predict banking crises.

Mendoza and Terrones (2008) found that (i) emerging market economies experience larger, more persistent and asymmetric fluctuations in macroeconomic variables, (ii) many of the recent emerging market crises were associated with credit booms but not all credit booms end in crisis, and (iii) credit booms in emerging markets tend to be preceded by large capital inflows, whereas developed economy credit booms tend to be preceded by productivity gains or financial reforms.

Jordà, Schularick and Taylor (2011) studied data from fourteen developed economies from 1870-2008 to determine if external imbalances increase the risk of a financial crisis. They found

that credit growth is the single best predictor of financial instability. Credit growth tends to be higher and short-term interest rates lower preceding global financial crises. Stronger reversals in imbalances and deeper slumps are associated with recessions caused by crises compared to normal recessions.

3. MEASURES OF RESILIENCE TO CRISIS

If the behaviour of certain indicators or variables are said to indicate imbalances and predict a crisis, one can argue that they may also serve as a measure of resilience to crisis. In this approach we follow the work of Rojas-Suarez (2015:2-3). She describes a country's resilience to external shocks in terms of two aspects:

- Firstly, the capacity to withstand the impact of an adverse external shock, in that it does not result in a sharp slowdown of economic growth, in a severe contraction in the rate of growth of real credit, or in financial instabilities.
- Secondly, that the country has the policy room to manoeuvre to counteract the impact of a shock.

Rojas-Suarez (2015) identifies a number of measures of such resilience and constructs an index of the resilience of countries to external shocks.

The capacity to withstand the impact of an adverse external shock depends very much on a country's need for external financing, and its external solvency and liquidity positions. A financial or a trade shock can limit a country's growth prospects, and deteriorate economic and financial stability. Rojas-Suarez (2015) argues that a country will be more resilient to shocks when the current account deficit to GDP ratio is low, when the total external debt to GDP ratio is low and the ratio of short-term external debt to gross international reserves is low. The current account deficit represents the external financing need, whereas the two debt ratios are measures of solvency and liquidity. She emphasises the point that full exchange rate flexibility will not resolve liquidity constraints during a crisis – a sharp depreciation will not generate export revenues fast enough (Rojas-Suarez, 2015:7).

The ability to respond to a shock depends on the fiscal and monetary policy stance. Is there scope to implement counter-cyclical policy? Rojas-Suarez (2015) argues that a country will be more resilient to shocks when the ratio of the budget deficit to debt is low and the government debt to GDP is low. These would leave the fiscal authorities in a better position to undertake

counter-cyclical policy, i.e. increasing government spending or cutting taxes. In a similar vein, if the country is already facing inflationary or deflationary pressure, it will be difficult for monetary authorities to respond. A country will be more resilient to shocks of inflation falls within the central bank's target range. Finally, policymakers' ability to respond to crisis will also depend on the presence of credit booms or busts. If a shock results in banking problems, the central bank needs room to manoeuvre and keep interest rates low.

Together these seven indicators can be used to construct an overall measure of resilience to crisis.

4. A RESILIENCE INDICATOR

Following Rojas-Suarez (2015:17) it is possible to construct a simple indicator of countries' resilience to crisis. It is a relative measure of resilience among countries in a particular sample. Her analysis focussed on a number of Latin American, emerging Asian and emerging European countries, to which we add the case of South Africa.

The indicator is constructed as follows:

- To make the variables comparable, each one is standardised by subtracting the cross-country mean and dividing by the standard deviation.
- Variables where an increase in value indicates less resilience (more vulnerability) are multiplied by -1. These include the standardised values of external debt to GDP, short-term external debt to gross international reserves, the deficit to GDP, debt to GDP and the level of inflation.
- The aggregate indicator value is simply the sum, or the mean, of the values of the seven standardised variables.

Since it is a relative measure, the countries can then be ranked by the resilience indicator values in 2007 and 2013.

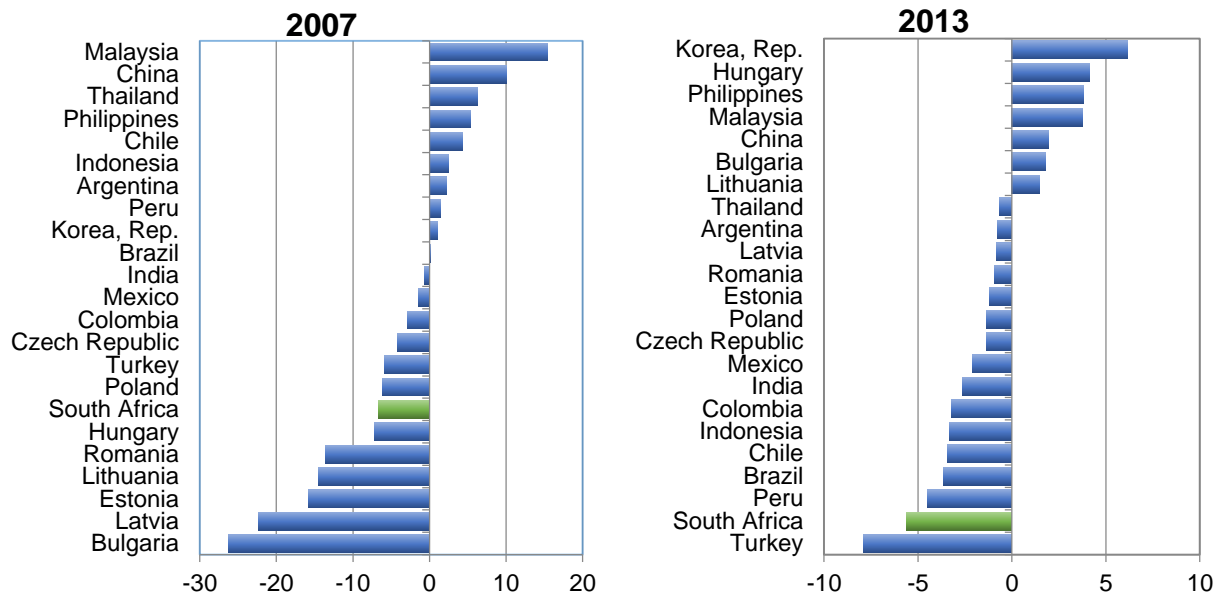


Figure 1. Current account balance (% of GDP)
 Source: The World Bank: World Development Indicators.

Figure 1 shows the current account balance to GDP in 2007 and 2013. Rojas-Suarez (2015:4) explains that in 2007 emerging European countries had a pressing need for external finance and were poorly positioned to handle the withdrawal of foreign savings that occurred during the global financial crisis. South Africa’s current account deficit was at around 6.7 per cent of GDP in 2007 and improved slightly to a deficit of 5.6 per cent of GDP in 2013. Compared to the other countries in this sample, South Africa’s relative position worsened. Like the Latin American countries, South Africa did not use the crisis to implement policy adjustments that can start to address the deficit of savings to investment.

Changes in the countries’ external solvency position are shown in figure 2. Countries below the 45 degree line have increased external indebtedness over the period 2007 to 2013. This includes South Africa where the external debts to GNI increased from around 26 per cent to almost 41 per cent. Rojas-Suarez (2015:5) argues that such a change is relevant for highly indebted countries, which South Africa is not. However, as recent credit rating downgrades have shown, indebtedness at any level can make a country vulnerable to changes in sentiment.

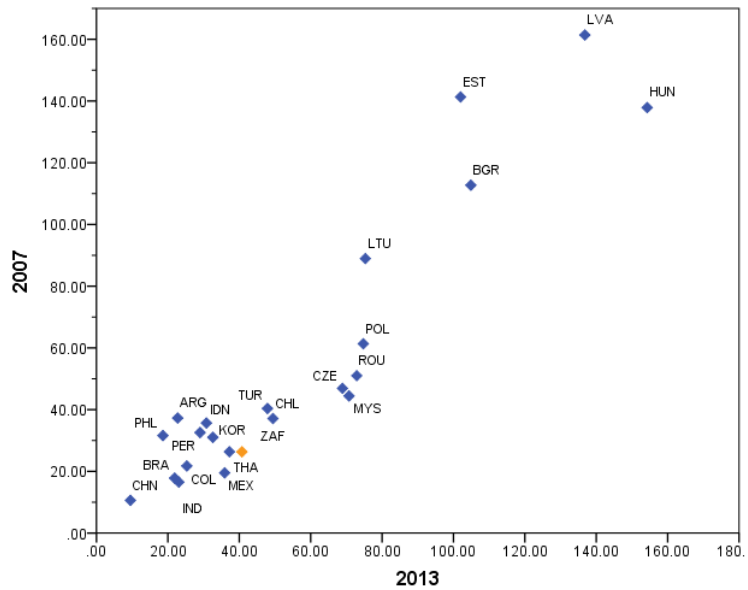


Figure 2. Total external debt (% of GNI)
 Source: The World Bank: World Development Indicators.

Figure 3 shows the changes in the countries' external liquidity positions. Similar to figure 2, countries below the 45 degree line have an increased vulnerability to an external shock – they have more short-term debt or less international reserves and would find it difficult to pay the payments due right after an adverse shock that limits the access to international credit markets. In this regard South Africa's position improved over the period by accumulating reserves. Argentina and Malaysia stand out as countries that are substantially more exposed in 2013.

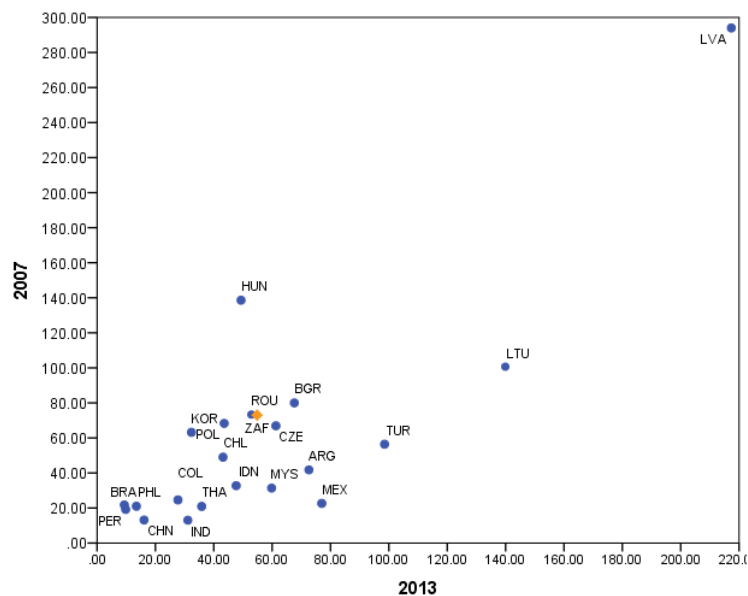


Figure 3. Short-term external debt (% of total reserves)
 Source: The World Bank: World Development Indicators.

In sum, when it comes to the capacity to withstand an external shock, South Africa is not badly positioned – the current account deficit is relatively large but in absolute terms slightly smaller than it was before the financial crisis, the country is not highly indebted and has improved its liquidity position. What about the ability to respond to crisis?

Figure 4 shows the fiscal balance to GDP and it is clear that South Africa has a lot less policy room to manoeuvre. The fiscal balance deteriorated from a small primary surplus to a deficit of around 4.5 per cent of GDP in 2013. Increased government spending over the period helped to soften the blow of the global financial crisis, but the government is now in a position where it needs to consolidate its finances. Austerity measures are in place and tax reform is being investigated. Like in almost all the other countries in the sample, there is very limited ability to respond to a new crisis.

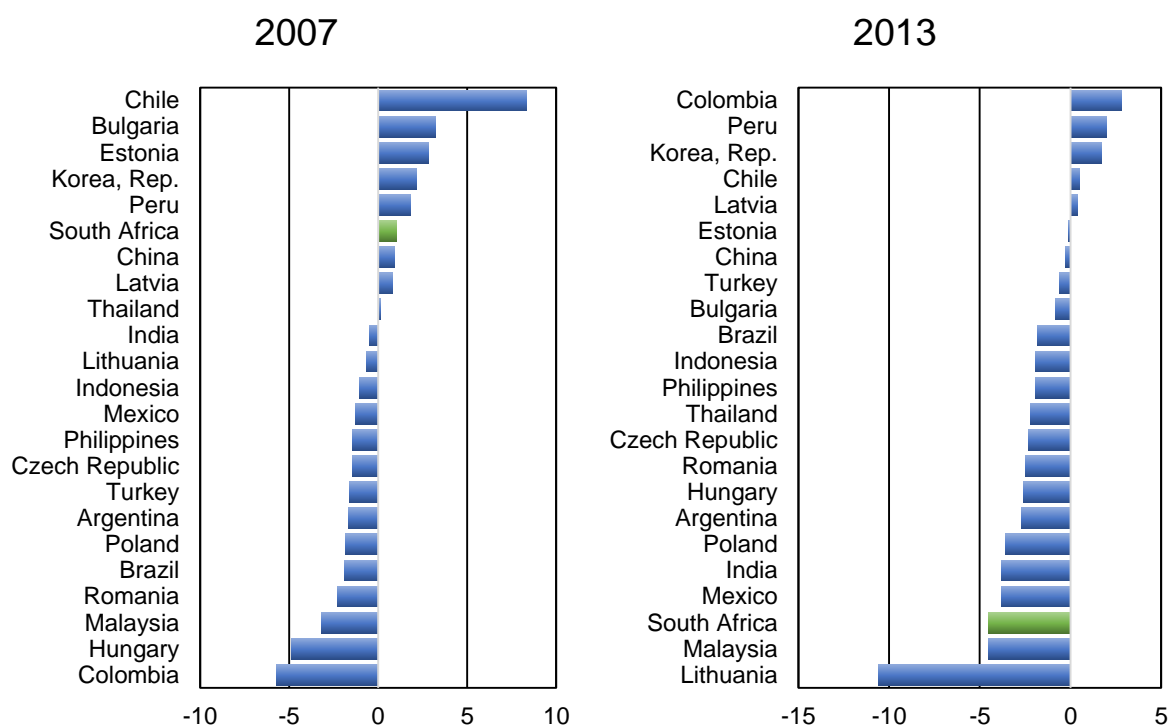


Figure 4. Fiscal balance (% of GDP)
 Source: The World Bank: World Development Indicators.

Similar to the fiscal balance, the debt-to-GDP ratio also speaks to the fiscal authorities' ability to undertake counter-cyclical policy. Figure 5 shows that over the course of the global financial crisis most countries' position worsened. Only the Philippines, Indonesia and Peru had relatively low ratios of debt to GDP. In the case of South Africa, the debt-to-GDP ratio worsened from 27 to 45 per cent.

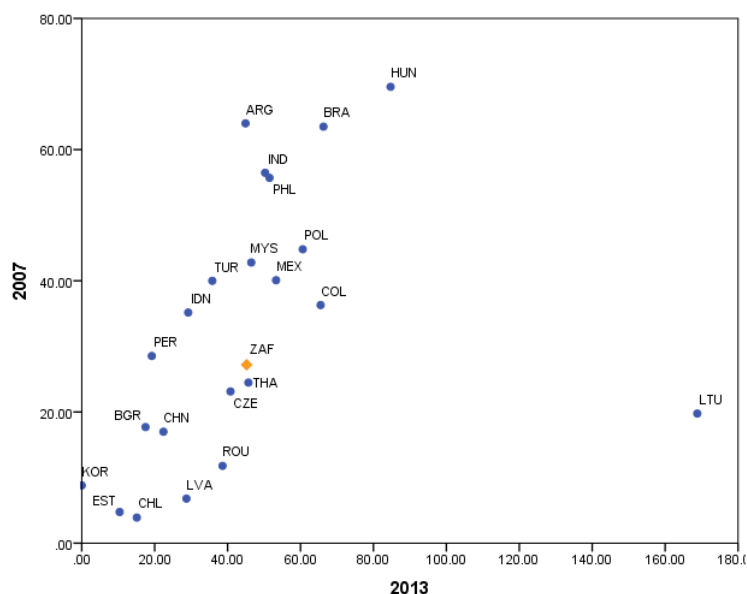


Figure 5. Government debt (% of GDP)

Source: The World Bank: World Development Indicators.

The final two measures of the ability to respond to a crisis are less sophisticated versions of those used by Rojas-Suarez (2015). She used the squared value of the deviation of inflation from its announced target and a measure of credit booms or busts constructed using the Hodrick-Prescot filter. This paper simply uses the consumer price inflation rate and domestic credit extension to the private sector by banks as a percentage of GDP. In the case of a relatively high inflation rate or a credit boom, monetary authorities may find it difficult to react to an external shock. Figures 6 and 7 show that over the period 2007 to 2013 inflation in South Africa decreased and domestic credit extension fell, giving policymakers some possible room to manoeuvre.

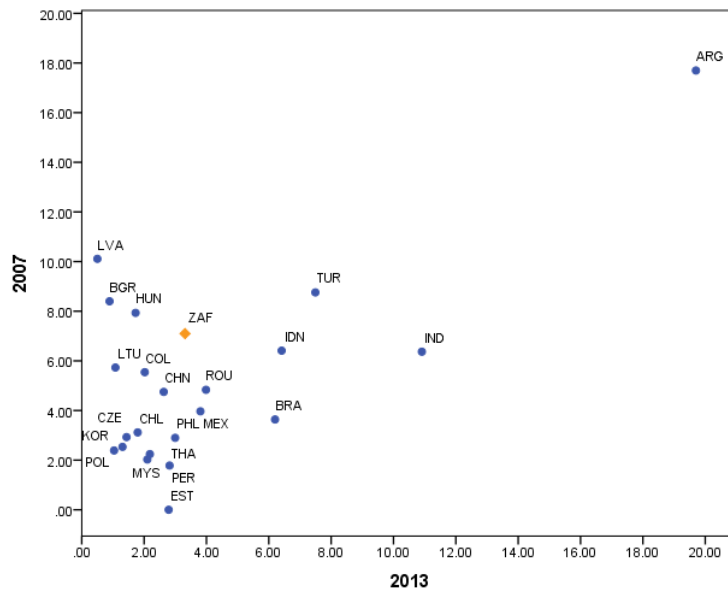


Figure 6. Inflation (annual %)

Source: The World Bank: World Development Indicators.

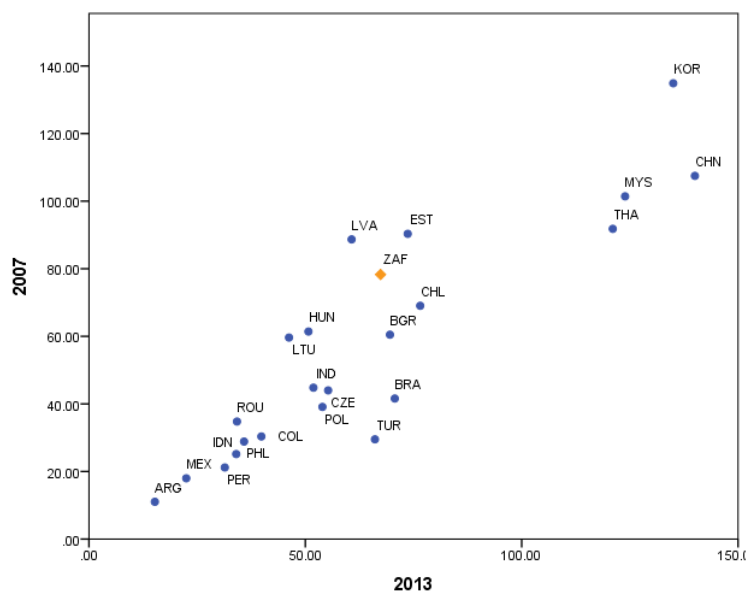


Figure 7. Domestic credit to private sector by banks (% of GDP)

Source: The World Bank: World Development Indicators.

Finally, we also constructed the overall indicator of resilience and the results are presented in table 1. The table shows the ranking of the countries from most resilient to least resilient in 2007 and 2013.

Table1: Resilience indicator

Rank	2007	2013
1	Chile	Korea, Rep.
2	Peru	Philippines
3	China	Peru
4	Thailand	Colombia
5	Mexico	China
6	Philippines	Chile
7	Korea, Rep.	Bulgaria
8	Indonesia	Indonesia
9	Czech Republic	Mexico
10	Malaysia	Romania
11	Romania	Czech Republic
12	Brazil	Latvia
13	India	Poland
14	South Africa	Thailand
15	Poland	Brazil
16	Colombia	Malaysia
17	Estonia	Hungary
18	Turkey	Argentina
19	Lithuania	India
20	Bulgaria	South Africa
21	Argentina	Turkey
22	Latvia	Estonia
23	Hungary	Lithuania

The ranking shows that the countries that were the most resilient to crisis in 2007 were Chile, Peru, Thailand, Mexico, the Philippines, South Korea, Indonesia, the Czech Republic and Malaysia. In this relative ranking, South Africa lay in fourteenth position, just below Brazil and India. The small economies of emerging Europe as well as Argentina were in the worst position for the shock that followed.

By 2013 the ranking changed but with countries like South Korea, the Philippines, Peru, China, Chile, Indonesia and Mexico still in the top-10 resilient countries. South Africa lost six places to rank twentieth and was according to this measure, clearly more vulnerable.

5. CONCLUSIONS

This paper set out to answer the question: how susceptible is the South African economy to an external shock, and reported on the construction of a resilience indicator to do so. The indicator showed that in 2007 the South African economy was less resilient to an external shock than many of its emerging market peers and over the global financial crisis period through to 2013 the position worsened.

The construction of the resilience measure showed that resilience, or the lack thereof, is about more than the balance on the current account.

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