

SOUTH AFRICA'S SUSCEPTIBILITY TO FINANCIAL CRISES

Henry Cockeran*

North-West University

Waldo Krugell*

North-West University

Received: December 2015

Accepted: May 2016

Abstract

South Africa has to address the challenges of slow economic growth, poverty, and inequality in the face of precarious macroeconomic imbalances — foreign capital is used to fund deficits of savings to investment, of tax income to government spending, and of exports to imports. Just how susceptible does this make the South African economy to an external shock? This paper extends a 'resilience indicator' developed by Rojas-Suarez (2015) and applies it for the first time to the case of South Africa and 22 other emerging market economies. We compared the 2007 values (pre-2008 financial crisis) to the corresponding 2013 values, and found that South Africa has become less resilient to an external shock than many of its peers. South Africa lost six positions on the index ranking between 2007 and 2013. South Africa is, therefore, more vulnerable to an external shock than most comparable emerging market economies.

Keywords

Financial crisis, sudden stop, current account reversal, emerging market, South Africa

*Mr HJ Cockeran is a lecturer in the School of Economic Sciences, North-West University, Vaal Triangle Campus, South Africa.
[henry.cockeran@nwu.ac.za]

*Prof WF Krugell is a professor in the School of Economics, North-West University, Potchefstroom Campus, South Africa.

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 of exports to imports. This leaves the economy vulnerable to slowdowns in foreign capital flows. Smit, Grobler and Nel (2014) 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 US, the flow of funds away from emerging markets and rising global interest rates, South Africa has been grouped with the so-called ‘fragile five’ (Brazil, Indonesia, South Africa, India, and Turkey) and ‘suspect six’ (Brazil, Indonesia, South Africa, Turkey, Mexico, and Russia) countries. South Africa has, more recently, also been grouped with the so-called ‘troubled ten’, namely, Brazil, Colombia, Chile, Peru, Russia, South Africa, Singapore, South Korea, Taiwan, and Thailand.

The questions that this paper aims to answer are: just how susceptible is the South African economy to an external shock; and how does South Africa compare to its emerging market peers? The motivation is clear. Measuring a risk is the first step in managing it. Emerging economies compete for global capital flows and if an economy is seen to be vulnerable, or susceptible to crisis, compared to its peers, it requires hedging by its firms and action by its policymakers. The measures used in the paper aim to capture the capacity to withstand the impact of an external shock, and the room to adjust policy to counteract a shock.

This study extends a ‘resilience indicator’ developed by Rojas-Suarez (2015) and applies it for the first time to the case of South Africa. We constructed the indicator for South Africa and compared the values before and after the 2008 financial crisis with those of a number of emerging market economies. The key finding is that South Africa has become less resilient to an external shock than many of its peers.

Section 2 provides an overview of the literature on imbalances and indicators of crises. Section 3 explains the resilience indicator developed by Rojas-Suarez (2015) and extends it to the case of South Africa. An overview of the data used for the resilience indicator is provided in section 4, along with the results. Conclusions follow in section 5.

2. LITERATURE REVIEW

Macroeconomic imbalances are at the root of crises, and measuring imbalances may also indicate vulnerability to crises. The term imbalance, as used in this paper, is defined as a significant and sustained deviation in asset prices or the values of other financial variables from their 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 savings, investment and portfolio choices (Obstfeld & Rogoff, 2005). Global imbalances have important implications for national and international financial markets, their stability, and the level of long-run interest rates (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 stem mostly from emerging markets to industrialised countries, (ii) there is greater financial

interdependence, with more integrated global financial markets and more opportunities for international diversification, and (iii) there is a favourable global macroeconomic and financial environment, with high growth rates, low volatility and easy global financing until the 2008 financial crisis (Bracke, Bussière, Fidora & Straub, 2010; Caballero, Farhi & Gourinchas, 2006). Bracke et al. (2010) wrote that a combination of structural and cyclical determinants has led to an increase in global imbalances. Structural factors are related to imperfections in the 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 sectors.

There is a substantial body of literature on different economic and/or financial crises. Some authors focus on indicators or predictors of crises, while others aim to measure fragility or vulnerability to crises. The following paragraphs outline the key contributions to this field. Rojas-Suarez's (2015) measures of "resilience" are explained in section 3.

The current account is held by many as the key measure, or symptom, of global imbalances. Many crises have been preceded by large current account deficits: that of 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). Some countries, however, accumulate large current account imbalances without experiencing financial crises. There are also nations that have experienced financial crises without preceding large current account deficits, such as the banking crises in Switzerland and Germany during 2007–2009.

Frankel and Rose (1996) used the current account balance as percentage of GDP as a measure of 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 their conclusion in cases where the current account is not financed by traditional means. However, Edwards (2002) also found that larger current account deficits significantly increase the likelihood of subsequent crises when the current account is financed through traditional means. A key conclusion of his work was that the effects of relatively large current account deficits on financial crises are dependent on the definition of a crisis and the world regions included in the analysis.

Frankel and Saravelos (2010) reviewed the literature on early-warning indicators and found that the current account had some influence in forecasting 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. They found that current account deficits often precede crises, but that the current account was not statistically significant in forecasting financial crises. Catão and Milesi-Ferretti (2013) studied the determinants of external crises using data from 1970 to 2011 for advanced and developing economies. In contrast to Gourinchas and Obstfeld (2012), they found that the ratio of net foreign liabilities to gross domestic product, and 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 to 1999. They found that an increase in the ratio of private sector debt to gross domestic product and a drop in equity prices precede banking crises.

Mendoza and Terrones (2008) reported 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 that not all such 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 14 developed economies from 1870 to 2008 to determine if external imbalances increased the risk of a financial crisis. They found that credit growth is the single best forecaster of financial instability. Credit growth tends to be higher and short-term interest rates lower in the periods preceding global financial crises. Stronger reversals of imbalances and deeper slumps are associated with recessions caused by crises compared with normal recessions.

In summary, the unsatisfying answer is that it depends — different crises have different predictors and it depends on the period and countries involved. The following section proposes an alternative approach: to measure the capacity to withstand an external shock, and the policy room to enact countermeasures. In other words, measures of the resilience to crises.

3. MEASURES OF RESILIENCE TO CRISIS

If the behaviour of certain indicators or variables indicates imbalances and predicts 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), who describes a country's resilience to external shocks in terms of two aspects:

- First, the capacity to withstand the impact of an adverse external shock, in that it does not result in: (i) a sharp slowdown of economic growth, (ii) a severe contraction in the rate of growth of real credit, or (iii) financial instabilities.
- Second, that the country has the room to adjust policy to counteract the impact of a shock.

Rojas-Suarez (2015) identified several such resilience measures and constructed an index of the resilience of countries to external shocks.

The capacity to withstand the impact of an adverse external shock depends greatly 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 weaken economic and financial stability. Rojas-Suarez (2015) argues that a country will be more resilient to shocks when the following ratios are small: (i) current account deficit to GDP, (ii) total external debt to GDP, and (iii) short-term external debt to gross international reserves. 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 ratios of the budget deficit to debt and the government debt to GDP are both small. Smaller ratios would leave the fiscal authorities in a better position to undertake counter-cyclical policy, i.e. by 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 nation will be more resilient to the shock of inflation decreases 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 financial crisis. It is a relative measure of resilience among countries in a particular sample. Her analysis focused on a number of Latin American, emerging Asian and emerging European countries. We extend this indicator, for the first time, to 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 mean of the values of the seven standardised variables.
- The following seven variables are used in constructing the resilience indicator: the ratio of current account to GDP; total external debt to GNI; short-term external debt to total reserves; fiscal balance to GDP; government debt to GDP; inflation; and domestic credit to private sector by banks. The data series are obtained from The World Bank: World Development Indicators database.

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

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 2008 global financial crisis. South Africa's current account deficit was at around 6.7% of GDP in 2007 and improved slightly to a deficit of 5.6% of GDP in 2013. In absolute terms it is clear that the Republic of Korea, Hungary and Lithuania made significant adjustments to reach current account surpluses. Compared to the other countries in this sample, South Africa's relative position worsened. Like the Latin American countries (see Chile, Brazil and Peru), South Africa did not use the crisis to implement policy adjustments that could have started to address the deficit of savings to investment.

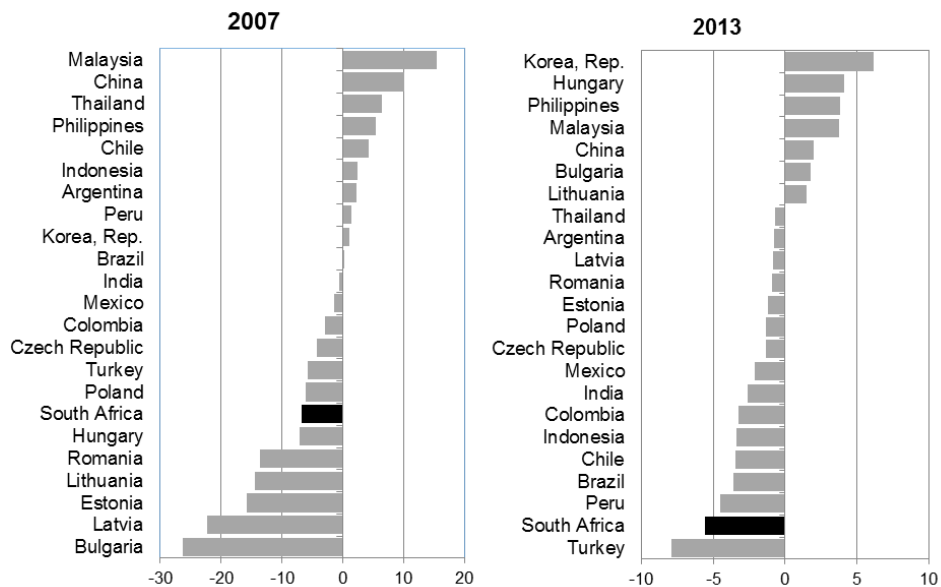


FIGURE 1: Current account balance (% of GDP)

Source: Authors' depiction of data from *The World Bank: World Development Indicators*.

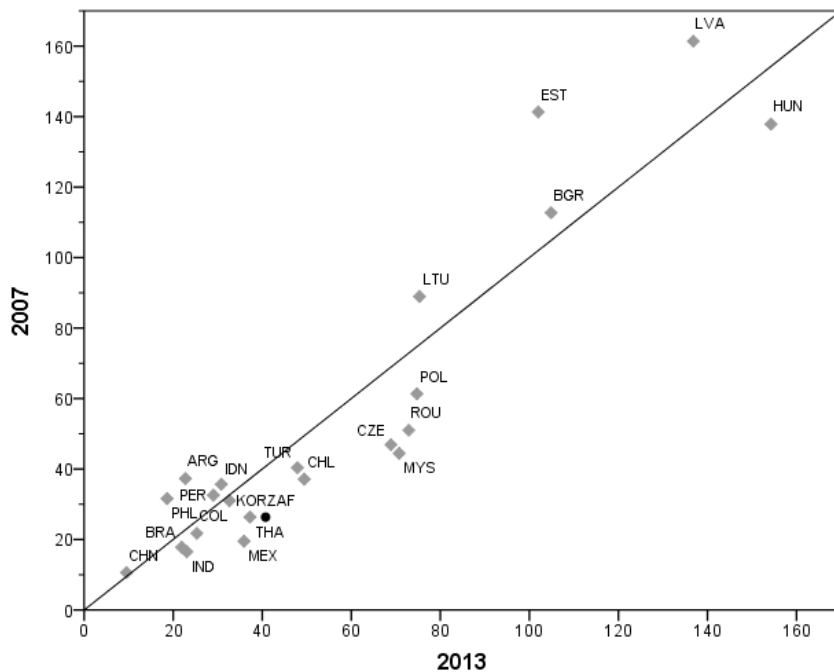


FIGURE 2: Total external debt (% of GNI)

Source: Authors' depiction of data from *The World Bank: World Development Indicators*

Changes in the countries' external solvency position are shown in FIGURE 2. Countries below the 45-degree line increased external indebtedness over the period 2007 to 2013. This includes South Africa, where the external debts to GNI increased from around 26% to almost 41%. Rojas-Suarez (2015:5) argues that such a change is relevant for highly indebted countries, which South Africa is not. Estonia, Latvia and Bulgaria are examples of countries with external debt to GNI ratios in excess of 100% whose position improved over the period. In Hungary it deteriorated from 137% to 154% between 2007 and 2013.

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 smaller international reserves and would find it difficult to make the payments due right after an adverse shock that limits the access to international credit markets. In this regard South Africa improved its position over the period by accumulating reserves. Short-term external debt to reserves declined from 73% to 54%. In absolute terms, Latvia and the Republic of Korea made the biggest improvements. Argentina and Malaysia stand out as countries that were substantially more exposed in 2013.

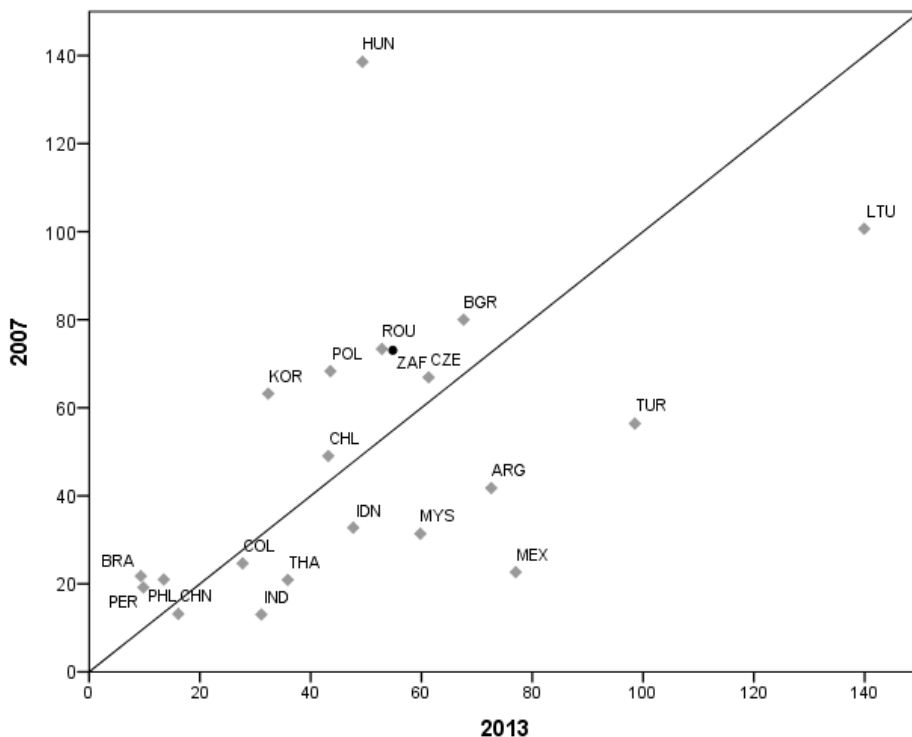


FIGURE 3: Short-term external debt (% of total reserves)

Source: Authors' depiction of data from *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 2008 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 had a lot less policy room to manoeuvre policy in 2013 than in 2007. The fiscal balance deteriorated from a small primary surplus to a deficit of around 4.5% of GDP in 2013. Increased government spending over the period helped to soften the blow of the 2008 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 limited ability to respond to a new crisis. Lithuania and Chile experienced the biggest deterioration in absolute terms.

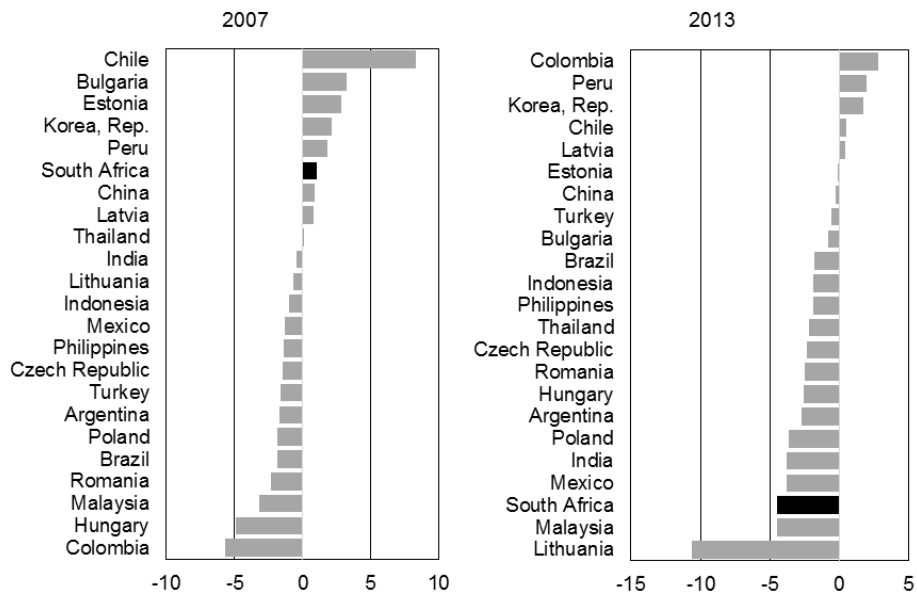


FIGURE 4: Fiscal balance (% of GDP)

Source: Authors' depiction of data from *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 2008 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%.

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-Prescott 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 2007–2013 inflation in South Africa decreased and domestic credit extension fell, giving policymakers some increased room to manoeuvre.

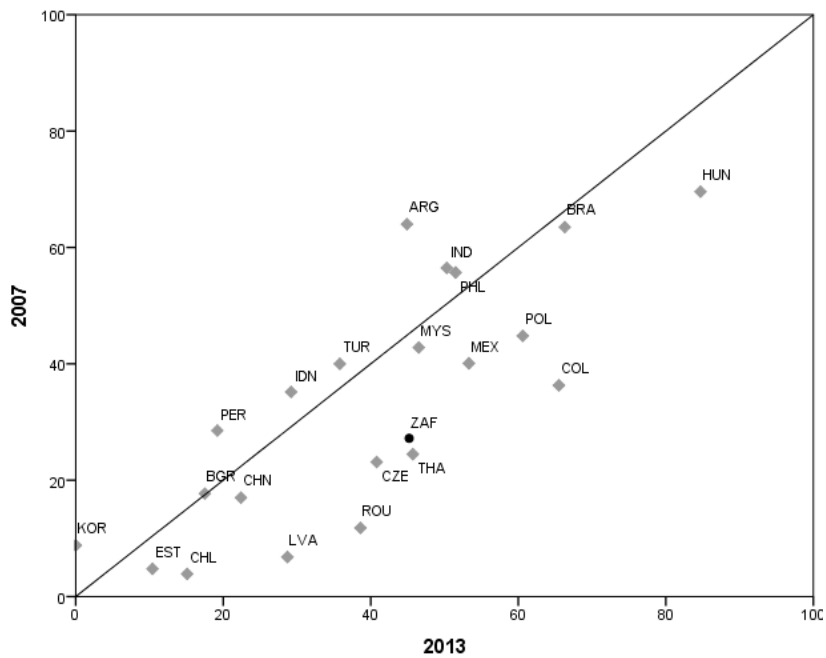


FIGURE 5: Government debt (% of GDP)

Source: Authors' depiction of data from *The World Bank: World Development Indicators*

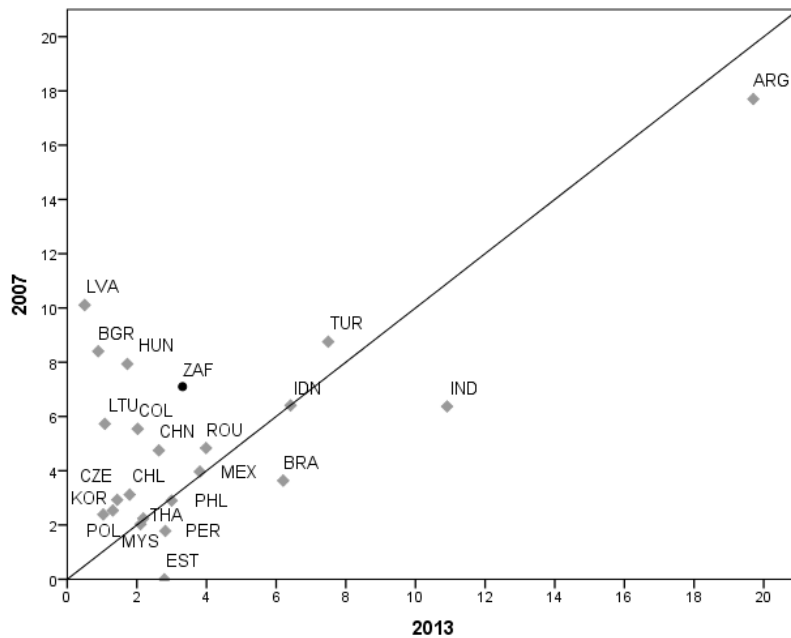


FIGURE 6: Inflation (annual %)

Source: Authors' depiction of data from *The World Bank: World Development Indicators*

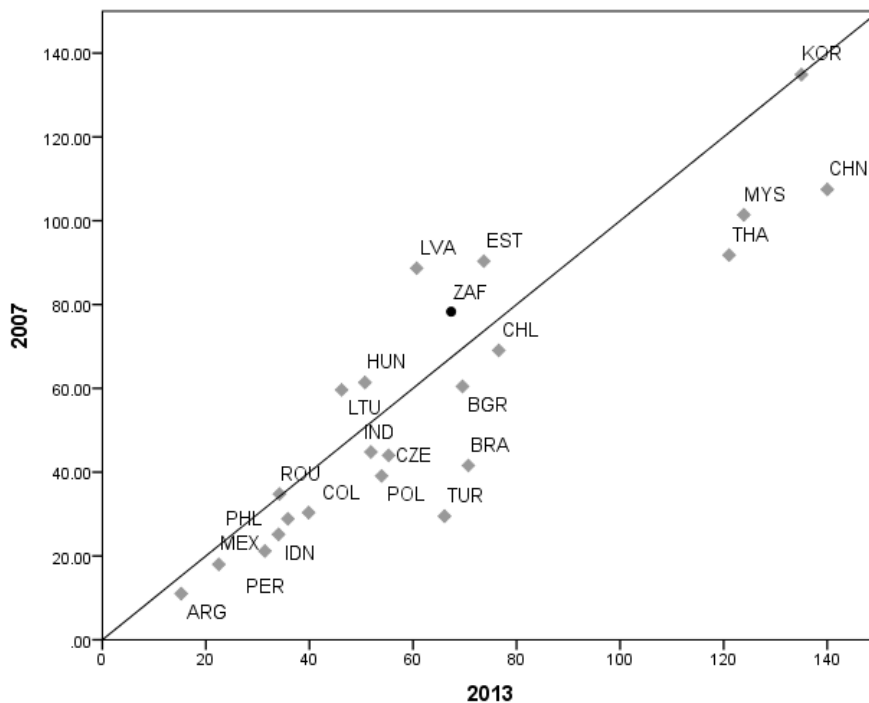


FIGURE 7: Domestic credit to private sector by banks (% of GDP)

Source: Authors' depiction of data from The World Bank: World Development Indicators

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

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 to withstand external shocks than in 2007.

TABLE 1: National ranking in terms of resilience indicator

<i>Rank</i>	<i>2007</i>	<i>2013</i>
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

Source: Authors' analysis of data from The World Bank: World Development Indicators

FIGURE 8 shows a plot of the resilience index values with 2007 on the vertical axis and 2013 on the horizontal axis. The index values are constructed relative to the cross-country mean, which implies that positive values indicate greater than average resilience. Countries in quadrant I showed better than average resilience in 2007, but this had declined to below average in 2013. Those countries include South Africa, Brazil and Thailand. The countries in quadrant II were above-average resilient in both periods and include the top-ranked group of 2013, like the Republic of Korea, the Philippines and Peru. Colombia is an example of a country that improved in the resilience ranking from below to above average and it lies in quadrant III along with Bulgaria and

Latvia. Quadrant IV shows the countries that showed below-average resilience in both periods. These include Argentina and Turkey.

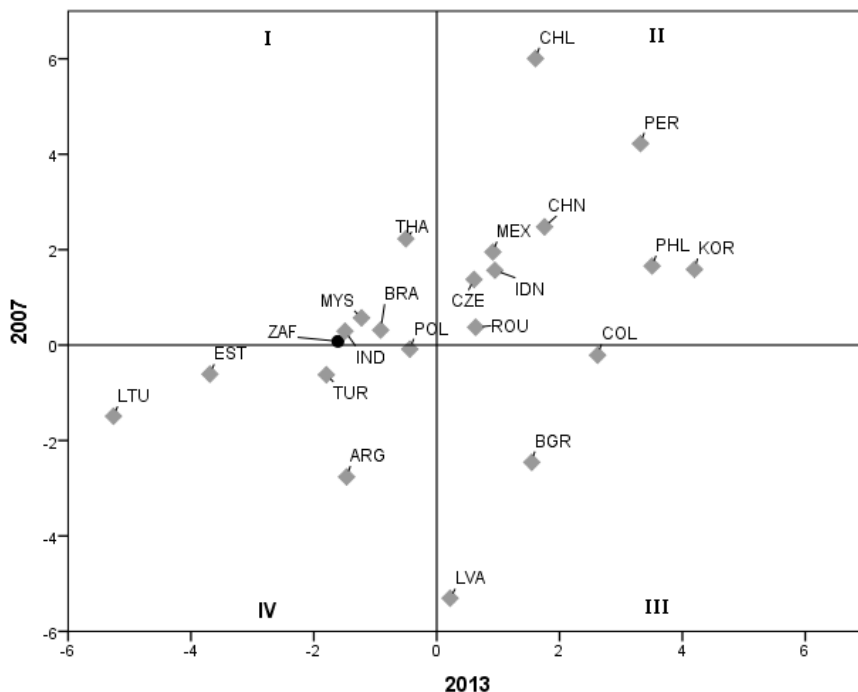


FIGURE 8: National ranking in terms of resilience indicator

Source: Authors' analysis of data from The World Bank: World Development Indicators

5. CONCLUSION

This study answered the question: how susceptible is the South African economy to an external shock?, and reported on the construction of a resilience indicator based on that devised by Rojas-Suarez (2015) to do so. We extended this indicator for the first time to the case of South Africa. The indicator showed that in 2007 the South African economy was less resilient to an external shock than many of its emerging market peers, ranking in fourteenth position. Over the 2008 global financial crisis period through to 2013 the position worsened, with South Africa ranking in twentieth position. South Africa was therefore much less resilient in 2013 and, so, more susceptible to external shocks. The description of the different indicators showed that when it comes to withstanding an external shock, South Africa is not in a bad position – the current account deficit has been narrowed and the indebtedness and liquidity positions improved. The South African economy seems to be more vulnerable in terms of limited policy room to manoeuvre. This speaks to the current challenges facing policymakers in the face of a possible ratings downgrade:

- slow growth has raised doubts about the government's ability to balance the budget and repay debt in the face of social spending pressures;

- fiscal consolidation and austerity leaves limited room for stimulating growth;
- supply-side shocks (drought and depreciation of the rand) have added to inflationary pressure;
- so even with slow growth, demonstrably credible policy requires contractionary measures, leading to slower growth and pressure on the fiscal position.

Measuring resilience may strengthen the hands of policymakers. When it is clear that South Africa is by comparison in a worse position, the difficult choices have to be made. Global capital seeks high returns for low risks and the South African economy needs the inflows.

LIST OF REFERENCES

- Bean, C. (2003). Asset prices, financial imbalances and monetary policy: are inflation targets enough? *BIS Working Papers No 140*. Bank for International Settlements.
- Boissay, F. (2011). Financial imbalances and financial fragility. *Working Paper Series No 1317*. European Central Bank.
- Borio, C. & Lowe, P. (2002). Assessing the Risk of Banking Crises. *BIS Quarterly Review*, 43–54.
- Bracke, T., Bussière, M., Fidora, M. & Straub, R. (2010). A framework for assessing global imbalances. *The World Economy*, 2010, 1140–1174.
- Caballero, R.J., Farhi, E. & Gourinchas, P. (2006). An equilibrium model of “global imbalances” and low interest rates. *Recent Work, Center for International and Development Economics Research*.
- Catão, L.a.V. & Milesi-Ferretti, G.M. (2013). External liabilities and crises. *Journal of International Economics*, 94, 18–32.
- Edwards, S. (2002). Does the Current Account Matter? *Preventing Currency Crises in Emerging Markets*. University of Chicago Press.
- Frankel, J.A. & Rose, A.K. (1996). Currency crashes in emerging markets: An empirical treatment. *Journal of International Economics*, 41, 351–366.
- Frankel, J.A. & Saravelos, G. (2010). Are Leading Indicators of Financial Crises Useful for Assessing Country Vulnerability? Evidence from the 2008–09 Global Crisis. *National Bureau of Economic Research Working Paper Series*, No. 16047.
- Gourinchas, P. & Obstfeld, M. (2012). Stories of the Twentieth Century for the Twenty-First. *American Economic Journal: Macroeconomics*, 4, 226–65.
- Jordà, Ò., Schularick, M. & Taylor, A.M. (2011). Financial crises, credit booms, and external imbalances: 140 years of lessons. *IMF Economic Review*, 59, 340–378.
- Kahn, G.A. (2010). Taylor rule deviations and financial imbalances. *Economic Review*. Federal Reserve Bank of Kansas City.
- Llewellyn, D. (2006). Global and financial imbalances and their resolution: Implications for financial stability. *Macroeconomic Policy Challenges for South Africa Conference*. South African Reserve Bank: South African Reserve Bank.
- Mendoza, E.G. & Terrones, M.E. (2008). An Anatomy Of Credit Booms: Evidence From Macro Aggregates And Micro Data. *National Bureau of Economic Research Working Paper Series*, No. 14049.

Obstfeld, M. (2012). Does the Current Account Still Matter? *National Bureau of Economic Research Working Paper Series*, No. 17877.

Obstfeld, M. & Rogoff, K.S. (2005). Global Current Account Imbalances and Exchange Rate Adjustments. *Brookings Papers on Economic Activity*, 2005, 67–123.

Rojas-Suarez, L. (2015). Emerging Market Macroeconomic Resilience to External Shocks: Today versus Pre-Global Crisis. *Center for Global Development Essays*. Available: <http://www.cgdev.org/publication/emerging-market-resilience-external-shocks-today-versus-pre-global-crisis>.

Smit, B., Grobler, C. & Nel, C. (2014). Sudden stops and current account reversals: potential macroeconomic consequences for South Africa. *South African Journal of Economics*, 82, 616–627.