VIEWPOINTS

MILKEN INSTITUTE
CENTER FOR FINANCIAL MARKETS

How Resilient Are Sub-Saharan Countries to External Shocks?

Christopher Legilisho and Walter Pacheco

Foreword

In 2015, the Milken Institute and the International Finance Corporation (IFC) partnered with the George Washington University School of Business to launch the IFC-Milken Institute Capital Markets Program. This effort seeks to help support the next generation of international capital-markets leaders. The eight-month program trains mid-career professionals from financial and regulatory institutions across developing and emerging economies, providing them with technical expertise and hands-on exposure in capital-market development. The IFC-Milken Institute Fellows benefit from a full semester of accredited coursework, a weekly lecture series by financial markets practitioners, and four-month work placements in high-caliber financial institutions across the US. Fellows remain connected the IFC-Milken Institute Fellows & Alumni Network throughout their professional careers.

Our three institutions provide multiple platforms for the IFC-Milken Institute Fellows to gain private-sector insights, explore domestic policy questions, and, most of all, exchange experiences with their international peers. As such, we are delighted to publish the work of two members of our inaugural class, Christopher Legilisho from Kenya and Walter Pacheco from Angola, as a Milken Institute white paper.

As part of the program's fall 2016 coursework, the class on Financial Crises and Globalization explored the importance of improving the resilience of their domestic financial markets to international shocks.

This class focused in part on recognizing conditions in financial markets that can propagate damaging and costly crises, be they debt crises, foreign exchange crises, banking crises, or combinations thereof. Such crises are prevalent in both advanced and emerging market economies, but when they occur they are much harder to deal with in the latter due to shallow financial markets, lower incomes, and institutional weaknesses. Hence, the focus of the course was on the enablers of financial distress, the ways in which governments have dealt with them in selected cases, and most importantly how to recognize and deal early with incipient crises.

In their paper for this class, Legilisho and Pacheco adapted the framework presented to the class by a prominent guest speaker, Dr. Liliana Rojas-Suarez. In an essay published by the Center for Global Development, where she is a Senior Fellow ("Emerging Market Macroeconomic Resilience to External Shocks: Today versus Pre-Global Crisis," Feb. 2015), Rojas-Suarez examined the factors that can improve the resilience of countries to financial shocks. These shocks might be exogenous, such as the "sudden stops" to capital flows described by Guillermo Calvo, or they could be caused by domestic factors, such as a deteriorating exchange rate or an increasing level of non-performing loans in the banking sector. Legilisho and Pacheco adapt this framework and apply it to a sample of countries from sub-Saharan Africa.

Adapting Rojas-Suarez's methodology, the authors show which countries are most and least vulnerable to shocks, based on economic circumstances and public policies of national and international macroeconomic management. They find that all countries are at risk to some extent or other; however, economic preparedness is in good part related to strong economic management – as seen in the variables shown to improve financial resilience.

In short, the paper boils down to constraints on effective policymaking. The lower the affordability and availability of external finance, and the less margin there is for countercyclical fiscal and monetary policy, the more hamstrung domestic policymakers are in terms of taking impactful measures when crisis hits. Better informed policymakers, backed by the support and advice of peers in their governments and across countries, can more effectively work within these constraints where necessary, and help alleviate them where possible.

This is one of the aims of the IFC-MI Capital Markets Program: we are working to ensure that future capital-markets experts and leaders – Legilisho and Pacheco among them – can rely on their networks and on their strong understanding of capital markets to enact smart policy when their countries need it most.

Carole Biau, Director, IFC-Milken Institute Capital Markets Program

Danny Leipziger, Professor of International Business and International Affairs, the George Washington University School of Business

Introduction

Growth in most emerging economies did not take as hard a hit as expected during the great recession of 2008. However, in light of more recent economic turmoil in these markets, many believe that emerging and developing economies are being struck by a "third wave" of the global financial crisis. As policymakers in these countries, how do we forestall this wave and ensure that, if it hits, our economies will be resilient to the shocks?

Looking back to 2008, Rojas-Suarez (2015) demonstrated that initial conditions in emerging markets before the crisis could greatly explain their resilience. As a Kenyan central banker and an Angolan stock exchange director, we decided to check to what extent these findings applied to sub-Saharan Africa. This paper analyzes how resilient a sample of 13 sub-Saharan African countries are to an external shock.

We consider two dimensions of resilience, as identified by Rojas-Suarez. First, one that reflects vulnerability to capital outflows when hit by a shock: What is the cost and accessibility of external finance, and how easily can countries fulfill their obligations towards foreign creditors? Second, a measure that reflects the economy's ability to respond to that shock: How effectively can the country implement countercyclical fiscal and monetary policies to steer back on course?

For both dimensions, we contrast the most recent available values (2014) to the state of play in the pre-crisis period (2007). Finally, we calculate an overall indicator to assess whether the countries in our sample are more resilient now than they were in 2007. The implications for us as policymakers are worth paying attention to.

Macroeconomic Resilience: Cost and Availability of External Finance

To assess the cost and accessibility of external finance in our sample of sub-Saharan African countries, we consider the ratios of: a country's current account balance to GDP; external debt to GDP; and external short-term debt to reserves.

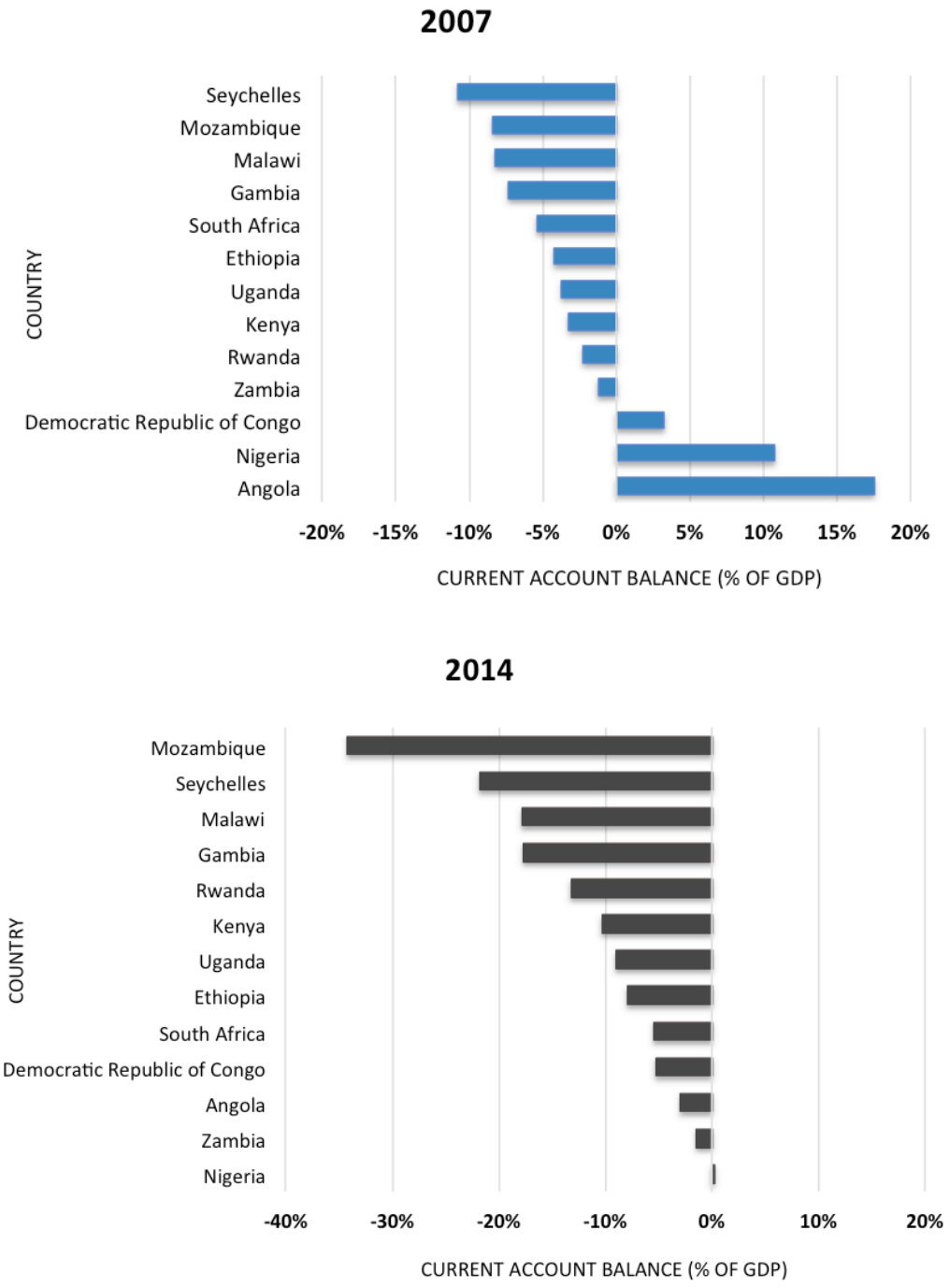
The current account balance as a ratio of GDP

This ratio represents a country's external funding needs. Large current account deficits need to be financed by net capital inflows or by the utilization of international reserves. A comparison of countries' current account balances in 2007 and 2014 suggests that this ratio has decreased over the period, and thus that countries' external financing needs have increased.

During the period of high commodity prices in 2007, resource-intensive countries such as Nigeria, Angola and the Democratic Republic of the Congo (DRC) enjoyed current account surpluses, with export revenues exceeding spending on imports. However, due to the lack of reforms (especially to the exchange-rate regime) to protect gains during the periods of high commodity prices, these countries became very exposed. As commodity prices declined in the second half of 2014, the value of exports dropped and current account balances worsened. Current accounts also deteriorated even in non-resource-intensive countries, as the slowdown in the Chinese economy and the real appreciation of

domestic currencies reduced demand for these countries' exports and made their imports more costly. While we did not include data beyond 2014 (see Figure 1), this trend has continued.

FIGURE 1: Current account to GDP ratio, 2007 vs. 2014



Source: World Bank databank databank.worldbank.org/data/reports.aspx?source=world-development-indicators and IMF database imf.org/data

External debt as a ratio of GDP

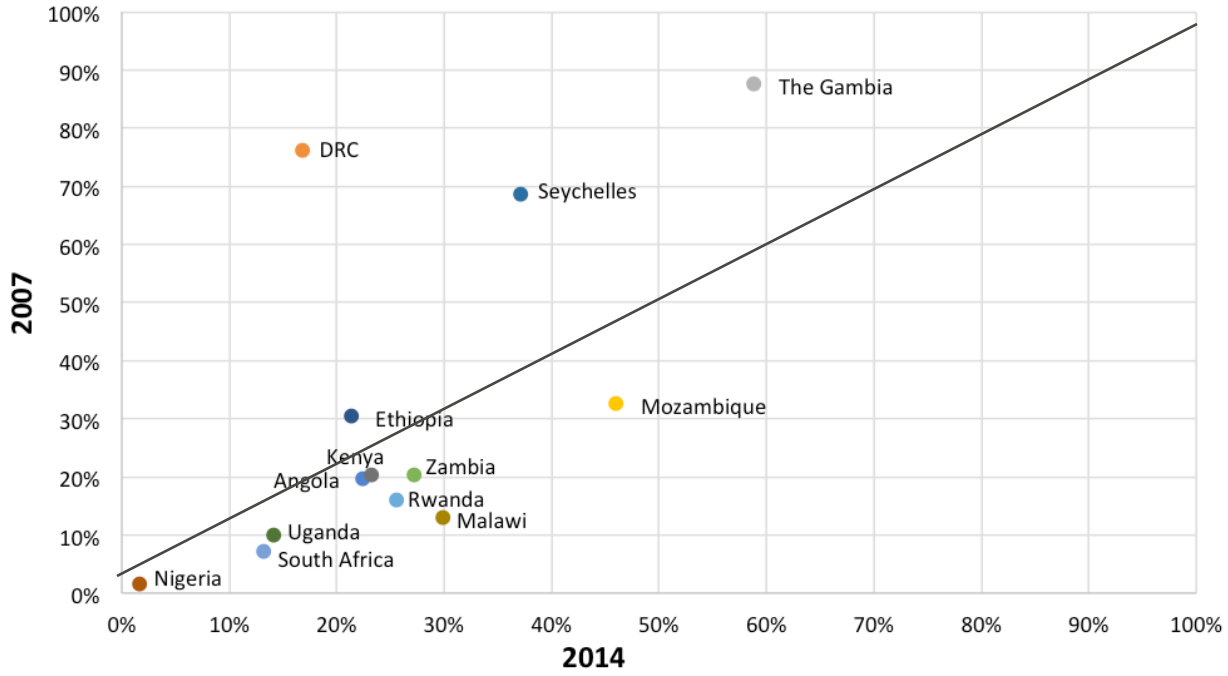
As discussed above, current account deficits tend to be financed by net capital flows or international reserves. Over the last decade, high commodity prices and robust economic growth attracted foreign capital to Africa. Moreover, low and negative returns in much of the rest of the world have led investors to demand high-yield instruments. To tap into this rising demand and interest, African countries have increasingly accessed international capital markets and since 2010 they have issued approximately USD 22 billion in Eurobonds (IMF, 2016).

High levels of foreign debt can however be unsustainable, as countries may not have the liquidity in hard-currency to meet their obligations with foreign creditors. For this reason, we use the ratio of external debt to GDP as an indicator for solvency: it measures a country's overall capacity to meet its external obligations.

In Figure 2 below, countries above the 45-degree line have seen indebtedness decline since the global financial crisis. For countries below the line, external indebtedness has risen and it has therefore become more difficult to meet external obligations.

This data indicates that with the exception of Nigeria, external indebtedness has increased since 2007 in resource-intensive countries such as Angola, Mozambique and Zambia. This suggests that their current account deficits were financed by net capital flows. Indebtedness has also risen in less resource-intensive countries that are relatively open to capital flows, such as Kenya, Uganda, Rwanda and South Africa. This is consistent with the view that foreign investors had interest in high-yield instruments in the continent. The ratio of external debt to GDP only improved considerably for DRC over the period, due to a debt-relief program implemented by the IMF and the World Bank (IMF, 2010).

FIGURE 2: External debt to GDP ratio, 2007 vs. 2014



Source: World bank databank databank.worldbank.org/data/reports.aspx?source=world-development-indicators and IMF database imf.org/data

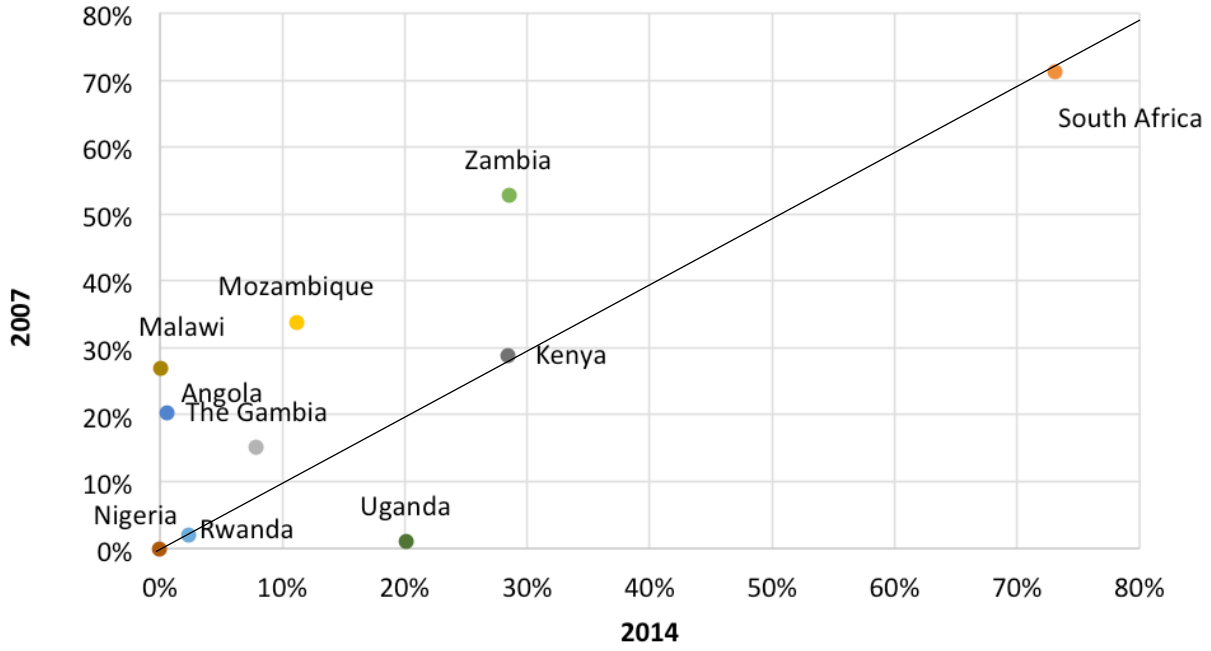
External short-term debt as a ratio of reserves

The two ratios discussed above measure the sustainability of countries' external debt stock. However, they do not capture a critical dimension of all financial crises: timing. To reflect this, we turn to the degree of concentration of the debt stock in the short-term.

Since developing countries so far have lower access to capital markets than OECD countries, they are less able to roll over the issued debt and thus must make sure to have enough liquidity to fulfill their obligations. As more debt is concentrated in the short-term, more resources are proportionally needed for debt service.

The ratio of short-term external debt to gross international reserves measures the degree of liquidity constraints faced by these young capital markets. In Figure 3 below, countries below the 45-degree line have suffered increased macroeconomic vulnerability to an external shock between 2007 and 2014. Consistent with our earlier analysis, countries with relatively high flows of capital —such as Kenya, Uganda and especially South Africa – appear more vulnerable to these liquidity constraints. On the other hand, countries with lower levels of capital movements, such as Angola, Mozambique, Zambia, Malawi and the Gambia, have become less exposed over the time period.

FIGURE 3: External short-term debt to reserves ratio, 2007 vs. 2014



Source: World Bank databank databank.worldbank.org/data/reports.aspx?source=world-development-indicators and IMF database imf.org/data

Macroeconomic Resilience: Ability to Respond to a Crisis

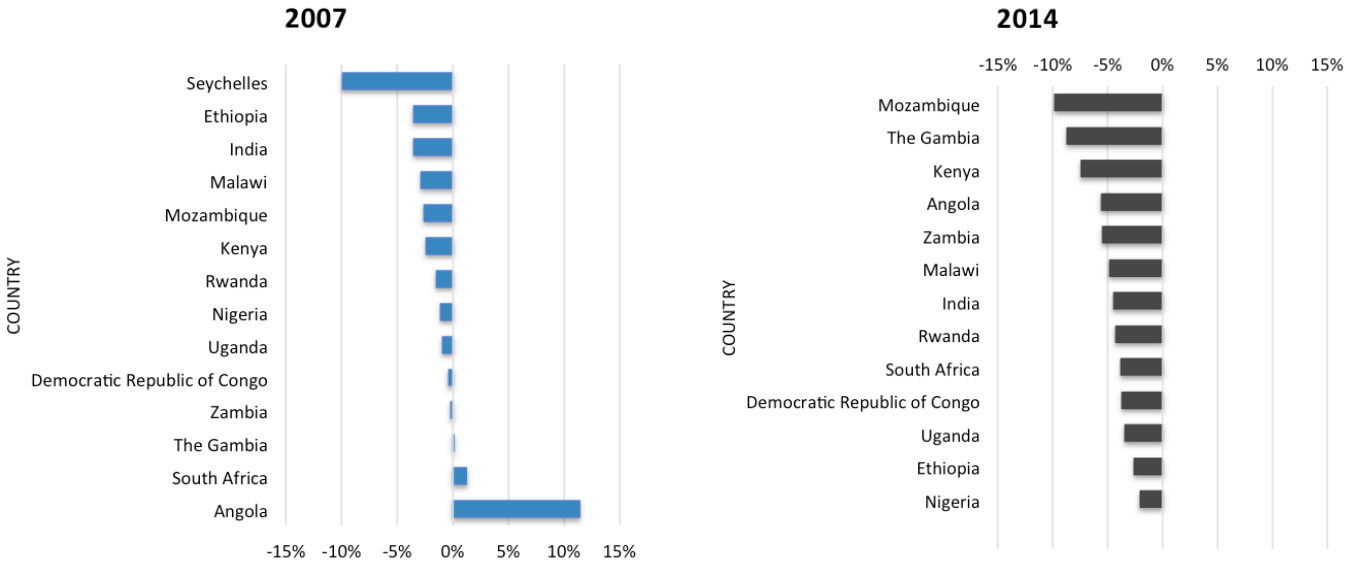
To assess the ability of our sample of sub-Saharan African countries to respond to external shocks, we consider these factors: their fiscal balance as a ratio of GDP; government debt in proportion to GDP; deviation in the inflation rate from the 10-year average; and a measure of financial fragility.

Ratio of fiscal balance to GDP

Countries with strong fiscal accounts before an external shock (whereby tax revenues are higher than levels of government spending) are on a better footing to undertake countercyclical policies than those with large fiscal deficits. This ratio is particularly relevant for developing economies, which have fewer options for placing government debt in domestic capital markets in order to raise financing. In 2007 most countries in our sample had fiscal deficits of up to 4% of GDP (see Figure 4 below). The only outliers are Angola (a resource-intensive country with a very high fiscal surplus at the time) and the Seychelles (with a particularly high deficit of 10%). Overall, the prevalence of fiscal deficits suggests that there were low levels of fiscal discipline among majority of the countries sampled.

By 2014 and although the Seychelles had cut its deficit back significantly, the situation had worsened for the rest of the region with most countries running fiscal deficits at 5% or close to 10%. Low commodity prices contributed to this deterioration among resource-intensive countries, as in most cases these governments' revenues were heavily dependent on taxation of the natural resource sector. Fiscal balances thus plunged in Angola, Nigeria, South Africa and Zambia. Meanwhile non-resource-intensive countries were hit by other factors such as terrorist attacks in Kenya and severe drought in Mozambique.

FIGURE 4: Fiscal balance as a ratio of GDP, 2007 vs. 2014



Source: World Bank databank databank.worldbank.org/data/reports.aspx?source=world-development-indicators and IMF database imf.org/data

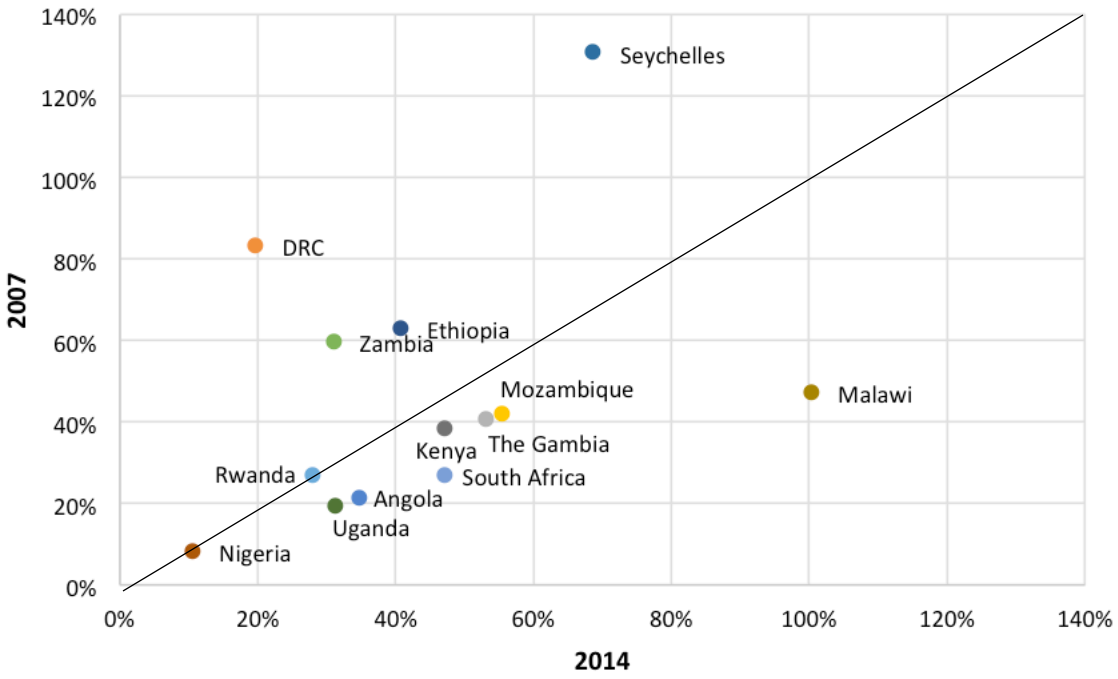
Ratio of central government debt to GDP

The ratio of government debt to GDP is an inverse measure of debt sustainability. As a longer-term stock measure that is frequently under international scrutiny, it differs from the fiscal balance we investigated above. Indeed, even countries that are in fiscal surplus when they are hit by a contractionary external shock might be constrained in their use of expansionary (countercyclical) fiscal policy, for fear of worsening their overall debt stock. For emerging economies, a ratio of central government debt to GDP of 50% is widely regarded as being sustainable.

Countries below the 45-degree line in Figure 5 below – the Gambia, Mozambique, South Africa, Kenya, Malawi, Angola and Uganda – increased their ratio of central government debt to GDP between 2007 and 2014. Taking into account the high economic growth rates during this period, this increase indicates that the debt stock (numerator) was increasing at a faster pace than economic activity (denominator) – and thus that fiscal discipline was generally lax despite being in favorable economic conditions.

Of total central government debt in 2014 across the sample, external debt made up a 65.73% share. This further suggests that a large proportion of the debt stock was either owned by foreign investors, denominated in hard-currency, or both. This can be particularly risky in countries with shallow capital markets, as discussed in sections A(a) and A(b) above.

FIGURE 5: Central government debt as a ratio of GDP, 2007 vs. 2014



Source: World Bank databank databank.worldbank.org/data/reports.aspx?source=world-development-indicators and IMF database imf.org/data

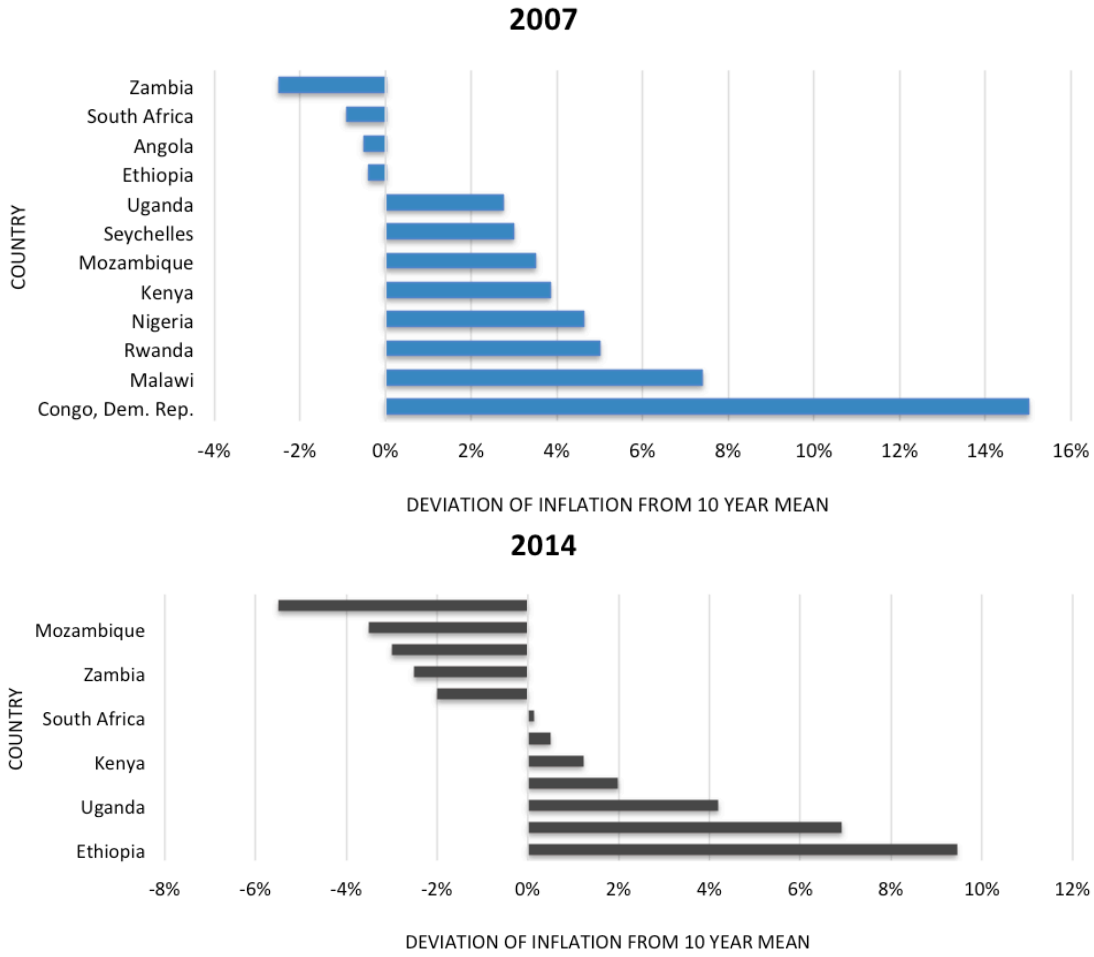
Deviation from 10-year inflation average rate

The 1990s were characterized as a period of very high inflation rates. From 2000 onwards, the average inflation rate has been declining. During the last 10 years, average inflation for the countries in this sample was 9.74%, with a minimum of -2.74% (Seychelles in 2010) and a maximum of 43.54% (Angola in 2006). Thus, unlike situations experienced in Japan and much of Europe in recent decades, the inflationary risk tends to be higher than the deflationary one.

To capture this inflationary risk, we look at positive deviations in inflation when compared to the 10-year mean. A higher risk of inflation, especially if an economy is facing inflationary pressures at the time of an external shock, would constrain the implementation of countercyclical monetary policy (as expanding the money supply to lower the interest rate would of course naturally push inflation even higher).

Our data suggests that the number of sub-Saharan African countries with inflation rates below the 10-year average has increased (see Figure 6). Moreover, in 2014 deviations from the average tended to be smaller: the highest inflation rate in 2007 (for DRC) significantly exceeded the highest rate in 2014 (for Ethiopia).

FIGURE 6: Deviation from 10-year inflation average rate, 2007 vs. 2014



Source: World Bank databank databank.worldbank.org/data/reports.aspx?source=world-development-indicators and IMF database imf.org/data

Financial fragility

We used Rojas-Suarez's (2015) approach to calculate a measure of financial fragility. This measure is designed to capture the existence of a credit boom or a bust and give it a negative value, as illustrated in the equation below.

Both unsustainable excessive credit growth and the lack of it tend to impair the effectiveness of monetary policy. In the case of a credit boom for instance, an external shock could increase the levels of non-performing loans, thereby exposing the vulnerabilities of the financial system. In both cases monetary authorities would have limited instruments to use to counterbalance the negative effects of the shock: an expansionary stance could further increase debt to unsustainable levels; while a contractionary stance could increase default rates.

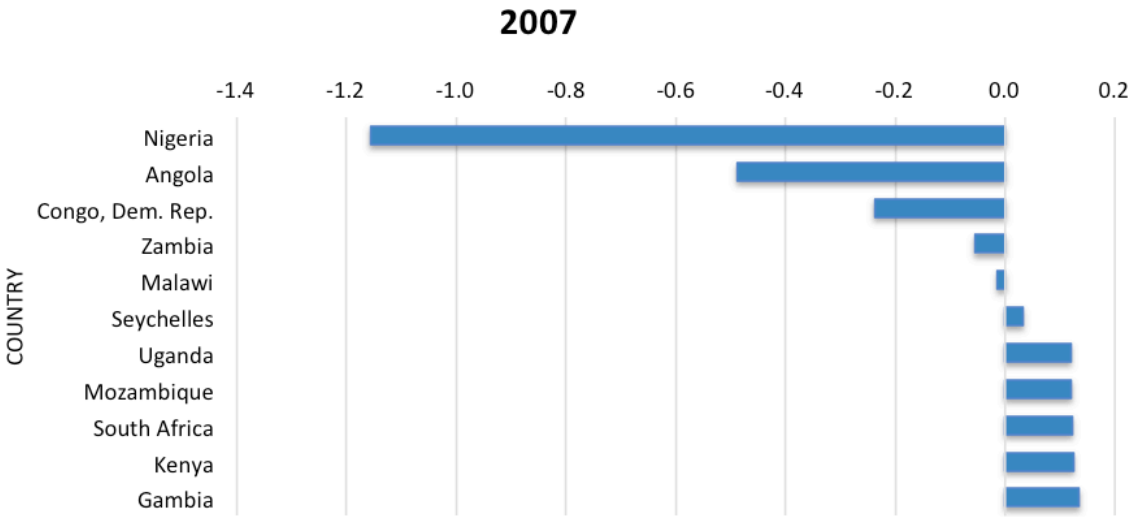
$$\text{Financial Fragility} = (\Delta RC^{Boom} - \Delta RC) * (\Delta RC - \Delta RC^{Bust})$$

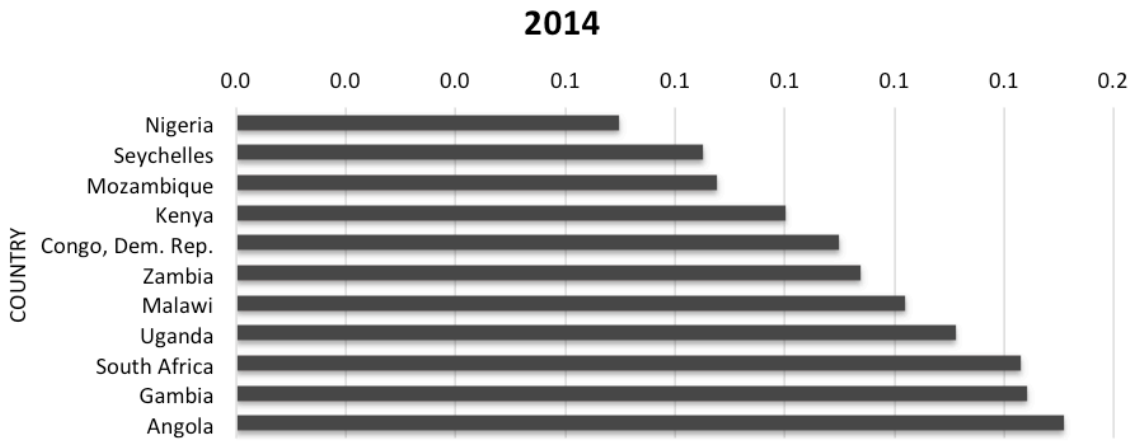
Note: RC = real credit

This methodology defines that a credit boom or bust is happening when the actual value is outside of a band for which the thresholds are obtained by multiplying the standard deviation of real credit growth for the last 10 years by +/-1.5. If real credit growth (ΔRC) is outside this band (whether in a boom or bust situation, or below or above these thresholds), the measure of financial fragility is negative.

As Figure 7 illustrates, half of the countries within the sample were in a vulnerable position in 2007. Among these, the resource-intensive countries such as Angola, Nigeria, DRC and Zambia were facing a period of credit boom. By 2014, there had been a considerable reversal in this indicator. However, for economies subject to a boom-and-bust cycle the bust may just have been around the corner.

FIGURE 7: Financial fragility, 2007 vs. 2014





Source: World Bank databank databank.worldbank.org/data/reports.aspx?source=world-development-indicators and IMF database imf.org/data

Putting It All Together: An Overall Indicator of Resilience

The assessments above can help us tell how apt our economies are to face tighter financial conditions; they can also tell us how much room for maneuver our monetary and fiscal authorities have, if they hope to respond to external shocks rapidly and effectively. What does this say about the overall resilience of sub-Saharan African countries today? How should we, representatives of those authorities and participants in our local financial markets, expect to perform when the next external shock hits?

To answer this question, we follow Rojas-Suarez's methodology to compile an overall resilience indicator, the geometric average of all variables examined above. We first standardize these variables and give them different weights. Our first set of indicators (measuring cost and availability of external finance) is given a 15% weight. This is quite a high weight, to reflect the shallow domestic capital markets and limited access to external finance of the countries in the sample. Indeed for most sub-Saharan African countries today, availability of foreign capital still tends to be an exogenous factor. This is because these countries are less able to attract foreign capital through short-term measures (by increasing, for example, interest rates). The higher weight penalizes countries that did not manage their external exposure accordingly.

Our second set of indicators (reflecting ability to respond to crisis, in particular by implementing effective countercyclical monetary and fiscal policies) is given a 30% weight. This strongly penalizes lack of fiscal discipline, which has led to higher levels of debt-to-GDP ratios despite a period of rapid economic growth. To make things worse, this laxity has also promoted an increase in external debt, thus exposing countries to international capital-market sentiments (the very condition for which rapid policy responsiveness is key).

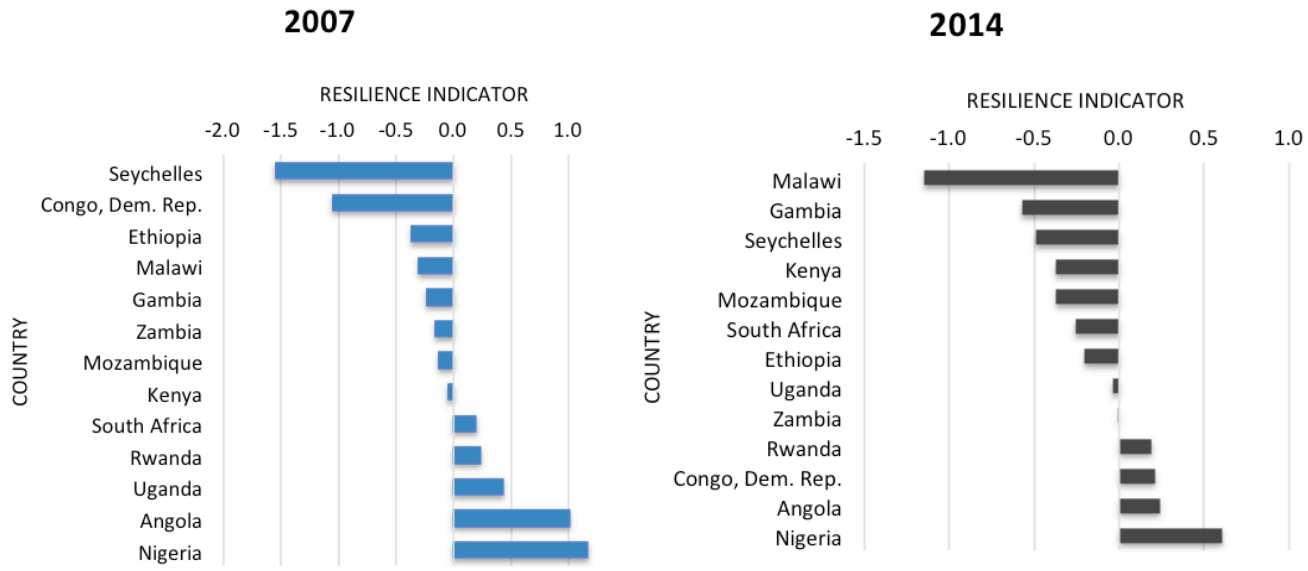
Our overall indicator of resilience gives values ranging between -2 and +2, but could be higher or lower than this. A high value is a good sign indicating that a country is resilient and a low value is bad sign indicating that a country is less resilient and at risk of facing crisis etc.

This indicator suggests that the region is less resilient in 2014 than it had been in the pre-crisis period of 2007 (see Figure 8 and ranking table below). Out of 13 countries, only three experienced an increase in

the resilience indicator: Ethiopia, Zambia and the Seychelles, thanks to a process of fiscal consolidation and a relative improvement in indicators of access to foreign financing. Meanwhile although the resilience indicator for the DRC also significantly improved, this was mainly due to its debt relief program. Angola and Nigeria, the main oil producers of the region, have for their part maintained their levels of resilience between 2007 and 2014. Since both countries have however been severely affected by the commodity slump that has continued through 2015 and 2016, their resilience indicators may well have deteriorated since.

In sum, this resilience indicator could serve as a good warning signal for policymakers such as ourselves, to alert us when our economies become vulnerable to external shocks. In many cases and provided sufficient human capital exists in the relevant government bodies, meaningful preemptive measures can be implemented to improve fiscal discipline and raise the availability of external financing.

FIGURE 8: Overall financial resilience. 2007 vs. 2014



Source: World Bank databank databank.worldbank.org/data/reports.aspx?source=world-development-indicators and IMF database imf.org/data and based on Rojas-Suarez methodology.

TABLE 1: Country Resilience Ranking (2007 as compared with 2014)

Country	Value of Indicator	Country Ranking	Value of Indicator	Country Ranking
Angola	1.00	2	0.24	2
Congo, Dem. Rep.	-1.05	12	0.21	3
Ethiopia	-0.37	11	-0.20	7
Gambia	-0.23	9	-0.57	12
Kenya	-0.05	6	-0.37	10
Malawi	-0.30	10	-1.15	13
Mozambique	-0.13	7	-0.37	9
Nigeria	1.17	1	0.61	1
Rwanda	0.23	4	0.19	4
Seychelles	-1.55	13	-0.49	11
South Africa	0.20	5	-0.26	8
Uganda	0.43	3	-0.04	6
Zambia	-0.16	8	-0.00	5

Conclusions and Recommendations

In 2014, sub-Saharan African countries in our sample were less resilient to sustaining an external shock than they were in 2007. This trend has very likely continued to date. Thanks to higher resilience in 2007, the negative effects of the 2008 crisis were less evident in these countries. In the last seven years however, very few efforts have been made to reform and consolidate policies. The lack of fiscal discipline and overvalued currencies has led to higher levels of debt (both internal and external), and to severe current-account deficits.

These factors have reduced the resilience of the countries within the sample by hampering the ability of economies to face tight financial conditions and by limiting the responses our policymakers can take when crisis hits. These countries are now more vulnerable to external shock, which may well be triggered by a sudden increase in the interest rates in the United States, or by a further slowdown of the Chinese economy. Either of these triggers would decrease the demand for commodities, leading to a further decline in world prices. In some African countries this could induce a reversal in capital flows, which could be systemically problematic if those countries hold relatively high levels of external debt. Given this scenario, we cannot sit on the sidelines. There are several clear efforts which policymakers, businesses, and multilateral institutions can pursue together, to increase the resilience of our economies, especially in Africa:

- Fostering regional integration and deepening intra-regional trade would create positive economic correlation between resource and non-resource-intensive countries, thus having a stabilizing effect across countries.
- Governments, businesses and multilaterals could work together to foster both foreign and domestic investment in exporting sectors that can leverage collective growth, such as fertilizing industries or energy production and cross-border transportation. Foreign direct investment should also be directed at closing the infrastructure gap in Africa.

- Debt relief programs should go hand-in-hand with sustainable, long-term fiscal consolidation programs.
- Once they have created more 'breathing room' for fiscal and monetary policy, policymakers cannot take for granted that such policies will always be implemented in a timely and effective manner. This requires the development of quality institutions and of robust human capital. Beyond playing a countercyclical role, sound fiscal and monetary policies would also help to boost productivity, increase competition in markets, and facilitate investments in human capital and in disruptive technologies that ultimately create resilient economies.
- Sub-Saharan African countries could work with each other and with multilateral institutions to create platforms and devise risk-sharing mechanisms that would allow central banks to trade currency swaps among themselves. This would reduce the liquidity constraints of some countries, while reducing the risks and uncertainties (or mistrust) across all.
- African countries should look to Asia (and not China alone) for export-market growth opportunities. The rising consumption and growing African diaspora in Asia is an opportunity for African exports, especially higher value-added products.
- Finally, steps should be made to eliminate fixed exchange rate regimes.

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About the Authors

Christopher Lemein Legilisho started his career at Dyer and Blair, Kenya's largest investment bank. He has since been responsible for developing and monitoring Kenya's domestic borrowing program within the Central Bank of Kenya. As part of the IFC-Milken Institute Capital Markets Program, in spring 2017 Christopher undertook his work placement in New York City with George Weiss Multi-Strategy Advisers.

Walter Da Cruz Pacheco started as an FX-Derivatives salesperson and joined Angola's Capital Markets Commission in 2013, as Head of Market Development. In October 2016 and while participating in the IFC-Milken Institute Capital Markets Program, Walter was asked to direct the newly established Angolan Stock Exchange. As part of the IFC-Milken Institute Capital Markets Program, in spring 2017 Walter undertook his work placement in New York City with Millennium Management.

About the Capital Markets Program

The IFC-Milken Institute Capital Markets Program at The George Washington University was created exclusively for mid-career professionals with a passion for local capital-market development in emerging economies. Drawing on decades of knowledge and experience from scholars, policymakers and market practitioners, the program includes four months of coursework at GW in the fall, and four months of work placement in leading U.S. public and private institutions in the spring. This is supplemented by unique hands-on learning resources—including the IFC's proprietary case studies and the IFC-MI Speaker Series—which are customized for policymaking in emerging-market contexts. By actively participating in the program and staying connected to its alumni network once they have returned home, the IFC-MI Fellows are planting the seeds for robust capital markets and a healthy business environment in the youngest and fastest-growing parts of the world.