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Identifying Macroeconomic Resilience to External Shocks in Emerging and Developing Countries

LESSONS FROM THE GLOBAL SHOCKS OF 2020–2022

Liliana Rojas-Suarez

Abstract

This paper uses a straightforward Resilience Indicator, constructed from a small set of economic and institutional variables, to show that by 2019, prior to the COVID-19 pandemic and subsequent global shocks, it was possible to identify emerging markets and developing countries that would encounter serious economic and financial problems if an external shock were to materialize. The list of developing countries identified as less resilient in 2019 using this simple methodology closely aligns with the World Bank's 2022 compilation of countries in distress or at high risk of external debt distress. Furthermore, the emerging market economies that this indicator identified as the least resilient in 2019 were countries that had either defaulted or were teetering on the edge of default by 2022. Identifying countries that are most vulnerable to large external shocks can assist policymakers and the international community in directing their efforts towards crisis prevention, thereby avoiding the detrimental consequences of financial crises on development.

KEYWORDS
Emerging markets, developing countries, financial crisis, debt, defaults, economic resilience, external shocks

JEL CODES
E60, F32, F34, G01, G15, H60, H63

WORKING PAPER 655 • OCTOBER 2023

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I am thankful to Charles Kenny and Nancy Lee for their thoughtful comments. I also want to acknowledge the excellent research assistant support from Nayke Montgomery Guzman, who tirelessly went through a large number of country reports and databases for constructing the charts in this paper.

The Center for Global Development is grateful for contributions from the Bill & Melinda Gates Foundation in support of this work.

Liliana Rojas-Suarez. 2023. "Identifying Macroeconomic Resilience to External Shocks in Emerging and Developing Countries: Lessons from the Global Shocks of 2020–2022." CGD Working Paper 655. Washington, DC: Center for Global Development. https://www.cgdev.org/publication/identifying-macroeconomic-resilience-external-shocks-emerging-and-developing-countries

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I. Introduction

It has long been established that debt and other financial crises pose a threat to development. Numerous examples demonstrate how balance of payments crises, debt crises and banking crises have reversed social progress indicators such as poverty ratios, access to public services like health and education, and inequality in many emerging markets and developing economies (EMDEs).[1] Therefore, it was deeply concerning when the Managing Director of the International Monetary Fund (IMF) announced in September 2022 that sixty percent of developing countries and twenty-five percent of emerging market economies were either in debt distress or at severe risk of default.[2] To an important extent, this outcome was attributed to the significant indebtedness incurred by governments and firms during the COVID-19 pandemic to navigate through the crisis and to the economic effects of Russia's invasion of Ukraine.

While the identification of countries under severe economic stress certainly plays a crucial role in *resolving* crises, particularly in mobilizing necessary resources from the international community, an important question arises: Could fragile countries have been identified *prior* to the eruption of Covid-19 and the subsequent multiple shocks, such as Russia's invasion of Ukraine and the tightening of international financial conditions resulting from rising interest rates in major advanced economies.[3] Addressing this question is of utmost importance since it focuses on *preventing* crises; after all, avoiding falling into severe economic and financial downturns is essential for sustainable development.

This paper focuses on precisely this issue. Drawing from previous systemic crisis episodes, it is evident that not all countries experience the same consequences despite being exposed to common shocks. Economic and financial crises do not follow in all countries impacted by a severe common shock. In essence, some countries exhibit greater resilience than others. Therefore, the key questions to be addressed are: (a) How can we identify, at a given point in time, those countries that are relatively less resilient to external shocks? And (b) Is it possible to identify these countries before a shock occurs, allowing appropriate correction measures to be put in place to prevent the eruption of crises?

The short answer to both questions is affirmative. In fact, the central finding of this paper's analysis is that as of 2019, the year prior to the Covid-19 outbreak, it was possible to identify which countries would encounter serious economic and financial problems if an external shock were to materialize. In other words, published data for 2019 clearly indicated that a significant number of countries were already grappling with deep vulnerabilities prior to the multiple shocks that have affected the global economy since 2020. While not flawless, the list of countries identified as *less resilient* in 2019 using

1 In Latin America, for example, the deep financial crises of the 1980s resulted in what is known as *the lost decade*, a period of economic stagnation and increase in poverty and inequality.

2 See: https://www.imf.org/en/News/Articles/2022/09/14/tr091322-cgd-transcript.

3 The literature shows that, because of their particular characteristics, EMDEs' vulnerability to external shocks is larger than those in advanced economies. Specifically, adverse external shocks lead to sharp reversals in the inflows of capital to EMDEs. This severely affects the availability of sources needed to finance their development projects.

the simple methodology outlined in this paper closely aligns with the list of countries identified by the World Bank in 2022 as being in distress or at high risk of external debt distress.

The methodology employed in this paper builds upon my previous work on the subject (Rojas-Suarez (2015). Similar to that study, resilience is broadly defined here. A country is considered highly resilient to an external shock if major disruptions to its economic and financial systems do not occur after the shock; that is, economic and/or financial crises do not follow. A central premise of the paper is that countries' initial economic and institutional conditions before the occurrence of an external shock significantly influence its resilience. This perspective is also supported by analysts who have studied the effects of the global financial crisis on emerging markets, as they found that policy decisions made prior to the crisis played a substantial role in shaping the impact on local economic and financial systems.[4]

Following the approach in Montoro and Rojas-Suarez (2012), this paper characterizes resilience as having two dimensions in order to identify variables that indicate a country's economic strength. The first dimension pertains to a country's capacity to withstand the *impact* of external shocks while the second dimension relates to the country's ability to promptly *respond* to the effects of these shocks. Variables that define these two dimensions encompass macroeconomic factors (such as external debt positions) and institutional variables (such as the government's effectiveness in implementing credible policies). These variables are combined to create an overall *Resilience Indicator* that can be used to make cross-country comparisons. Additionally, the paper examines the behavior of individual components of the index across countries, enabling the identification of country-specific weaknesses and strengths.

The data used to construct the *Resilience Indicator* are primarily sourced from published material. While some data can be obtained from worldwide databases, others are derived from national sources or country-specific documents published by multilateral organizations. The paper provides details on the sources of information used.

The subsequent sections of the paper are organized as follows: Section II presents the framework utilized in the study, characterizes the two dimensions of resilience, and identifies the variables incorporated in constructing the *Resilience Indicator*. Section III discusses the behavior of the variables related to the first dimension of *Resilience* in 2019 (the pre-COVID year) for a set of EMDEs. Section IV follows a similar approach for variables in the second dimension. Countries are divided into two groups based on their degree of development: emerging market economies and developing countries. Section V combines the analyzed variables to construct the *Resilience Indicator*. Despite its limitations, the indicator conveys a clear message: as of 2019, the writing was on the wall regarding the identification of countries with relatively limited ability to withstand the multitude of external shocks that started in 2020 with the Covid-19 pandemic. Finally, Section VI concludes the paper.

4 See, for example Cecchetti et al. (2011) and Montoro and Rojas-Suarez (2012).

II. A simple framework for identifying resilience

As in Rojas-Suarez (2015), economic resilience is defined here in broad terms. A country is considered highly resilient if it can avoid economic or financial crisis (like a debt crisis or a banking system crisis) following a large external shock. This paper argues that the level of a country's economic resilience in the face of an adverse external shock largely hinges on its economic and financial strength *before the shock*; that is, initial conditions are extremely important.

Drawing from Montoro and Rojas-Suarez (2012) and Rojas-Suarez (2015), economic resilience is characterized as having two dimensions: a country's capacity to *withstand* the impact of a negative shock and its ability to *swiftly implement* policies to mitigate the effects of the shock on economic and financial stability. This section proposes a set of indicators to measure these two dimensions.

In determining indicators for the *first dimension*, it is crucial to recognize that the primary negative effect of external shocks is a decrease in external sources of finance coupled with a surge in their cost. These shocks can undermine expectations on a country's economic performance and financial stability, discouraging both international and domestic investors from financing projects or investing. This effect could arise via the commercial channel (for instance, due to a drastic drop in demand for a country's exports) or the financial channel (for instance, due to a sharp rise in U.S. interest rates). While financial shocks directly instigate increases in the cost of external financing, a trade shock indirectly brings about similar pressures as funding costs are swayed by investors' perception of increased risk.

Such dynamics imply that the stronger a country's external position, the more equipped it is to *resist the impact* of an external shock. This can be evaluated by (a) its external financing needs (a liquidity indicator that can be measured by the current account plus payments on short-term debt relative to the stock of international reserves), and (b) the outstanding stock of its external debt (a solvency indicator).

The *second dimension* of resilience—the ability of the authorities to promptly respond to an adverse shock's effect—largely depends on the fiscal and monetary positions at the time of the shock. In other words, the available fiscal and monetary space to implement adequate policies, often countercyclical ones.

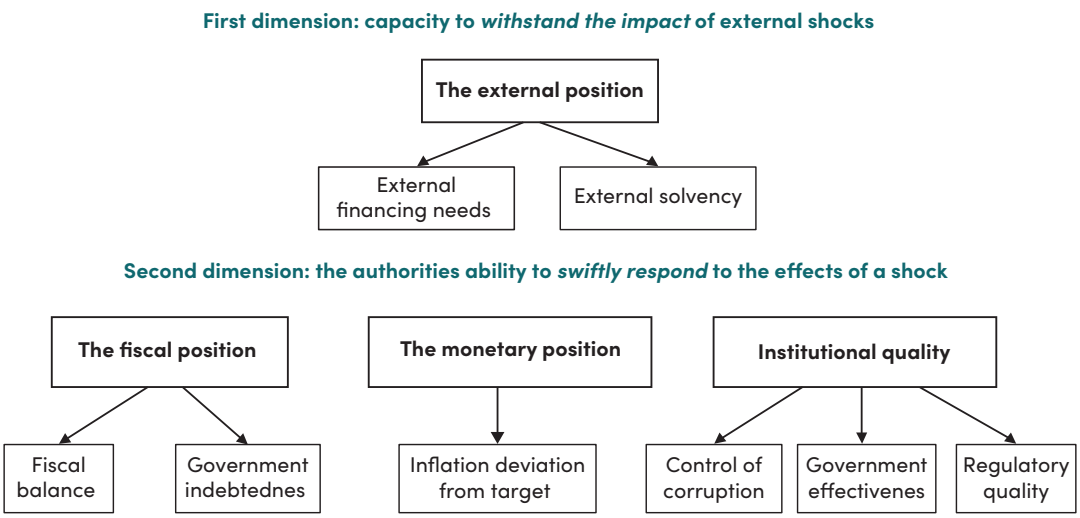
The fiscal position is defined by the government's financing needs (the fiscal balance) and its overall indebtedness (domestic and external). Concurrently, the scope for countercyclical monetary policy is determined by the absence of constraints to the usage of the Central Bank's policy tools (such as changes in the policy interest rate or interventions in foreign exchange markets). In this regard, significant deviations from announced inflation targets are identified as hindrances to the implementation of effective countercyclical monetary policy.[5]

5 Financial instabilities or the lack of central bank independence are other factors that can constrain the implementation of effective countercyclical monetary policy. For an indicator that includes the former, see Rojas-Suarez (2015).

Additionally, authorities would be able to swiftly implement adequate actions, if they remain unaffected by political pressures and operate in a system where corruption is effectively controlled. In other words, institutional quality plays a critical role in determining the second dimension of resilience, warranting the inclusion of variables measuring its strength.

Figure 1 summarizes the two dimensions of resilience.

FIGURE 1. The two dimensions of economic resilience



The upcoming two sections will delve deeper into the set of variables measuring these two dimensions. Each variable will be examined for a group of developing countries and a group of emerging markets in 2019, the year preceding the multiple shocks that disrupted the global economy starting in 2020: the Covid shock, Russia's invasion of Ukraine and the US Federal Reserve's interest rate hike. This exercise facilitates the comparison of each country's economic and financial strength relative to its peers.

Countries in the sample

We evaluate resilience to external shocks for two groups of countries: emerging markets and developing economies. The countries classification follows that of the International Monetary Fund. We excluded countries based on the following criteria:

- Insufficient data to construct the resilience indicator.
- Small islands prone to natural disasters since these countries also face shocks that differ from the financial and macroeconomic shocks that are the center of analysis in this paper.
- Countries embroiled in high-intensity conflicts.

With these criteria, our sample comprises 71 countries: 37 emerging markets and 34 developing countries.

III. The first dimension of resilience in EMDEs: Capacity to withstand the impact of an adverse shock

EMDEs' local capital markets are generally underdeveloped and highly concentrated, providing limited sources of funding for investment projects. Consequently, EMDEs are heavily dependent on external sources of funding. Therefore, a shock that increases costs and reduces the availability of external finance can be detrimental to EMDEs. If the shock is large and abrupt—a *sudden stop*—countries may struggle with rolling over existing maturities and making good on their outstanding obligations. Historically, such situations have often led to debt crises and even banking crises in many EMDEs.[6]

Among others, two indicators can offer a reliable assessment on EMDEs external financial vulnerabilities: the country's external financing needs and its external debt to GDP ratio. The remainder of this section will explain the relevance of these variables and analyze their behavior. To evaluate the countries' capacity to withstand the impact of the multitude of shocks that hit the globe in 2020 and beyond, we assess the external positions of all countries in 2019, the year before the Covid pandemic.

1. External financing needs

A simple measure of a country's external financing needs can be constructed by aggregating the current account deficit (or surplus, adding a negative sign) of the balance of payments and the stock of short-term debt. This aggregate represents the financial resources that countries require in a given year to fulfill their payment obligations. To assess vulnerability to an external shock, this value needs to be compared with the *availability of external liquidity*, which can be approximated by the stock of international reserves.[7] Thus, the formula for calculating external financing needs is as follows:

$$External\ financing\ needs = \frac{Current\ account\ deficit + Short\text{-}term\ debt}{International\ Reserves}$$

When facing an adverse external shock, countries must demonstrate immediate access to resources to fulfill their payments due during the period following the shock. The need to have *proof of liquidity* is particularly crucial for EMDEs since they lack the ability to issue *hard currencies*; that is, currencies that are internationally traded in liquid markets. Thus, large accumulation of foreign exchange reserves, limited amounts of short-term external debt and small current account deficits significantly contribute to the international creditworthiness of EMDEs, helping them withstand the impact of shocks. As a rule of thumb, values of the *external financing needs* indicator above 100 percent signal significant vulnerabilities in dealing with external shocks. In such cases, the shock may impede the roll-over of external obligations, and the existing stock of reserves may prove insufficient to cover immediate payment requirements.

6 See: Calvo et al. (2004).

7 An alternative measure is the ratio of external debt service to exports (or to international reserves). Data on debt service, however, is hard to find on a consistent basis for all countries.

It is important to emphasize that the liquidity constraint faced by EMDEs (and not by advanced economies which can issue hard currencies), cannot be resolved by full exchange rate flexibility. Even with a sharp depreciation of the local currency in response to an adverse external shock, EMDEs cannot generate sufficient resources (via export revenues) quickly enough to meet external amortizations and interest payments. This explains: (a) the huge accumulation of international reserves by many EMDEs and (b) their choice of *increased, yet not fully flexible*, exchange rate regimes.[8]

Analyzing the *external financing needs* variable (a *flow* variable) in conjunction with the ratio of external indebtedness (a *stock* variable) is crucial. For countries with limited access to international capital markets, even relatively small ratios of external debt may lead to debt sustainability concerns if the countries face large external financing needs. To illustrate, consider the case of Burundi: Although its external debt to GDP ratio (to be discussed below) in 2019 was relatively low by international standards (18 percent), the country faced substantial financing needs (the value of the current account balance plus short-term debt as a ratio of international reserved exceeded over 300 percent). With minimal access to private external funding, the country heavily relies on donors' grants and its own accumulation of international reserves to demonstrate the availability of necessary resources for meeting payments due, primarily for imports (net of exports) and interest payments on outstanding debt. Thus, for many developing countries, particularly in Africa, exhibiting similar characteristics to Burundi, large external financing needs serve as an indicator of vulnerability that greatly compromises their resilience to external shocks.[9]

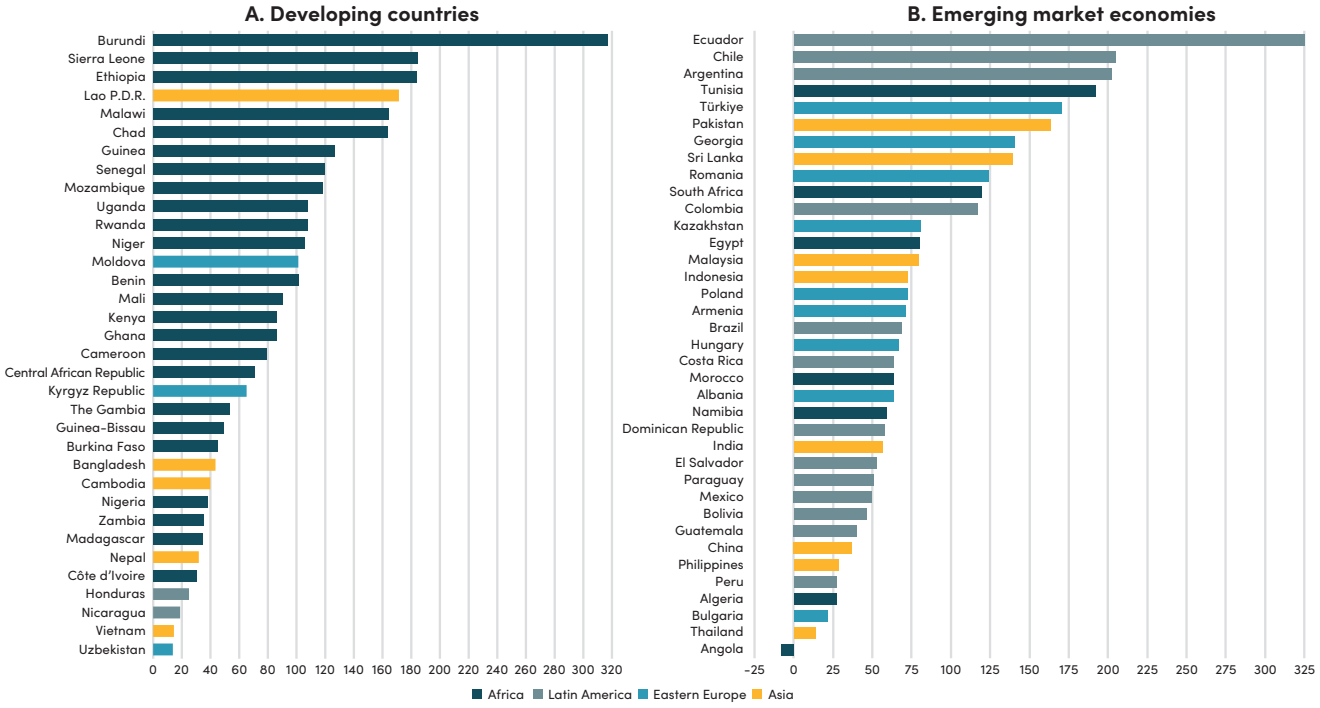
For countries with access to the private international capital markets, such as those classified as emerging markets, the *external financing needs* variable indicates a country's capacity to maintain low costs and continuous access to external finance. Policymakers are highly concerned about the possibility of a *sudden stop* of capital inflows due to major disturbances in the international capital markets or idiosyncratic developments in specific countries (such as escalated social unrest) rank high among policymakers' anxieties. The concern is that these events would increase investors' risk aversion and reduce appetite for debt instruments issued by emerging markets. To address these concerns, policymakers in many of these countries have accumulated substantial amounts of international reserves. For example, despite of running a significant current account deficit in 2019 (close to 5 percent of GDP), Colombia managed to rank in the mid-range among emerging markets economies in terms of the *external financing needs* variable (see graph below). This favorable position was attributable to the country's large holdings of international reserves.

8 See: Rojas-Suarez (2013).

9 There is also the issue of how to treat donors' grants. In several African countries, current account deficits would be much larger without grants, which, although a more stable source of funds than funding from the international capital markets, cannot be taken as permanent. For example, in Central African Republic, the current account deficit reached US$ 113 million (or 32 percent of international reserves) in 2019. Without grants, however, the deficit would amount to US$ 273 million (or 78 percent of international reserves) and the variable *external financing needs* would reach a 115 percent. In the analysis of this variable, we include grants in the calculation of the current account to facilitate comparison between countries. We acknowledge, however, that there is value in assessing a country's resilience to external shocks by excluding grants from the estimates.

Figures 2a and b show the values of the *external financing needs* variable for the sample of developing countries and emerging markets in our analysis. Data for current account deficits/balances and international reserves are obtained from the IMF's World Economic Outlook. Information on short-term debt is sourced from the *Assessing Reserve Adequacy* (ARA) database of the IMF and IMF *Staff Reports* for emerging market economies and from the World Bank's External Debt Statistics for developing countries.[10]

FIGURE 2. External financing needs in developing countries and emerging markets (current account deficit + short-term debt as percentage of international reserves), 2019



Just one country in the emerging markets sample (Angola) and none in the developing countries group displayed negative values in 2019, indicating a current account surplus that exceeded the value of their short-term external debt.[11] Other emerging market economies with small values of external financing needs, signaling strength in standing adverse external shocks included Thailand, Bulgaria, Peru, Algeria and the Philippines. In contrast, Ecuador, Tunisia, Pakistan, Argentina, Chile,[12] Sri Lanka and Türkiye were among the countries with the weakest external position in 2019.

10 The variable *current account deficit* takes a negative sign if the country reports a current account surplus.

11 Thailand was also running a current account surplus, but the value of short-term external debt was larger than the value of the current account surplus.

12 However, as reported by the IMF Staff reports, most of Chile's short-term external debt represent intercompany loans from foreign direct investors to local firms, which are stable sources of funding, and banks' short-term external debt covered by banks' liquid foreign assets. These are mitigating factors for the country's large issuance of short-term debt.

Together with Colombia, Romania, Georgia and South Africa, they form the group of countries where the indicator took a value greater than 100 percent.

A similar picture emerges among the developing countries group. Vietnam and Nicaragua ran current account surpluses while Uzbekistan, despite having a large current account deficit as a percentage of GDP (5.6 percent), benefitted from its small stock of short-term debt and substantial international reserves as a robust buffer against external shocks. On the other hand, Burundi, Sierra Leone, Ethiopia, and Lao PDR stood out for having extremely high values of the indicator (above 170 percent!) and approximately 40 percent of the countries in the sample reported values above 100 percent.[13]

2. External solvency

Assessing a country's external solvency, which refers to its capacity to avoid defaulting on its debt obligations, is a complex task. It involves conducting debt sustainability analyses which need calculating the present value (PV) of external debt as a percentage of GDP and/or exports. In some cases, thresholds may need to be identified, where exceeding these thresholds indicates an unsustainable debt ratio. It is important to note that external debt includes both public and private debts.

The IMF and the World Bank jointly undertake estimates and analyses of PV and thresholds through their *Debt Sustainability Analyses* (DSAs).[14,15] However, for the purpose of this paper, there are limitations for using this data. First, IMF-World Bank's estimations of PV of external debt as proportion of GDP are primarily conducted for developing countries and not for most emerging markets, on a regular basis.[16] Second, PV data for developing countries are not always readily available for the year of interest, 2019,[17] and it may be challenging for policymakers in some countries and researchers to obtain timely updates on the PV of external debt since updated assessments are not published yearly for every country.

To address these issues pragmatically, we use the actual value of external debt to GDP as a proxy for the PV of external debt to GDP and use this proxy as our indicator of external solvency. To support this approximation, Figure 3 shows the correlation between these two variables for developing countries in our sample, using data from individual countries' 2019 *IMF Staff Papers—Debt Sustainability*

13 When grants are excluded from the computation of the current account, the number of countries where the indicator surpasses 100 percent increases significantly.

14 See: https://www.imf.org/external/pubs/ft/dsa/.

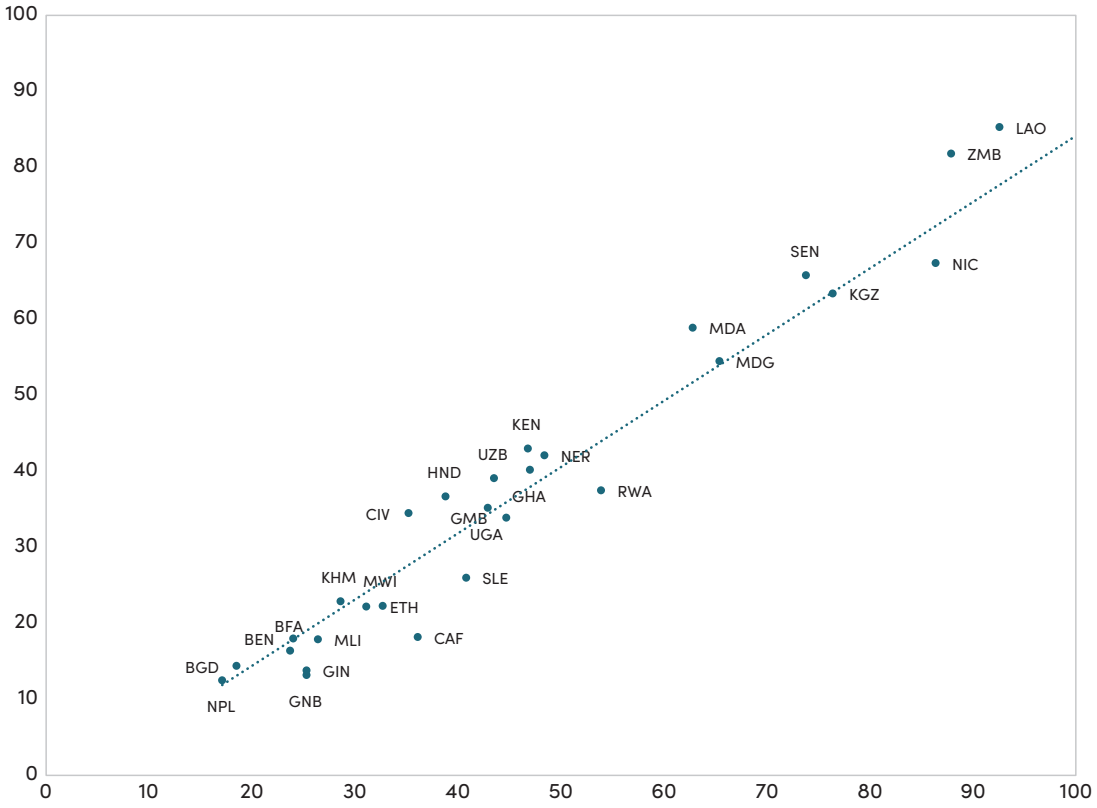
15 The DSAs also include stress testing exercises to identify scenarios that could make an existing stock of debt unsustainable.

16 For emerging markets, debt sustainability assessments are only required for those with an IMF-supported program.

17 PV values of external debt as percentage of GDP can be found for developing countries in the IMF Staff reports presenting the Joint IMF-World Bank Debt Sustainability Analysis, but not for every year. The World Bank also publishes the Debt Sustainability Indicators (DSIs) for most developing countries but data for the present value of external debt only starts in 2021.

Analysis.[18] In cases where data for the PV of external debt to GDP ratio is not available for 2019, we use data from 2018 or 2017 for both variables.[19] Burundi, Chad, and Cameroon are excluded from the calculation since we could not find data for the PV of external debt ratio in those years.

FIGURE 3. Correlation between external debt and PV of external debt (as percentage of GDP) in 2019



Note: Due to the extremely large value of its debt ratios (169 percent), Mozambique is not included in the graph.
Source: IMF Staff Reports 2022.

The correlation between these variables is very high at 0.98 for developing countries. Based on this correlation, we also use the same proxy for the group of emerging markets.[20]

At what external debt ratio should EMDEs be concerned? Namely, what is the appropriate threshold(s) for this group of countries? This issue is complex. Although the resilience indicator in this paper does not establish thresholds for assessing individual countries' strength to external shocks (i.e., we do

18 It is important to note that the best data available for External Debt to GDP ratios come from the IMF-World Bank DSAs or, when not available, from IMF Staff Reports. The reason is that these estimates take into account valuation effects derived from exchange rate fluctuations.

19 This was the case for Cambodia, Guinea-Bissau, Lao PDR, Mozambique, Sierra Leone and Zambia. It is worthwhile noting that excluding these countries from the calculation did not change the correlation significantly.

20 As mentioned, the IMF/World Bank do not publish PV of external debt indicators for most emerging markets on a regular basis.

not conduct debt sustainability analysis), it is valuable to briefly reflect on this issue based on existing analyses.

Regarding emerging market economies, generally speaking, this group of countries have more debt-carrying capacity than developing countries due to better institutional frameworks and policies in place to absorb external shocks. These countries have larger access to the international capital markets and, in contrast to developing countries, rely less on official debt (bilateral and from multilateral organizations). However, access to private external sources of finance is not without risks as capital markets can be highly volatile, and *sudden stop* in capital inflows can occur. It is important to highlight that a critical difference between emerging markets and advanced economies is that the latter can issue debt with two important characteristics: debt is denominated in the currency they issue, *and* those currencies are considered *hard currency*, that is, currencies traded internationally in very liquid markets.[21]

While debt defaults in emerging markets have occurred at a wide range of external debt to GDP ratios,[22] Reinhart et al. (2003) found that the median value was 60 percent. Nevertheless, the IMF, in revising its *Debt Sustainability Framework for Market Access Countries* (IMF 2021), acknowledges the limitations of generalized debt thresholds and proposes a framework that relies on a battery of tools subject to review and IMF team judgment to assess a country's debt profile sustainability. The proposed framework, however, is meant to be applicable for government debt and not for total external debt (excluding, therefore, private sector external debt).[23]

Although at levels well below those in emerging markets, many developing countries were also actively issuing bonds in the international markets during the pre-pandemic period, making them susceptible to the volatility of these markets. This and the increased participation of China as an important lender represented a sharp change in developing countries' structure of external debt. As indicated by Coulibaly et al. (2019), these trends suggest that debt sustainability thresholds were lower in the pre-COVID period than during the buildup of debt in the 1990s, when the increase in debt was mostly attributed to loans from multilateral organizations.[24]

21 Some have argued that if a country issues debt in its own currency, it does not have to default since it can always issue that currency. In my view, the economics behind such a statement suffers from an important flaw: If an emerging market economy issues large amounts of its currency to repay its external debt denominated in local currency, the currency will depreciate drastically since (in contrast to advanced economies) emerging market currencies lacks a liquid international market and investors will run out those currencies in times of distress. Under those circumstances, the real value of the outstanding stock of debt (measured in terms of say, US dollars) would reduce dramatically, generating large losses to the debt holders.

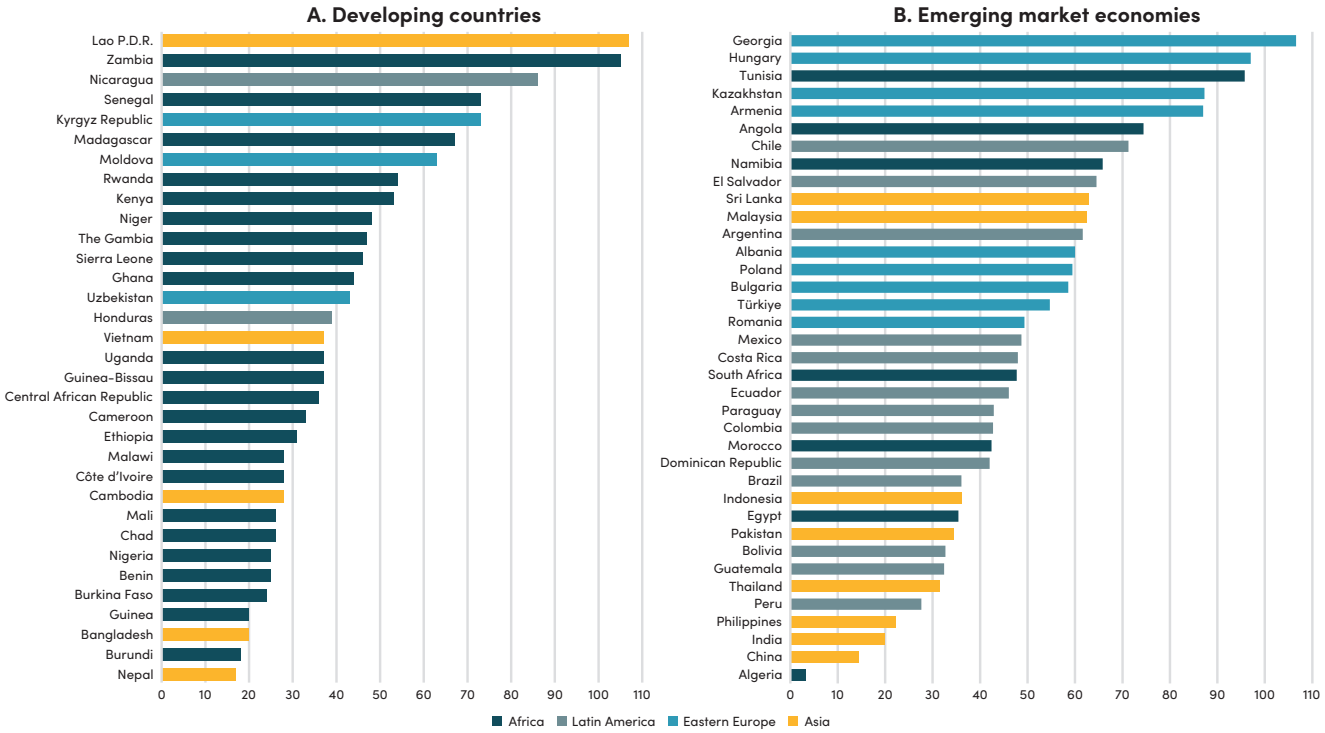
22 From as low as 21 percent during Türkiye's crisis in 1978 to as high as over 200 percent during the Guyana's crisis in 1982.

23 For an application of the revised DSA framework for emerging markets, see IMF (2023) which assesses Argentina's debt sustainability.

24 Starting in 1996, the IMF and the World Bank supported large reductions in developing countries' outstanding debt through the Heavily Indebted Poor Countries (HIPC) initiative.

Figures 4a and b presents the ratio of external debt to GDP for developing and emerging markets in 2019, based on data collected from IMF Staff reports and World Bank databases.

FIGURE 4. External debt in developing countries and emerging markets (as percentage of GDP) in 2019



Note: Mozambique is not included in the graph because of its extremely high ratio (160 percent).
Source: IMF Staff Reports and World Economic Outlook, World Bank.

External debt ratios varied significantly among developing countries. However, it is important to consider at this point that the external debt ratio is only one of the six indicators used in constructing the resilience indicator. Therefore, high external debt ratios do not always imply a severe lack of resilience since there could be other mitigating factors (variables). As we will discuss when analyzing the overall resilience indicator, this has been the case for some countries such as Nicaragua, Kyrgyz Republic and Moldova. Conversely, low external debt ratios have been consistent with weak resilience to external shocks in other countries, such as Burundi and Chad.

In the case of emerging markets, around forty percent of the countries in our sample had external debt ratios above 60 percent in 2019. Although this ratio does not represent a specific threshold for assessing debt sustainability, it has been found to be problematic for many countries based on empirical analyses. Some of these countries, such as Sri Lanka and Argentina, have since defaulted or faced significant debt repayment problems, like Tunisia. However, there are also countries with high debt ratios that have shown resilience to external shocks due to the behavior of other variables. Chile and Malaysia are cases in point as will be discussed in section V.

On the other end of the spectrum, Algeria, China, India, the Philippines and Peru reported very low ratios of external debt. However, vulnerabilities in other variables within the resilience indicator weakened Algeria's overall position to face external shocks, as will be elaborated upon in section V.

IV. The second dimension of resilience in EMDEs: Capacity to promptly respond to the effects of a shock

In the face of an adverse external shock, the adequate response from policymakers would be the implementation of countercyclical policies to help offset the shock's impact. Countercyclical fiscal and monetary policies are the most commonly used tools for this purpose. However, certain constraints may impede the implementation and effectiveness of this type of policies.

One major constraint for implementing expansionary fiscal policies is the presence of large and sustained *fiscal deficits* (a flow variable) and high *ratios of government debt to GDP* (a stock variable). When a country already faces these challenges, expanding the budget would further exacerbate existing government debt problems, indicating a lack of *fiscal space*.

Similarly, in the case of monetary policy, high levels of inflation (or deflation) prior to an external shock hitting the economy can limit the capacity of the monetary authority to effectively respond to the shock in a countercyclical manner. To assess a country's monetary space, we use the *deviation of inflation from its announced target* as a variable.

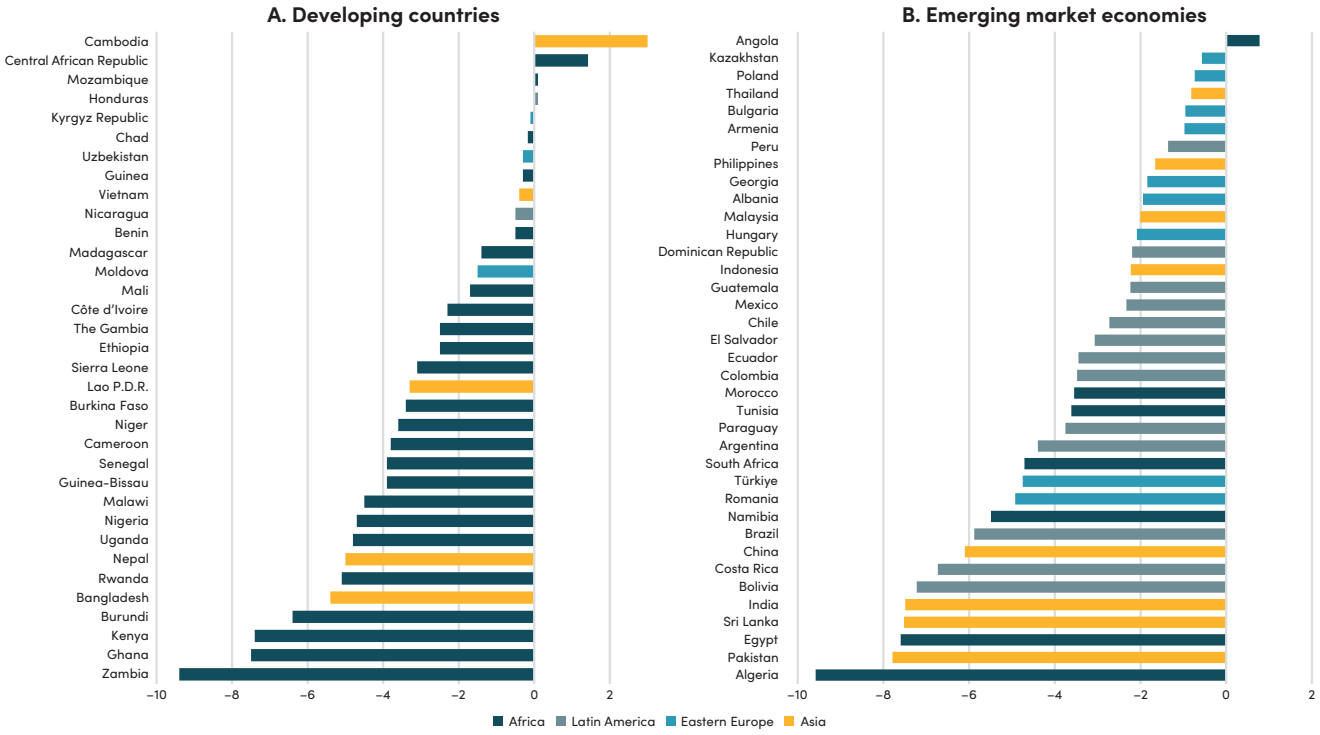
But the authorities' capacity to react to a shock is also dependent on the institutional quality of the country. Policymakers can only implement sound policies in a timely manner if they have the freedom to do so, a strong regulatory framework to guide their actions and a good track record for efficiency and effectiveness in policy design and execution.

1. Fiscal balance as a ratio of GDP

Countries with strong fiscal accounts *before* an external shock are better positioned to undertake counter-cyclical policies compared to those with large fiscal deficits. Once again, this argument holds particular significance for emerging markets, and even more so for developing countries. While advanced economies have the capacity to finance their fiscal deficits by issuing government debt in domestic and international liquid capital markets, local capital markets in most emerging markets are underdeveloped and the demand for their bonds in international markets is volatile. In many developing countries, local capital markets are practically non-existent and their access to international capital markets is severely limited.

Figures 5a and b display the overall balance of the general government in developing countries and emerging markets in 2019.

FIGURE 5. Overall balance of the general government in developing countries and emerging markets (as a percentage of GDP) in 2019



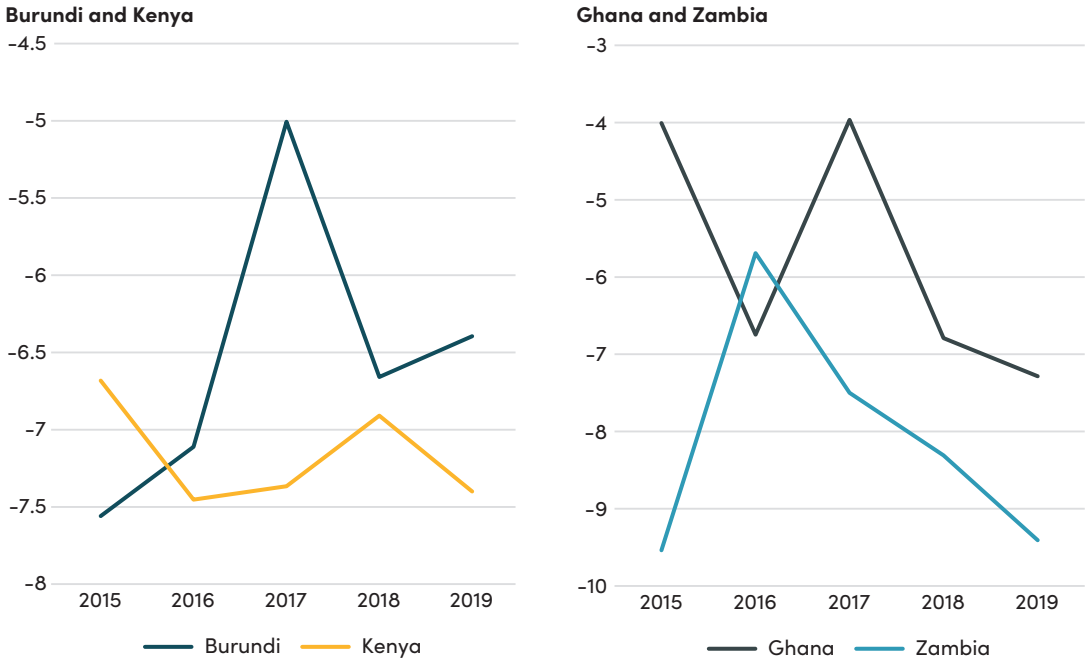
Source: IMF World Economic Outlook.

Both country groupings show a significant number of countries with large fiscal deficits, with several exceeding 6 percent. Among developing countries with the highest fiscal deficits, Burundi and Kenya displayed large imbalances in the five years leading up to the COVID-19 pandemic, while Ghana and Zambia experienced increasing deficits during the same period (Figure 6). Unsurprisingly, these countries also had some of the highest ratios of government debt (Figure 10a below).

A similar pattern can be observed for emerging market economies. Among those with the largest fiscal imbalances, Algeria and Egypt had persistently high fiscal deficits in the five years prior to the pandemic, and Pakistan and Sri Lanka experienced increasing fiscal deficits (Figure 7). As high fiscal deficits fueled debt accumulation, Egypt, Pakistan, and Sri Lanka also had among the highest ratios of government debt (Figure 10b below). Algeria, despite having the largest fiscal deficit in the sample, did not have a higher government debt ratio in 2019 because it started from a very low level in 2015 (8.7 percent). However, the persistence of large deficits is taking a toll on Algeria's indebtedness: the IMF forecasts that the government debt will reach over 70 percent of GDP by 2028.[25]

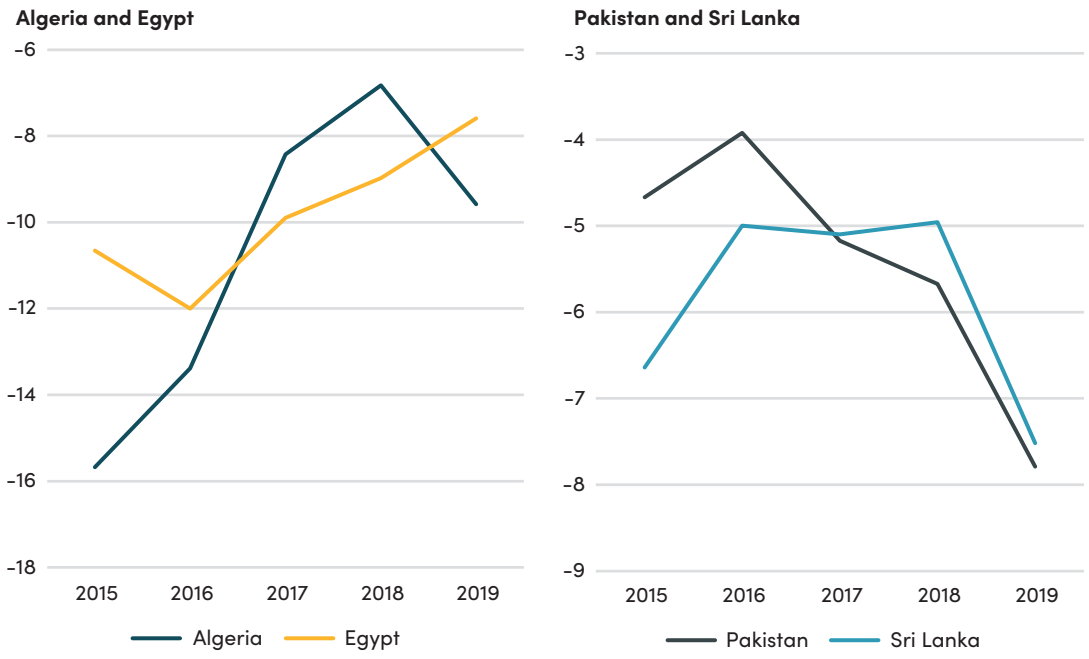
25 See IMF Fiscal Monitor, April 2023 https://www.imf.org/en/Publications/FM/Issues/2023/04/03/fiscal-monitor-april-2023.

FIGURE 6. Fiscal balances in Burundi, Ghana, Kenya and Zambia (as percentage of GDP), 2015–2019



Source: IMF, World Economic Outlook.

FIGURE 7. Fiscal balances in Algeria, Egypt, Pakistan and Sri Lanka (as percentage of GDP), 2015–2019

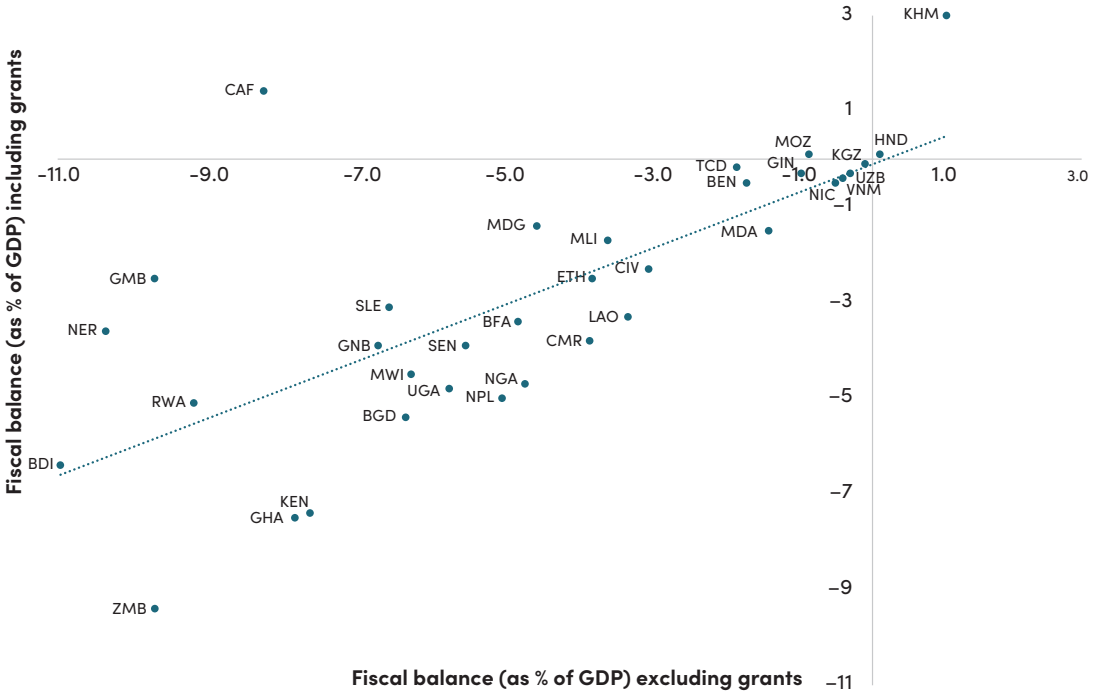


Source: IMF, World Economic Outlook.

Angola is also worth noting because the government ran a fiscal surplus in the context of having a very high ratio of government debt. The country initiated a fiscal adjustment program in 2018 to address the unsustainable debt path. However, the adjustment was not sufficient to correct the fiscal weakness by the time severe external shocks hit the economy in the early 2020s (more on this in section V).

A distinct characteristic of fiscal accounts in developing countries is that, in contrast to emerging markets, a significant part of the government balance is financed through grants from multilateral organizations and donors. It could be argued that the fiscal stance *excluding grants* is a better indicator of governments' capacity to undertake counter cyclical policies since it reflects their *true* ability. Figure 8 shows that fiscal deficits excluding grants were much larger in some countries compared to deficits including grants. Nevertheless, there is a very high correlation between the two variables (0.73).

FIGURE 8. Fiscal balances with and without grants in developing countries (as percentage GDP) in 2019



Source: IMF Article IV consultations and IMF Africa Regional Economic Outlook.

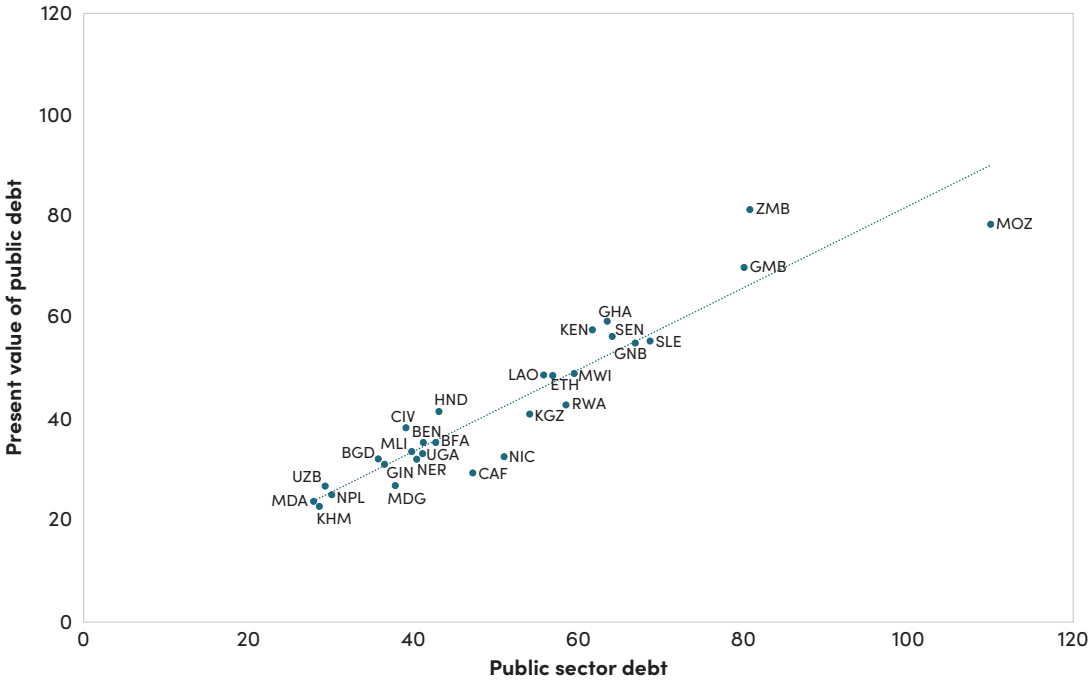
2. Government indebtedness

The degree of government indebtedness is another indicator of a government's ability to implement counter-cyclical fiscal policies. Even if the fiscal balance is strong, authorities may be reluctant to undertake net fiscal expansions to counteract the contractionary effect of an external shock on the economy if the level of indebtedness is already significant, as such expansion could aggravate the debt problem.

The variable used to represent *Government Indebtedness* is the *General Government Gross Debt*, which refers to the total debt (domestic and external) of the public sector as a whole, including the central government and financial and non-financial public enterprises. The analysis of this variable is similar to that of the variable *external solvency*.

First, although the Present Value (PV) of Government debt as a ratio of GDP would be a better variable to include in the resilience indicator, due to data availability issues, we use the ratio of Government debt to GDP as a proxy.[26] To support this proxy, we estimate the correlation between these two variables using available data for 2019 from IMF *Staff Reports*. In cases where data for the PV of external debt to GDP ratio is not available for 2019, we use data from 2018 or 2017 for both variables.[27] Burundi, Chad, and Cameroon are excluded from the calculation since we could not find data for the PV of government debt ratio in those years. Figure 9 shows a high correlation between the variables (correlation of 0.94).

FIGURE 9. Correlation between government debt and PV of government debt (as percentage of GDP) 2019



Source: IMF Staff Reports.

Second, although we do not assess public sector debt sustainability, our discussion benefits from existing empirical work on this issue. As expected, the literature indicates that EMDEs can sustain

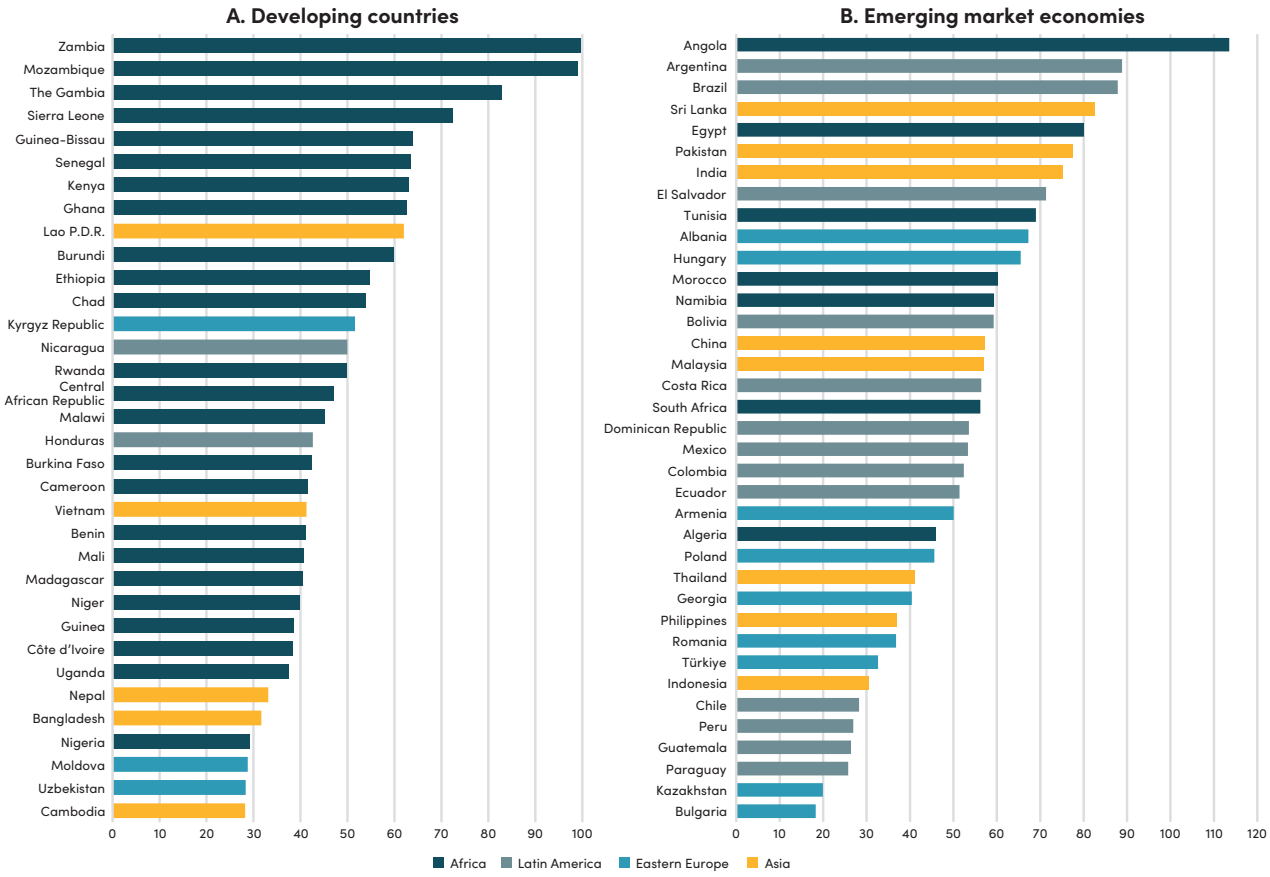
26 The Joint IMF-World Bank DSAs only publish the PV of public debt (as a ratio of GDP) for developing countries; also, 2019 data for many countries in this group is not readily available.

27 This was the case for Cambodia, Guinea-Bissau, Lao PDR, Mozambique, Sierra Leone and Zambia. It is worthwhile noting that excluding these countries from the calculation did not change the correlation significantly.

lower ratios of public debt compared to advanced economies before encountering significant challenges. For example, while Ghosh et al. (2013) found that the limit for advanced economies to borrow at the risk-free rate fluctuated between 150 and 250 percent of GDP, Kose et al. (2017) showed that ratios of Government Debt to GDP in EMDEs reached an average of 72 percent before the onset of debt distress episodes, 68 percent before a currency crisis and 37 percent before a banking crisis.[28] Caner et al. (2010) argue that when public debt ratios are above 64 percent, economic growth in emerging markets is significantly compromised.

Figures 10a and b present 2019 data for our two groups of countries regarding the general Government Debt as a percentage of GDP. The data is sourced from the IMF World Economic Outlook.

FIGURE 10. General government total debt in developing countries and emerging markets (as percentage of GDP), 2019



Source: IMF, World Economic Outlook and Staff Reports.

Government debt ratios were at or above 50 percent in about half of developing countries in 2019. Among African countries, only Nigeria exhibited a ratio below 30 percent. Interestingly, some countries classified as having strong debt-carrying capacity by the IMF/World Bank DSAs in 2019

28 See Kose et al. (2017), Table A9.

(such as Bangladesh, Cambodia, Moldova, Nepal and Uzbekistan) displayed the lowest debt ratios. In terms of government indebtedness, most of the relatively stronger countries in the sample tended to be more conservative.

Among emerging markets, while Angola had an extremely high government debt ratio (over 110 percent), most countries with ratios considered as dangerously high in the literature were in Asia and Latin America. In contrast, most countries in Eastern Europe had debt ratios in the middle or low range, with some Latin American countries (Chile, Peru, Guatemala and Paraguay) keeping their government indebtedness ratios below 30 percent. Not surprisingly, countries with extremely high ratios of public debt often exhibited very high ratios of external debt, such as Argentina, Sri Lanka and Tunisia. However, in some other highly indebted governments, such as those from Brazil, Egypt and Pakistan, a significant portion of the debt was held domestically, largely by banks.[29]

3. Deviation of inflation from target

The deviation of inflation from its announced or desired target reflects an important constraint faced by central banks in implementing countercyclical monetary policies when the economy is experiencing inflationary or deflationary pressures *before* an external shock occurs.[30] For instance, if an adverse external shock leads to a liquidity shortage and a contraction in domestic real credit growth, central bankers may consider reducing the policy interest rate. However, this action may not be chosen if the economy is facing high and persistent inflation rates, as lowering interest rates could further fuel inflationary pressures. Similarly, if the external shock calls for an increase in the interest rate, it might not be implemented if the economy is experiencing significant deflationary pressures.

To measure the inflationary or deflationary constraints faced by central banks to conduct countercyclical monetary policies, the variable used in this analysis is defined as the weighted average of the deviation of inflation from its target over the last 6 months, with higher weights assigned to the most recent months. This approach tries to capture the inflation dynamics of the recent past.

Two additional features of the variable should be noted. First, the estimations are conducted in absolute values to indicate that large positive or negative deviations from the target are considered detrimental to the implementation of countercyclical monetary policy. Second, it is assumed that

29 Issues associated with the nexus between sovereign debt and the banking system are not discussed here. Sufficient to say that such relationship is a source of concern for macroeconomic and financial stability. See Dell'Ariccia et al. (2018).

30 The strength of the local financial system and the degree of central bank independence are other important constraints. This former is included in the resilience indicator by Rojas-Suarez (2015) applied to the emerging markets group, but lack of sufficient data for developing countries prevented us from using this variable in this paper. Good measurements of central bank independence are also lacking for many countries. However, the inclusion of institutional variables in the resilience indicator captures, at least partially, this potential constraint.

the inflation restriction on the capacity to implement countercyclical monetary policy is non-linear, meaning that larger deviations from the target impose greater constraints on monetary policy.[31]

Specifically, for every country and point in time, the variable was constructed as follows:

Step 1: Estimation of the monthly deviation of inflation from the announced target using a non-linear approach to indicate that large deviations are considered proportionally more constraining for the implementation of countercyclical monetary policy.

$$\hat{\pi}^d = 100 * \left[e^{|\pi - \pi^t|} - 1 \right]$$

where $\hat{\pi}^d$, π, π^t refer to the inflation deviation, current inflation rate and inflation target respectively.

In cases where a target range is specified, the upper threshold (π^u) is used when current inflation exceeds the range, and the lower threshold (π^l) is used when a country falls below the range.

Step 2: Estimation of the 6-months weighted average of $\bar{\pi}^d$:

$$\bar{\pi}^d(\textit{weighted average}) = \sum_{i=0}^{5} \frac{\pi^d\left[t-i\right]}{2^{i+1}}$$

Constructing this indicator was straightforward for most countries in the group of emerging market economies, as their central banks either follow an inflation targeting regime or clearly announce a target. However, it was more challenging for countries in the developing country group due to the wide variation of monetary policy regimes. Most do not follow a full-fledged inflation targeting regime. Ghana and Kenya are among the few that has this framework in place while the Central Bank of West African States sets an inflation objective for the countries in the West African and Monetary Union (WAMU). Some, like Bangladesh and Madagascar, target monetary aggregates. The large majority, however, announce an inflation goal, albeit with large variations regarding the strictness of the goal. For example, Nigeria does not have a full-fledge targeting regime but announces an inflation target which, in 2019, had a range of 6 to 9 percent. The Gambia sets a medium-term inflation target of 5 percent and Guinea has a loose objective of keeping inflation within single digits.[32]

One caveat is that if the inflation target is deemed *too loose*, the country could be meeting the target, but not really keeping inflationary pressures in check. For example, in Angola—an emerging market

31 This methodology differs somehow from the one used in Rojas-Suarez (2015). There, the variable was defined as the squared value of the deviation of inflation from its target.

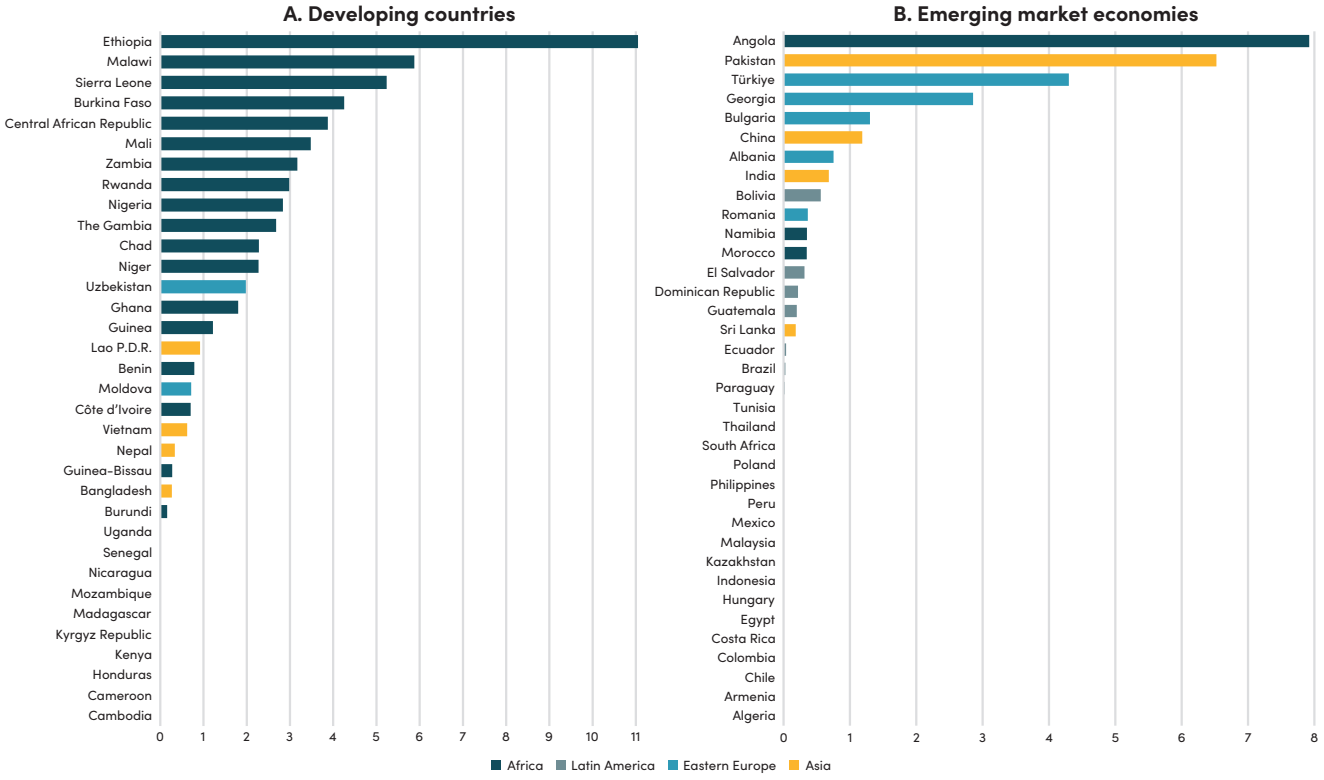
32 There are also specificities within the emerging markets group. For example, in Ecuador, a dollarized economy, the implicit target is to follow the inflation rate in the United States. In Egypt, the inflation target regime started with a high-rate target in 2017 (13% with a band of 2 percent), but announcements were made as to progressively reduce the center point of the target to 5 percent by 2026.

economy—the target was set at 19 percent in 2019. In cases like this, the indicator was adjusted by using the desired medium-term objective as the target for inflation.[33]

These nuances and caveats were considered to construct the indicator. To obtain inflation targets, we revised IMF Staff Reports, central banks webpages and other national sources. Information from this search is presented in the Annex.

Figures 11a and b present this indicator for the two groups of countries under study.

FIGURE 11. Deviation of inflation from target (percentage points) in 2019



Note: Due to its large value, Argentina's deviation from target (over 40 percentage points) is not presented in the graph.
Source: IMF Staff Reports, Central Banks reports and other national sources.

The most salient feature is that a large number of countries, both developing and emerging markets, were meeting their inflation targets or showing small deviations (less than 1 percentage point) in 2019. These countries had sufficient policy space to conduct the expansionary monetary policy that was commonplace during the pandemic and also to raise interest rates to address the subsequent inflationary shocks that followed the invasion of Russian to Ukraine. That is, their monetary stance was supportive of the overall capacity to react to the multiplicity of external shocks experienced since 2020. Examples of countries where monetary policy supported resilience include Cambodia,

33 In Angola, the medium-term target was to achieve single digit inflation.

Honduras, Kyrgyz Republic, Senegal and Uganda among developing countries, and Chile, Indonesia, Mexico, Poland and Peru among emerging markets. These countries managed to keep inflation low and within their established objectives.

On the other end of the spectrum were Ethiopia, Malawi and Sierra Leone (among developing countries) and Argentina, Angola, Pakistan, and Türkiye (among emerging markets) with inflation very far away from their targets. For these countries, the initial monetary stance was quite unfavorable to address external shocks. They all lowered interest rates during the pandemic, but at the expense of higher rates of inflation in 2021 and 2022. By 2023, these countries faced significant challenges in dealing with inflation.

4. Institutional quality

The quality of institutions has long been recognized as crucial for the effective delivery of appropriate policies, reforms, and the prevention of macroeconomic imbalances. The World Bank incorporates indicators of institutional quality in its DSAs to determine a country's capacity to carry debt (public debt and total external debt), and the IMF considers institutional criteria when determining countries' eligibility for its precautionary lines of credit (IMF 2014).[34]

The Worldwide Governance Indicators (WGI) produced by the World Bank based on the methodology by Kaufmann et al. (2010) are widely regarded as the best indicators of institutional quality globally. In this paper, three out of the six available indicators are used: *Government Effectiveness*, *Control of Corruption* and *Regulatory Quality*, as they represent different aspects characterizing the institutional framework within which governments operate.[35] The value of each indicator ranges from –2.5 to 2.5 with higher values indicating better institutional quality. The variable *institutional quality* is computed as the average of these three indicators.[36]

Institutional quality changes very little over time. However, to account for any significant recent changes, the average value of the variable over the last 5 years (2015–2019) is used.[37]

34 The IMF offers the Flexible Credit Line (FCL), the Precautionary and Liquidity Line (PLL) and the short-term liquidity line (SLL) to serve as precautionary measures against the volatility of capital flows for countries with a proven track record of prudent economic and financial management. Unlike conventional IMF instruments, the FCL involves no ex-post conditionality and PLL arrangements also imply only very limited post-approval requirements.

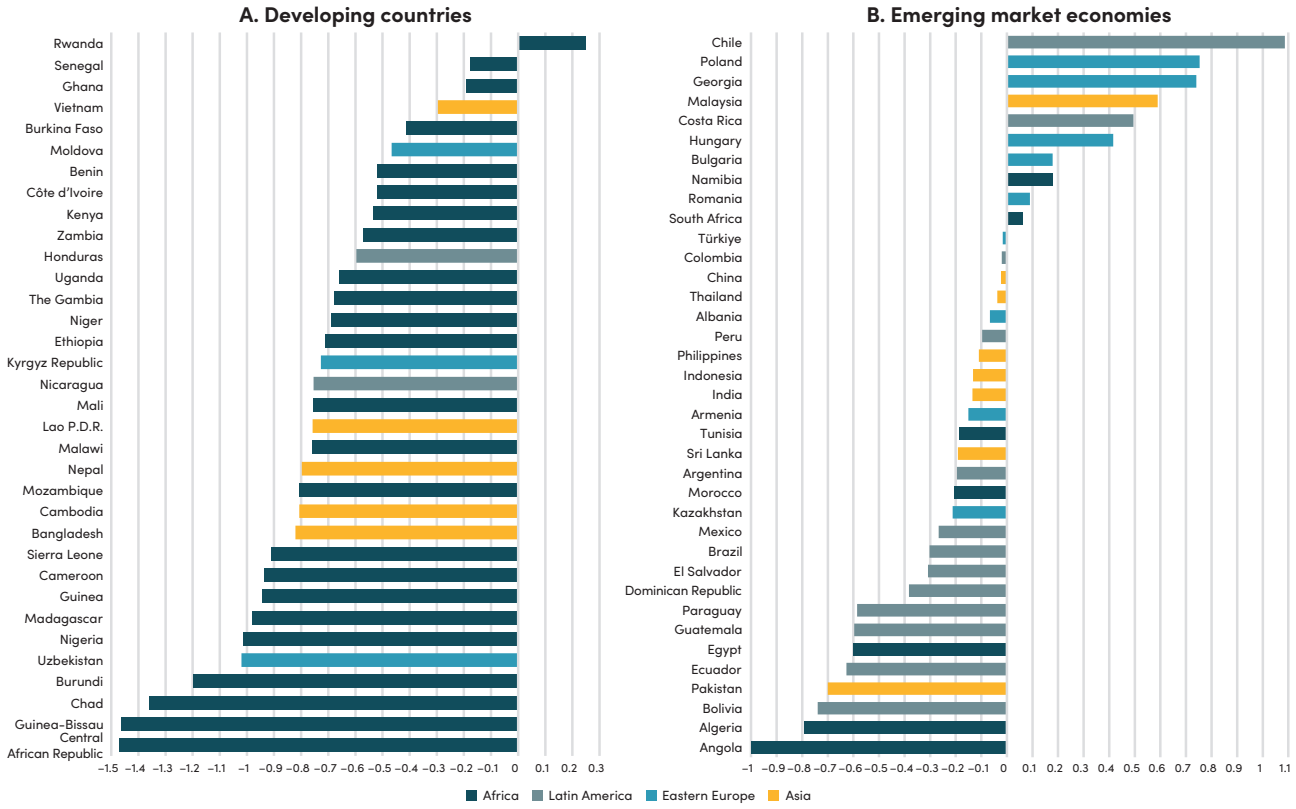
35 The definition of the three indicators are (see: https://info.worldbank.org/governance/wgi/Home/Documents) Government effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Control of corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

36 As with most indicators, there are important limitations to country comparisons. More on this in section VI.

37 Alternatively, we could have used a weighted average or the median. We tried both alternatives and, as expected all the alternative measures are highly correlated.

Figures 12a and b present the institutional quality scores for developing countries and emerging market economies, respectively.

FIGURE 12. Institutional quality in developing and emerging market economies in 2019



Source: World Bank, Worldwide Governance Indicators.

As expected, the average institutional quality is stronger in emerging markets than in developing countries, with Rwanda being the only developing country with a positive score, while about one third of emerging markets got positive values. Nevertheless, there is a large overlap of scores between emerging and developing countries.

Among emerging markets, Algeria, Angola, Bolivia and Pakistan had the lowest scores. In the group of developing countries, Burundi, Central African Republic, Chad and Guinea-Bissau had the lowest institutional quality scores, approaching the lowest possible value. However, many developing countries, as well as several emerging markets, scored below −0.5. These institutional deficiencies constrained the appropriate policy response to the global shocks experienced since 2020, starting with the COVID-19 pandemic.

V. The resilience indicator: How resilient were countries before the multiple shocks of the early 2020s?

Each of the six variables discussed above present different factors affecting EMDE's economic and financial resilience to external shocks. In 2019, the year before the Covid-19 pandemic, some countries were showing relative more strength than others in some variables. Yet, there were countries where strength in certain variables coexisted with weaknesses in others. This section presents an indicator that combines the six variables to provide a better overall picture of countries' *relative* economic and financial resilience.

The indicator is constructed using a simple methodology, which is a modified version of Rojas-Suarez (2015). First, to make the variables comparable, each variable is standardized by subtracting the cross-country mean and dividing by the standard deviation. Next, variables whose increase in value indicate a reduction in resilience (an increase in vulnerability) are multiplied by –1. These variables are: total external debt to GDP, current account deficit plus short-term external debt to gross international reserves, government debt to GDP and the deviation of inflation from its target. Finally, the overall indicator is calculated as the average value of the standardized variables.[38,39] This methodology allows for the analysis of *relative* economic and financial resilience among countries in the sample.

Table 1 presents the results of the resilience indicator for both developing countries and emerging markets in 2019. The countries are ordered from highest to lowest values of the indicator in 2019. According to this methodology, higher values indicate greater resilience to external shocks in a country's economic and financial conditions.

38 First, standardize each of the six variables k, for each country i: $V_{ik} = \frac{X_{ik} - \bar{X}_k}{\sigma_k}$ where $\bar{X}$ stands for the mean and σ stands for the standard deviation. After attaching the relevant sign to each variable, we construct the Resilience Indicator (RI) score for each country: $RI_i = \frac{\sum_{k=1}^{6} V_{ik}}{6}$.

39 Alternatively, each sub-indicator indicator could have been constructed by adding the values of the standardized variables (as in Gros and Mayer, 2010).

TABLE 1. Resilience indicator, 2019

Developing Countries		Emerging Market Economies	
Country	Value of Indicator	Country	Value of Indicator
Cambodia	0.8882	Peru	0.7333
Vietnam	0.7724	Bulgaria	0.6927
Honduras	0.6537	Thailand	0.6869
Côte d'Ivoire	0.5791	Philippines	0.6654
Benin	0.4890	Poland	0.6022
Uzbekistan	0.4245	Indonesia	0.4623
Nepal	0.4112	Guatemala	0.4257
Moldova	0.3620	Malaysia	0.3313
Bangladesh	0.3470	Chile	0.3115
Guinea	0.2535	China	0.2543
Burkina Faso	0.2509	Kazakhstan	0.2436
Nicaragua	0.2299	Paraguay	0.2396
Madagascar	0.2191	Mexico	0.1986
Kyrgyz Republic	0.2033	Dominican Republic	0.1851
Uganda	0.1630	Costa Rica	0.1299
Cameroon	0.1547	Colombia	0.0937
Rwanda	0.1533	Morocco	0.0893
Mali	0.1345	Romania	0.0858
Nigeria	0.1234	Albania	0.0587
Niger	−0.0170	Armenia	0.0321
Senegal	−0.0216	Georgia	−0.003
Central African Republic	−0.1051	Hungary	−0.0135
Ghana	−0.1249	South Africa	−0.0284
Kenya	−0.2055	Algeria	−0.038
The Gambia	−0.2311	Namibia	−0.0475
Guinea-Bissau	−0.2762	India	−0.0923
Chad	−0.2866	El Salvador	−0.1294
Malawi	−0.4589	Türkiye	−0.1518
Lao P.D.R.	−0.6369	Bolivia	−0.2341
Sierra Leone	−0.8024	Brazil	−0.2745
Ethiopia	−0.8430	Egypt	−0.4586
Burundi	−0.8528	Angola	−0.5664
Mozambique	−0.8811	Ecuador	−0.6578
Zambia	−1.0696	Tunisia	−0.6626
		Sri Lanka	−0.669
		Pakistan	−0.8389
		Argentina	−1.6563

The most important result from this exercise is that countries with the lowest scores in both country groupings, namely those assessed in 2019 to be relatively less resilience to external shocks, were precisely the ones that faced the greatest difficulties during the multiple external shocks of the early 2020s.

1. Developing countries resilience

To gauge the accuracy of the indicator in classifying countries according to their economic capacity to deal with external shocks, we can compare the list of countries ranked at the bottom of the indicator with the countries whose debt fell into distressed territory following the eruption of COVID-19 and other subsequent global shocks. As a rule of thumb, investors consider countries to be in debt distress when the yield of sovereign bonds exceeds 10 percent.[40]

This exercise, however, can only be conducted for countries with actively traded debt in international capital markets and published data on sovereign bond yields. This is not the case for many developing countries that have little or no access to these markets. Nevertheless, we can use available information to get a preliminary assessment on the quality of the indicator.

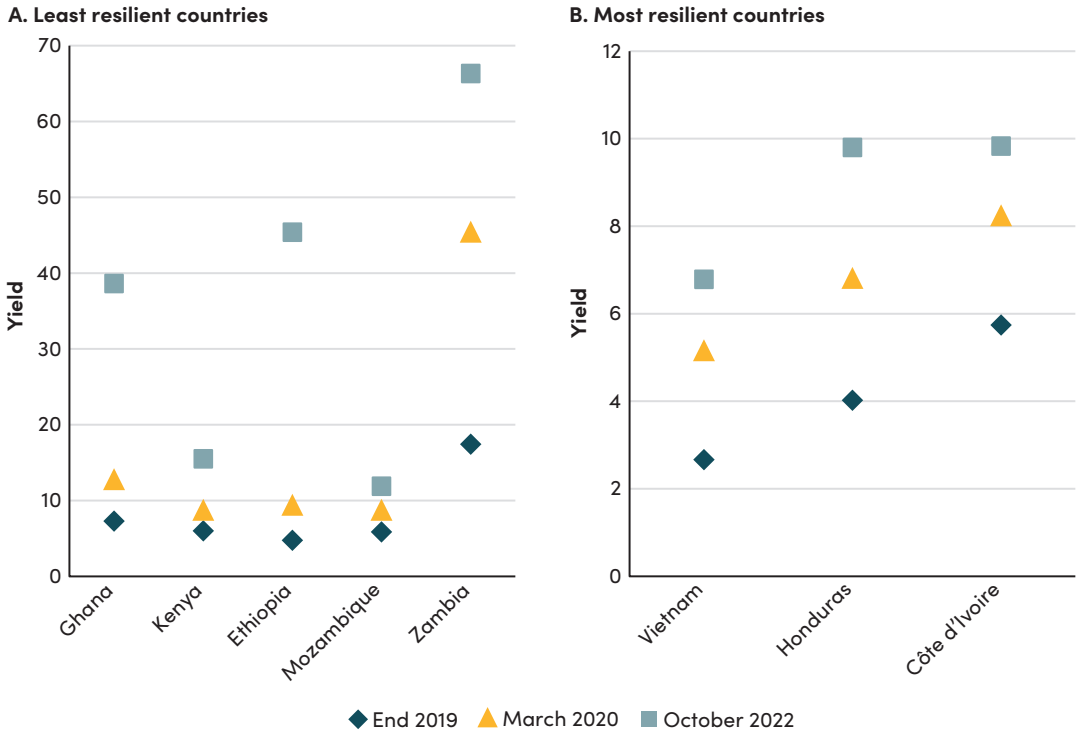
For this purpose, we examine the behavior of dollar-denominated sovereign bond yields before and after the pandemic for countries with available data that rank in the bottom third of the indicator: Ethiopia, Ghana, Kenya, Mozambique and Zambia. This is shown in Figure 13a using monthly data from Bloomberg.[41] For comparison, Figure 13b. shows the yields for countries that rank in the upper third of the indicator with information on sovereign bond yields: Honduras, Cote d'Ivoire and Vietnam. The Figures display three data points: the end of 2019 (pre-pandemic reference point), March 2020 (global dry-out of liquidity in international capital markets following the pandemic outbreak) and October 2022 (time of deepest financial stress on EMDEs debt following the beginning of the US Fed's interest rate hikes).[42]

40 Bonds' spreads (bonds' yield minus the yield on US Treasury bonds) surpassing 1,000 basis points are a more common indicator of debt distress. Unfortunately, however, we do not have access to data on spreads for the majority of countries in our sample.

41 We use the Bloomberg EM USD Sovereign index.

42 In the period 2019–2022, March 2020 and October 2022 were the months with the highest values of EMDEs yields in the EMBI (Emerging Markets Bond Index), EMBIG diversified and Bloomberg Emerging Market Sovereign Index. In some cases, we use September 2022 since that was the month of the highest yield.

FIGURE 13. Sovereign bond yields before and after the shocks of the early 2020s (developing countries)



Source: Bloomberg EM USD Sovereign Index.

The Resilience indicator performed well. Countries assessed as the most vulnerable to external shocks in 2019 were the ones that experienced the sharpest increase in their cost of financing. In these countries, the Covid shock led to an increase in the yields on sovereign bonds, but the largest increase occurred in 2022 after the Federal Reserve started to increase interest rates. By October 2022, the yields on sovereign bonds for all these countries exceeded 10 percent, indicating distressed levels.[43]

In contrast, the shocks had a moderate effect on countries classified as the most resilient by the indicator. Their sovereign bonds never reached distressed levels. It is important to note that simply looking at the yields in 2019 would not have been sufficient to anticipate which countries would be the most resilient or vulnerable. For example, Ethiopia had yields similar to Honduras (and Guatemala from the emerging markets list) in 2019. The prevalence of relatively low yields in developing countries in 2019 (and in most previous years since 2010) was due to ample global liquidity explained by the unprecedented low interest rates in advanced economies. In this context, investors' risk aversion was low and capital inflows to EMDEs abounded.

43 Zambia's bonds were already distressed in 2019.

Another indication about the accuracy of the resilience indicator can be obtained by referring to the 2022 IMF/World Bank classification of countries according to their risk of overall debt distress (through their DSAs).[44] The results from the resilience indicator in 2019 (before the onset of the external shocks) can be compared with the IMF/World Bank assessment of countries' default risk in the aftermath of the shocks. While DSAs only address the risk of debt default and no other macroeconomic difficulties, such as banking crises or hyperinflation, they can serve as a reference point, especially since several types of economic crises tend to occur simultaneously.[45]

The classification of countries in our sample by the World Bank in 2022 was as following:[46]

Low Risk	Medium Risk	High Risk	In Distress
Bangladesh	Benin	Burundi	Chad[1/]
Cambodia	Burkina Faso	Cameroon	Malawi
Honduras	Cote d'Ivoire	Central African Rep.	Mozambique
Moldova	Guinea	Chad	Zambia
Nepal	Kyrgyz Republic	Ethiopia	
Uzbekistan	Madagascar	Gambia, The	
	Mali	Ghana	
	Nicaragua	Guinea-Bissau (downgraded in 2021 from previous DSA in 2018	
	Niger	Kenya	
	Rwanda	Lao P.D.R.	
	Senegal	Sierra Leone	
	Uganda		

Notes: 1/ In November 2022, following an agreement between Chad and its creditors under the *Common Framework*, the IMF-World Bank changed Chad's classification from "in debt distress "to "high risk" of debt distress."
Source: World Bank, Debt Sustainability Analysis (2022) https://www.worldbank.org/en/programs/debt-toolkit/dsa.

There is a very close match between the ordering of countries based on the 2019 Resilience Indicator and the 2022 World Bank classification. Countries with higher score in the indicator were classified as having low or medium risk of overall debt distress by the World Bank, while countries with lower scores in the indicator were classified as having high risk or already in distress. In other words, in 2019, policymakers and analysts who studied a few key economic and institutional variables could have accurately assessed, to a large extent, countries' relative economic and financial resilience to the external shocks of 2020–2022. Initial conditions played a crucial role.

44 The World Bank classifies countries according to two criteria: The risk of external debt distress and the risk of overall debt distress. We use the latter since it provides a broader assessment of macroeconomic weakness.

45 A question is whether the DSAs for 2019 would yield similar results than the Resilience Indicator. The problem is that DSAs have not been produced for every (developing) country every year. In some cases, like Burundi, we had to go all the way to 2015 to find a pre-COVID DSA.

46 Vietnam and Nigeria are not included in the table because they are not classified as low-income countries by the World Bank.

Not surprisingly, almost all the least resilient countries in the sample are located in Africa. However, it is important to acknowledge that the indicator is not perfect and does not place Cameroon correctly. With 2019 data, the country was in the middle of the indicator's ranking while the World Bank categorized this country as facing high risk of default in 2022. Although the country's total external debt ratio was not particularly high compared to its peers, by 2019 the Cameroonian government was having problems in making payments to China and was seeking debt restructuring with the creditor. These developments, not captured by the indicator, indicated that the country was already at a high risk of default in 2019.

On the other hand, the indicator gave strong signals of macroeconomic problems in Ghana in 2019, when other international assessments were producing optimistic reports.[47] The combination of a high fiscal deficit (the second highest in our sample), high government indebtedness and high inflation placed Ghana in the lowest tercile of countries in the indicator. At the end of 2022, Ghana defaulted on its external debt.

While some countries exhibited weaknesses across most variables in the indicator (e.g., Burundi, Mozambique and Zambia), others revealed their vulnerabilities mostly in one or two variables. For example, Chad, Ethiopia and Malawi had large external financing needs despite not having high external debt ratios. Additionally, Ethiopia and Malawi experienced high inflation rates. Chad is an example of how deficiencies in governance can result in crisis, even with low debt ratios. The country had the second-worst *institutional quality* score, reflecting its extremely low capacity to manage debt. By 2020, Chad's large external payments made its debt position unsustainable.

2. Emerging markets resilience

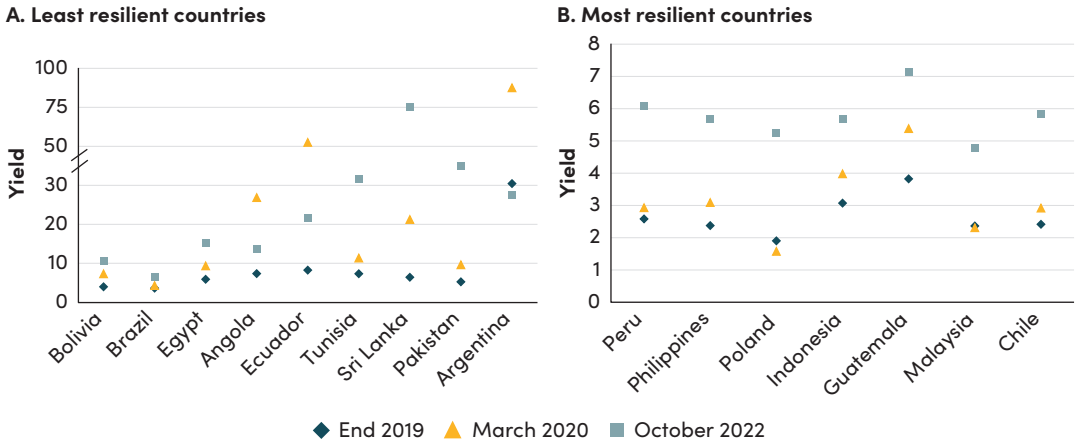
A similar exercise using the yields on government debt can be performed for the emerging markets in our sample. Unlike developing countries, all emerging markets have actively traded debt in international capital markets and yield data is available. In contrast, there are no published DSAs for many emerging market economies.

Figure 14 presents the sovereign bond yields for countries ranked in the bottom and top of the indicator.[48] As with developing countries, the data points considered are the end of 2019, March 2020, and October 2022.

47 See, example, World Bank (2019) and https://www.bloomberg.com/news/articles/2019-04-10/ghana-is-the-star-in-imf-s-2019-economic-growth-forecast-chart?sref=RGkt8hNg.

48 Thailand and Bulgaria are not in the figure because we could not find yield data in the *Bloomberg EM USD Sovereign Index*.

FIGURE 14. Sovereign bond yields before and after the shocks of the early 2020s (emerging market economies)



Source: Bloomberg EM USD Sovereign Index.

By October 2022, almost all the countries ranked the lowest in terms of resilience by the indicator had sovereign bonds considered distressed by investors. The exception was Brazil, which ranked low in the resilience indicator, but experienced relatively modest increases in bond yields following the external shocks despite the country grappling with large fiscal deficits and high government debt levels in 2019. This discrepancy may be due to the fact that Brazil's fiscal deficits were (and still are) primarily financed by domestic debt rather than foreign debt. It is possible that the yields on internationally traded bonds do not fully reflect the risk associated with issuing large amounts of domestic debt, such as fragilities in local financial institutions from holding government securities.[49]

Regarding the best performers in the resilience ranking, the sovereign bond yields of these countries never reached distress levels; they were all far from crossing the 10-percentage threshold.

Examining the relative importance of the variables within the indicator, there were countries where all or most variables revealed severe vulnerabilities. Examples include Argentina, Pakistan, Sri Lanka and Tunisia. Conversely, countries in the top four positions of the ranking (Peru, Bulgaria, Thailand and the Philippines) exhibited significant relative strength across most variables, with inflation within targets,[50] modest fiscal deficits, low debt ratios and indicators of institutional quality that ranked among the highest within the countries in the sample.[51]

49 The so-called sovereign-bank nexus, whereby government debt problems may adversely affect local banks that hold this debt has been widely studied in the context of the European banking crises that followed the eruption of the Global Financial Crisis. More recently, this issue has been raised as a source of concern for EMDEs. See, for example Deghi et al. (2022).

50 With the exception of Bulgaria.

51 It is important to stress that in a worldwide comparison, where advanced economies are included, Peru, Thailand and the Philippines do not score well in the institutional quality index. They, however, perform *relatively* better than the majority of emerging market economies considered in the sample.

In some countries, specific variables stood out as sources of vulnerabilities. Egypt, for instance, had persistently large fiscal deficits (the second largest in the sample) which contributed to the accumulation of government debt and threatened macroeconomic sustainability, despite progress in reducing inflation.

Angola is an interesting case. The initial conditions involved an extremely high government debt-to-GDP ratio (the highest in the sample) and very high levels of inflation. While the government initiated fiscal adjustment measures in 2018, including fiscal surpluses in 2018–19, these efforts were not timely enough to prevent a sharp increase in default risk following the external shocks of the early 2020s. As shown in Figure 14, Angola's sovereign bond yields reached distressed levels in the aftermath of the pandemic.[52]

All in all, the indicator could be a useful tool for assessing countries' relative resilience to external shocks. By analyzing a few key variables in 2019, analysts could have identified countries' varying capacities to withstand and respond to the shocks that materialized in the early 2020s, starting with the COVID-19 pandemic.

VI. Concluding remarks

It is widely recognized that economic and financial crises are deeply detrimental to development. By 2022, a significant number of EMDEs were severely affected by a series of shocks, starting with the COVID-19 pandemic, followed by Russia's invasion of Ukraine, and the interest rate hikes in advanced economies. Many of these countries found themselves unable to meet their external payment obligations. Could the most vulnerable countries have been identified *before* these shocks occurred? An observation from past global crises is that, while most countries are impacted by adverse global shocks, not all of them fall into economic and financial distress. Identifying the most fragile countries could be a first step towards *preventing* severe financial difficulties in these economies.

This paper provides an affirmative answer to that question and conveys a clear message: By utilizing a *Resilience Indicator*, constructed from a small set of economic and institutional variables, policymakers and analysts could have identified in 2019 the EMDEs that would face major challenges following the global shocks of 2020 and beyond. The countries with the lowest scores on the indicator were precisely the ones that encountered the greatest difficulties. A country's initial economic conditions played a crucial role in explaining its macroeconomic performance in the aftermath of the global shocks.

52 This situation reversed in 2023 as the government continued with the fiscal adjustment and structural reforms and was able to sharply reduce the debt ratio. See, Fitch Ratings (2023): https://www.fitchratings.com/research/sovereigns/fitch-affirms-angola-at-b-outlook-positive-13-01-2023.

For instance, among emerging markets, Argentina, Pakistan, Sri Lanka and Tunisia had the lowest scores in 2019. Since then, Argentina and Sri Lanka have defaulted while Pakistan and Tunisia have teetered on the edge of default, with their government bonds trading at distressed levels. Among developing countries, almost all the countries ranked at the bottom of the Resilient Indicator in 2019 were African countries included in the 2022 IMF/World Bank list of countries in debt distress or at high risk of debt distress. Zambia, which received the lowest score on the indicator in 2019, defaulted at the end of 2020.

However, it is important to acknowledge that the Resilience Indicator is far from perfect. Most notably, it is subject to all the limitations already established in the literature for this type of index. Furthermore, the indicator did not rank Cameroon among the least resilient developing countries, even though the IMF/World Bank debt sustainability analysis assessed the country as being at high risk of debt distress in 2022.

A more nuance assessment could be achieved by incorporating variables in the indicator that capture additional structural characteristics, as suggested in Rojas-Suarez (2018). However, the purpose of this paper is to present a simple indicator based on readily available variables for a large number of countries. Identifying countries that are most vulnerable to large external shocks can help policymakers and the international community in directing their efforts towards crisis prevention, thereby avoiding painful reversals in development gains.

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Annex: Developing countries' inflation targets/objectives in 2019

The following summarizes inflation targets announced by authorities in selected developing countries in 2019.

Country	Inflation Target/Objective
Bangladesh	Objective: 5.5%
Benin, Burkina Faso, Cote d'Ivoire, Guinea-Bissau, Mali, Senegal	Members of the West African Economic and Monetary Union (WAEMU).
	Inflation objective: 2% with a + – 1% band
Burundi	Member of the East African Community (EAC). Goal: Inflation rate below 8%
Cambodia	Implicit target: less than 5%
Cameroon, Central African Republic, Chad and Gabon	Members of the Central Africa Economic and Monetary Community (CEMAC) with the Banque des Etat d' Afrique Central (BEAC) governing monetary policy.
	Inflation ceiling target: 3%
Ethiopia	Objective: Single digit inflation
Gambia, The	Objective: 5% in the medium term
Ghana	Inflation target: 8% with a + – 2% band
Guinea and Sierra Leone	Members of Economic Community of West African States (ECOWAS).
	Convergence criterion: Single digit inflation
Honduras	Crawling peg exchange rate regime. Central Bank announced a target of 4% with a + – 1% band
Kenya	Inflation target: 5% with a + – 2.5% band
Kyrgyz Republic	Objective: contain inflation to a maximum of 5–7 %
Lao PDR	Objective: maximum inflation of 5%
Madagascar	Money-based framework, with the monetary base as the operating target and M2 as an intermediate target
Malawi	Targeted inflation between 3% and 7 %
Moldova	Inflation target: 5% with a + – 1.5% band
Mozambique	Objective: Single digit inflation
Nepal	Objective: Keep inflation within a 6% limit
Nicaragua	Crawling peg regime with exchange rate adjusting at 3% to serve as anchor for inflation.
	Inflation objective: between 3% and 5%
Nigeria	Targeted inflation between 6% and 9%
Rwanda	Medium-term target: Inflation at 5% with a + – 3% band
Uganda	Targeted medium term inflation around 5%
Vietnam	Target: Inflation equal or less than 4%
Zambia	Targeted an inflation range of 6 to 8%

Sources: National Sources and IMF Staff papers.