

El-Khishin, Sarah; Mohieldin, Mahmoud Safwat

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External debt vulnerability in emerging markets and developing economies during the COVID-19 shock

Sarah Elkhishin

Department of Economics, The British University in Egypt, Cairo, Egypt, and

Mahmoud Mohieldin

Special Envoy on Financing the 2030 Agenda, United Nations

Abstract

Purpose – This paper aims to assess to what extent the COVID-19 shock is expected to create a debt crisis in emerging markets and developing economies (EMDEs) through two main questions: what are the main determinants of EMDEs external vulnerability? How vulnerable are EMDEs to the current COVID-19 shock compared to the global financial crisis (GFC)?

Design/methodology/approach – In addition to a descriptive analysis of the determinants of EMDEs external vulnerability, this paper designs two sub-indices of overindebtedness and financial fragility that capture EMDEs' distinct characteristics. The two sub-indices together illustrate the overall external vulnerability to the current shock.

Findings – EMDEs are more vulnerable compared to the GFC era. Current debt threats arise mainly from debt architecture and the domination of volatile debt forms – primarily foreign currency-denominated bonds. Excessive fear of debt-deflation spirals after the GFC prompted EMDEs to expand their growth trajectories through a pattern of cheap private lending, loose measures and unmonitored fiscal expansion.

Research limitations/implications – Conclusive post-crisis data are still unavailable.

Practical implications – EMDEs need to balance between temporary accommodative measures and a post-shock policy mix that prevent a deflation spiral without worsening indebtedness and financial fragility. Moreover, financial prudence in face of growing credit demand is crucial, particularly in light of the monetary expansion and injected liquidity.

Originality/value – The indices offer a framework for examining external vulnerability in EMDEs based on theoretical and historical revisions, IMF benchmarks and EMDEs specific debt characteristics. The indices components can be offered for empirical examination in separate future research once conclusive data become available.

Keywords Emerging markets, External debt, COVID-19 shock, External vulnerability, Financial fragility

Paper type Research paper



1. Introduction

Since the onset of the COVID-19 crisis, much was said about its likely impact on the already vulnerable debt positions of emerging markets and developing economies (EMDEs) in particular. Three short-term challenges are identified: liquidity disturbances, capital outflows and debt risks; especially external debt. Low-interest rates, increased liquidity and monetary expansion might seem to decrease risks. However, pre-existing debt distress, weak growth outlook and increased geopolitical vulnerabilities pose more risks. The post-shock increased speculation in financial markets, low-cost liquidity, as well as the enlarged disconnection between the real sector indicators and the financial markets are expected to further aggravate EMDEs' external vulnerability to the current shock.

The objective of the paper is to assess to what extent the current shock is expected to create a debt crisis in EMDEs? We raise two main questions:

- Q1. What are the determinants of EMDEs external vulnerability?
- Q2. How vulnerable are EMDEs to the current COVID-19 shock compared to the global financial crisis (GFC) shock?

To characterize external vulnerability in the context of this paper, we first revise some theoretical propositions – mainly from Irving Fisher Debt Deflation Theory (Fisher, 1933) and the subsequent contributions of (Minsky, 1986) and (Bernanke, 1995, 2018a). According to these works, while causes and triggers for global shocks might occur periodically, several factors affect whether they cause traumatic crises and depressions or just repetitive cycles of growth slowdown that may reverse quickly. Countries in a state of overindebtedness and are more financially fragile are more vulnerable to external shocks. Second, we identify EMDEs debt characteristics, related to their growth patterns, debt architecture, exchange rate imbalances and fiscal distress where we expect to play a role in aggravating the impact of external shocks. Finally, IMF benchmarks of external vulnerability that comprise debt and reserves position are integrated in the framework of building EMDEs vulnerability criteria (International Monetary Fund, 2000b). Based on this framework, we design EMDEs external vulnerability index that consists of two main sub-indices of overindebtedness and financial fragility. The index is calculated for a sample of EMDEs five-years preceding the COVID-19 shock and five-year preceding the GFC.

Results show increased external vulnerability in sample EMDEs compared to the GFC era, suggesting the current crisis could be deeper and require a longer time to recover. EMDEs' excessive fears of entering a deflationary spiral after the GFC has prompted them to adopt growth patterns and financial policies that aggravated overindebtedness and financial fragility. Slowing growth rates preceding the COVID-19 shock worsened these conditions. Current expansionary responses to the shock are intuitive. However, we stress that countries should make such accommodative measures as short-lived as possible. To avoid an anticipated recession and restore growth and debt sustainability, we discuss needed revisions of growth patterns and tools for financing gaps in EMDEs. We also provide some policy recommendations to counter the expected implications of the current shock on debt in EMDEs.

The paper is organized as follows: In Section 2, we review the political economy of debt during crises in theory and literature. EMDEs debt characteristics are discussed in Section 3. In Section 4, we discuss our methodology and data. In Section 5, we present the analysis of external vulnerability in sample EMDEs. Finally, in Section 6, we discuss conclusions and policy measures to avoid a debt crisis in EMDEs after the COVID-19 era.

2. The political economy of debt management during crises

(Chenery and Strout, 1966) two-gap models offer the influential presentation of the relation between debt and growth. They established that reasonable debt levels are crucial for fueling growth, enhancing capital accumulation and raising total factor productivity, especially in countries in early development phases. However, research has also identified increased dependence on debt to finance development as a core reason for increased vulnerability to economic and financial domestic and global shocks and crises. Extensive scholarly examinations of the role of finance in growth cycles in EMDEs continued, based on historical events and theories analyzing real-financial interactions during economic crises. In this vein, Irving Fisher, Hyman Minsky and Ben Bernanke have presented seminal contributions establishing the crucial role of financial stresses in crisis origination and impact on the real side of the economy. Using these works, this section presents four interlinked propositions that constitute a foundation for our design of the specific external vulnerability criteria in EMDEs and our subsequent analysis of the anticipated impact of current COVID-19 shock in those economies.

- P1.* What distinguishes a mild downturn from severe depression is the degree of involvement of the financial sector and financial fragility in the shock.

In his paper “The Debt-Deflation Theory of Great Depression,” Irving Fisher (1933) identified a nine-step process of real-financial interactions that produce deflation in an economy that has “overindebtedness,” “financial fragility” and an uncertain environment when it faces a shock. The steps are as follows: A shock spurs debt liquidation which leads to excessive distress selling and local currency depreciation. These, in turn, lead to a direct decline in business net worth and arising bankruptcies, a fall in the overall level of profit, and hence a severe decline in gross domestic product (GDP), employment and trade. The overall economic contraction will lead to further pessimism and loss of confidence in the business climate, whereby the financial sector will witness more hoarding activities and the velocity of circulation will decrease. This will finally result in an overall decrease in nominal interest rates and a rise in real/commodity interest rates. The theory gained little academic acceptance at the time and proponents of “macroeconomic neutrality” criticized it. However, as financial and economic crises continued to coincide through the twentieth century, Hyman Minsky and Ben Bernanke among others revisited these crises in the context of Fisher’s theory. Refuting the macroeconomic neutrality assumption, Bernanke extended Fisher’s debt-deflation arguments and provided evidence that financial collapse makes recessions deeper, rather than merely being a symptom of them (Bernanke, 1983, 1990, 1995). Bernanke linked overindebtedness and financial fragility in his argument that high reliance on external finance to finance low net worth investment results in high agency costs. This, in turn, leads to inefficient investment and creates a financially fragile environment in the economy. Applying his model to the GFC, he demonstrated that changes in liquidity preference surge in the external finance premium and increases in risk aversion after the shock quickly transmitted into the US economy and caused disruptions in the real economy, deepening the recession that followed (Bernanke, 2018a).

Hyman Minsky also concurred with Fisher that financial fragility is a core determinant that distinguishes mild cycles from severe depressions, in that the financial system remains relatively stable in mild cycles while they get distracted during serious cycles through the debt-deflation mechanism (Minsky, 1981, 1986, 1994). Minsky’s famous financial instability hypothesis and what is called the Minsky’s cycle extended Fisher’s arguments on the causes of debt crises. According to Fisher (1933), new investment opportunities are the primary causes of cycles and they put countries in a state of overindebtedness that can result in

deflation. À la Minsky, crises occur after calm economic periods that involve elevated economic confidence where financial malpractices, amplified speculative behavior and debt deleverage pave the way for crises. “Minsky’s moment” then arrives when markets start to collapse and experience severe liquidity shock that quickly transmits into the real economy (Vercelli, 2009).

- P2. History shows that a debt-deflation process can be interrupted and reversed through big government, big bank, global monetary harmony and financial regulations.

Comparing the great depression with the subsequent crises that occurred between 1944 and 1970, Minsky showed that during this period countries were less vulnerable to shocks and financial sector growth was gradual. Minsky attributed financial tranquility during this period to sound policies that were adopted, curing the early onset of economic cycles. Sound policies that are a mix of fiscal, monetary and financial policies, as well as international policy coordination – that is:

- big government;
- big bank;
- global monetary harmony (Bretton Woods); and
- financial regulations (Minsky, 1986) – averted economic disasters.

Bernanke picked up Minsky’s big government hypothesis, as did Paul Krugman. (Bernanke, 2018b, 2018a) empirically show that active monetary policy and the Federal Reserve’s activity to act as a lender-of-last-resort averted a depression, affirming the value of the extended lending programs, debt swaps and measures taken to support the credit market and avoid to further collapse of financial institutions. (Eggertsson and Krugman, 2012) argued that the solution to the GFC debt-induced slump is more debt and in the COVID-19 crisis (Krugman, 2020) advocated for a permanent stimulus package to counteract the current shock [1], reflecting as his support for the big government and big bank theories.

- P3. The relevance of big government theory to EMDEs with structural macro-fiscal imbalances.

The above arguments focus mainly on mature economies, typically the US economy, however, researchers must apply it to EMDEs with caution. Fiscal stimuli might be inevitable after a crisis; yet, macro-fiscal structural imbalances in many EMDEs might make countercyclical interventions ineffective, even hazardous. Many EMDEs suffer from structural problems that persist regardless of economic cycles. Many suffer prolonged recessions and short boom times, leading to continued expansions in fiscal policy compared to short periods of rationalized spending. While countercyclical fiscal policy implies rationalizing spending during boom times, some EMDEs only have a big government during recessions (El-khishin and Zaky, 2019). This results in fiscal illusions, where politicians tend to quickly resort to stimulus packages during recessions without counterbalancing during booms (Alesina and Passalacqua, 2015).

Another important determinant of big government efficiency is the effectiveness of fiscal multipliers and automatic stabilizers. During crises, loss of confidence in the economy, rising interest rates after the crisis and crowding out of private investments may weaken fiscal multipliers in EMDEs (BIS, 2003). By the same token, automatic stabilizers tend to be weaker in EMDEs compared to advanced economies because of the low tax elasticities, low

shares of taxes to GDP, large proportions of fixed expenditures and absence of unemployment insurance. All these inefficiencies lead to more dependence on discretion where many EMDEs while trying to pursue countercyclical policies, will end up with a larger structural deficit, and hence more threats to long-term debt sustainability (El-khishin, 2020).

P4. Non-linearities in the debt-growth relationships in EMDEs and changes in debt architecture make them more vulnerable to recurrent global external shocks.

Arguments about non-linearities in debt-growth relationships are highly consistent with the debt sustainability policy advice to set specific debt thresholds. While debt is inevitable for EMDEs adopting high growth trajectories, research documents that surpassing specific debt thresholds will constrain growth [2]. (Reinhart and Rogoff, 2010) empirical findings show that external debt in EMDEs has more detrimental effects on growth than advanced economies and that foreign-currency-denominated debt impact on growth is much more severe than public debt denominated in home currency [3], [4]. On the other hand, literature also referred to the possible reverse causality between debt and growth. For example, Easterly (2001) and Pattillo *et al.* (2004) found that slower growth rates are core reasons for debt distress and that growth slowdown is a reason behind some historical debt crises.

Evidence shows that changing debt architecture toward more household debt and external debt are key players in recurring financial crises. Krugman and Eggertsson (2012) identify household debt and external debt as determinants of the “accelerator effect” of the *Fisherian* debt-deflation mechanism during a crisis. Open capital markets create lending booms, which lead to maturity mismatches in the financial system and exchange rates and can result in asset price bubbles. When this occurs in a country pursuing high growth rates, and hence high inflation, the inevitable result is macroeconomic overheating and appreciation in the real effective exchange rate (REER). Vulnerability in this context increases when the debt is largely composed of short-term flows and portfolio investment (Combes *et al.*, 2011). According to International Monetary Fund (2020b), sudden cutback of household lending by the banking sector during a crisis amplify vulnerability, as it raises liquidity strains and risk aversion, aggravates external finance premium and leads to sudden and quicker credit losses.

Bernanke (2018a) argued that financial deleveraging was channeled into the real economy through financial fragility and surging growth in household debt. Conditions of financial fragility created supply-side disruptions, while growth and deleveraging in household debt and weakened household balance sheets resulted in effective demand disruptions and deteriorated household spending. Bernanke suggests that to prevent such panics, conservatism in the financial system would seem a safer option even if it will be at the expense of credit growth.

The above propositions put forward a base for addressing potential EMDEs external vulnerabilities to the COVID-19 shock. In the following section, we present some observations on debt and growth in EMDEs, as a foundation for our analysis of external vulnerability in a sample of EMDEs.

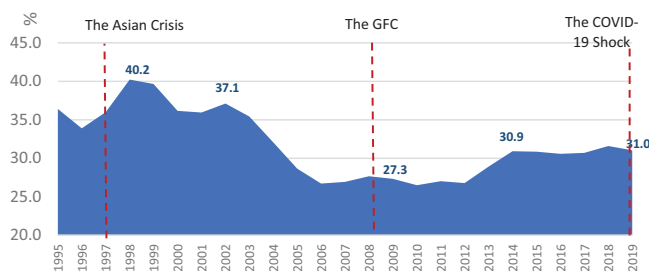
3. Emerging markets and developing economies external debt characteristics before the COVID-19 shock

Debt vulnerability in EMDEs is different from other world countries. EMDEs debt is mainly built through their access to international capital markets, while low-income countries meet their financing needs mainly through concessional loans (International Monetary Fund, 2018). In EMDEs, the balance of payments imbalances results in disturbances in

capital flows that, if coupled with insufficient foreign direct investment, typically results in mounting external debt (Stiglitz and Rashid, 2020a).

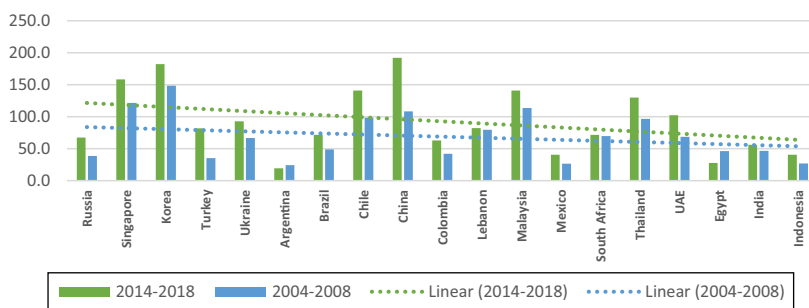
While EMDEs have acted to stabilize their external debt burdens as the GFC (Figure 1), many are adopting debt architecture and maturity compositions that lead to increased vulnerability and weak resilience to sudden shocks. In EMDEs, shocks result in sudden reversals of foreign inflows and maturity disturbances whenever foreign investors hold a substantial amount of domestic debt. Foreign shares of local currency bond markets, while reducing the borrowing costs, may also induce price volatility if the domestic market lacks depth (United Nations Conference on Trade and Development, 2019).

Likewise, increased household and non-financial corporations borrowing still create a high risk of debt distress for EMDEs during growth slumps. The recent Global Financial Stability Report shows that vulnerabilities are higher in countries with increased corporate and non-financial sector debt involving higher-risk activities within a low-yield environment (International Monetary Fund, 2020b). While economics predicted this would reverse after the GFC, household and non-financial borrowing continued to rise, as Figure 2 indicates. Figure 3 also finds a rising debt-to-GDP ratio in most of the sample EMDEs in the first quarter of 2020 compared to the same quarter of last year, driven in many countries by the increase in household and non-financial corporations' debt. The effects were most extreme in Chile and China, both of which witnessed a more than 10% increase in this component of debt.



Source: IMF, World Economic Outlook Database, (2019)

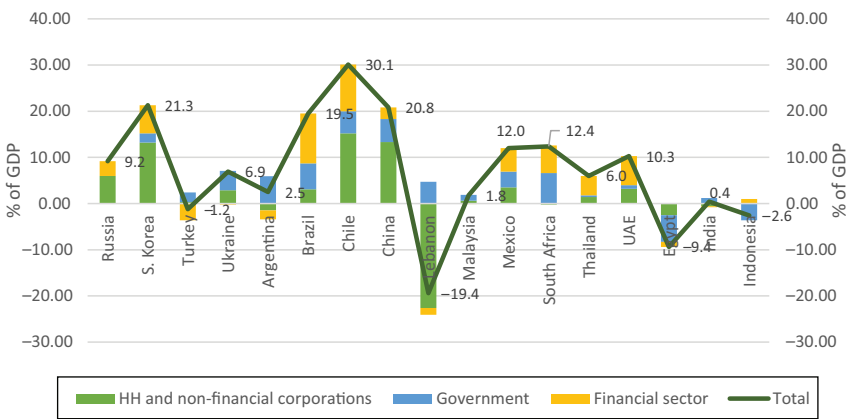
Figure 1.
External debt as
percentage of GDP in
EMDEs (1995–2019)



Source: International Monetary Fund (2020c)

Figure 2.
Total stocks of loans
and debt securities
issued by households
and non-financial
corporation's % of
GDP in selected
EMDEs

Figure 3.
Sectoral indebtedness
in sample EMDEs,
2020Q1 versus
2019Q1

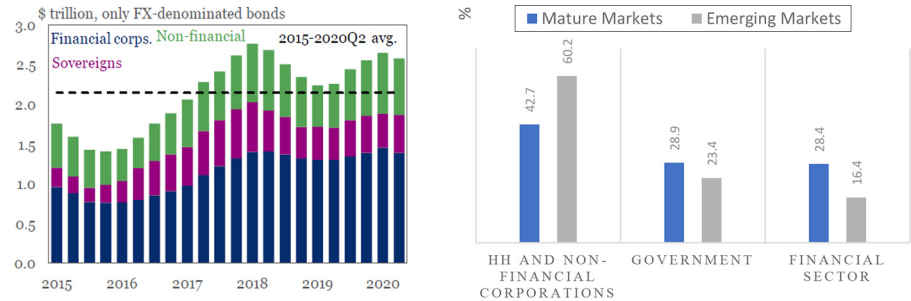


Source: Institute of International Finance (IIF) data; in Tiftik and Mahmood (2020)

Today, household debt and non-financial corporations’ debt together constitute more than 60% of total EMDEs debt according to the recently published Institute of International Finance data (Figure 4) [5]. Corporate bonds constitute the largest share of foreign currency bond issuance in emerging markets (EM-30) as shown on the left side of Figure 4. On average, EM corporate bonds have appealing advantages over government bonds and equivalent bonds in mature markets because of their relatively lower default rate, higher yields and larger spread, among other benefits (Nelson and Hardingham, 2019). However, hazards arising from the domination of such volatile forms of debt become clearly sound during shocks and uncertainty periods. Both sovereign and corporate foreign-currency-denominated bonds pose enough reasons for a debt crisis because of their relatively high-volatility, default risks and restructuring ineligibility compared to other debt forms (Stiglitz and Rashid, 2020a).

The pre-COVID-19 weak growth outlook and geopolitical tensions are also important determinants of debt distress crisis in EMDEs. The COVID-19 shock has met a slowing down the global economy and an already deteriorated financial and economic performance in many EMDEs. This raises red flags about EMDEs’ growth models and tools used to finance gaps, and the fact that, unlike in the pre-GFC era, growth rates were already slowing

Figure 4.
Overall debt
composition in EM



Source: IIF data, in Tiftik and Mahmood (2020)

intensifies concern (Figure 5). Given decreasing growth rates are a cause for debt distress under the reverse causality assumption, the ultimate impact is likely to be deeper than the GFC's.

Fiscal distress in some EMDEs due to fiscal problems are also worsening debt instabilities. EMDEs with problems of fiscal dominance and poor monetary autonomy during shocks incentivize open-end “lender-of-last-resort” activities that amplify macro-fiscal imbalances (El-khishin and Kassab, 2020). Moreover, structural problems, fiscal illusions and weak multipliers would further aggravate fiscal and debt distress as highlighted earlier (El-khishin, 2020). Economies with high domination of public debt, such as Argentina, Egypt, Ukraine, Lebanon and India are particularly vulnerable (Figure 6).

Finally, many EMDEs have relatively large populations and young age structure but still suffer from income disparities and significant poverty levels. While those countries have great potential to use their population structure and create demographic dividends (Nassar *et al.*, 2017), many still suffer from weak financial institutions and capital markets that are incapable of channeling the dividends of their demographic windows and leveraging

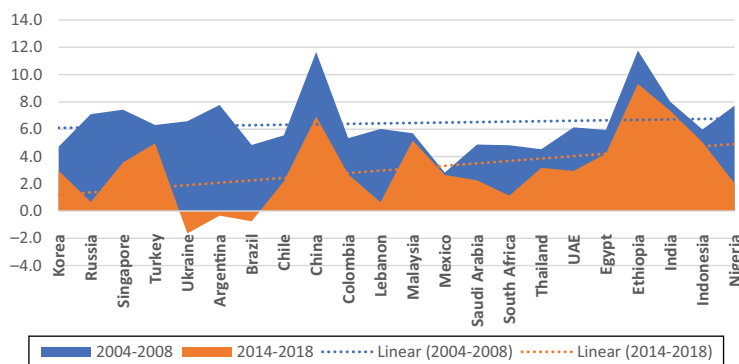


Figure 5.
Average real growth
rates in sample
EMDEs, pre-COVID-
19 versus pre-GFC

Source: International Financial Statistics

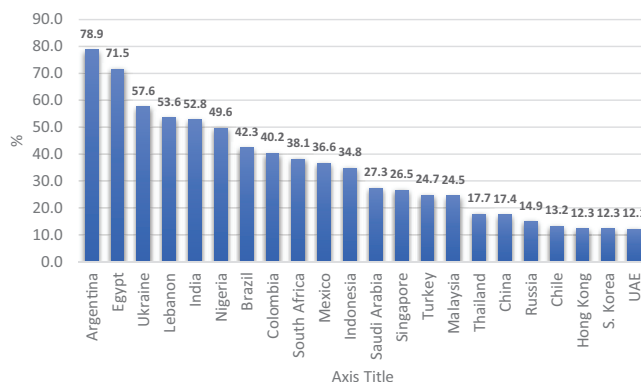


Figure 6.
Government debt as
percentage of total
debt in sample
EMDEs, 2020-Q1

Source: IIF data, in Tiftik and Mahmood (2020)

domestic savings. Poor domestic savings and weak financial institutions not only negatively affect per capita income and growth in those countries (Mohieldin *et al.*, 2019) but also put more pressure on debt sustainability. Using external debt as the prime source of finance increases such risks.

The above-identified characteristics of debt in EMDEs and the distinct features of the COVID-19 shock together lead us to the main questions of this paper: To what extent is the current shock expected to create a debt crisis in EMDEs and how vulnerable are EMDEs to the current COVID-19 shock compared to the GFC shock? In the next section, we present the methodology and data then used to answer the mentioned questions.

4. Methodology and data

We hypothesize that the initial conditions of overindebtedness and financial fragility status together determine EMDEs' degree of external vulnerability. We construct two indices to discuss the external vulnerability position in a sample of EMDEs during and after the current shock. The first index is the COVID-19 crisis index, which illustrates the initial impact of the COVID-19 shock on sample EMDEs inspired by Sachs *et al.* (1996) and Bussiere and Mulder (1999) crisis index method. The second index is the external vulnerability index which incorporates the two aforementioned dimensions of external vulnerability: overindebtedness and financial fragility.

The COVID-19 crisis index

Sachs *et al.* (1996) and Bussiere and Mulder (1999) – hereafter STV/BM – both created crisis indices based on beliefs that the highest economic contagion risks occur within five months of a crisis outbreak when economies are most vulnerable to liquidity problems. The authors identified fundamental liquidity-related variables as the likeliest causes of external vulnerabilities to crises. Like the International Money Fund's Early Warning System (EWS), these indices were constructed to assess external debt vulnerability during crisis times [6]. To create our crisis index, we average:

- changes in reserves; and
- changes in REER, both of which Bussiere and Mulder (1999) and Sachs *et al.* (1996) represent as key indicators.

We present the full definitions of the used variables and data sources later in this section.

The external vulnerability index

We calculate the external vulnerability index and its sub-indices for the average five years preceding December 2019, which we call the pre-COVID-19 period, and for the average five years preceding the GFC, which we call the pre-GFC period. An average of both indices shows the overall status of external vulnerability in the two specified periods. In the remainder of this section, we present our perception of external vulnerability followed by the rationale and components of the mentioned indices are presented.

- Defining external vulnerability.

According to IMF debt and reserve-related indicators and benchmarks, external vulnerability comprises debt and reserves position. From a balance sheet perspective, external debt and reserves affect market-access countries' external vulnerability through their impact on the country's ability to meet their external obligations without witnessing liquidity or solvency problems (International Monetary Fund, 2000b). We integrate this with the theoretical propositions of overindebtedness and financial fragility presented in Section 2 and the debt

characteristics of EMDEs presented in Section 3. The comprehensive characterization of EMDEs external vulnerability henceforth adopted in our analysis is:

“External vulnerability in EMDEs is determined by both the status of overindebtedness and financial fragility. Overindebtedness is measured by the liquidity and solvency of EMDEs external balance sheets. Financial Fragility is measured by their external debt architecture in terms of maturity, reserve adequacy and the contribution of private debt to overall debt.”

- Overindebtedness sub-index.

External debt is identified as the chief component of debt that directly affects the resilience of EMDEs resilience to shocks and crises, where external debt refers to the non-equity elements of external liabilities, all debt instruments held by non-residents regardless of the currency of denomination ([International Monetary Fund, 2000b](#)). In their remarkable book, *This Time Is Different: Eight Centuries of Financial Folly*, Carmen Reinhart and Kenneth Rogoff define an external debt crises as one that involves “outright default on the payment of external debt obligations, repudiation or the restructuring of debt into terms less favorable to the lender than those in the original contract” ([Reinhart and Rogoff, 2009](#)).

In the External Debt Statistics guide published by IMF in 2014, indebtedness is the numerator measure for debt sustainability [7] based on two main dimensions: solvency and liquidity. Debt stock indicators reflect solvency while debt service indicators reflect liquidity. Liquidity problems can cause solvency risks if not adequately addressed. ([Bussiere and Mulder, 1999](#)) provide empirical evidence that a strong liquidity position can offset weak fundamentals in EMDEs and can decrease vulnerability during crises and contagion periods.

We use the external debt-to-exports ratio as an indicator for solvency and the debt service-to-exports-ratio as an indicator for liquidity. Generally speaking, using exports as a denominator is more relevant for market-access countries as advised in IMF guides and manuals. Debt-to-exports ratios have some advantages over debt-to-GDP, top of which is that it is less volatile with respect to changes in real exchange rates and it also provides a basis for repayments [8]. [Table 1](#) presents a list of definitions of the used variables.

- Financial fragility sub-index.

We address three main dimensions of financial fragility in EMDEs:

- (1) reserve adequacy;
- (2) debt maturity; and
- (3) debt composition.

[Calvo et al. \(1995\)](#) suggest that reserves have to be compared to the monetary base to assess countries' vulnerability to panics. [Bussiere and Mulder \(1999\)](#) and [Sachs et al. \(1996\)](#) affirm reserves to short-term external debt as a measure of reserve adequacy in predicting the depth of EMDEs' vulnerabilities during crises and that this indicator empirically outperforms other reserve adequacy indicators, both money-based and import-based. Likewise, according to the [International Monetary Fund \(2000a\)](#), reserves-to-short-term debt (STD) offers a better indicator in countries with “significant but uncertain access to capital markets”; where a smaller reserve to STD ratio would indicate a greater incidence and depth of crises. Reserves/STD benchmark of value “one” is a widely used standard of reserve adequacy for EMDEs. Targeting a reserve cover close to unity is advised, not just to

Overindebtedness index		Financial fragility index	
Liquidity	Debt service to exports ratio	Reserve adequacy	Reserves to STD ratio
	<ul style="list-style-type: none">The ratio of external debt-service payments (principal and interest) to exports of goods and services for any one year. It is used to assess liquidity risks as part of debt sustainability criteriaData set: (World Bank, 2020b)		<ul style="list-style-type: none">The ratio of reserves to short-term external debt (R/STD). We use the inverse of reserves to STD indicators in the index, as suggested in (International Monetary Fund, 2000a) to capture reserve inadequacy. The higher the value, the higher the reserve inadequacy in the sample country to groupData set: (International Monetary Fund, 2020d)
Solvency	External debt to exports ratio	Debt maturity	Short-term external debt as percentage of total external debt
	<ul style="list-style-type: none">The ratio of total outstanding debt at the end of the year to the economy's exports of goods and services for any one yearData: Author's calculation based on (World Bank, 2020b) data on exports of goods, services and primary income (BoP, current US\$) and external debt stocks, total (DOD, current US\$).		<ul style="list-style-type: none">Debt that has an original maturity of one year or less. It is considered a good measure to assess how fast a country will be able to adjust if it was subject to a sudden decrease in external borrowingData set: (World Bank, 2020b)
		Debt structure	Household and non-financial corporations debt
			<ul style="list-style-type: none">We use private debt, loans and debt securities issued by IMF as an indicator for the share of household debt and non-financial corporations' debt in total debtData set: (International Monetary Fund, 2020c)

Table 1.
Overindebtedness
and financial
fragility sub-indices:
components and data
sources*

Note: *For more on the definitions and concepts, see (International Monetary Fund, 2000b, 2014; World Bank, 2020b)

decrease monetary authorities' dependence on short-run debt but also to guide fiscal authorities to decrease public debt with short-run maturities (International Monetary Fund, 2000a).

Regarding debt maturity, short-term external debt is considered a good measure to assess how fast a country will be able to adjust if it was subject to a sudden decrease in external borrowing. As established earlier and as argued in Reinhart and Rogoff (2009), high reliance on short-term borrowing to finance growth increases vulnerability to crises and can “provoke” sudden and “unexpected” financial crises. We use short-term external debt as a percentage of total external debt as an indicator of the degree of the dominance of STD in the overall debt structure. Finally, debt composition and the share of household debt constitute an important determinant of the severity of the crises and the consequent debt problems. We use “total stocks of loans and debt securities issued by households and non-financial corporations (percentage of GDP)” as an indicator for household debt growth in sample EMDEs.

Finally, regarding sample countries and data, we follow (Reinhart and Rogoff, 2010) and (Fincke and Greiner, 2015) in the selection of sample EMDEs [9]. Selected EMDEs vary in terms of development status, yet they are considered in reviewed literature as might be subject to higher possibilities of external vulnerabilities during this crisis. For a full list of the selected sample of EMDEs, see Appendix 1. As noted in Table 1, we depend on International Debt Statistics – The World Bank and International Financial Statistics – IMF published data. For data on REER, we use Bruegel Data sets published in Darvas and Zsolt (2020).

5. Will the current shock create a full-fledged debt crisis in emerging markets and developing economies? Analysis

We start our analysis by defining a point of the onset of the COVID-19 shock, after which we present the results of the two main indices designed in the previous section to illustrate the potential impact of the COVID-19 shock on external vulnerability in EMDEs.

Defining the onset point of the COVID-19 crisis

Research suggests stock market performance and capital outflows are primary determinants of crisis onset. Following Bussiere and Mulder (1999), we use the JP Morgan Emerging Market Bond Index to track stock market performance from December 2019 to August 1, 2020. As Figure 7 shows, a sharp descent started in January 2020. Increased



Source: JP Morgan

Figure 7.
JP Morgan EM bond
index

uncertainty and a pessimistic outlook began to emerge in December 2019, well ahead of the World Health Organization’s announcement of a global pandemic in March 2020. Figure 8 shows a sharp drop in accumulated non-resident portfolio flows to EM starting in January 2020, which affirms the JP Morgan Emerging Market Bond Index trend during the same period.

We define January 2020 as the onset of the COVID-19 crisis. Nonetheless, we acknowledge that the disconnection between real and financial markets became more evident over time. Financial markets overcame early losses later, reflecting either investors’ denial of the severity of the crisis or in response to stimulus packages and debt restructuring plans. Increased low-cost finance, large monetary expansion and injected liquidity are increasingly disturbing the connection between financial markets and real sector performance during the crisis. The increased speculative activities and concerns about growing Ponzi finance activities together suggest that Minsky’s moment may be approaching.

An illustration of the components of the crisis index indicators in sample emerging markets and developing economies

The below illustration shows a loss in reserves in most of the sample EMDEs during the period of January–May 2020. Reserve losses are among the indicators that deteriorate early in times of crises as central banks inject liquidity as part of the initial response to the shock. Results are also intuitive given the appreciation of US\$ and other advanced economies’ currencies against the EMDEs’ currencies during the examined period (Corsetti and Marin, 2020; OECD, 2020). Country-level rankings of the initial crisis impact (Figures 9 and 10) are discussed below with the analysis of overall external vulnerability in the sample EMDEs.

The crisis has triggered significant exchange rate disruptions in most sample countries and an evident REER depreciation. This is primarily due to capital outflows and halted portfolio investments after the crisis. The variation in the initial magnitude in REER depreciation across the sample countries can be attributed to:

- composition of capital flows (FDI, portfolio investment, sovereign bonds, commercial loans and remittances);

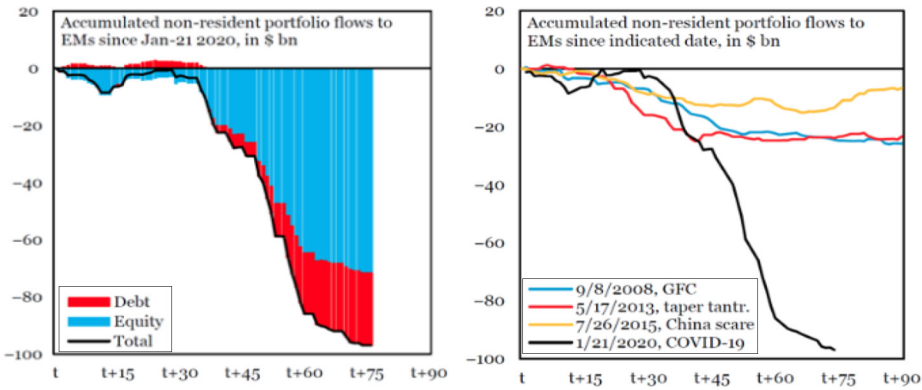
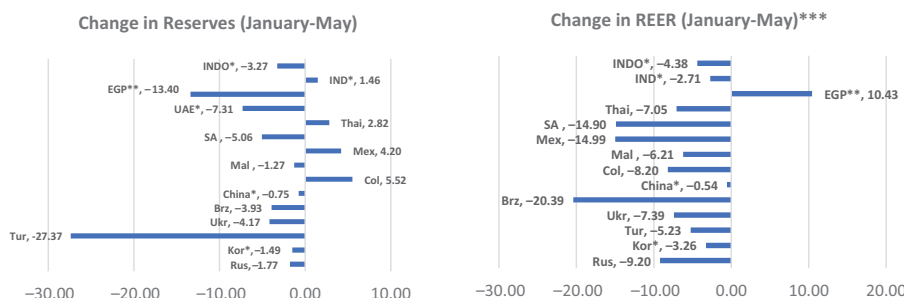


Figure 8.
Accumulated non-resident portfolio flows to EMs

Source: IIF daily Portfolio Tracker, in: Hevia and Neumeyer, 2020. “A perfect storm: COVID-19 in emerging economies,” *CEPR Policy Portal*, April

Figure 9.
An illustration of the
components of the
STV/BM crisis index
indicators in sample
EMDEs after the
COVID-19 shock
began



Notes: * January-April; ** January-March; *** An increase in the REER indicates appreciation of the home currency against the basket of currencies of trading partner

Source: Author calculations based on International Financial Statistics

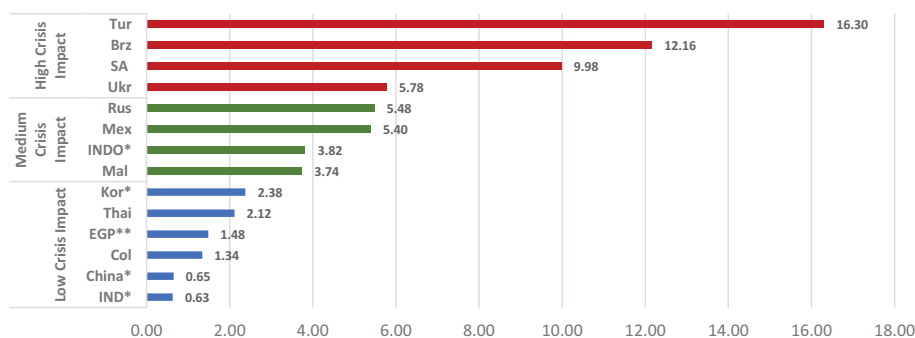


Figure 10.
Simple COVID-19
crisis index

Notes: * January-April; ** January-March. See Annex for data for technical notes

Source: Author calculations based on International Financial Statistics.

- size of monetary injections; and
- type of exchange rate regimes adopted and interventions in the foreign exchange market during the shock.

The share of foreign-currency-denominated bonds in debt composition is one of the main reasons behind post-crisis currency depreciation (Stiglitz and Rashid, 2020b). Some EMDEs intervened in the foreign currency markets and relaxed capital control measures in an attempt to soften the initial impact of the crisis while others kept their systems rather tight, which significantly affected the magnitude of initial depreciation after crises (OECD, 2020) [10].

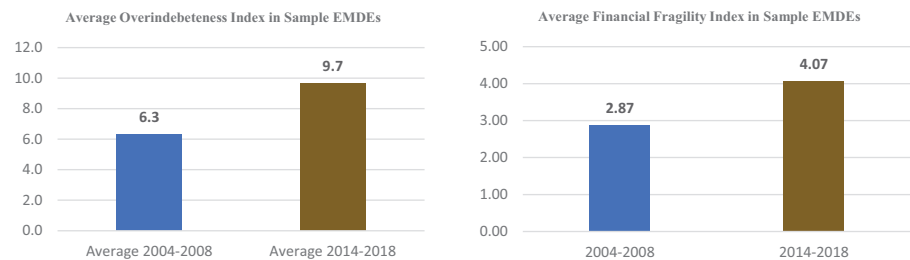
Some data may be incomplete to give even an initial sense of the impact of the shock. Data shows relative stability in the Egyptian pound versus the US\$. We lack information about Egypt's reserves or REER post in March 2020, and it seems probable that the crisis had not have started to impact the economy at that time.

Egypt's trade partners overall started showing a depreciation in their currencies against the US\$ in January as indicated earlier, suggesting that Egypt's REER appreciation is temporary[11]. Updated data will likely reveal procyclical impacts. Remittances in Egypt have already dropped since March 2020, as have tourism in the Suez Canal sector, due to the global economy slump which will definitely affect the size of capital flows in the Egyptian economy (IMF, 2020a).

Overindebtedness and financial fragility in emerging markets and developing economies
A presentation of calculated indices and EMDEs country rankings is presented in Figures 11 through Figure 16 followed by our analysis and interpretation of results.

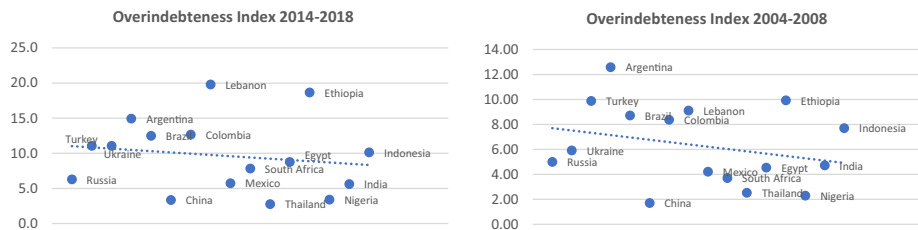
Emerging markets and developing economies external vulnerability during the COVID-19 crisis: Main findings
Generally speaking, EMDEs seem to be not less vulnerable, if not more, than they were in the pre-GFC era. While most EMDEs recently show relative stability in external debt indicators, this stability does not necessarily indicate an improvement in resilience to the current shock. Oppositely, more countries appear to be at very high risk of overindebtedness and worsened financial fragility conditions compared to the pre-GFC era. The subsections below reveal the details supporting this analysis.
The overall value of the overindebtedness and financial fragility indices are higher in the pre-COVID-19 period than in the pre-GFC period. The average overindebtedness index for

Figure 11.
Average overindebtedness and financial fragility index in a sample EMDEs, pre-COVID-19 vs pre-GFC crisis

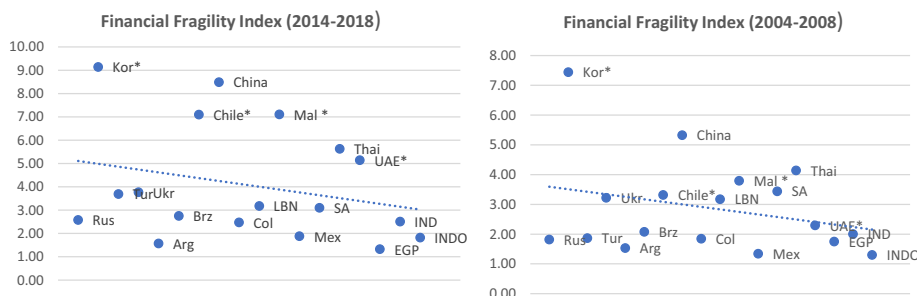


Note: See Appendix 2 and Table 1 for definitions, data sources and technical notes
Source: Authors' calculations

Figure 12.
Overindebtedness index in sample EMDEs, by country, pre-COVID-19 vs pre-GFC crises

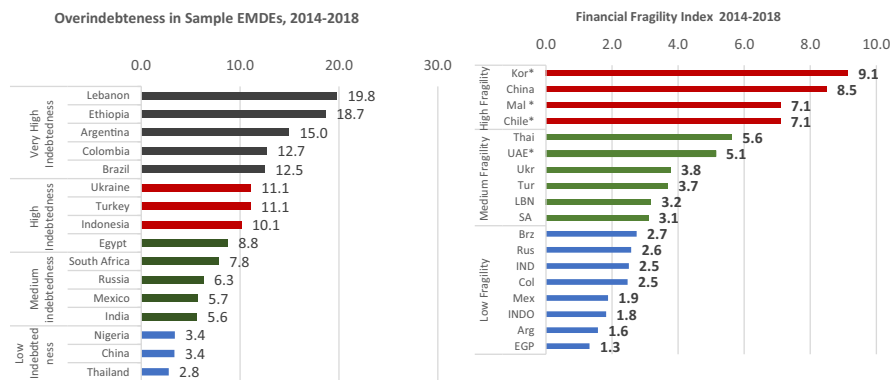


Note: See Appendix 2 and Table 1 for definitions, data sources and technical notes
Source: Authors' calculations



Notes: * STD/total debt is missing; hence, the index is a simple average of the other two indicators only. See Appendix 2 and Table 1 for definitions, data sources and technical notes
Source: Authors' calculations

Figure 13.
Financial fragility
index in sample
EMDEs by country,
pre-COVID-19 vs pre-
GFC crises



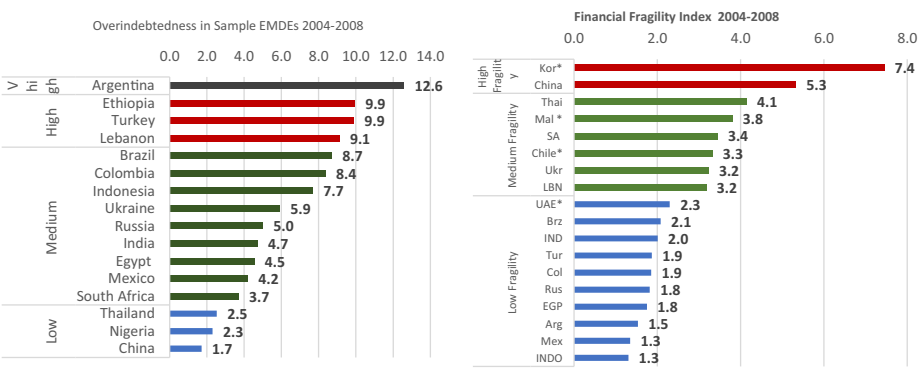
Notes: * STD/total debt is missing; hence, the index is a weighted average of the other two indicators only. ** We use the inverse of reserves/STD as a measure of reserve inadequacy. See Appendix 2 and Table 1 for definitions, data sources and technical notes
Source: Authors' calculations

Figure 14.
Sample EMDEs
rankings in
overindebtedness,
financial fragility and
external vulnerability
pre-COVID-19

the sample countries was 6.3 points in the pre-GFC period and 9.7 points in the pre-COVID-19 period. Similarly, the average financial fragility index for the sample countries increased from 2.87 points in the pre-GFC period to 4.07 points in the pre-COVID-19 period. The only countries where financial fragility did not worsen were Egypt and South Africa, both of which showed a mild improvement.

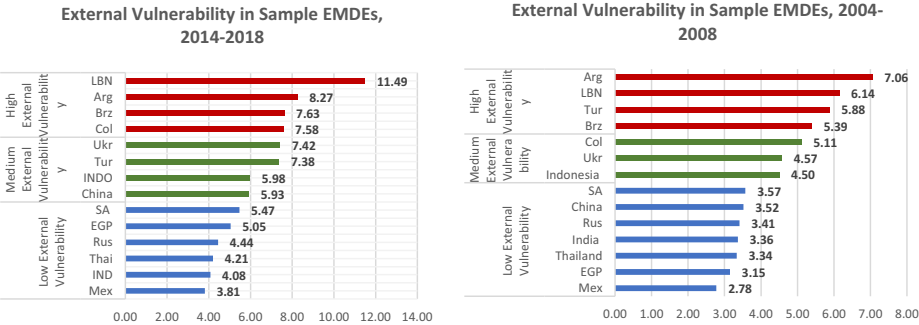
Higher household debt and increased share of STD to total external debt are driving much of the increased financial fragility in the sample. With the slowing growth rates, demand disruptions that might result from the shock might lead to a deflation spiral.

Figure 15.
Sample EMDEs
rankings in
overindebtedness,
financial fragility and
external vulnerability
– Pre-GFC



Notes: *STD/total debt is missing; hence, the index is a weighted average of the other two indicators only. **We use the inverse of Reserves/STD as a measure of reserve inadequacy. See Appendix 2 and Table 1 for definitions, data sources and technical notes
Source: Authors' calculations

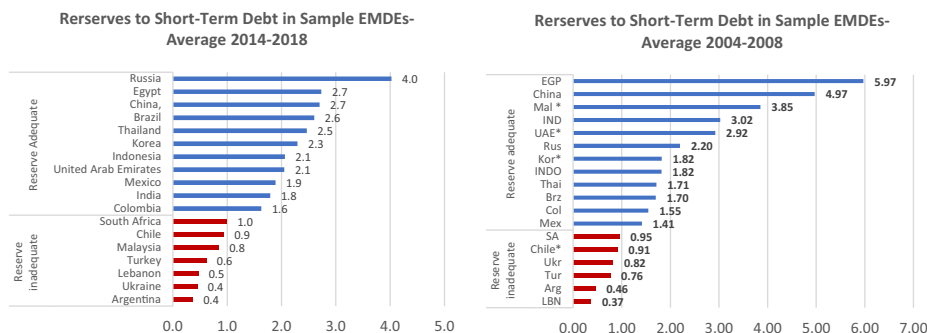
Figure 16.
External
vulnerability pre-
COVID-19 vs pre-
GFC



Note: See Appendix 2 and Table 1 for definitions, data sources and technical notes
Source: Authors' calculations

While many countries appear to be currently reserve adequate; that is, their reserves to STD ratio is higher than unity (Figure 17), comparing current reserve adequacy with the pre-GFC period shows that there is significant deterioration in this indicator. Strong reserve adequacy in some of the examined EMDEs might counter the effect of the fragile financial status revealed in weak debt architecture and maturity mismatches and can help absorb the initial impact of the shock on the foreign exchange market. Nevertheless, we expect this countering effect to occur only in the short term. In the longer term, an economy with fragile debt architecture, in terms of debt composition and maturity, would still be vulnerable to shocks, even if it has a strong reserve adequacy position.

Likewise, more flexible responses to the shock in some EMDEs created a high initial crisis impact does not necessarily indicate the crisis will have a larger impact on their external vulnerabilities. Russia, Mexico, South Africa and Indonesia were subject to a higher



Note: See Appendix 2 and Table 1 for definitions, data sources and technical notes

Source: Authors' calculations

Figure 17.
Reserves to pre-
COVID-19 vs pre-
GFC

initial effect of the crisis than others. This could be partially attributed to their relatively more flexible response, via either monetary expansion or more flexible exchange rates. However, strong liquidity and solvency indicators, as well as relatively low financial fragility indicate that those countries might be more resilient to the current crisis and would show a relatively quick recovery.

There were five more countries (Argentina, Brazil, Colombia, Ethiopia and Lebanon) in the “very-high indebted” category in the pre-COVID-19 index than the pre-GFC period. This is driven by worsening liquidity and solvency conditions. We expect that Brazil, Ukraine, Lebanon and Turkey are at the highest risk of debt distress. Large decrease in reserves and the initial depreciation in REER resulting from a substantial decline in portfolio outflows in those countries (OECD, 2020) added to the high external vulnerability together indicate the possibility of a large magnitude of the crisis and a possibly longer time to recover [12].

In Egypt, Thailand and India, external vulnerability is relatively adequate, mainly because of sound financial fragility and average indebtedness position. Nevertheless, problems in Egypt and India would still persist as a result of the dominance of inflated public debt as highlighted in Section 3. It is worth re-affirming here that, while we depend on the ratio of external debt to exports as the main advisable indicator for EMDEs, in economies where government debt is predominant, the ratio of external debt to GDP is also a sound indicator of an economy’s external vulnerability that should not be overlooked. This would explain why Egypt – where government debt accounts for more than 72% of external debt obligations – appears among the medium-low vulnerable countries in our results, while other analyses that use GDP as the main denominator classify it as highly vulnerable (Wheatley, 2020; The Economist, 2020) [13].

A spotlight on China. As Kose *et al.* (2020) highlighted in their analysis of “global debt waves,” debt accumulation in China accounts for around 80% of total average EMDEs’ debt rise above the third wave, which preceded the GFC and predominantly consisted of private debt. According to the global debt monitor, non-financial corporations’ debt in China is largely driving the 230% soar in EM debt-to-GDP ratio in 2020 (Tiftik and Mahmood, 2020). However, despite this surge in household debt in China and the increased STD ratio, improved reserve adequacy, as well as liquidity and solvency indicators leave the country less externally vulnerable than in the pre-GFC period.

On balance, the observed increase in external vulnerability in many of the sample EMDEs implies that the anticipated impact of the COVID-19 shock on the debt will be larger

than the impact of the GFC both in terms of magnitude and in the length of time for recovery. EMDEs are at high risk of witnessing serious debt distress and a possible prolonged recessionary wave unless they introduce timely interventions to interrupt the loop at its early stages as advised in theory and learned from past historical events.

6. Concluding remarks

In this paper, we revisit the external vulnerability of EMDEs during the COVID-19 crisis through an integrated approach that incorporates propositions from theory, historical events along with fundamental vulnerability assessment indicators and benchmarks advised by international financial institutions. Results show that all other factors being constant, EMDEs appear to be more vulnerable than they were in the pre-GFC era. Our main observations are as follows:

- Three pre-existing conditions are driving the external vulnerabilities in EMDEs today: debt architecture in the form of highly volatile, short-term and foreign currency-denominated debt, exchange rate imbalances and fiscal distress. This is added to the observed poor domestic financial institutions and weak domestic savings rates, demographics, inequalities and poverty rates as discussed in relevant works. The COVID-19 shock will accelerate a debt crisis that would have necessarily occurred anyway.
- Reactions to the GFC aggravated much of these pre-existing conditions. EMDEs, in excessive fear of entering a debt-deflation spiral, expanded their growth trajectories through a pattern of cheap private lending, loose accommodative policy measures, and in some cases unmonitored fiscal expansion. Such measures, usually advised to be temporary, have further expanded overindebtedness and financial fragility conditions in the examined countries.
- Pre-COVID-19 weak growth outlook, rising geopolitical tensions, evident non-linearities in debt-growth relations in EMDEs and high reliance on external finance to fund low net worth investment all contribute to making the financial environment in many of the examined countries more fragile.
- EMDEs with high domination of foreign-currency-denominated bonds are highly vulnerable to the initial *contagion* effect of the COVID-19 shock, and thus show massive capital outflows and exchange rate disturbances, then alarming *surge* in bond buying resulting from the global monetary and financial expansion.
- EMDEs have already started early corrective actions to counter the effect of the shock. Nevertheless, increased monetary liquidity and declining borrowing costs led to a surge in corporate bonds and speculative activities. This raises concerns about growing Ponzi finance activities and fears of an approaching Minsky's moment.

Full, conclusive evidence on the crisis impact on debt vulnerabilities in EMDEs continues to unfold. Nonetheless, the analysis here provides sufficient evidence of a dire need for action. In this vein, we offer the following proposals.

First, growth models in EMDEs need to be remastered in the long-term toward more reliance on sustainable, domestic sources of finance. EMDEs with relatively young populations and potential demographic dividends need to adopt inclusive growth policies and develop their domestic financial markets to channel dividends, leverage domestic savings and fill financing gaps. Sustainable domestic sources of finance are key to decreasing the reliance on short-term external finance, widening fiscal space, overcoming maturity mismatches, and hence decreasing external vulnerability.

Second, post-shock accommodative measures should be balanced with longer-term policies that ensure the prudence of financial systems in the face of growing credit demand.

The continuation of current monetary and financial ease in light of the perceived growth slump is alarming. EMDEs need to adopt more conservative policies where credit growth patterns need to be revised, even if this means some sacrifice in growth rates over the medium term. Fears of deflation should not lead to the preservation of systems of cheap unmonitored finance or fiscal expansion. In line with [Bernanke \(2018a\)](#), we argue that maintaining financial system resilience with prudent policies is necessary to prevent panics, even if this will have undesirable impacts on credit growth. Likewise, while Krugman's "permanent stimulus" proposal may work for the US economy – given the low-interest rate environment and the US\$ characteristics – EMDEs already characterized by fiscal imbalances, prolonged recessions, weak multipliers, and in many cases politically driven discretionary interventions, must handle them more cautiously.

Third, while overall debt accumulation is always alarming, current debt threats arise mainly from debt architecture. In more than two-thirds of the examined EMDEs, non-government debt largely drives debt distress. Despite their appealing yields, relatively high ratings, and other benefits compared to mature markets, corporate bonds pose high risks during crisis times. Sovereign bonds pose the same, if not higher, risks of high volatility and ineligibility for re-structuring. Hence, debt portfolio management in EMDEs is essential in light of perceived risks arising from highly volatile, short-term and foreign currency-denominated bonds; both corporate and sovereign.

We also recommend that EMDEs maintain flexibility in their exchange rates during the shock. More flexible exchange rates reduce financial fragility during shocks and can discourage short-term speculative activities in bond markets, particularly in imprudent and underdeveloped financial systems.

Finally, on the global level, Hyman Minsky's argument that global monetary and financial management have a role in preventing debt crises cannot be more relevant. While global initiatives such as the G20 Debt Service Suspension Initiative (DSSI) [14] have been designed to help low-income IDA countries deal with debt vulnerability, such initiatives should also include debt-vulnerable middle-income countries (MICs). Moreover, such initiatives, while providing some breathing space for countries during the shock, will not address fundamental debt problems addressed in this paper.

We highlight the importance of renovating the global financial architecture to consider currency exchange realignments, management of capital flows and more actions related to debt moratorium and restructuring; especially in light of the current low-interest environment which should facilitate debt reform processes in EMDEs. Recent global efforts and actions are advancing in this regard. Member States of the United Nations and international institutions are discussing actions to address debt issues through introducing global harmonized actions, as well as accounting for the heterogeneity of debt conditions across different countries ([United Nations, 2020a](#)). This is in addition to the aforementioned calls for DSSI extension, private sector participation in debt relief, debt buybacks and debt swaps ([Ellmers, 2020](#); [United Nations, 2020b](#)). Should these global discussions be turned into timely actions, we expect EMDEs to show significant improvement with regard to external vulnerability during the COVID-19 shock and to further achieve better debt sustainability outcomes after the crisis.

Notes

1. [Krugman \(2020\)](#) suggests that in a world of already low-interest rates, fiscal stimulus packages will not be harmful and that countries should not be concerned with high debt figures.
2. Empirical literature that has examined the relation between growth and debt in EMs shows a non-linear relationship such as an inverted U-shaped relation, where it starts positive then turns

negative past a certain threshold. For example, [Pattillo et al. \(2004\)](#) show that in high indebted countries, doubling debt reduces growth by 1%.

3. When external debt reaches a threshold of 60% of GDP, annual growth declines by 2% and can be cut in half for higher external debt levels ([Reinhart and Rogoff, 2010](#)).
4. Other literature such as [Fincke and Greiner \(2014\)](#) found a positive relation between debt and growth in EMs and denoted that this could be because of the specifics of these economies characterized by surging growth rates and thus an expanding public sector. For more empirical evidence, see [Reinhart and Rogoff \(2010\)](#), [Kumar and Woo \(2010\)](#), [Fincke and Greiner \(2015\)](#) and [Pattillo et al. \(2004, 2002\)](#).
5. Institute of International Finance. <https://www.iif.com/>
6. IMF has developed the EWS in the end 1990s to assess countries' external vulnerabilities to shocks and crises. EWS variables are current account deficit, STD over reserves, export growth, real exchange rate appreciation and the change in reserves ([Berg and Pattillo, 1998](#)).
7. Debt sustainability is measured based on the indebtedness (debt stock and service) relative to the repayment capacity (e.g. GDP, exports, revenues, etc.; IMF, 2014).
8. However, debt-to-GDP is also useful in the cases where public debt is dominant, as the ratio relates to the primary source of repayment such cases and economies would switch to servicing the debt from domestic resources (IMF, 2014).
9. With minor modifications due to data availability.
10. [Combes et al. \(2011\)](#) assert that more flexible exchange rates minimize exchange rate fluctuations and recommend that countries with poor and less prudent financial markets adopt more flexible exchange rates during shocks.
11. For more explanation on the possible reasons behind REER appreciation, see [Noureldin \(2017\)](#).
12. Data on initial crisis impact are not available for Lebanon and Argentina.
13. According to IIF Global Debt Monitor ([Tiftik and Mahmood, 2020](#)).
14. The G20 DSSI was announced April 15, 2020, by the G20 as a World Bank-IMF Initiative in response to the COVID-19 pandemic. The initiative calls for "an NPV (net present value)-neutral, time-bound suspension of principal and interest payments for eligible countries that make a formal request for debt relief from their official bilateral creditors and encouraging private creditors to participate on comparable terms" ([World Bank, 2020a](#)).

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Further reading

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Appendix 1. Sample EMDEs

Our sample EMDEs includes a set of EMDEs:

- New advanced economies: Russia (Rus), Korea (Kor), Turkey (Tur), Ukraine (Ukr).
- High income developing countries: Argentina (Arg), Brazil (Brz), Chile, China, Colombia (Col), Lebanon (Leb), Malaysia (Mal), Mexico (Mex), Saudi Arabia (KSA), South Africa (SA), Thailand (Thai), UAE.
- Middle-income developing countries: Egypt (Egp), India (Ind), Indonesia (Indo), Nigeria (Nig).
- Low-income countries only Ethiopia (Eth) is included in the analysis, upon data availability, due to its high growth rates that exceeded an average of 10% and observed economic success in the past years (Rafoul and Raju, 2019).

Appendix 2. Technical notes

- All indices are calculated as simple average of their components mentioned in [Table 1](#).
- Countries are ranked in terms of level of indebtedness and fragility through statistically dividing them into four main quartiles as in the following table.

Index range	Overindebtedness index	Financial fragility	External vulnerability
Very high	12.6	9.1	11.5
High	8.8	5.5	7.5
Medium	5.5	3.1	6
Low	4.1	2.5	4.6

Table A1.
Quartile ranges for
the calculated indices

Corresponding author

Sarah Elkhishin can be contacted at: sarah.elkhishin@bue.edu.eg

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