

External Debt Vulnerability in Emerging Markets and Developing Economies During the Covid-19 Shock

Sarah El-Khishin and Mahmoud Mohieldin

EXTERNAL DEBT VULNERABILITY IN EMERGING MARKETS AND DEVELOPING ECONOMIES DURING THE COVID-19 SHOCK

Sarah El-Khishin¹ and Mahmoud Mohieldin²

Working Paper No. 1413

November 2020

The Authors appreciate the contribution of Jailan El-Saeed for providing research assistance and data work.

Send correspondence to:
Sarah El-Khishin
The British University in Egypt
Sarah.elkhishin@gmail.com

¹ Assistant Professor of Economics, the British University in Egypt.

² Professor of Economics and Finance, Cairo University. Mahmoud.mohieldin@feps.edu.eg

First published in 2020 by
The Economic Research Forum (ERF)
21 Al-Sad Al-Aaly Street
Dokki, Giza
Egypt
www.erf.org.eg

Copyright © The Economic Research Forum, 2020

All rights reserved. No part of this publication may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without permission in writing from the publisher.

The findings, interpretations and conclusions expressed in this publication are entirely those of the author(s) and should not be attributed to the Economic Research Forum, members of its Board of Trustees, or its donors.

Abstract

In this paper we assess to what extent the COVID-19 shock is expected to create a debt crisis in emerging markets and developing economies (EMDEs). We propose two questions: (1) what are the main determinants of EMDEs external vulnerability? And (2) How vulnerable are EMDEs to the current COVID-19 shock compared to the Global Financial Crisis (GFC)? In addition to a descriptive analysis of the determinants of EMDEs external vulnerability, we design two sub-indices of overindebtedness and financial fragility that capture EMDEs' distinct characteristics. The sub-indices together illustrate the overall external vulnerability to the current shock. Results show EMDEs are even more vulnerable than they were at the onset of the global financial crisis (GFC), suggesting the impact of the current shock might be more devastating and recovery more distant. 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 accommodative policy measures, and in some cases unmonitored fiscal expansion. Current debt threats in examined EMDEs arise mainly from debt composition, architecture and the domination of volatile debt forms - primarily foreign currency-denominated bonds. This emphasizes the need for country-level debt portfolio management as well as timely global actions in response to the shock. Furthermore, EMDEs need to strike a balance between temporary accommodative measures and the post-shock monetary-fiscal policy mix that prevent a deflation spiral without worsening indebtedness and financial fragility. It is necessary that EMDEs maintain stronger financial prudence in the face of growing credit demand. This is particularly important in light of the perceived *too-optimistic* sentiment driven by monetary expansion and injected liquidity; it already increased speculative activities and raise concerns about growing Ponzi finance activities and fears of a repeated Minsky's moment after the COVID-19 shock.

Keywords: External Debt, COVID-19, Financial Fragility, Debt Sustainability.

JEL Classifications: E44, E62, F3.

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: (1) what are the determinants of EMDEs external vulnerability? (2) How vulnerable are EMDEs to the current COVID-19 shock compared to the 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 global financial crisis (GFC).

Results show increased external vulnerability in sample EMDEs compared to the GFC era, suggesting the current crisis could be deeper and require 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 two we review the political economy of debt during crises in theory and literature. EMDEs debt characteristics are discussed in section three. In section four, we discuss our methodology and data. In section five we present the analysis of external vulnerability in sample EMDEs. Finally, 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 & Strout, 1966) two gap models offer 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.

Proposition (1): What distinguishes a mild downturn from a 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 (1) debt liquidation which leads to (2) excessive distress selling and (3) local currency depreciation. These in turn lead to a (4) direct decline in business net worth and arising bankruptcies, (5) a fall in overall level of profit and hence (6) a severe decline in GDP, employment, and trade. The overall economic contraction will lead to (7) further pessimism and loss of confidence in the business climate, whereby the financial sector will witness (8) more hoarding activities and the velocity of circulation will decrease. This will finally result in an overall decrease in (9) 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, surges in the external finance premium and increases in risk aversion after the shock quickly transmitted into the U.S. 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's called the Minsky's cycle extended Fisher's arguments on the causes of debt crises. According to Fisher (1933), new investment opportunities are 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).

Proposition (2): History shows that a debt deflation process can be interrupted and reversed through: (1) big government, (2) big bank (3) global monetary harmony and (4) 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, curbing 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; (1) big government, (2) big bank, (3) global monetary harmony (Bretton Woods), and (4) 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 & 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,³ reflecting as his support for the big government and big bank theories.

Proposition (3): The Relevance of big government theory to EMDEs with structural macro-fiscal imbalances.

The above arguments focus mainly on mature economies, typically the U.S. 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 big government during recessions (El-khishin & Zaky, 2019). This results in fiscal illusions, where politicians tend to quickly resort to stimulus packages during recessions without counterbalancing during booms (Alesina & 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).

Proposition (4): 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.⁴ (Reinhart & 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

³ 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.

⁴ Empirical literature that has examined the relation between growth and debt in emerging markets 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, Poirson, and Ricci (2004) show that in high indebted countries, doubling debt reduces growth by 1%.

in home currency.^{5,6} On the other hand, literature also referred to the possible reverse causality between debt and growth. For example (Easterly 2001; Pattillo, Poirson, and Ricci 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 towards more household debt and external debt are key players in recurring financial crisis. 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 assets 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 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 that financial deleveraging was channeled into the real economy through (1) financial fragility and (2) 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 EMDEs External Debt Characteristics Before the COVID-19 Shock

In a webinar in April 2020, Ben Bernanke argued that the COVID-19 economic shock is not very comparable to the Great Depression, which was a result only of human error, stating that the U.S. government’s “response [in the COVID-19 relief bill of March 27, 2020] is more like emergency relief than it is a typical stimulus or anti-recessionary response” (Bernanke, 2020). Indeed,

⁵ 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 & Rogoff, 2010).

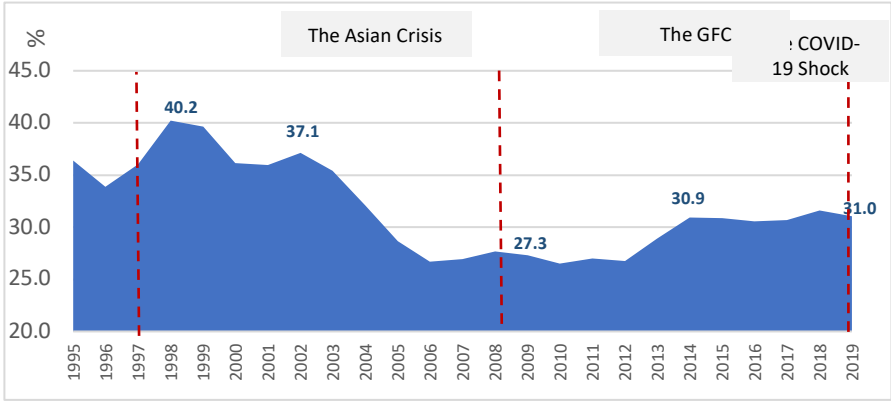
⁶ Other literature such as (Fincke & Greiner, 2014) found a positive relation between debt and growth in emerging markets and denoted that this could be because of the specifics of these economies characterized by surging growth rates and thus an expanding public sector. For more empirical evidence, see Reinhart and Rogoff (2010), Kumar and Woo (2010), Fincke and Greiner (2015) and Pattillo, Poirson, and Ricci (2004; 2002).

COVID-19 is an exogenous event that does not result from economic and financial error, unlike the antecedents to the Great Depression and the GFC. However, being concerned with EMDEs - not the U.S. economy as is the focus of Bernanke’s work- and given the noted unique characteristics of the COVID19 shock, we anticipate that the crisis, shall have a significant impact on economic performance in general and on debt profiles in particular in EMDEs.

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, balance of payments imbalances result in disturbances in capital flows that, if coupled with insufficient foreign direct investment, typically results in mounting external debt (Stiglitz & Rashid, 2020a).

While EMDEs have acted to stabilize their external debt burdens since 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).

Figure (1): External Debt as Percentage of GDP in EMDEs (1995-2019)

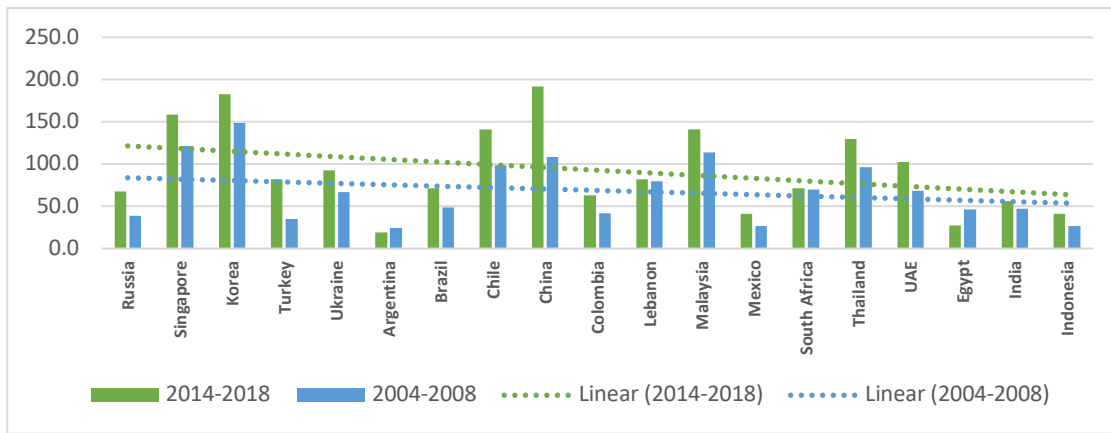


Source: IMF, World Economic Outlook Database, 2019.

Likewise, increased household and non-financial corporations borrowing still create 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 nonfinancial sector debt involving higher-risk activities within a low-yield environment (International Monetary Fund, 2020b). As (Roxburgh et al., 2010) and similar works analyzing debt post the GFC note, the

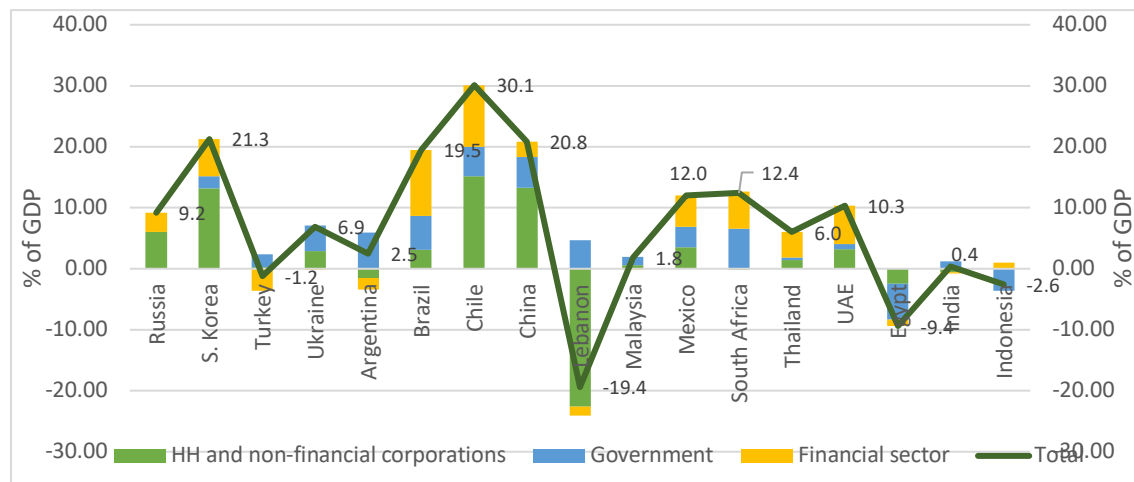
household-debt-to-personal-income ratio increased significantly worldwide in the years preceding the GFC. While economics predicted this would reverse after the GFC, household and nonfinancial borrowing continued to rise, as figure (2) indicates. Figure (3) also finds a rising debt-to-GDP ratio in most 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.

Figure (2): Total Stocks of Loans and Debt Securities Issued by Households and Non-financial Corporations % of GDP in Selected EMDEs



Source: (International Monetary Fund, 2020c)

Figure (3): Sectoral Indebtedness in Sample EMDEs, 2020Q1 versus 2019Q1

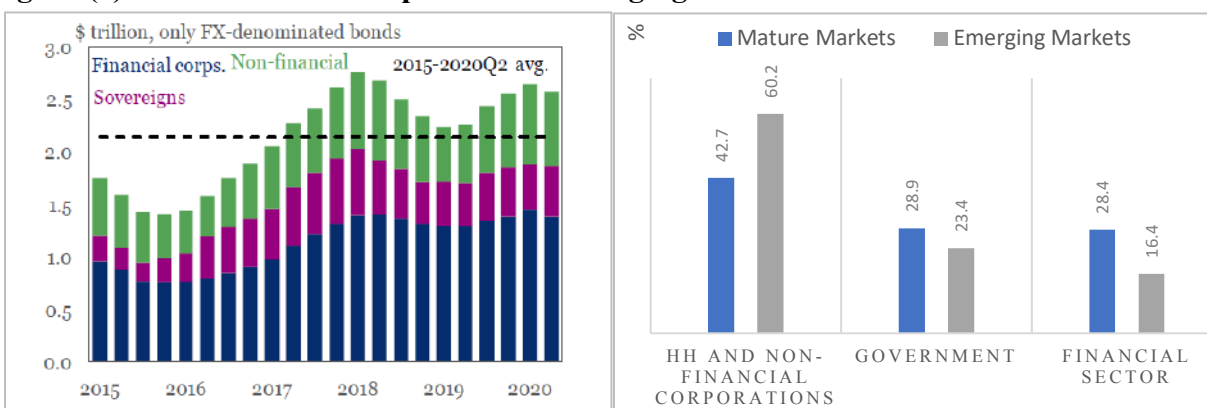


Source: Institute of International Finance (IIF) data; in: (Tiftik & Mahmood, 2020).

Total stocks of loans and debt securities issued by households and non-financial corporations as a share of GDP increased significantly in recent years. Today, household debt and non-financial

corporations' debt together constitute more than 60% of total EMDEs debt according to recently published Institute of International Finance data (figure 4).⁷ Corporate bonds constitute the largest share of foreign currency bond issuance in emerging markets (EM-30) as shown in the left side of figure (4). On average, emerging markets 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 & 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 & Rashid, 2020a).

Figure (4): Overall Debt Composition in Emerging Markets

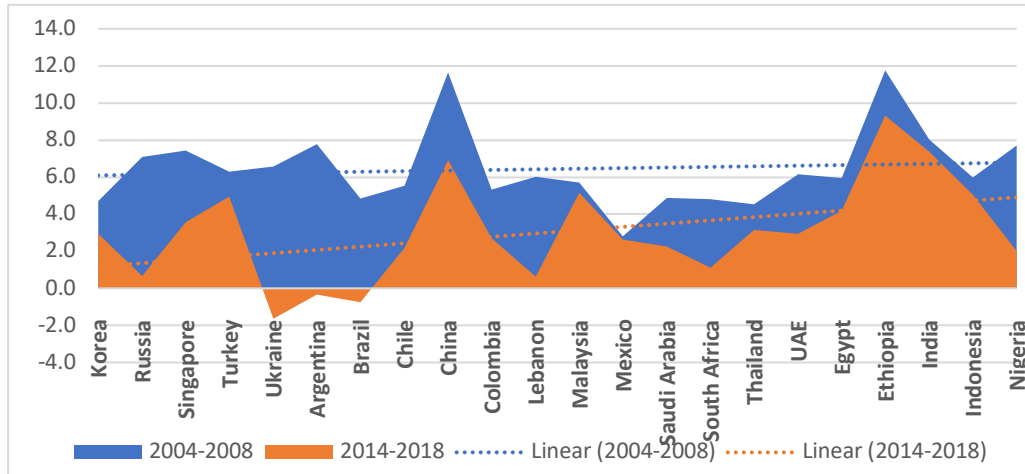


Source: IIF data, in Tiftik and Mahmood (2020).

The pre-COVID-19 weak growth outlook and geopolitical tensions are also important determinants debt distress crisis in EMDEs. The COVID-19 shock has met a slowing down 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 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.

⁷ Institute of International Finance. <https://www.iif.com/>.

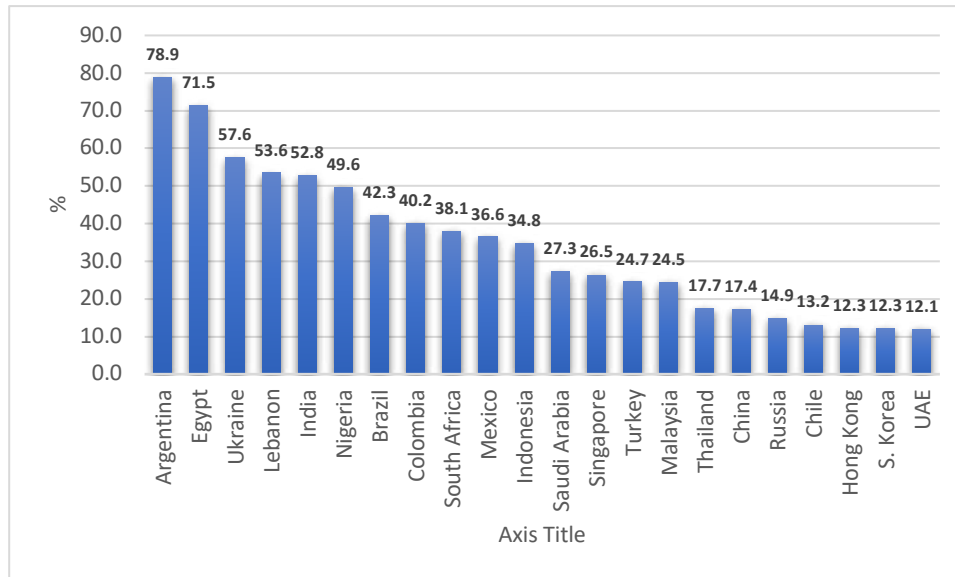
Figure (5): Average Real Growth Rates in Sample EMDEs, Pre-COVID-19 versus Pre-GFC



Source: International Financial Statistics.

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 & 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 a high domination of public debt, such as Argentina, Egypt, Ukraine, Lebanon, and India are particularly vulnerable (Figure 6).

Figure (6): Government Debt as Percentage of Total Debt in Sample EMDEs, 2020-Q1



Source: IIF data, in (Tiftik & Mahmood, 2020).

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 utilize 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 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 pressures and risks. The current pandemic is thus expected to leave many EMDEs with much greater deterioration in social spending, longer growth slowdown, higher unemployment rates than the GFC, which will consequently reflect on external debt levels and sustainability (Stiglitz & Rashid, 2020a).

The above identified characteristics of debt in EMDEs as well as 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 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 & 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.

4.1 The COVID-19 Crisis Index

(Sachs et al., 1996), and (Bussiere & 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, these indices were constructed to assess external debt vulnerability during crisis times.⁸ To create our crisis index, we average (1) changes in reserves and (2) changes in REER, both of which Bussiere and Mulder (1999) and

⁸ IMF has developed the Early Warning System (EWS) in end 1990s to assess countries' external vulnerabilities to shocks and crises. Early Warning System variables are current account deficit, short-term debt over reserves, export growth, real exchange rate appreciation and the change in reserves (Berg & Pattillo, 1998).

Sachs, Tornell, and Velasco (1996) represent as key indicators. We present the full definitions of the used variables and data sources later in this section.

4.2 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 two and the debt characteristics of EMDEs presented in section three. 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 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 nonresidents regardless of 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 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 & Rogoff, 2009). A year later they argued that, in times of crisis, external debt becomes the most significant indicator of indebtedness where both public and private debt matter and the distinction between them will be distracting once bailouts, collaterals, and currency constraints are considered (Reinhart & Rogoff, 2010).

In the External Debt Statistics guide published by IMF in 2014, indebtedness is the numerator measure for debt sustainability⁹ based on two main dimensions: (1) solvency and (2) liquidity. Debt stock indicators reflect solvency while debt service indicators reflect liquidity. Liquidity problems can cause solvency risks if not adequately addressed. (Bussiere & 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.

According to the IMF (International Monetary Fund, 2014), debt stock indicators reflect solvency while debt service indicators reflect liquidity. Given the distinct debt characteristics of EMDEs, we use external debt-to-exports ratio as an indicator for solvency and 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 has 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.¹⁰ 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 monetary base in order to assess countries' vulnerability to panics. Bussiere and Mulder (1999) and Sachs, Tornell, and Velasco (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 offer a better indicator in countries with "significant but uncertain access to capital markets"; where a smaller reserves to short-term debt ratio would indicate a greater incidence and depth of crises. Reserves/short-term debt (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 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).

⁹ 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).

¹⁰ However, debt-to-GDP is also useful in the cases where (1) public debt is dominant, as the ratio relates to the primary source of repayment such cases and (2) economies would switch to servicing the debt from domestic resources (IMF 2014).

Table (1): Overindebtedness and Financial Fragility sub-indices: Components and Data Sources *

OVERINDEBTEDNESS INDEX		FINANCIAL FRAGILITY INDEX	
LIQUIDITY	<p><i>Debt Service to Exports Ratio</i></p> <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 criteria. Dataset: (World Bank, 2020b) 	RESERVE ADEQUACY	<p><i>Reserves to Short-Term Debt Ratio</i></p> <ul style="list-style-type: none"> The ratio of reserves to short-term external debt (R/STD). We use the inverse of reserves to short-term debt indicators in the index, as suggested in (International Monetary Fund, 2000a) to capture reserve in-adequacy. The higher the value, the higher the reserve inadequacy in the sample country to group. Dataset: (International Monetary Fund, 2020d)
SOLVENCY	<p><i>External Debt to Exports Ratio</i></p> <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 year. Data: Author's calculation based on (World Bank, 2020b) data on Exports of goods, services and primary income (BoP, current US\$) & External debt stocks, total (DOD, current US\$). 	DEBT MATURITY	<p><i>Short-Term External Debt as Percentage of Total External Debt</i></p> <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 borrowing. Dataset: (World Bank, 2020b)
		DEBT STRUCTURE	<p><i>Household and Non-financial Corporations Debt</i></p> <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 debt. Dataset: (International Monetary Fund, 2020c)

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

Regarding the 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 percentage of total external debt as an indicator of the degree of the dominance of short-term debt 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 & Rogoff, 2010) and (Fincke & Greiner, 2015) in the selection of sample EMDEs.¹¹ 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 Annex (A1). As noted in table (1), we depend on International Debt Statistics-The

¹¹ With minor modifications due to data availability.

World Bank and International Financial Statistics-IMF published data. For data on Real Effective Exchange Rate (REER), we use Bruegel Datasets published in (Darvas and Zsolt, 2020).

5 Will the current shock create a full-fledged debt crisis in EMDEs? 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.

5.1 Defining the onset point of the COVID-19 crisis

Research suggests stock market performance and capital outflows are primary determinants of a crisis onset. Following (Bussiere & 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 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 emerging markets starting January 2020, which affirms JP Morgan Emerging Market Bond Index trend during the same period.

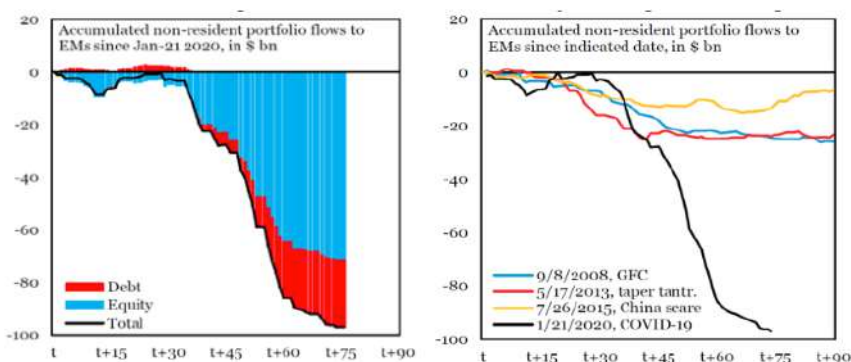
Figure (7): JP Morgan Emerging Markets Bond Index



Source: JP Morgan

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 increasing 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.

Figure (8): Accumulated Non-Resident Portfolio Flows to Emerging Markets (EMs)

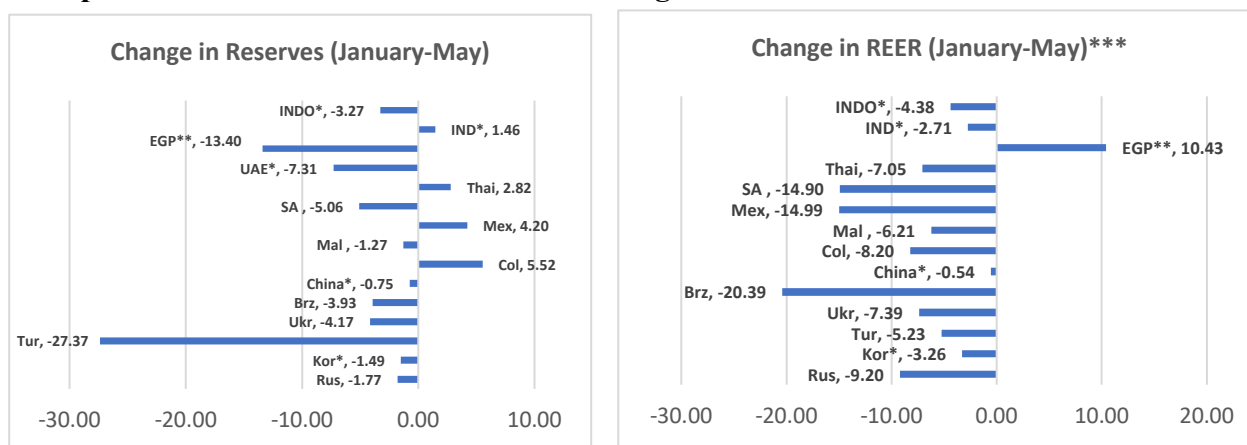


Source: IIF daily Portfolio Tracker, in: Hevia and Neumeyer, 2020. “A perfect storm: COVID-19 in emerging economies,” *CEPR Policy Portal*, April.

5.2 An Illustration of the Components of the Crisis Index Indicators in Sample EMDEs

The below illustration shows loss in reserves in most of the sample EMDEs during the period January-May 2020. Reserve losses are among the indicators that deteriorate early in times of crises since central banks inject liquidity as part of the initial response to the shock. Results are also intuitive given the appreciation of US dollar and other advanced economies’ currencies against the EMDEs’ currencies during the examined period (Corsetti & 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.

Figure (9): An Illustration of the Components of the STV/BM Crisis Index Indicators in Sample EMDEs after the COVID-19 Shock Began



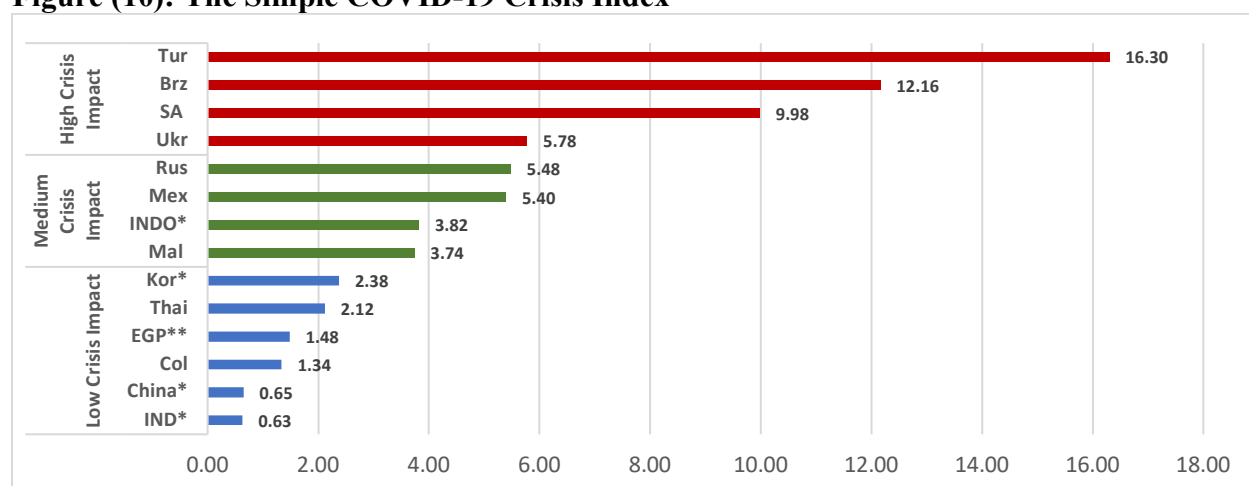
* January-April.

** 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. See Annex for data for technical notes.

Figure (10): The Simple COVID-19 Crisis Index



* January-April.

** January-March.

Source: Author calculations based on International Financial Statistics. See Annex (A4) for data sources and technical notes.

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 (1) composition of capital flows (FDI, portfolio investment, sovereign bonds, commercial loans, and remittances), (2) size of monetary injections and (3) 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 & 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).¹²

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 U.S. dollar. We lack information about Egypt's reserves or REER post 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 dollar in January as indicated earlier, suggesting that Egypt's REER appreciation is temporary.¹³ 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

¹² (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.

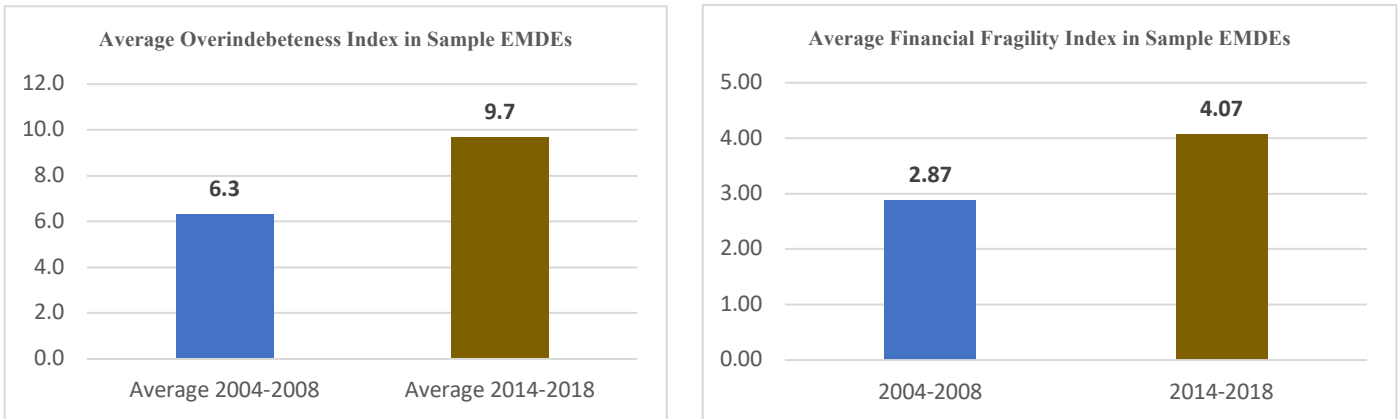
¹³ For more explanation on the possible reasons behind REER appreciation, see (Noureldin, 2017).

the global economy slump which will definitely affect the size of capital flows in the Egyptian economy (IMF 2020a).

5.3 Overindebtedness and Financial Fragility in EMDEs

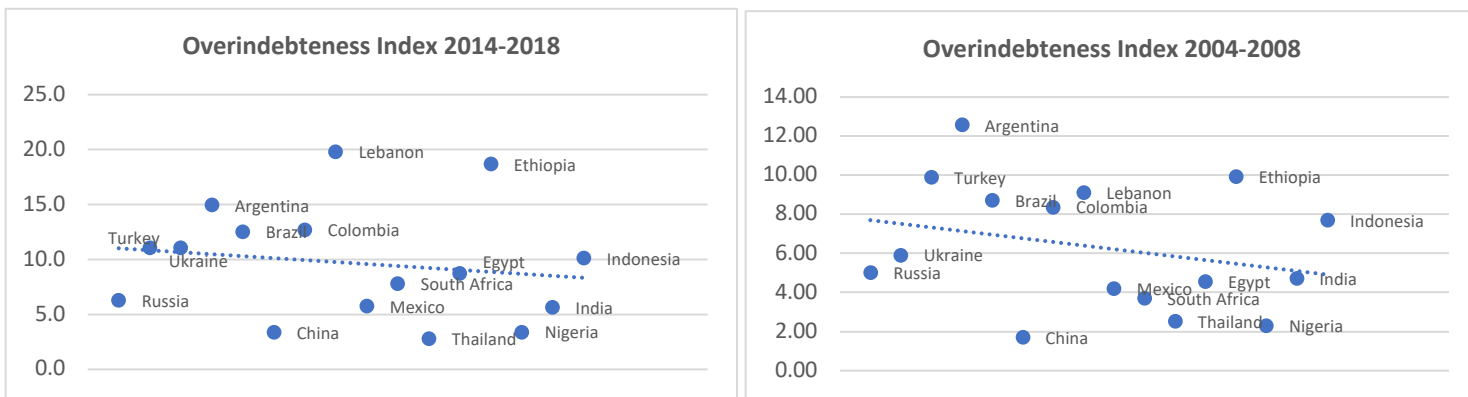
A presentation of calculated indices and EMDEs country rankings is presented in figures (11) through figure (16) followed by our analysis and interpretation of results.

Figure (11): Average Overindebtedness and Financial Fragility Index in a Sample EMDEs, Pre-COVID-19 vs. Pre-GFC Crisis



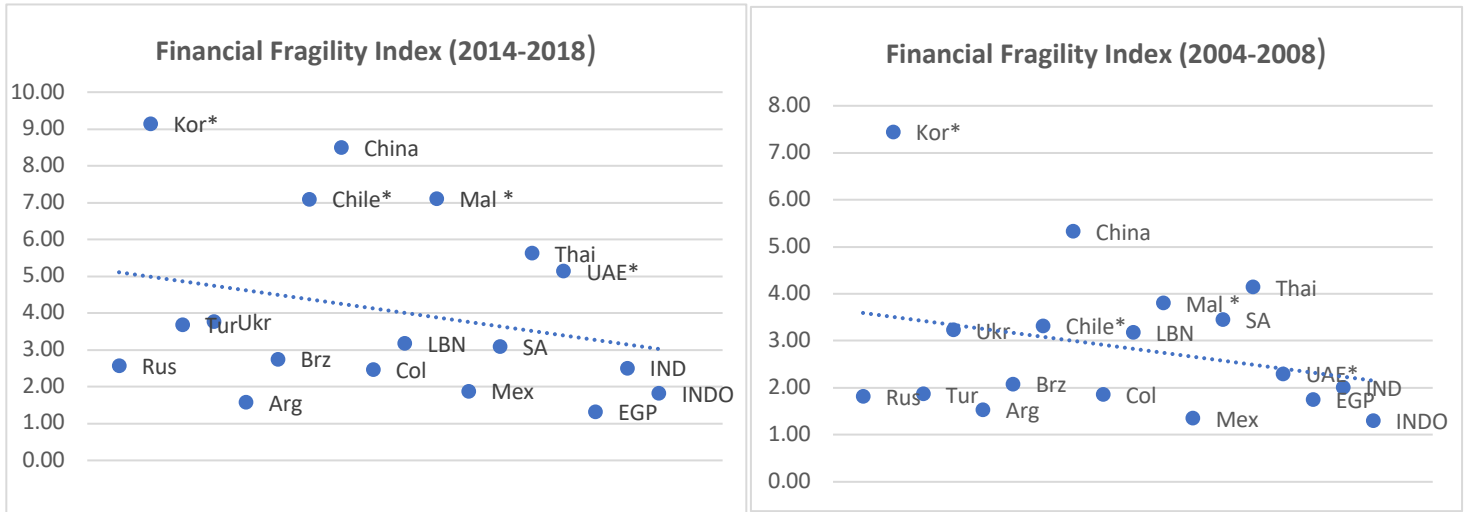
Source: Authors' calculations, see Annex (A2) and table (1) for definitions, data sources and technical notes.

Figure (12): Overindebtedness Index in sample EMDEs, by country, Pre-COVID-19 vs. Pre-GFC Crises



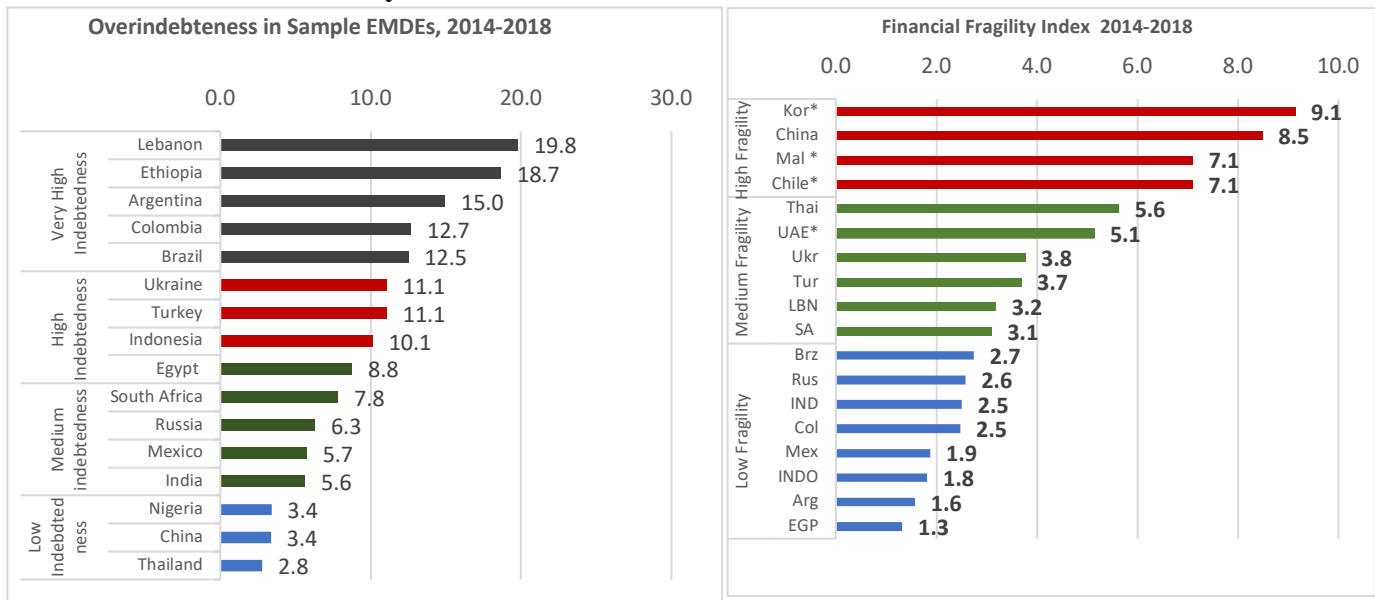
Source: Authors' calculations, see Annex (A2) and table (1) for definitions, data sources and technical notes.

Figure (13): Financial Fragility Index in Sample EMDEs by Country, Pre-COVID-19 vs. Pre-GFC Crises



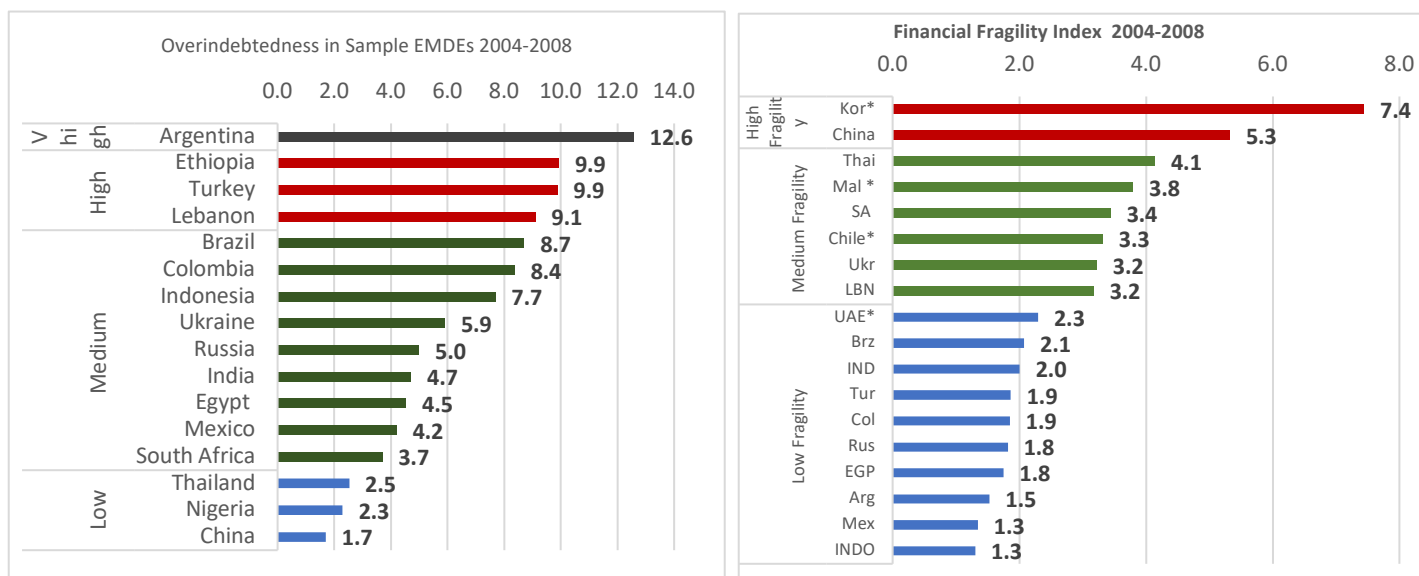
* Short-term debt/total debt is missing; hence, the index is a simple average of the other two indicators only.
 Source: Authors' calculations, see Annex (A2) and table (1) for definitions, data sources and technical notes.

Figure (14): Sample EMDEs Rankings in Overindebtedness, Financial Fragility, and External Vulnerability Pre-COVID-19



* Short-term debt/total debt is missing; hence, the index is a weighted average of the other two indicators only.
 ** We use the inverse of Reserves/Short-Term Debt as a measure of reserve inadequacy.
 Source: Authors' calculations, see Annex (A2) and table (1) for definitions, data sources and technical notes.

Figure (15): Sample EMDEs Rankings in Overindebtedness, Financial Fragility, and External Vulnerability - Pre- GFC

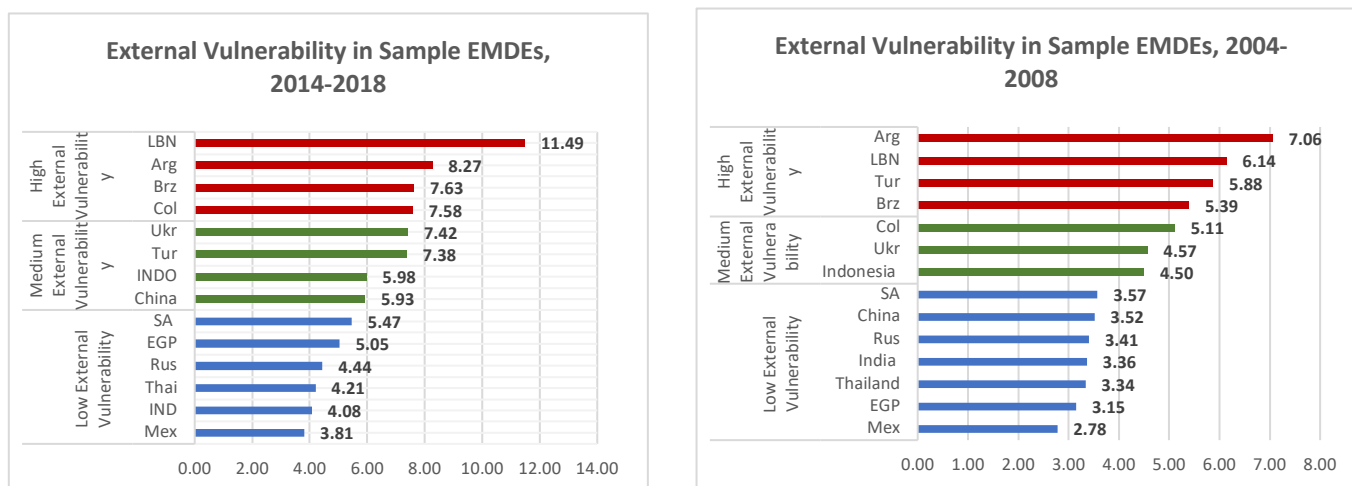


* Short-term debt/total debt is missing; hence, the index is a weighted average of the other two indicators only.

** We use the inverse of Reserves/Short-Term Debt as a measure of reserve inadequacy.

Source: Authors' calculations, see Annex (A2) and table (1) for definitions, data sources and technical notes.

Figure (16): External Vulnerability Pre-COVID-19 vs. Pre- GFC



Source: Authors' calculations, see Annex (A2) and table (1) for definitions, data sources and technical notes.

5.4 EMDEs 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 the pre-GFC period. Average Overindebtedness Index for the sample countries was 6.3 points in the pre-GFC period and 9.7 points in the pre-COVID-19 period. Similarly, 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. Deteriorated reserve adequacy and worsened debt architecture and maturity are expected to create supply side disruptions which will increase the initial magnitude of the shock and lead to slow recovery.

Higher household debt and increased share of short-term debt 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.

While many countries appear to be currently reserve adequate; that is, their reserves to short-term debt 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.

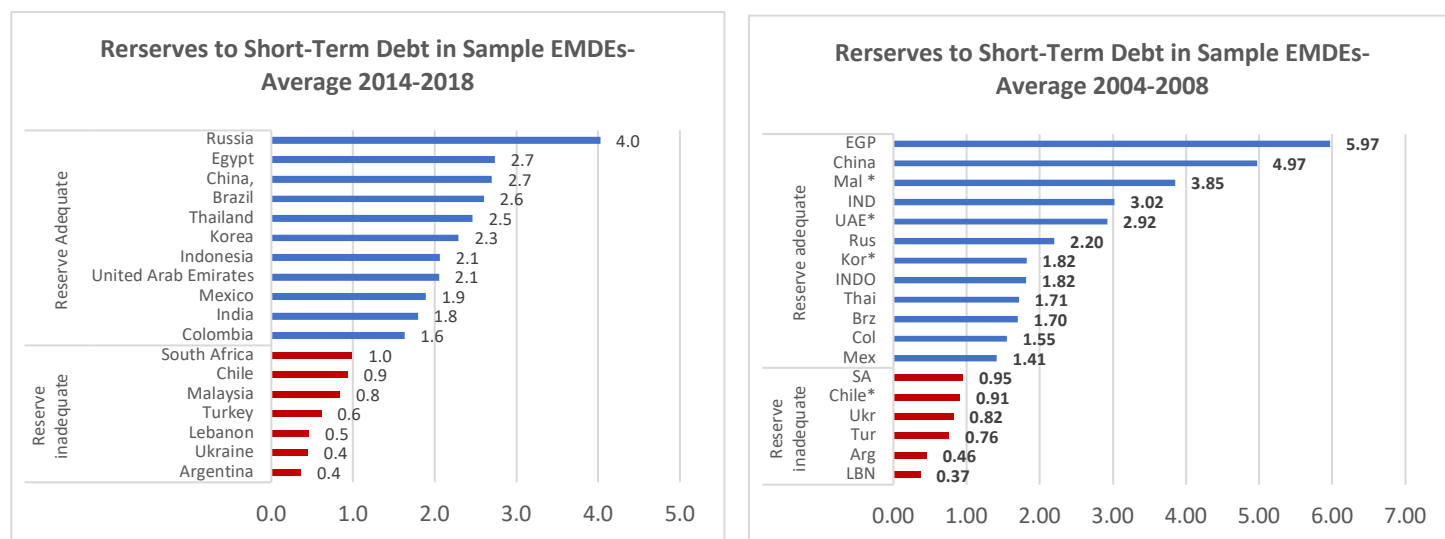
Strong reserve adequacy in some of the examined EMDEs might counter the effect of the fragile financial status revealed in weak debt architecture and maturity mismatches and can help absorb the initial impact of the shock on the foreign exchange market. Nevertheless, we expect this countering effect 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 doesn't not necessarily indicate the crisis will have a larger impact on their external vulnerabilities. Russia, Mexico, South Africa, and Indonesia were subject to higher 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 as well as 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 as well as a possibly longer time to recover.¹⁴

Figure (17): Reserves to Pre-COVID-19 vs. Pre-GFC



Source: Source: Authors’ calculations, see Annex (A2) and table (1) for definitions, data sources and technical notes.

In Egypt, Thailand, and India, external vulnerability is relatively adequate, mainly because of sound financial fragility as well as 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 three. 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).¹⁵

¹⁴ Data on initial crisis impact are not available for Lebanon and Argentina.

¹⁵ According to IIF Global Debt Monitor (Tiftik & Mahmood, 2020).

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 emerging markets debt-to-GDP ratio in 2020 (Tiftik & Mahmood, 2020). However, despite this surge in household debt in China and the increased short-term debt 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 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 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 the pre-GFC era. Our main observations are as follows:

- Three pre-existing conditions are driving the external vulnerabilities in EMDEs today: (1) debt architecture in the form of highly volatile, short-term and foreign currency denominated debt, (2) exchange rate imbalances and (3) 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 (1) highly vulnerable to the initial *contagion* effect of the COVID-19 shock, and thus show (2) massive

capital outflows and exchange rates disturbances, then a (3) 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, and the analysis in this paper will be repeated in the future. 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 towards 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 U.S. economy – given the low interest rate environment and the U.S dollar 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. Such volatile forms of debt are accompanied with high default risks and are not eligible for re-structuring than other debt forms. Middle- and low-income countries, where financial and non-financial bond markets are still immature, may suffer more from the domination of sovereign bonds as a main

source of finance. 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 bonds 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)¹⁶ 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 hence 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 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 regards to external vulnerability during the COVID-19 shock and to further achieve better debt sustainability outcomes after the crisis.

¹⁶ The G20 DSSI was announced April 15th, 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) .

References

- Alesina, A., & Passalacqua, A. (2015). The Political Economy of Government Debt. In *National Bureau of Economic Research* (Vol. 13, Issue 3).
- Berg, A., & Pattillo, C. (1998). Are Currency Crises Predictable? A Test. *IMF Working Papers*, WP/98/154.
- Bernanke, B. S. (1983). Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression. *The American Economic Review*, 73(3), 257–276.
- Bernanke, B. S. (1990). Financial Fragility and Economic Performance. *The Quarterly Journal of Economics*, 105(1), 87–114.
- Bernanke, B. S. (1995). The Macroeconomics of the Great Depression : A Comparative Approach Author (s): Ben S . Bernanke Source : Journal of Money , Credit and Banking , Vol . 27 , No . 1 (Feb . , 1995), pp . 1-28 Published by : Blackwell Publishing on behalf of Ohio State Un. *Journal of Money, Credit and Banking*, 27(1), 1–28.
- Bernanke, B. S. (2018a). The real effects of disrupted credit: Evidence from the global financial crisis. *Brookings Papers on Economic Activity*, 2018(Fall), 251–342. <https://doi.org/10.1353/eca.2018.0012>
- Bernanke, B. S. (2018b). The Real Effects of the Financial Crisis. *Brookings Papers on Economic Activity*, September.
- BIS. (2003). *BIS Papers Fiscal issues and central banking in emerging economies* (R. Moreno (Ed.); Issue 20). Bank for International Settlements.
- Bussiere, M., & Mulder, C. (1999). External Vulnerability in Emerging Market Economies: How Liquidity can Offset Weak Fundamentals and the Effects of Contagion. *IMF Working Papers*, WP/99/88.
- Calvo, G. A., Reinhart, C. M., & Végh, C. A. (1995). Targeting the real exchange rate: theory and evidence. *Journal of Development Economics*, 47(1), 97–133. [https://doi.org/https://doi.org/10.1016/0304-3878\(95\)00006-2](https://doi.org/https://doi.org/10.1016/0304-3878(95)00006-2)
- Chenery, H. B., & Strout, A. M. (1966). Foreign Assistance and Economic Development. *The American Economic Review*, 56(4), 679–733.
- Combes, J. L., Kinda, T., & Plane, P. (2011). Capital flows, exchange rate flexibility, and the real exchange rate. *IMF Working Papers*, wp/11/9. <https://doi.org/10.1016/j.jmacro.2012.08.001>
- Corsetti, G., & Marin, E. (2020). The dollar and international capital flows in the COVID-19 crisis. *CEPR Policy Articles*. <https://voxeu.org/article/covid-19-crisis-dollar-and-capital-flows>
- Darvas and Zsolt. (2020). *Real effective exchange rates for 178 countries: a new database, BRUEGEL DATASETS*. <https://www.bruegel.org/publications/datasets/real-effective-exchange-rates-for-178-countries-a-new-database/>
- Easterly, W. (2001). Growth Implosions and Debt Explosions: Do growth slowdowns cause public debt crises. *Contributions to Macroeconomics*, 1, 1–24. <https://doi.org/10.1017/CBO9781107415324.004>
- Eggertsson, G. B., & Krugman, P. (2012). CEFIN Working Papers A study of consumer credit. *American Economic Review*, 44(1), 287. <https://doi.org/10.1093/qje/qjs023>. Advance
- El-khishin, S. (2020). Countermeasures for the COVID-19 Outbreak in Egypt: This Time is Really Different. *ERF Policy Brief*, 51(51), 1–5.

- El-khishin, S., & Kassab, D. (2020). *Monetary-Fiscal Games under Political Uncertainty: the Role of Institutions*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3655641
- El-khishin, S., & Zaky, M. (2019). The Trinity of Budgetary Institutions, Political Institutions and Fiscal Cyclicity: Evidence from Egypt. *ERF Working Papers*, 1351.
- Ellmers, B. (2020). *Financing for Development in the Era of COVID-19 and Beyond A snapshot of the ongoing work at the United Nations in times of crisis*. Global Policy Froum, Brot für die Welt and Misereor. <https://www.globalpolicy.org/home/272-general/53232-financing-for-development-in-the-era-of-covid-19-and-beyond.html>
- Fincke, B., & Greiner, A. (2014). Public debt and economic growth in emerging market economies. In *Working papers in Economics and Management* (Issue 08). www.wiwi.uni
- Fincke, B., & Greiner, A. (2015). Public debt and economic growth in emerging market economies. *South African Journal of Economics*, 83(3), 357–370. <https://doi.org/10.1111/saje.12079>
- Fisher, I. (1933). Debt-Deflation Theory of Great Depressions. *Econometrica*, 1–21. *Institute of International Finance*. (n.d.). <https://www.iif.com/>
- International Monetary Fund. (2000a). Debt- and Reserve-Related Indicators of External Vulnerability. *Policy Development and Review Department*.
- International Monetary Fund. (2000b). *Debt and Reserve-Related Indicators of External Vulnerability*. Policy Development and Review Department.
- International Monetary Fund. (2014). *External Debt Statistics Guide for Compilers and Users*. The International Monetary Fund.
- International Monetary Fund. (2018). *Debt Sustainability Analysis for Market-Access Countries*. <https://www.imf.org/external/pubs/ft/dsa/mac.htm>
- International Monetary Fund. (2020a). *Egypt Takes Proactive Approach to Limit the Pandemic's Fallout*.
- International Monetary Fund. (2020b). *Global Financial Stability Report: Markets in the time of COVID-19*. <https://doi.org/10.2139/ssrn.2753667>
- International Monetary Fund. (2020c). *IMF Data Mapper*. https://www.imf.org/external/datamapper/Reserves_STD@ARA/CHN/IND/BRA/RUS/ZAF
- International Monetary Fund. (2020d). *International Financial Statistics*.
- Kose, M. A., Nagle, P., Ohnsorge, F., & Sugawara, N. (2020). Global Waves of Debt: Causes and Consequences. In *World Bank*.
- Krugman, P. (2020). The Case of Permanent Stimulus. In R. Baldwin & B. W. di Mauro (Eds.), *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever it Takes* (pp. 213–219). CEPR Press.
- Kumar, M. S., & Woo, J. (2010). Public debt and growth. *IMF Working Papers*, wp/10/74, 1–47.
- Minsky, H. P. (1981). The Breakdown of the 1960s Policy Synthesis. *Hyman P. Minsky Archive*., 1981(50), 49–58. <https://doi.org/10.3817/1281050049>
- Minsky, H. P. (1986). *Stabilizing an Unstable Economy*. Yale University Press, 1986. Print.
- Minsky, H. P. (1994). Failed and Successful Capitalisms: Lessons From the Twentieth Century. *Hyman P. Minsky Archive*, 47. http://digitalcommons.bard.edu/hm_archive/47

- Mohieldin, M., Hussein, K., & Rostom, A. (2019). On financial development and economic growth in Egypt. *Journal of Humanities and Applied Social Sciences*, 1(2), 70–86. <https://doi.org/10.1108/jhass-08-2019-0027>
- Nassar, H., Osman, M., & El-khishin, S. (2017). A Micro Investigation of the Reasons behind Demographic Transition in Egypt: Will Egypt Witness a Demographic Window? *International Journal of Economic Research*, 14, 289–325.
- Nelson, R., & Hardingham, N. (2019). *Five Reasons Why Investors are Turning to Emerging Markets*. Franklin Templeton Fixed Income Group.
- Noureldin, D. (2017). Much Ado about the Egyptian Pound: Exchange Rate Misalignment and the Path Towards Equilibrium. In *Egyptian Center for Economic Studies: Vol. No.190*. <https://doi.org/10.1515/rmeef-2018-0002>
- OECD. (2020). COVID-19 and global capital flows. *OECD Policy Responses to Coronavirus (COVID-19)*.
- Pattillo, C., Poirson, H., & Ricci, L. (2002). External Debt and Growth. *IMF Working Papers*, WP/02/69.
- Pattillo, C., Poirson, H., & Ricci, L. (2004). What Are the Channels Through Which External Debt Affects Growth? *IMF Working Papers*, 04(15), 1. <https://doi.org/10.5089/9781451843293.001>
- Reinhart, C. M., & Rogoff, K. S. (2009). *This time is different: Eight centuries of financial folly*. Princeton University Press. <https://doi.org/10.1080/09585206.2010.512722>
- Reinhart, C. M., & Rogoff, K. S. (2010). Growth in a time of debt. *The American Economic Review*, 100(2), 573–578. <https://doi.org/10.1257/aer.100.2.573>
- Sachs, J. D., Tornell, A., & Velasco, A. (1996). Financial Crises in Emerging Markets: The Lessons from 1995. *Brookings Papers on Economic Activity*, 1, 147–215. <https://doi.org/10.2307/2534648>
- Stiglitz, J., & Rashid, H. (2020a). Averting Catastrophic Debt Crises in Developing Countries: Extraordinary challenges call for extraordinary measures. *CEPR*, July.
- Stiglitz, J., & Rashid, H. (2020b). How to Prevent the Looming Sovereign-Debt Crisis by Joseph E. *Project Syndicate*. <https://www.project-syndicate.org/commentary/how-to-prevent-looming-debt-crisis-developing-countries-by-joseph-e-stiglitz-and-hamid-rashid-2020-07>
- The Economist. (2020, May). Which emerging markets are in most financial peril?., *The Economist*.
- Tiftik, E., & Mahmood, K. (2020). Global Debt Monitor Sharp spike in debt ratios. *Institute of International Finance*.
- United Nations. (2020a). Debt and COVID-19: A Global Response in Solidarity Table of Contents. *UN Executive Office of the Secretary-General (EOSG) Policy Briefs and Papers*. <https://doi.org/10.18356/5bd43e89-en>
- United Nations. (2020b). *Roundtable of Experts on Financing Sustainable Development in the Era of COVID-19 and Beyond*. United Nations Financing Sustainable Development. <https://www.un.org/en/coronavirus/roundtable-of-experts-on-financing-sustainable-development>
- United Nations Conference on Trade and Development. (2019). *SDG Pulse 2019*.
- Vercelli, A. (2009). A Perspective on Minsky Moments: The Core of the Financial Instability

- Hypothesis in Light of the Subprime Crisis. *SSRN Electronic Journal*, 579.
<https://doi.org/10.2139/ssrn.1486128>
- Wheatley, J. (2020, July). Developing nations squeezed as virus fuels public spending. *Financial Times*. <https://www.ft.com/content/c16f83c5-3444-4c78-afea-fa72c4b9c09c>
- World Bank. (2020a). *COVID 19: Debt Service Suspension Initiative*. The World Bank.
<https://www.worldbank.org/en/topic/debt/brief/covid-19-debt-service-suspension-initiative>
- World Bank. (2020b). *International Debt Statistics*.
<https://data.worldbank.org/indicator/DT.TDS.DECT.EX.ZS>

Annex (A1): The Sample EMDEs

Our sample EMDEs includes a set of EMDEs:

- NAEs (new advanced economies): Russia (Rus), Korea (Kor), Turkey (Tur), Ukraine (Ukr).
- HICs (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;
- MICS (middle-income developing countries): Egypt (Egp), India (Ind), Indonesia (Indo), Nigeria (Nig).
- LICs (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).

Annex (A2): 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.

Table (A2.1): Quartile ranges for the calculated indices

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