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Research Report

Private lending and debt risks of low-income developing countries

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Report

Private lending and debt risks of low-income developing countries

Bruno Bonizzi, Christina Laskaridis
and Jesse Griffiths

June 2020

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Cover photo: A woman measures grain in Ethiopia. Credit: Kelley Lynch.

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Acronyms

BOJ	Bank of Japan
CAC	collective action clauses
DSA	debt sustainability analysis
DSF	Debt Sustainability Framework
EA	Euro Area
ECB	European Central Bank
FCI	Financial Conditions Index
GDP	gross domestic product
GNI	gross national income
HIPC	Heavily Indebted Poor Country
ICMA	International Capital Markets Association
IDA	(World Bank) International Development Association
IMF	International Monetary Fund
LIC	low-income country
LIDC	low-income developing country
LMIC	low- and middle-income country
NEER	nominal effective exchange rate
NFCI	Chicago National Financial Conditions Index
OFR-FSI	Office for Financial Research Financial Stress Index
PPG	public and publicly guaranteed
REER	real effective exchange rate
S&P	Standard & Poor's
VIX	(CBOE) Volatility Index
WB-IDS	World Bank International Debt Statistics

Executive summary

Low-income developing countries (LIDCs) are greatly affected by the coronavirus pandemic, and sovereign debt has become a major concern. The International Monetary Fund (IMF) already classified 44% of LIDCs as in debt distress or at risk of it before the Covid-19 crisis began. While the current situation is unprecedented, concerns about the potential for debt problems in LIDCs have been mounting in recent years. One major feature of the current situation, which is unlike previous episodes of LIDC debt problems, is the extent of borrowing from private sources.

This report is a timely investigation into the risks that this new wave of private borrowing may cause for LIDCs. It examines the 16 countries in this group that have been at the forefront of this new wave of borrowing from the private sector: those that borrowed via international bond markets between 2010 and 2019. In these countries, close to 30% of their debt stock is now owed to private creditors, the majority to international bondholders.

We examined in detail the 57 international bond issuances, worth \$52 billion, made by these 16 countries over this time period. We used a variety of international databases, but also developed a unique dataset extracted from the official bond prospectuses of all bonds issued. We used this data to examine the extent to which risks associated with the cost and availability of this kind of finance were driven by global financial and economic conditions. We then identified additional future risks that should be considered in the current situation.

Cost and availability of financing risks

We found:

- *The cost of borrowing has been very high, with an average interest rate of more than 7%, and as high as 10.75% in one instance.*
- *The cost of borrowing is correlated with global financial conditions, so that when global finance is hard to access, there is less ‘liquidity’ – and borrowing costs rise for LIDCs.*
- *The timing of borrowing is linked to global financial conditions – with most bond issuances happening during four periods, which coincide with periods when liquidity was loosening – so that global finance was easier to access for LIDCs.*

Given that the coronavirus pandemic has caused global financial conditions to deteriorate rapidly, the availability of international private credit to LIDCs is likely to be very low in the near to medium term, or only available at very high costs. In short, this means that borrowing from international private creditors is unlikely to remain an option for LIDCs in the coming years.

Future risks

We found:

- *There are major minefields on the road ahead as LIDCs need to refinance existing bonds. When bonds become due, if they are not repaid, then countries need to borrow more to refinance them. In 2020 and 2021, major repayments are due in Honduras and Senegal, for example. These refinancing needs are set to rise significantly for LIDCs that have borrowed from bond markets over the next decade, beginning with a major spike in 2024. This will be particularly problematic for countries such as Côte d’Ivoire, Senegal and Zambia whose external outstanding bonds exceed 12% of gross domestic product (GDP).*
- *Current analyses of the risk of debt distress by the World Bank and IMF underplay the importance of these factors. Our analysis suggests that countries ranked by the IMF*

and World Bank as being at low or moderate risk of debt distress, such as Honduras and Senegal, are vulnerable, given their large issuance, current debt burden and connection to global liquidity.

- *Bond issuance has been associated with balance sheet and debt management operations as well as with financing government spending or investment.* While this may have resulted in lower borrowing costs at the time, it will have raised refinancing risks, as noted above, and also currency risks, as LIDCs' currencies depreciate against hard currencies during the present crisis.
- *The legal characteristics of bonds may make them difficult to restructure.* There are several points to note:
 - *Legal jurisdiction:* Of the 55 bonds where we were able to source the contract, 49 were made under English law, and the remaining six under New York state law. Use of foreign law means that in the event of a dispute, courts are more likely to uphold creditors' rights.
 - *The pari passu clause:* This clause had been mistakenly interpreted by some courts to mean that all creditors should be repaid even if a restructuring had taken place, giving power to 'holdout' creditors, sometimes known as 'vulture funds', who refused to accept widely agreed restructuring deals. Countries have made modifications to the *pari passu* clause over time to distance themselves from the problematic interpretation. Only three of the bonds issued during this period contained the *pari passu* wording that was successfully used by holdouts.
 - *Collective action clauses:* A significant minority of bonds issued – 25% – contain 'collective action clauses' (CACs) which

allow creditors more power to block restructuring. In fact 71% now contain the most recent generation of CACs that are designed to prevent creditors in one bond series from blocking restructuring.

Three major conclusions for LIDCs and the international community in the coming years when debt issues are likely to dominate their economic policy-making are these:

1. The costs and availability of borrowing are linked to global financial conditions, and so solutions that focus on domestic adjustment are misdirected, especially in the context of the global health emergency.
2. The fact that developing countries have borrowed extensively from international private creditors will complicate debt-restructuring efforts, and introduces several minefields on the road ahead.
3. Standstills and debt restructurings must be comprehensive and include private as well as public creditors if they are to work for all countries.

The small steps taken by the IMF and G20 to provide limited debt service relief and rescheduling will not be enough given the scale of the crisis being faced. In fact, without comprehensive inclusion of private creditors, this relief could be redirected to the substantial upcoming payments countries have to pay to private creditors, including for bond servicing and redemptions. This report's findings highlight the need for immediate standstills on all debt payments, followed by a more comprehensive approach towards restructuring and cancellation. The report gives impetus to the creation of effective debt work-out mechanisms for countries in crisis, to restructure with all debts simultaneously in a fair and rapid manner.

1 Introduction

1.1 Background

Low-income developing countries (LIDCs) are greatly affected by the coronavirus pandemic, and debt has become a major concern. By April 2020, the International Monetary Fund (IMF) had received more than 100 requests to its enlarged emergency financing facilities and had approved six months of debt service relief for 25 countries (IMF, 2020a). The G20 committed to rescheduling debt service payments for 76 countries until the end of 2020 (G20, 2020). While the current situation is, in many ways, unprecedented, concerns about the potential for debt problems in developing countries have been mounting in recent years. The debt build-up in low- and middle-income countries has precipitated a broad discussion on looming debt crises (UNCTAD, 2016), new debt traps (UNCTAD, 2017), and growing debt vulnerabilities (IMF, 2018a). Global debt stocks have grown dramatically over time, from 140% of gross domestic product (GDP) in 1980, to 240% in 2008 and 262% in 2017 – all long-term trends that have emerged from the overarching liberalisation of financial markets since the 1980s and the rapid expansion of private credit creation that this entailed (Blankenburg, 2019).

The abundance of global capital has made it easier for developing countries to access foreign finance. Although lower-income countries have traditionally relied on official sources of external debt and concessional sources of financing, the growth of private credit has become increasingly accessible to lower-income countries. IMF and World Bank policies restricted access to non-concessional borrowing, limiting the amount of privately provided finance that countries with IMF and World Bank programmes could access.

These restrictions have been loosened to match the growth in low-income countries' access to international capital markets at non-concessional rates.¹ There have been significant changes to debt profiles, with an increased amount owed to private sector creditors, as well as an increase in domestic debt as a share of the total. Public sector borrowing from private lenders tends to be significantly more expensive than alternative public international bilateral or multilateral sources. The result is that the total debt service burden has increased, particularly in sub-Saharan African countries (IMF, 2020b).

Our study builds on the following three premises.

Firstly, the cost of borrowing and risk of refinancing are not only determined by conditions in the borrowing countries. Rather, the emergent financial integration of some developing countries into global financial markets exposes them to common dynamics of the global financial system. This can be captured by the notion of 'global liquidity', which can be defined as the 'ease of international financing in the international financial system' (BIS, 2015: 3). Global liquidity depends on the behaviour of both private and public actors (Cerutti et al., 2017; Eickmeier et al., 2013): it is associated with the expansionary monetary policy of major advanced economies (Rey, 2013; Temesvary et al., 2018), as well as the leverage and risk appetite of global investors and banks (Bruno and Shin, 2015; Shin, 2012). The specific determinants of global liquidity change over time and across countries, but collectively contribute to explaining the variations in global financial flows and borrowing costs (Avdjiev et al., 2017; Cerutti et al., 2017).

Secondly, the 'global liquidity cycle' – the changing availability of international financing

1 See the review of the debt limits policy discussed in IMF (2013).

– has become a key driver of the debt dynamics of developing countries. Abundant global liquidity in the years since the 2008 financial crisis has enabled many developing countries to borrow easily and refinance their debts, while exposing them to the vulnerabilities of future liquidity shrinkages and shifts in the risk appetite of global lenders (Akyüz, 2017; Bonizzi et al., 2019; UNCTAD, 2019a; 2019b). Recent work corroborates the evidence that developing countries’ cost of borrowing is sensitive to global factors. For example, Gevorkyan and Kvangraven (2016) document how bond yields in sub-Saharan Africa are affected by global conditions such as commodity prices and global liquidity. Export earnings and remittances are volatile. Soyres et al. (2019) show the debt build-up in the recent decade is primarily a product of global rather than country-specific factors. Other studies emphasise the continuing importance of domestic factors, such as inflation, economic growth and fiscal positions, but also concur that global factors are important (Presbitero et al., 2016; Senga et al., 2018). The coronavirus impact in developing countries is likely to be felt through several channels including drastic drops in revenues, reduced demand for exports, commodity price decreases and falls in remittances.

Thirdly, international government borrowing through private financial markets can therefore create new costs and risks that expose developing countries to the global liquidity cycle (UNCTAD, 2015; 2019b). Costs increase as private creditors will tend to demand higher interest on their lending compared to official creditors. Refinancing risks, where borrowers will have to borrow again once the principal amount borrowed has to be repaid at the maturity of the

lending instrument, become particularly crucial with market securities. Furthermore, global liquidity is closely associated with the strength of the United States (US) dollar, which pro-cyclically affects debt sustainability (Shin, 2016): a rise in the value of the dollar increases the cost of external debt to countries borrowing in foreign currency. These costs and risks are likely to be closely linked to global liquidity conditions, which are predominantly determined in advanced economies, rather than to the conditions of the individual countries. These risks are further compounded in the presence of contagion effects, which spread shocks across countries and different segments of debt markets (Senga and Cassimon, 2019). These issues stand at odds with some of the literature that emphasises domestic mismanagement and fiscal deficits as the cause of looming debt vulnerabilities. It therefore suggests that concomitant policy responses that rely on domestic contraction, fiscal consolidation and domestic structural reforms are misplaced as they do not tackle key drivers of the problems.

This study investigates the risks of sovereign debt repayment in LIDCs that arise from their growing interconnectedness with global financial markets. We show that increased borrowing through issuing international bonds generates new vulnerabilities in terms of debt costs and refinancing risks, which increasingly are driven by the conditions of global financial markets. A key concern of our study is how timing of issuances and the cost of borrowing relate to the rise and fall of global liquidity. Furthermore, we focus on the future legal risks implied with this increased reliance on international capital markets. We aim to provide newly collated information to inform the ongoing discussion on debt in low-income countries.

2 Overarching trends

For our study we focus on a subcategory of developing countries – low-income developing countries (LIDCs) – an IMF category, the details of which are elaborated on in the Data sources section (section 3.2). This section charts some general trends in the debt composition of LIDCs and of bond-issuing LIDCs. In LIDCs as a whole, public debt-to-GDP ratio has risen in 41 of 59 LIDCs. Within LIDCs, 44% of countries are at high risk of or are in debt distress (IMF, 2020a); this figure is likely to increase dramatically as the effects of the pandemic grow and as the lending to be provided by the IMF and World Bank and other actors push further countries into higher-risk categories. External debt stocks have grown significantly in the last decade as have their burden of repayment when compared to GDP or revenue from exports of goods, services and primary income. This increase is particularly stark in the portion of LIDCs that have issued sovereign bonds (Figure 1).

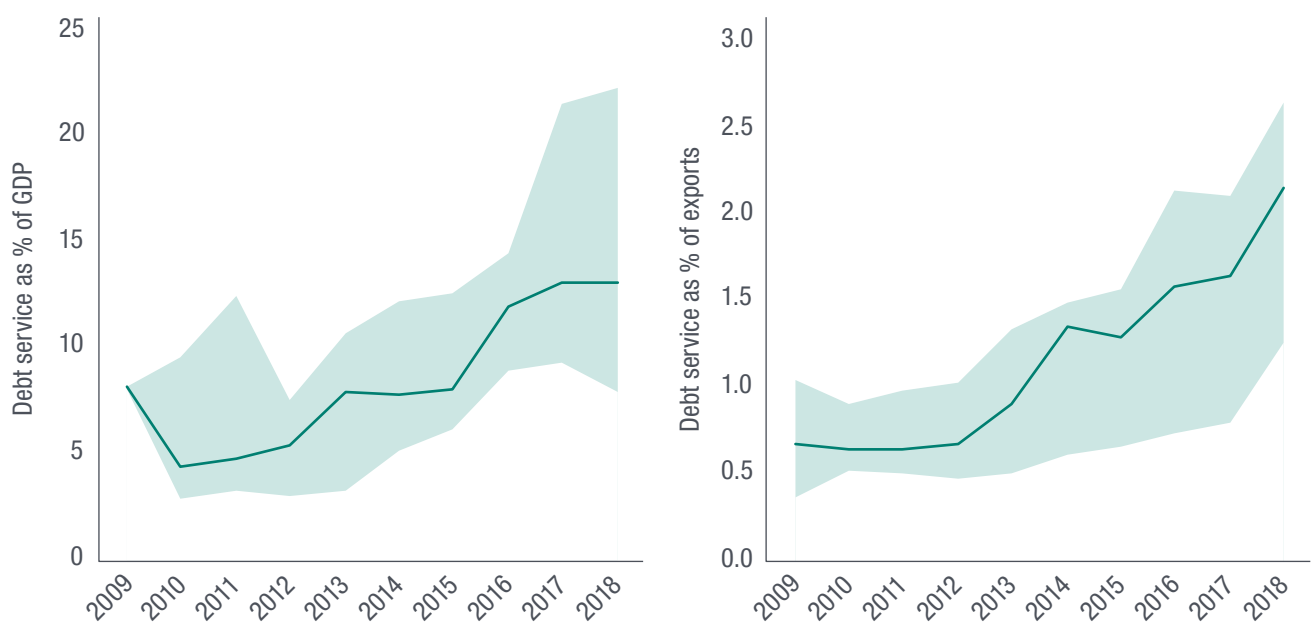
Median values for debt service on external public and publicly guaranteed (PPG) debt as a percentage of GDP have risen to approximately 2% of GDP and 13% of exports as shown in Figure 1.

Debt provided at concessional rates is now a smaller proportion of LIDC external debt. In the middle of the 2000s, more than half of LIDC external debt was concessional, an amount that dropped to 34% in 2018. Figure 2 shows the declining portion of concessional debt in LIDCs as compared to concessional debt in bond-issuing LIDCs, as well as the growing stock of external debt as a proportion of gross national income (GNI). As expected, as countries begin to access capital markets, the share of concessional debt falls compared to their counterparts that do not access those markets.

Declining concessional debt has accompanied increased borrowing from private lenders, non-traditional official lenders and domestic lenders,

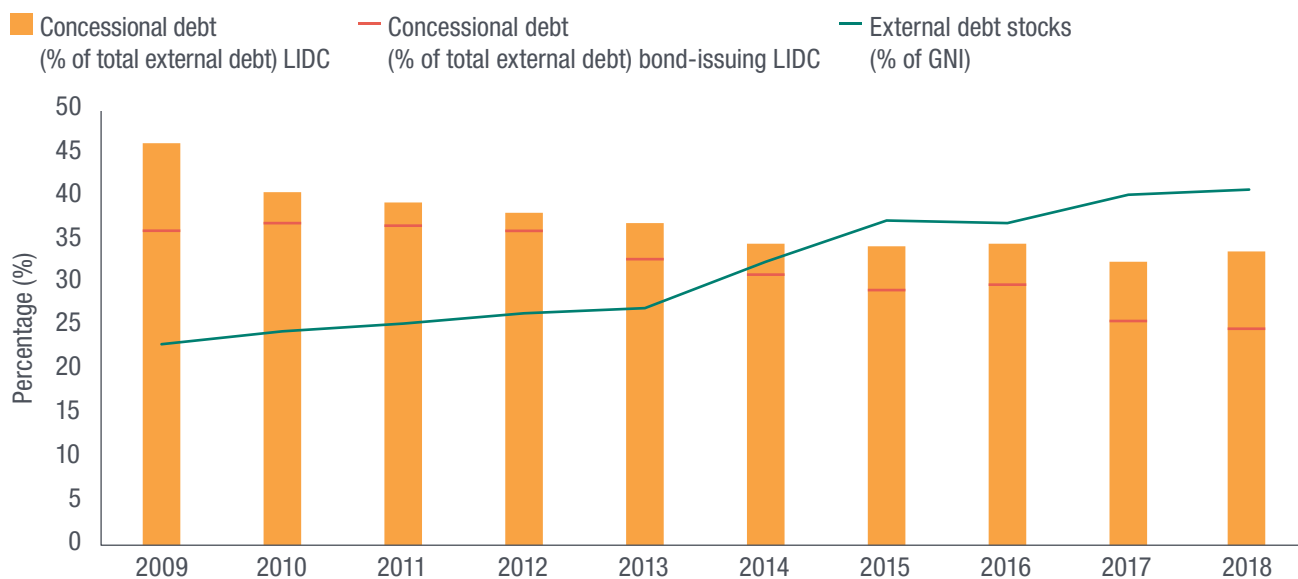
Figure 1 Debt service on external public and publicly guaranteed debt in bond-issuing LIDCs

— Median value ■ Interquartile range



Source: World Bank International Debt Statistics (WB-IDS), <https://data.worldbank.org/products/ids>

Figure 2 External and concessional debt in LIDCs

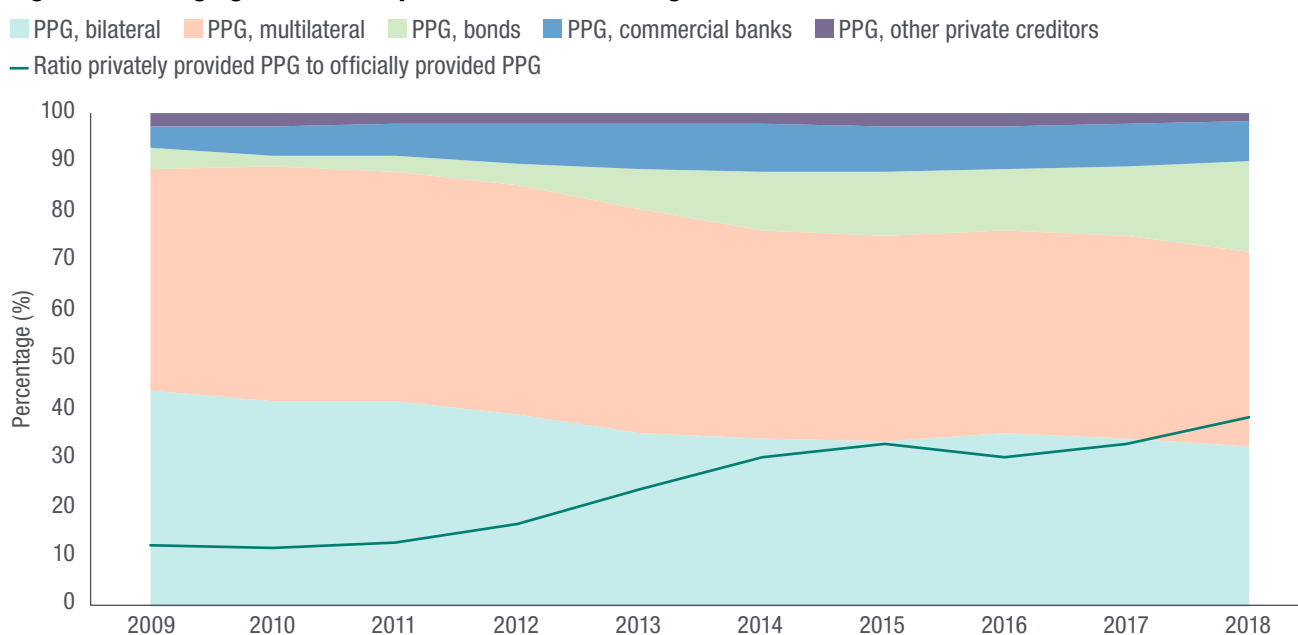


Source: World Bank International Debt Statistics (WB-IDS), <https://data.worldbank.org/products/ids>. External stocks as percentage of gross national income (GNI; bond-issuing LIDCs) and concessional debt (percentage of total external debt) for LIDCs. Bars show median levels.

changing the composition of LIDCs’ public debt in recent years. Over the past decade, private creditors have come to make up an increasingly large component of public and publicly guaranteed debt. Such trends are not uniform across LIDCs. Only a subset within the group has been able or willing to tap into international capital markets, and issue international debt securities. Commercial bank external PPG debt

remains significant in LIDCs, and in certain countries, such as Chad and South Sudan, has been a key source of debt problems. However, in the group of countries that have outstanding private sector bonds as of 2019, bonds have overtaken commercial bank loans as the largest form of borrowing from private creditors internationally, as shown in Figure 3. In these countries, the proportion of private creditors

Figure 3 Changing creditor composition of bond-issuing LIDCs



Source: World Bank International Debt Statistics (WB-IDS), <https://data.worldbank.org/products/ids>

within PPG external debt has increased from 11% of total external PPG debt stocks to 28% in 2018.

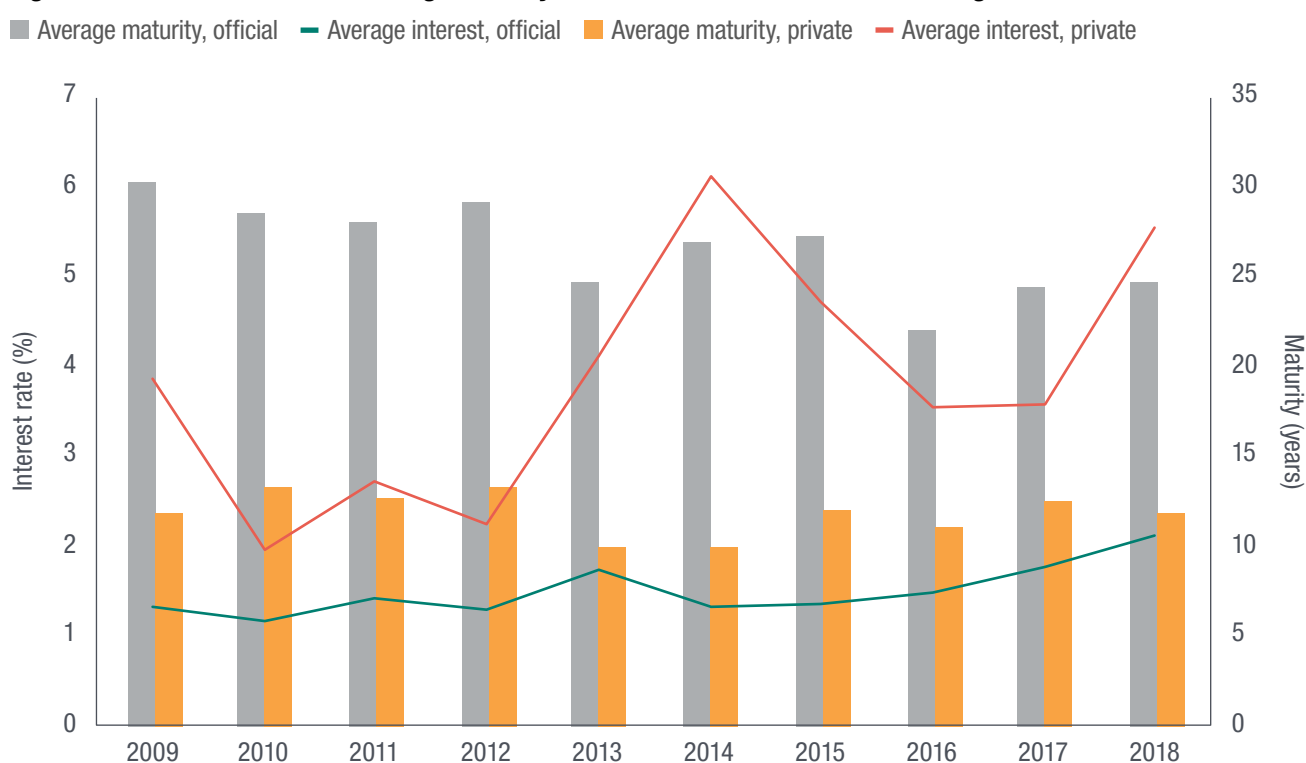
With borrowing terms changing, both due to the increasing share of debt owed to the foreign private sector and the increase in domestic debt as a share of the total, debt service is absorbing a growing share of public expenditure (IMF, 2018a). Figure 4 shows how public sector borrowing from private lenders tends to be significantly more expensive and has on average shorter maturity than alternative public international bilateral or multilateral sources.

The IMF and the World Bank assess countries' debt sustainability as part of the Debt Sustainability Framework (DSF) for low-income countries (LICs).² They issue ratings on the risk of a country facing a period of debt distress.³ Irrespective of whether a country has or has not

issued sovereign bonds, risk of debt distress has increased. However, the deterioration has been greater for those countries that issued sovereign bonds. Figure 5 shows that for bond-issuing countries, the proportion of countries that are in debt distress or at high risk of it increased from 6% in 2014 to 43% in 2020. Non-bond-issuing countries had a far less dramatic increase, as shown in Figure 6, though they started from a worse position, as we would expect.

The number of countries facing serious debt problems is rising rapidly, with 44% at high risk of or already in debt distress – a number that has almost doubled since 2013. While debt distress episodes are not new in developing countries, there is growing concern that developing countries have become exposed to external financial risks originating from their growing exposure to market rates (UNCTAD, 2019b).

Figure 4 Median interest and average maturity on new external debt for bond-issuing LIDCs

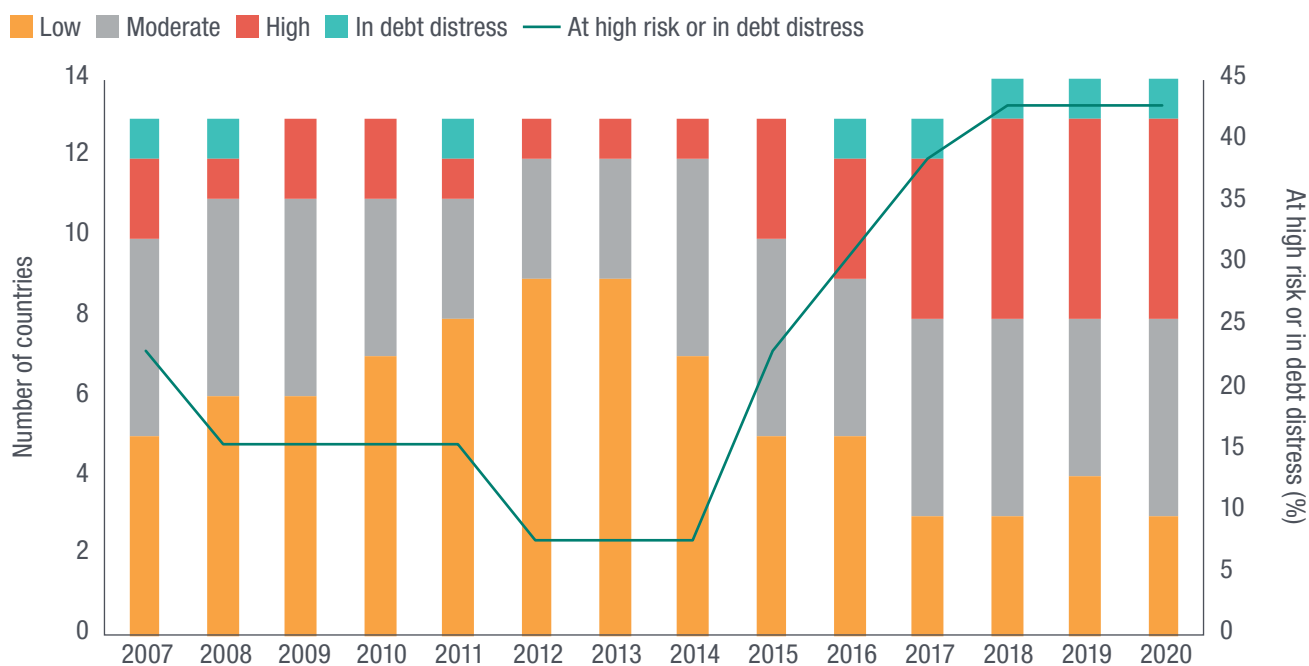


Source: World Bank International Debt Statistics (WB-IDS), <https://data.worldbank.org/products/ids>

2 For historical debt sustainability analysis (DSA) ratings we have used the Jubilee Debt Campaign's (JDC) database. Note: Not all LIDCs are given a risk rating. Nigeria and Viet Nam, both in our sample, are assessed under the market-access countries (MAC) DSA framework.

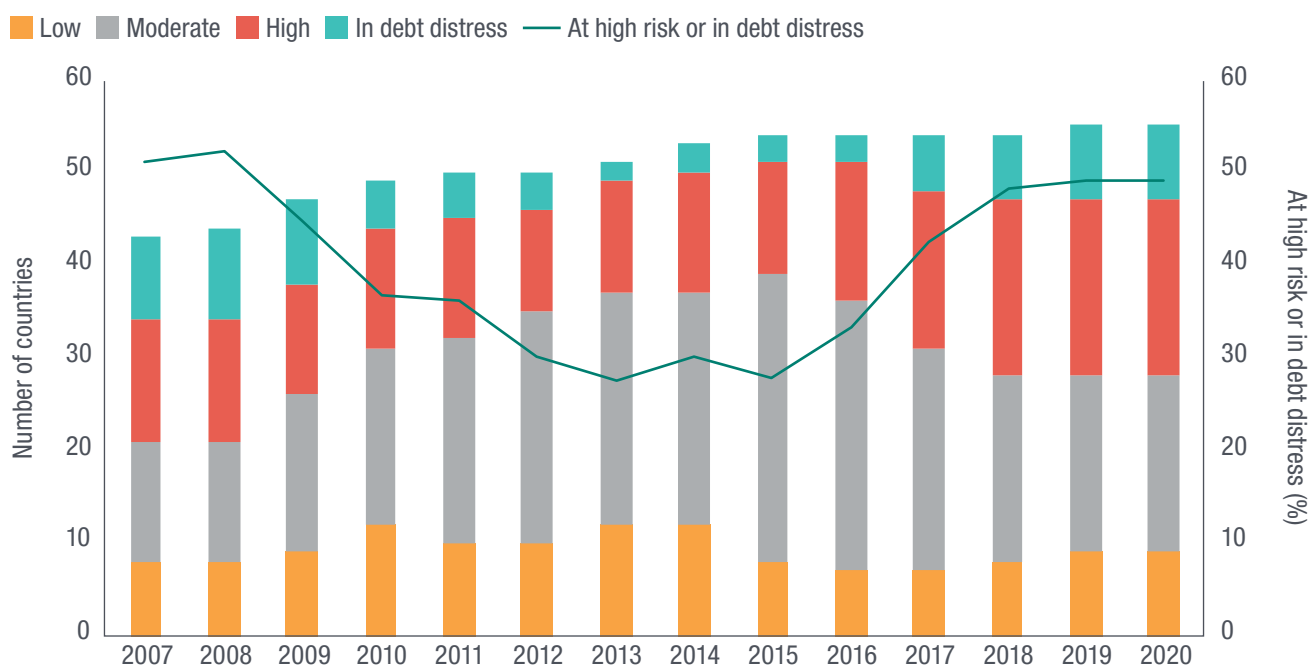
3 The method is the subject of considerable criticism; for a review of the DSF, see Bonizzi et al. (2019).

Figure 5 LIC Debt Sustainability Framework risk ratings for bond-issuing LIDCs



Source: Authors' calculation from JDC database

Figure 6 LIC Debt Sustainability Framework risk ratings for non-bond-issuing LIDCs



Source: Authors' calculation from JDC database

Borrowing from international bond markets has opened new borrowing channels but generates new risks that are largely outside the control of borrowers. Such risks have erupted in the current period of financial instability, but

they have been building up over the previous decade. This has important policy implications for the assessment of debt sustainability and for how debt repayment difficulties and crises are dealt with.

3 Scope and data sources

3.1 Scope and sample

Our study focuses on the international bond issuances of LIDCs in the 2010–2019 period. LIDC is an IMF classification, which includes 59 countries that: have access to IMF concessional lending facilities; have a GNI per capita below \$2,700;⁴ but do not have well-developed financial markets to be considered emerging economies.⁵ One alternative to LIDCs would be to focus on LICs (a World Bank category); however, choosing only these countries would limit the scope to fewer countries, with very limited material to analyse in terms of borrowing from private sector sources. Equally, including low- and middle-income countries (LMICs) as well as LICs would include several countries with very substantial financial integration, such as Indonesia or the Philippines, whose borrowing would dominate the sample.

Our analysis focuses on the issuance of international bonds by governments as opposed to other forms of public borrowing from private creditors, or on private actors borrowing internationally.⁶ Delimiting our study in this way precludes two other potentially important sources of external private finance for LIDCs. The first is foreign investment in local currency bond markets. Several LIDCs issue (mainly short-term) securities in domestic markets. In some of

these markets, there is a growing, if still limited, presence of foreign investors, which would be affected by global liquidity (Dafe et al., 2018).

The second is foreign bank loans on non-concessional terms. While both commercial bank debt and sovereign bonds have contributed to the increased presence of privately funded PPG debt, both were at 4% of total PPG debt in 2009. By 2018, commercial debt had doubled, to 8% for bond-issuing LIDCs, but bonds had increased more than fourfold. While commercial loans have reduced in prominence, bonds have increased, as Figure 7 shows. For bond-issuing LIDCs, sovereign bonds now make up 18% of external PPG debt composition.

We therefore choose to focus on international bonds as these have been a rapidly growing feature of LIDCs in the past decade; we leave the study of other private sources of risk exposure for LIDCs for future research.

There are 59 LIDCs, two of which (Kiribati and South Sudan) do not feature in the World Bank IDS database (IMF, 2019a). Among LIDCs, we have identified those that during the past decade (2010–2019) have made at least one international bond issuance. The list is detailed in Table A1 in the Annex; it includes 16 countries, and a total of 57 bond issuances.⁷ Several of these were those countries' first access to global bond markets.

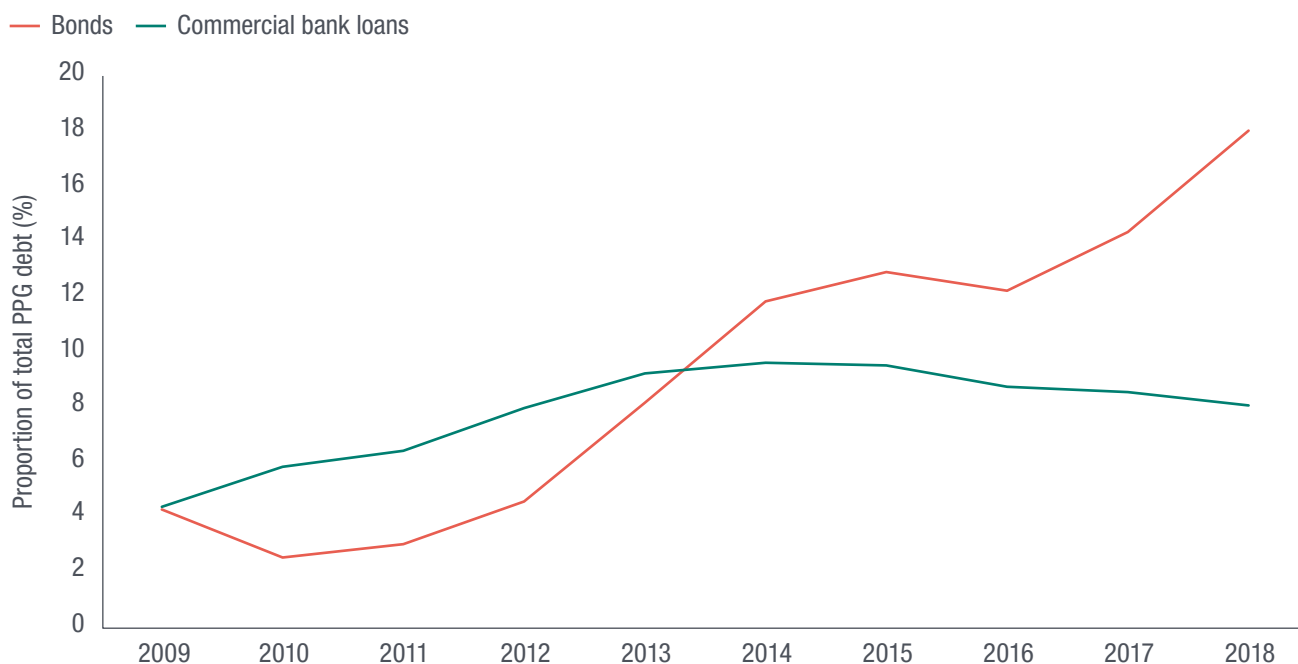
4 The World Bank International Development Association (IDA) income per capita threshold.

5 For this reason, India and Pakistan are not considered LIDCs but as emerging economies despite their income per capita being below the threshold.

6 As addressed in UNCTAD (2019a), private indebtedness is a growing concern in developing countries with the nature and pace of financial integration a source of instability, although PPG debt in LIDCs accounts for the majority of external debt. Commercial bank debt has not regained the prominence it had in the 1980s. The way the 1980s debt crisis was resolved securitised these loans and kickstarted the emerging economies' bond markets.

7 Armenia, Bolivia, Georgia and Mongolia, which have issued sovereign bonds as LIDCs, are no longer considered LIDCs.

Figure 7 Changing composition of private sector funding of PPG debt, bond-issuing LIDCs



Source: World Bank International Debt Statistics (WB-IDS), <https://data.worldbank.org/products/ids>

Of this sample of 16 countries:

- 10 are considered by the IMF to be ‘frontier markets’ – i.e. ‘countries characterised by more developed financial systems and closer linkages to international financial markets’ (IMF, 2019a: 9);
- five are considered ‘developing markets’ – i.e. LIDCs that are neither ‘fragile’ nor ‘frontier’;
- the remaining country (Tajikistan) is considered exclusively a ‘fragile state’ and is not in either of the other two categories (i.e. ‘frontier’ or ‘developing markets’).

Taking the median GNI per capita of all countries in the LIDC group (classification in IMF, 2018a), 11 out of the 16 bond-issuing countries exceeded the median GNI per capita of the whole group (the four below median are Benin, Ethiopia, Mozambique and Rwanda).

This fits with the expectation that as LIDCs’ incomes grow, they are more likely to issue international bonds (explored further in the literature; see: Presbitero et al., 2016).⁸

We examine three key categories of risks of international bonds:

- **Costs of borrowing risks.** Borrowing costs are mainly studied through looking at the interest rate (or rate of return). There are two main ways of doing this. The first is the ‘coupon rate’ which is the interest rate stated on the bond itself. The second is the ‘bond yield to maturity’, which is the rate of return given by the sum of all coupon payments due until the bond matures (i.e. when it has to be repaid). When bonds are issued, these rates are likely to be the same⁹ but the yield will vary over time as the value of the bond in the secondary market may change, and the number of coupon

⁸ The only exception to this appears to be Bangladesh, whose GNI per capita exceeds the LIDC median, is considered a ‘frontier’ market and whose total GDP in current US dollars would be second only to Nigeria, but has nevertheless not issued any foreign currency-denominated bond. Bangladesh has a growing local currency bond market, and has been identified as a priority country for the development of local capital markets through the World Bank programme J-Cap; see: https://www.ifc.org/wps/wcm/connect/region__ext_content/ifc_external_corporate_site/south+asia/priorities.

⁹ Yield and coupon rate are the same if bonds are issued at par, and there is therefore no difference between issuance and redemption value.

payments owing diminishes over time. While international bonds typically carry lower yields than domestic bonds, yields are therefore market-determined. A key aim of this study is to examine the extent to which costs are affected by conditions of global liquidity.

- **Refinancing risks.** To study refinancing risk, we examine the maturity period ('term to maturity') of bonds, both individually and across countries. A bond's term to maturity is the length of time during which interest payments are paid to the owner: when the bond reaches maturity the 'principal' (face value) of the bond is repaid. We identify the dates of major future repayment of principal of international bonds, and the countries for which these represent significant 'risk moments'.
- **Legal risks and other institutional characteristics.** Finally, difficulties in international borrowing can be compounded by the institutional characteristics of the bonds, such as the concentration of bonds into particular stock exchanges or market indices, and most importantly, legal risks. The contractual clauses in bond contracts are fundamental in defining the procedures in place if debt repayment difficulties arise. By looking at individual prospectuses manually we are able to examine numerous country-by-country, bond-by-bond legal characteristics and risks.

3.2 Data sources

We make use of several data sources:

- *Official bond prospectuses* are our main direct source of information regarding the issuance and characteristics of the bonds. These publicly available sources of information are collected from various online sources, mainly through stock exchange websites.
- *Official institutions databases*, which are publicly available: the World Bank IDS database and the Bank for International Settlements (BIS) debt security database. These include: aggregate data to contextualise the portion of external debt that we focus on in greater depth. The IDS provides a straightforward way of examining the

ongoing overall debt servicing costs and the cost of new borrowing from both official and non-official sources (Figure 4).

- *World Bank-IMF debt sustainability risk rating categories*, which are an imperfect measure of potential debt repayment difficulties. These risk ratings are based on whether specific thresholds have been breached (for a discussion see Bonizzi et al., 2019). Recent changes to the DSF have tried to incorporate the possibility of risks of market financing, the results of which we examine closely below.
- *The full history of bond yields to date* for our sample, which are collected from Thomson Reuters Datastream. Although these are secondary markets data, they nonetheless provide information about potential borrowing costs for new issuances in international markets.

Using these sources, we created a dataset in which we map bond-issuing LIDCs along several dimensions. We examine: borrowing costs (yield to maturity, coupon rate); periods of issuance and maturity; and other factors such as credit rating, listing market, underwriting, legal risks, and fees and commissions and the stated use of proceeds to ascertain the rationale provided behind the increases in sovereign bond issues.

Finally, to examine the links between sovereign bond borrowing and the conditions in global financial markets and advanced economies, we rely on a series of indicators to investigate the conditions of global liquidity:

- We use shadow policy rates estimated by Krippner (2013) for major central banks to capture the monetary policy component of global liquidity. Measures of the official monetary policy stance of major central banks have been constrained by the 'zero lower bound'. This means that it is no longer useful to use the short-term nominal interest rate as an indication of whether monetary policy is loose or tight, as these rates are effectively pegged close to zero. This has led researchers to try to capture monetary policy by calculating a 'shadow' policy rate for the US, the Euro Area (EA) and Japan

(JP). Based on the work of Krippner (2013), these rates can become negative – unlike the actual nominal rates – and seek to capture the overall stance of monetary policy, including the impact of the ‘unconventional’ policy such as large-scale asset purchases.¹⁰ We use the Financial Conditions Index (FCI) for the US and the Office for Financial Research Financial Stress Index (OFR-FSI) for other advanced economies, to measure financial conditions in traditional and shadow banking systems, as well as debt, equity and money markets. These composite indices use a large range of financial factors, such as money market rates and spreads, yield curves, equity and volatility, and leverage of financial institutions. They have been developed as a way of overcoming traditional and narrow measures of financing conditions, such as looking at interest rates, and are constructed so that values above zero constitute tight or stressed financial conditions, and negative values constitute easy financial conditions. We use the Chicago National FCI (NFCI) for the US, available on a weekly basis from the Chicago Federal Reserve website,¹¹ which is based on 105 factors. The NFCI is preferred to other US FCIs because of its inclusion of quantity factors, such as leverage and credit extension in addition to price-based factors. For other advanced economies, although many FCIs have been calculated, none of the publicly available ones for the EA capture quantity factors, and FCIs for Japan and the United Kingdom (UK) are not publicly available. We therefore chose the OFR-FSI, which is available on the OFR website,¹² as it captures the conditions in both the EA and other advanced economies. We use measures of market confidence and uncertainty in equity markets that capture the market’s

expectation about the future volatility of stock markets. We use the Chicago Board Options Exchange (CBOE) Volatility Index (VIX) for the US Standard and Poor’s (S&P) 500, and the VSTOXX for the Euro STOXX50 of market confidence. These are forward-looking indices that show the implied volatility on the respective options markets to represent the expectation of future volatility on the equity indices. The higher the VIX and/or the VSTOXX, the greater the expectation of future volatility. These indices are obtained from Thomson Reuters Datastream.

- We use the effective exchange rate of the US dollar: the nominal effective exchange rate (NEER) and real effective exchange rates (REER). These signal the strength of the US dollar as compared to a basket of other currencies. The intuition is that if the effective rate increases, the dollar has appreciated, i.e. strengthened. There is evidence that dollar funding costs and availability are negatively related to the strength of the dollar (Avdjiev et al., 2017): a strong dollar makes global banks’ funding costs higher which in turn has knock-on effects on all other debt costs. Additionally, dollar appreciation versus domestic currencies increases the cost of external debt to countries borrowing in foreign currency. Exchange rate data is obtained through the BIS.

The indicators that we use capture the hybrid private–public nature of global liquidity. Global liquidity indicators will be compared to the mapping information from the prospectuses and publicly available databases. The key question our study investigates is how timing of issuances and the cost of borrowing relate to the rise and fall of global liquidity.

10 The intuition is that the more negative the shadow rate, the looser the monetary policy stance. The calculation of the shadow rate relies on the price for a call option on cash. Interest rates are constrained by the zero lower bound because investors would otherwise prefer to hold cash than earn a negative yield. If cash is not available, then investors could buy a call option to obtain it. The price of this call option is equal to a negative rate that is deducted from the actual policy rate to obtain the shadow rate. See Krippner (2012) and Bullard (2012) for a discussion.

11 See <https://www.chicagofed.org/publications/nfci/index>

12 We only use the OFR-FSI component for ‘other advanced economies’ (see <https://www.financialresearch.gov/financial-stress-index/>).

4 International bond issuance: costs and availability

This section provides information and analysis regarding the international bond issuances that we examined for the 16 countries in the sample. We discuss the costs of borrowing and their relation to global liquidity and other factors.

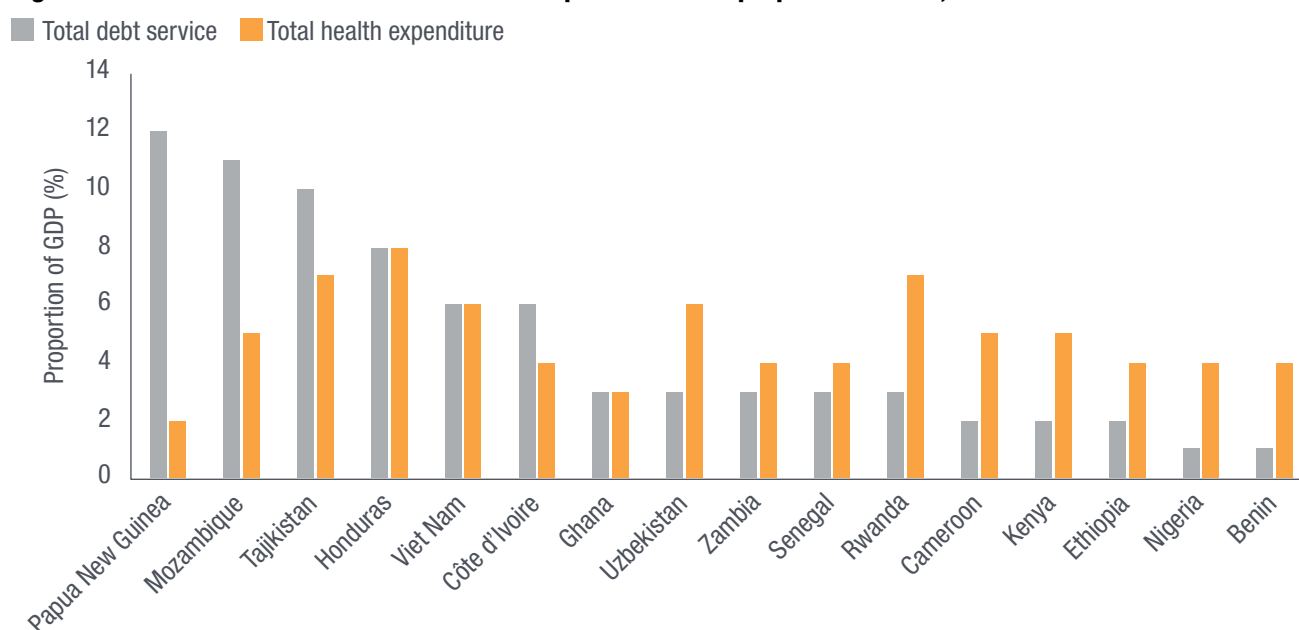
4.1 Overall characteristics of bond issuance

As discussed, our sample contains 57 bonds across 16 LIDCs. Collectively these countries have issued \$52.05 billion over the 2010–2019 period in the form of international bonds. For certain countries, the outstanding bonds are a sizeable portion of GDP, with growing trends visible across

the sample. The debt service on the bonds is in some instances substantial. For Côte d'Ivoire, debt service on outstanding bonds made up 2.86% of GDP in 2017; for Ghana in 2018, it was 1.7% of GDP; for Zambia in 2013, it was more than 1% of GDP (WB-IDS). Figures are starker when total debt service is compared to total health expenditure (Figure 8).

Table A2 in the Annex contains a summary of the key prospectus information. The majority of the bonds have 10 years' maturity or 'tenor', but some (especially those countries with more than one bond issued) have longer tenors, with the average tenor being 13 years. The issuance values vary from \$0.5 billion to \$1.5 billion. The mean

Figure 8 Total debt service and total health expenditure as a proportion of GDP, 2017



Source: World Bank IDS (WB-IDS), <https://data.worldbank.org/products/ids> and World Health Organisation (WHO), <https://apps.who.int/nha/database>

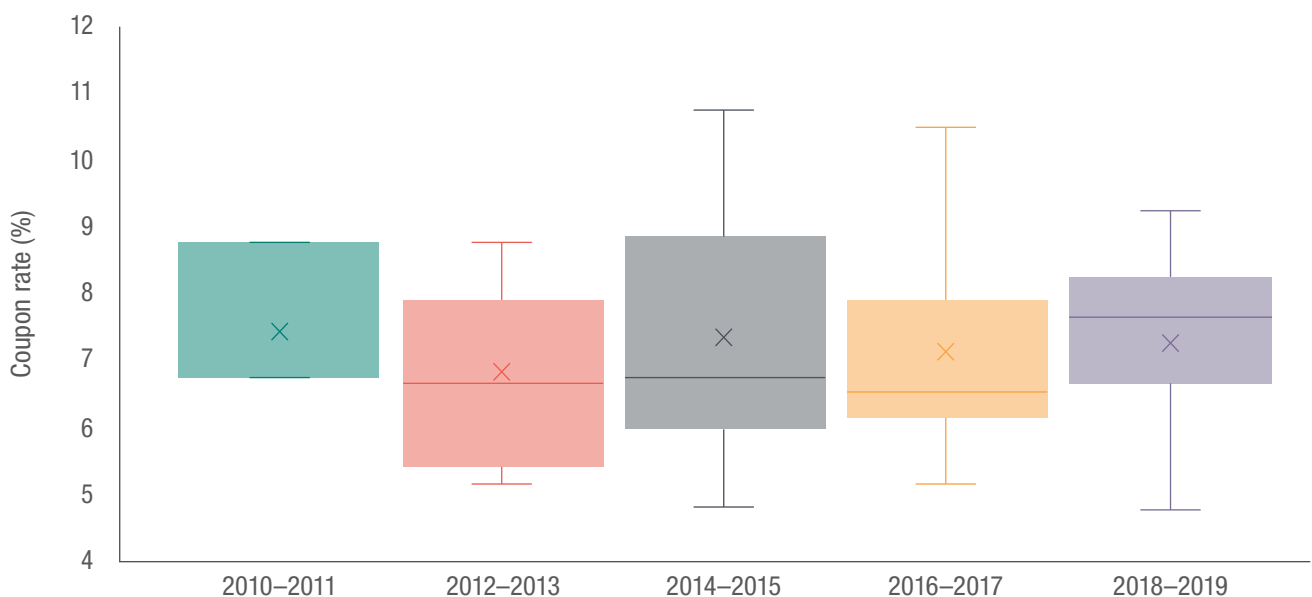
arithmetic average yield at issuance is 7.226%, ranging from 4.750% (Senegal and Uzbekistan in 2018), to 10.750% (Ghana in 2015). Most of the included countries have a credit rating below investment grade: the vast majority have a B (B- to B+) rating, with the exception of Uzbekistan and Nigeria which have a BB in their more recent issues, and Mozambique being the only country in debt distress in our sample¹³ with a lower rating, at CC.¹⁴ Coupon rates are fixed at the time of bond issuance (Figure 9). The range of coupons charged on the bonds examined vary from 4.75% (Senegal and Uzbekistan) to 10.75% (Ghana). With the median coupon rate on all bonds at just over 7%, the cost of borrowing is very high. This must be borne in mind with the general direction of global interest rates and comparator rates from official sources of funds. Between 2014 and 2017, bonds issued had the greatest range of coupon rates.

All but four of the bonds are listed in European Exchanges: out of 57 bonds, 21 are listed in the Irish Stock Exchange, 11 in the Luxembourg Stock Exchange and 21 in the London Stock Exchange; 2 are in the Singapore Stock Exchange and 2 are unknown.

4.2 Average yield at issuance and global liquidity

The impact of global liquidity on bonds can first be felt at the point of issuance. In Figure 10 we compare the average yield at issuance to these determinants. The average yield at issuance shows the average debt cost for countries at the time of borrowing. The average yield at issuance is simply equal to the issue yield when only one bond is issued at a given point in time, and, in a procedure similar to Presbitero et al. (2016), the (unweighted) average between multiple bonds if a country has more than one bond issued at the same time.¹⁵

Figure 9 Coupon rates



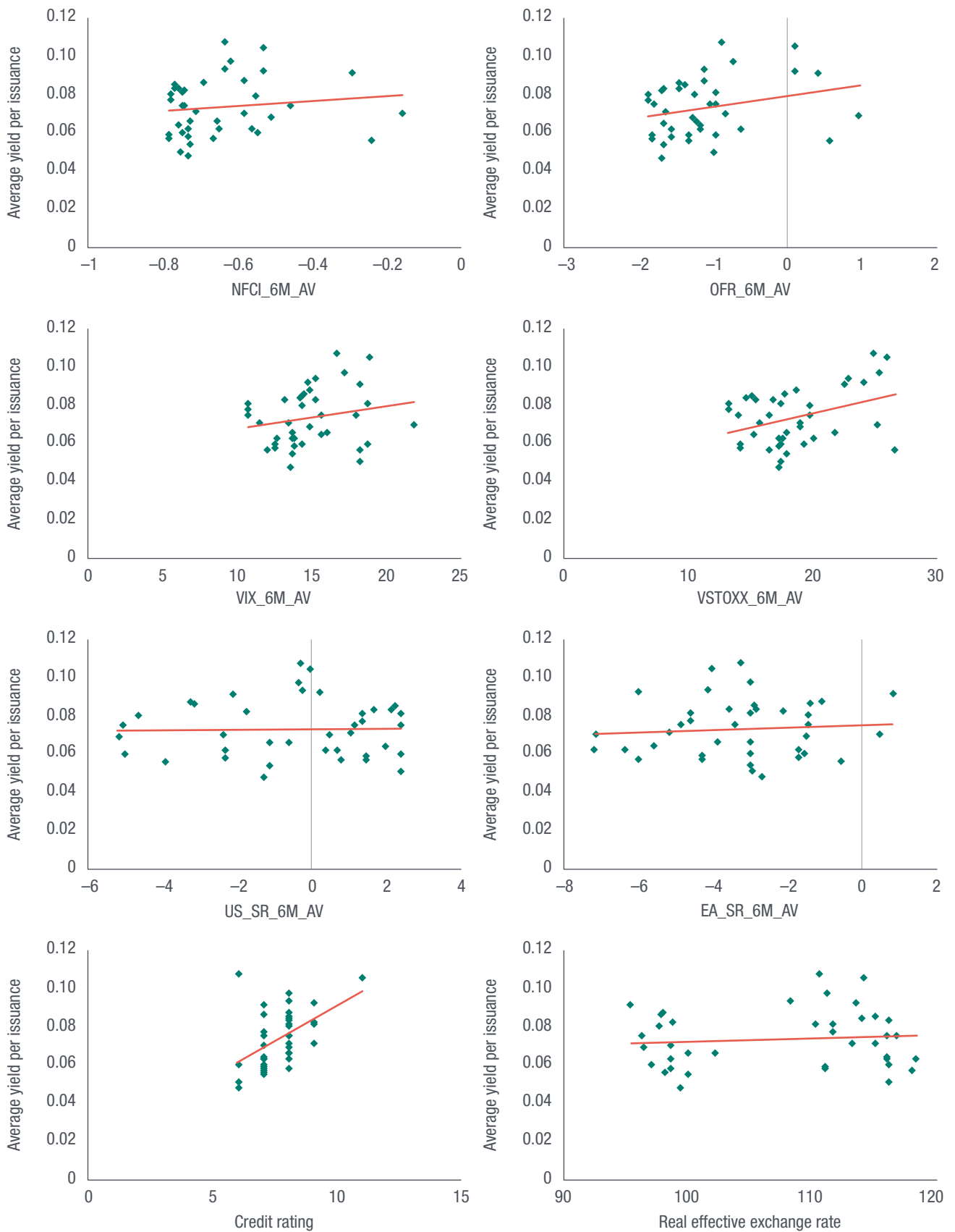
Source: Authors' elaboration based on bond prospectuses

13 For more on the Mozambique debt crisis, see Kroll (2017); and on the arrested bankers from Credit Suisse with which Mozambique raised the funds, see Hurtado (2019) and Pierson and Strohecker (2019).

14 Sovereign ratings have been issued by the three main rating agencies. For comparability, these have all been converted to S&P's rating.

15 Unlike Presbitero et al. (2016), our dataset works mostly with monthly frequencies so we allow for multiple issuances per year, and only average out bond yields issued in the same month.

Figure 10 Scatter plots – average yields



Source: Authors' calculations based on prospectus datasets, Federal Reserve Bank of Chicago, Office of Financial Research, Krippner (2013) and BIS. All the global liquidity indicators are calculated as the average of six months prior to issuance based on the original frequency shown in Table A3 in the Annex.

We compare these to all the global liquidity indicators discussed in the previous section. We take the average of the previous six months of data,¹⁶ the rationale for this being that bond issuance takes time to plan and the yield required by investors will reflect global liquidity conditions not only of the current month but the recent history of global liquidity. We also show the scatter plot versus credit rating (S&P or converted into S&P equivalent) of the country at the time of the issuance.

Figure 10 shows that all the variables present a positive relationship, indicating that tighter global liquidity conditions are correlated with a higher cost of borrowing. The panel for the NFCI shows that as this index of financing conditions approaches zero, representing growing indications of market stress, the corresponding average yield at issuance is also higher. However, these are heterogeneous, shown by the correlation coefficients of average yield at issuance (Table 1). The relationship appears to be stronger (with a greater absolute value) for the NFCI and OFR-FSI indicator and the volatility indices, and much weaker for the shadow rates. This suggests the private component of global indicators is more directly important than the monetary policy component. Similarly, the coefficients for European (and Japanese) indicators is stronger than the US counterparts, suggesting a closer relationship between advanced economies other than the US and LIDCs. This is not surprising given the bonds are overwhelmingly listed in Europe. The correlation appears positive for the REER as well, potentially suggesting that borrowing costs increase directly when the dollar is stronger, as funding is more expensive in general, in addition to indirectly through the exchange rate channel. Finally, as expected, a worse credit rating is associated with a higher yield.

Overall, this shows how global liquidity affects bonds at the moment of issuance: tighter global

liquidity conditions result in higher borrowing costs. The greater the indications of market stress, the greater the increase in average yield at issuance across the sample size (NFCI, OFR-FSI, VIX, VSTOXX).

4.3 Access to markets and global liquidity

Besides the cost of borrowing, global liquidity can also affect access to international capital markets. In tighter conditions LIDCs might be less likely or willing to borrow, and lenders less likely to lend. The issuance patterns are plotted over time in Figure 11, organised by quarter.

The average issuance per quarter was \$1.35 billion but the graph highlights that these are not equally spread over time. Beside a clear upward trend in the number and size of issuances, there are quarters where most of the issuances are concentrated. We therefore divide the sample period into sub-periods of larger than normal issuances, defined as periods where the total amounts issued are 1.5 times the average. This shows that the issuances are concentrated into four key ‘peak periods’: the second half of 2014; the first half of 2017; the last quarter of 2017 and the first quarter of 2018; and the last quarter of 2018 and the first half of 2019. Collectively this period accounts for \$33.5 billion, about two-thirds of the total concentrated within 2.25 years. Shaded areas in Figure 11 represent these periods. Outside these periods – 7.75 years in total – the remaining third was raised.

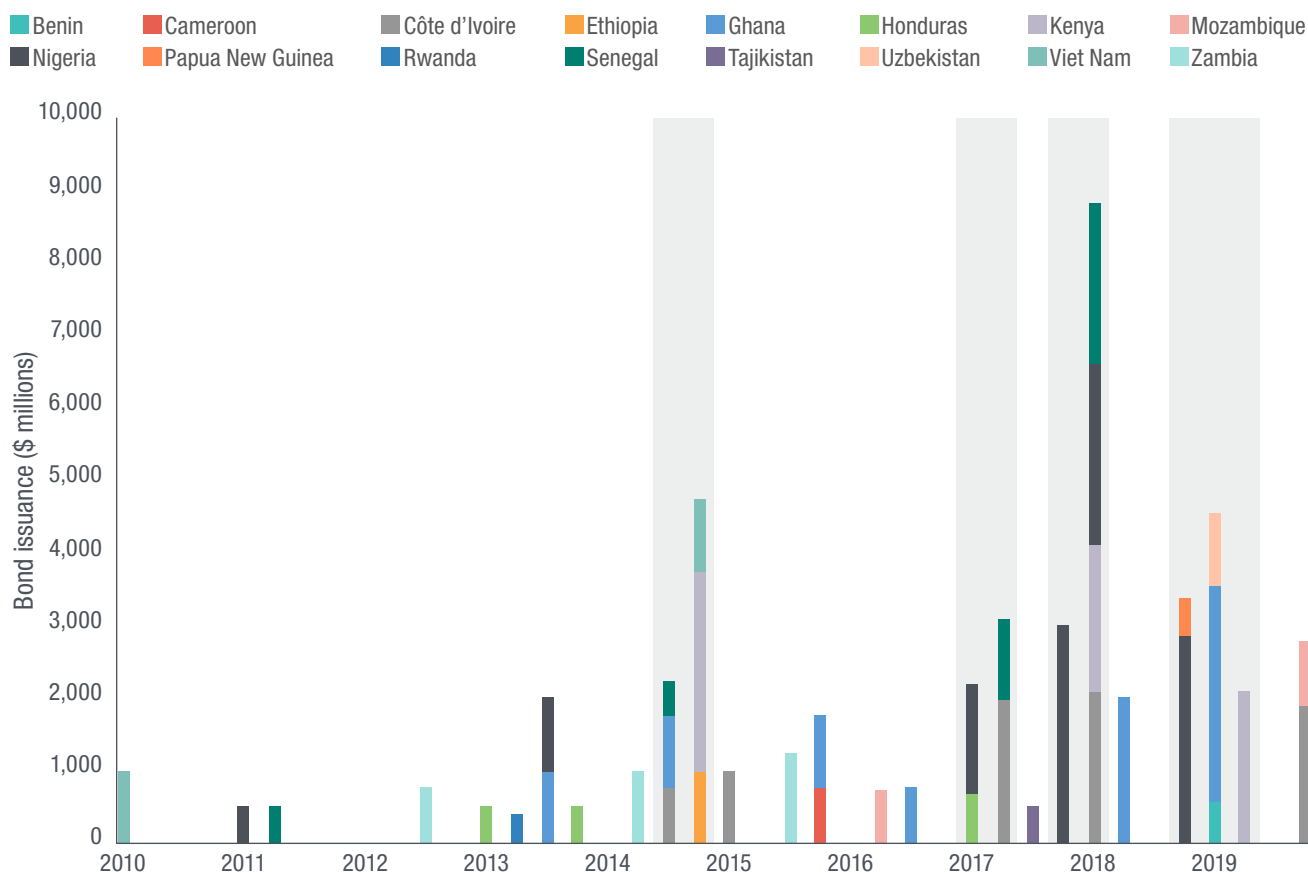
A look at the global liquidity time-series shows that these peak periods coincide with periods when global conditions were loosening. As shown in Figure 12, global private liquidity conditions were extremely tight in 2011 until early 2012, and then started to ease, until early 2015. Conditions tightened considerably in the second half of 2015 and in early 2016, which was a period marked by dollar strengthening, the 2015 Renminbi and Chinese stock market shock, and the collapse in commodity prices. Conditions eased in 2016 and 2017 and have remained quite loose since then, with some degree of tightening in the second half

Table 1 Average yield at issuance – correlations

NFCI	OFR-FSI	US_SR	EA_SR	VIX	VSTOXX
0.11	0.23	0.036	0.06	0.20	0.31

¹⁶ These averages are calculated on the basis of the original frequency of data.

Figure 11 Bond issuances 2010–2019 by country



Note: Shaded areas represent periods when issued amounts were greater than 1.5 times the average per quarter amount.

Source: Authors' elaboration based on prospectuses.

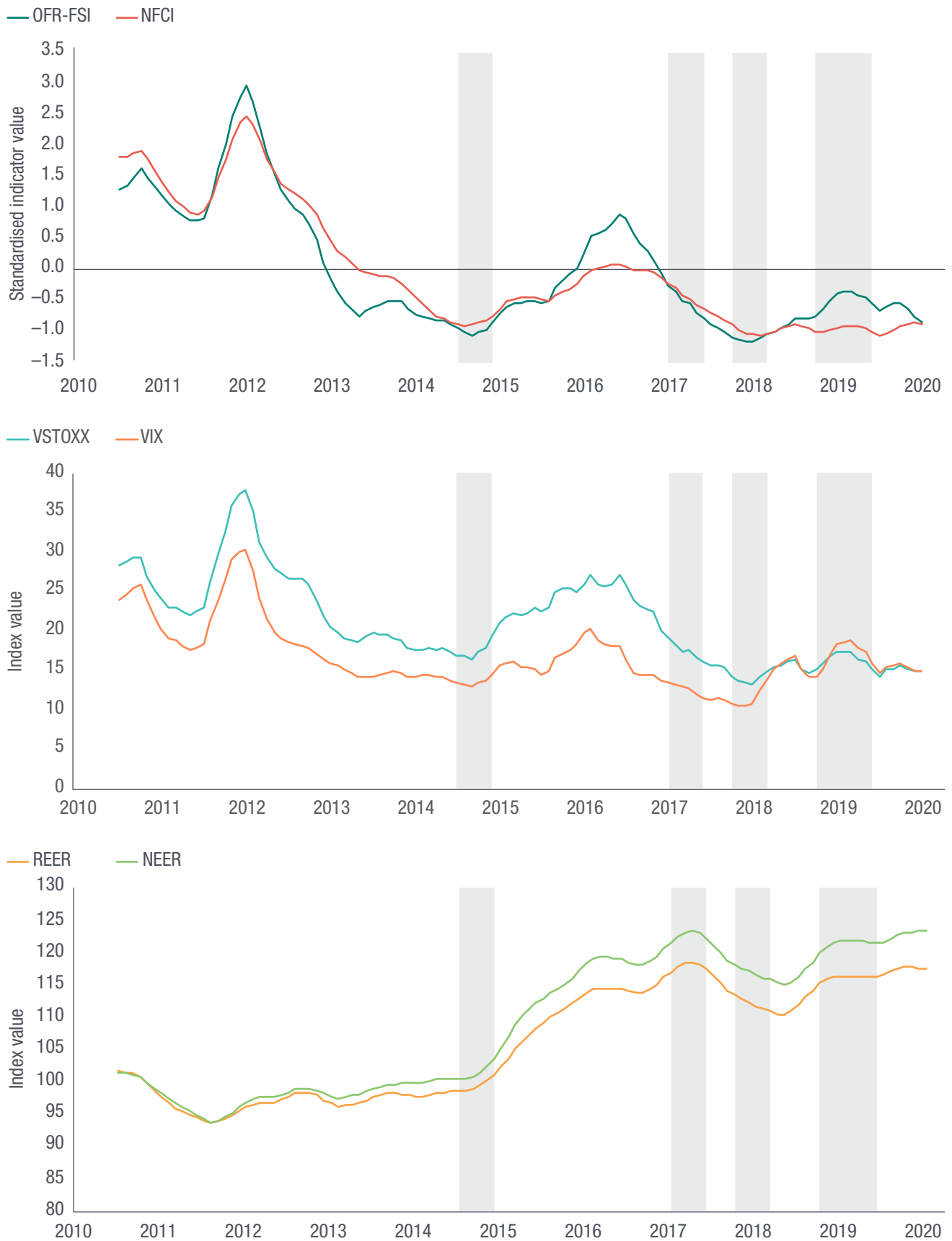
of 2018 (See UNCTAD, 2019b for an elaboration of phases of financial stress and related indicators.) The bands in Figure 12 correspond to the aforementioned periods of larger issuances by LIDCs. These correspond to periods of easing or stable financing conditions with the partial exception of the dollar strength in the most recent period, which was stable but at historically 'strong' levels.

The pattern of shadow rates in Figure 13 shows how overall monetary policy has remained quite loose throughout the period. However, it also shows that the second half of 2015 coincides with the period where the US Federal Reserve policy rates tightened strongly, indicating the reversal of US monetary policy ultra-expansionary conditions – e.g. the stopping of quantitative easing (QE) in October 2014, which lasted until late 2018. The European Central Bank (ECB) and the Bank of Japan (BOJ) on the

other hand kept or deepened their expansionary stance: from 2016 the BOJ continued easing and reached its current shadow rate in late 2017 where it has more or less remained; the ECB subsequently tightened in the second half of 2017 and throughout 2018, as its own QE programme was scaled down and ended in December 2018, but eased again in the second half of 2019, as QE resumed. Notwithstanding these dynamics, shadow policy rates remained negative, indicating an expansionary stance by both the ECB and BOJ. In other words, the easy conditions that accompanied the more recent waves of bond issuance coincide with a period of mixed monetary policy – tighter US monetary policy (although this started to ease again in late 2019), but aggressive expansionary policy by the ECB and BOJ.

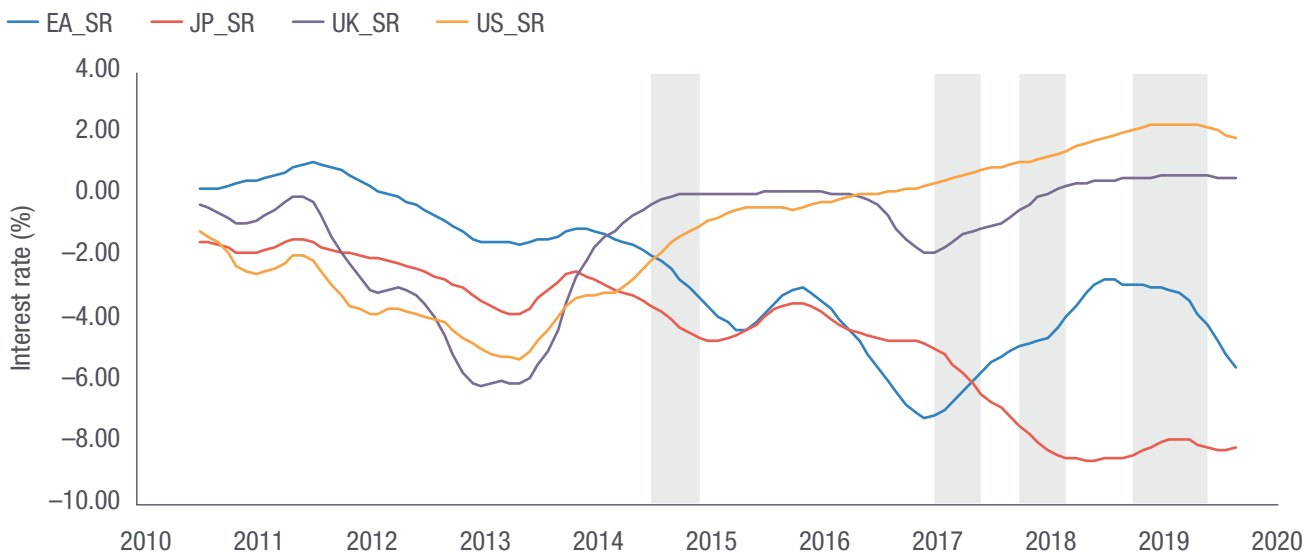
Finally, it seems that periods of easier liquidity conditions allow countries to borrow for longer

Figure 12 Global liquidity indicators



Note: See Table A3 in the Annex for details. All global liquidity indicators are six-month averages.
 Source: Chicago FED, OFR and Thomson Reuters Datastream and BIS.

Figure 13 Shadow policy rates – time-series



Source: Authors' elaboration based on Krippner (2013)

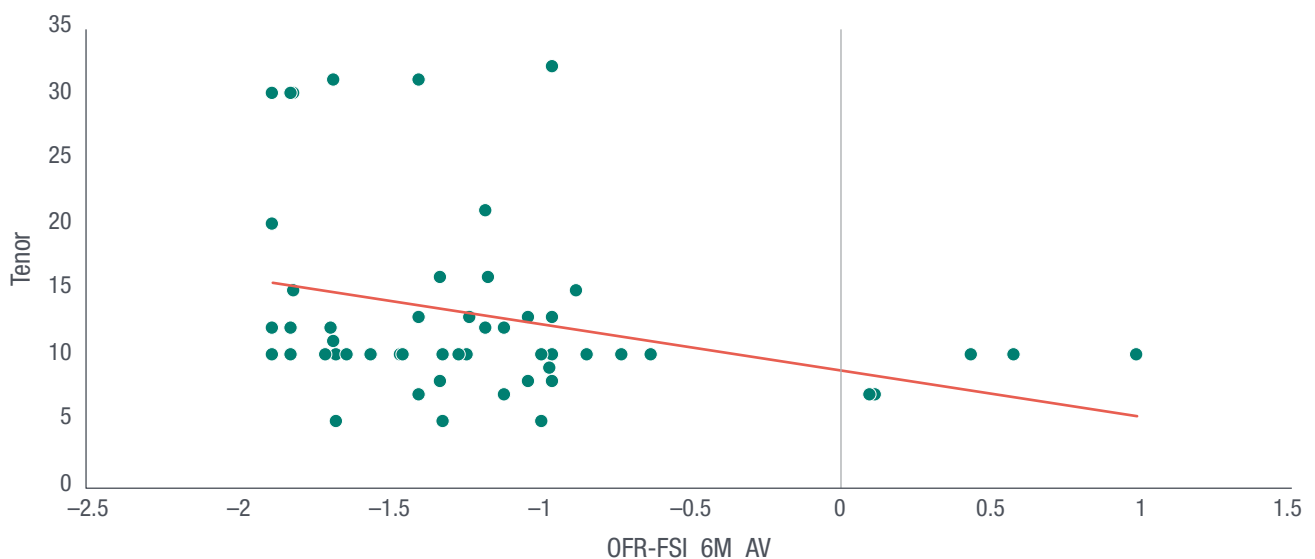
terms. As Figure 14 shows, there is a negative correlation between the OFR-FSI indicator, and the maturity of the bonds issued. All the bonds with a 30-year maturity were issued in conditions of loose global liquidity.

Overall, these patterns show that the four main periods of bond issuance coincide with periods of expanding or stable abundant global liquidity, whereas periods of tightening tend to produce fewer issuances.

4.4 Yields in secondary markets and global liquidity

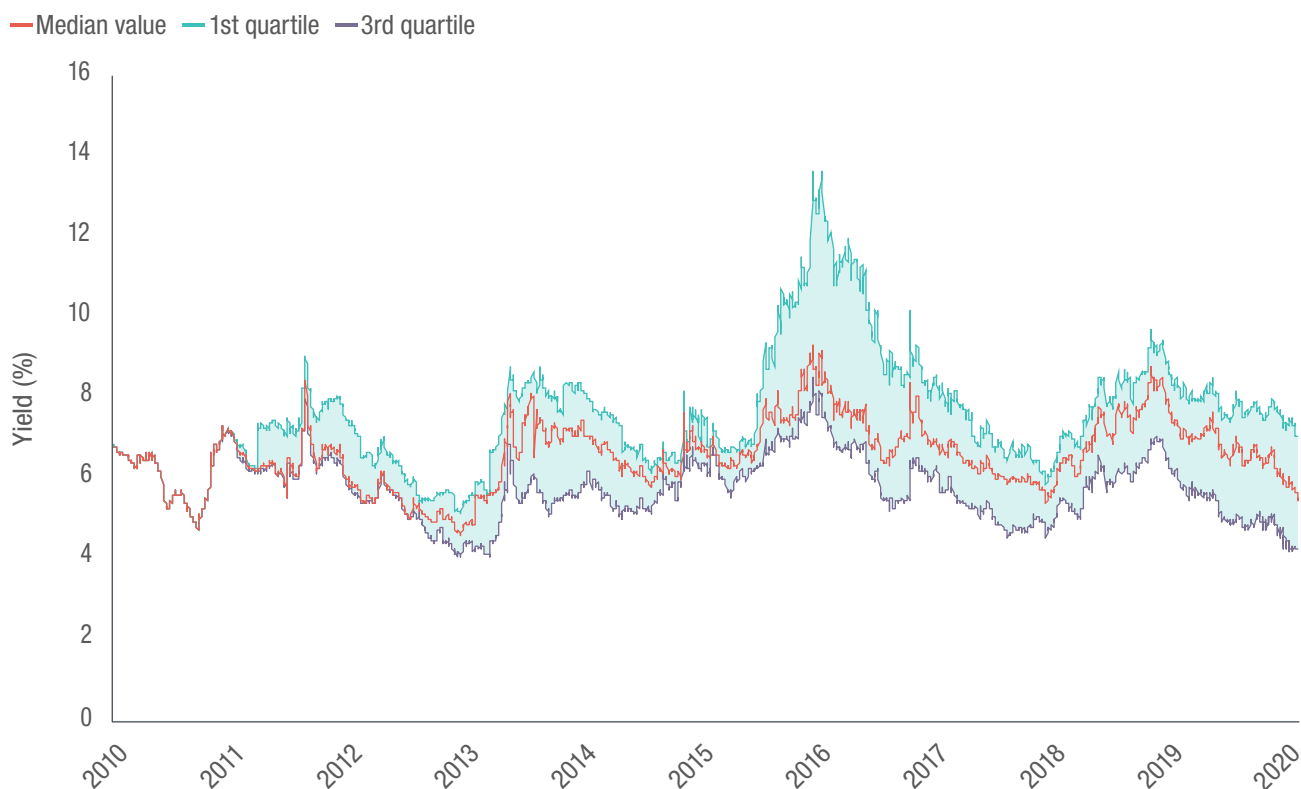
Besides affecting market access and borrowing costs, global liquidity is likely to affect the evolution of yields as traded in the market. Figure 15 shows the median and interquartile range of the yields of the bonds in our sample. The patterns can be associated with the periods of global liquidity discussed in the previous section. The impact of shrinking global liquidity periods can clearly be seen in the second half of

Figure 14 Bonds' tenor and OFR-FSI scatter plot



Source: Authors' elaboration based on OFR and prospectuses

Figure 15 Bond yields in percentage points: median and shaded area is interquartile range



Source: Thomson Reuters Datastream; yearly bond data is taken on 19 February

2015 and in the period post-March 2018 until January 2019. The interquartile range is also not constant, however this is partly due to the changing composition, as new bonds come into existence over time. Nevertheless the 2015 stress period clearly indicates that the impact has been felt unevenly by different countries, with some being much more heavily affected.

The impact of global liquidity on bond yields can also be seen in Table A4 in the Annex, which shows the correlation coefficients of individual countries' bond yields. The correlations are mostly positive, and statistically significant for the majority of the bonds. Once again, the relation appears to be stronger for the OFR-FSI, whereas it is weakest for UK shadow policy rates, and is sometimes negative for US policy rates. The latter can be explained with reference to the post-2017 period, when the tightening of US monetary policy, as explained in the previous section, was not associated with an overall tightening of global liquidity conditions, which remained loose.

The impact of global liquidity on LIDC bond yields can be attributed to the internationally traded nature of these securities. These bonds, as

previously mentioned, are listed in foreign, mainly European, exchanges, and, crucially, most are part of internationally traded indices. Any country with bonds outstanding for a total of more than \$500 million is listed in the key JP Morgan Emerging Market Bond Index (EMBI) global index, which is the leading global benchmark for emerging market bonds. From our sample, only two countries are excluded: Rwanda, because of the lower size of its issuance, and Benin because its only issuance is in euros. Funds benchmarking these indexes do not necessarily follow the EMBI weights in full. For example, the largest fund tracking the EMBI index is iShares JP Morgan USD Emerging Markets Bond exchange traded fund (ETF), with a total asset size of more than \$15 billion. This fund has exposure to bonds from Ethiopia, Côte d'Ivoire, Ghana, Kenya, Nigeria, Senegal, Viet Nam and Zambia. With the exception of Zambia, these countries' bond yields appear to be strongly correlated with global liquidity indicators.

Overall, this confirms the importance of global liquidity in the determination of LIDC borrowing costs through international bonds.

5 Future risks

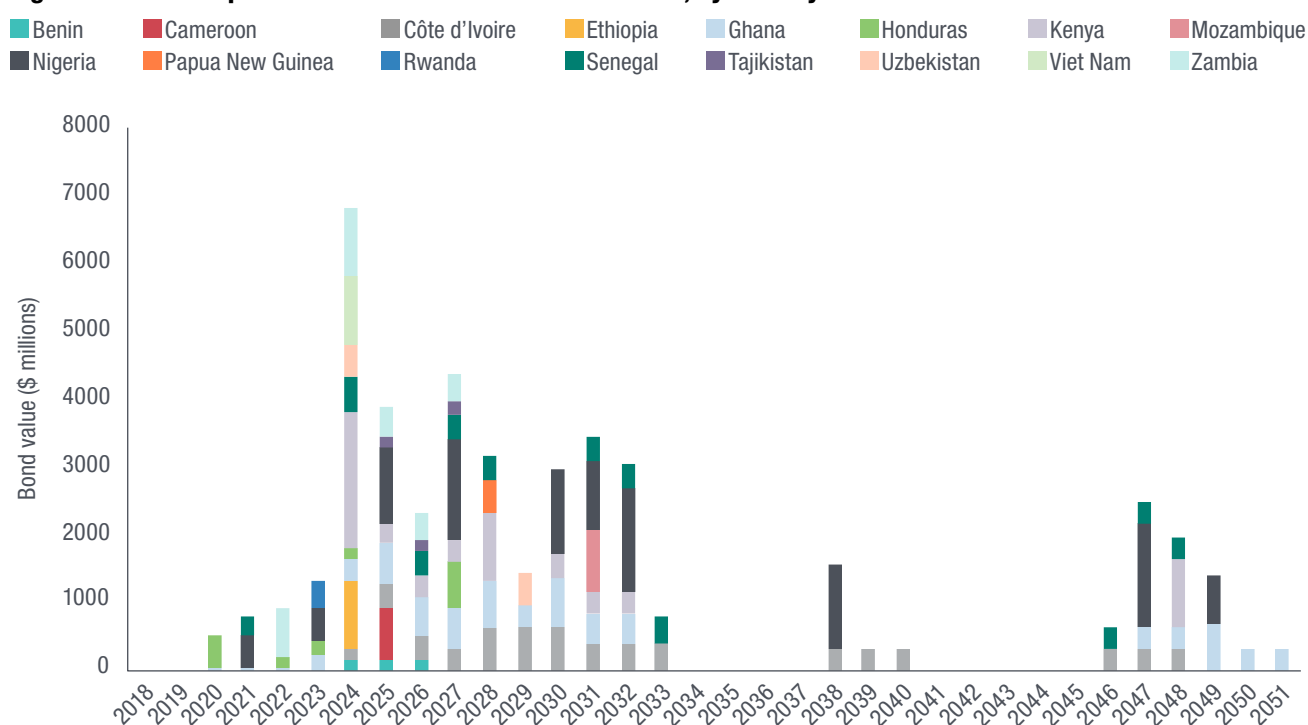
5.1 Minefields ahead due to bunching of maturities

The repayment dates of the bonds issued by LIDCs between 2010 and 2019 are laid out in Figure 16. This shows that refinancing needs increase this year (2020) and will rise significantly from 2024 and for the rest of the decade. The largest redemptions (repayment of bonds) or refinancing (further borrowing instead of repayment) are currently needed in 2024 and 2027, with respectively 10 and 8 countries seeking to refinance or redeem in these years. This is not surprising given that most of the bonds have 10-year maturity and were issued from 2013 onwards. The bunching of maturities in the years following suggests a risky

decade with several countries seeking significant refinancing of bonds. With the capital outflows induced by the coronavirus pandemic and the worsening of debt situations across developing countries, this bunching will pose very significant challenges even if these countries make it through the current crisis without severe debt problems.

Refinancing needs are particularly acute for certain countries: not only the ones that have borrowed the largest absolute values (Nigeria, Ghana and Côte d'Ivoire in that order) but those that have more than one bond falling due within the same year, or bonds maturing in succession. Ghana, for instance, has to seek refinancing or redeem bonds twice a year from 2025 to 2030, while Côte d'Ivoire has payments due every year from 2024 to 2033.

Figure 16 Redemption dates of bonds issued 2010–2019, by country



Note: For series with multiple redemption dates, amounts are spread as per prospectus across the redemption dates.
 Source: Authors' elaboration based on prospectuses; amounts outstanding per series have been retrieved from Thomson Reuters Datastream.

The 2024–2030 period is particularly important for the African external bond market. Should current global liquidity conditions continue into that period, countries might find it difficult and/or more costly to access global markets. Furthermore, should the coronavirus pandemic push countries closer to default today, those countries will have trouble restructuring their outstanding debts, as analysed in Section 5.3 on legal risks. This is particularly the case in some countries where outstanding bonds are quite significant when compared to GDP, such as Côte d’Ivoire, Senegal and Zambia whose external outstanding bonds exceed 12% of GDP.

Given the current global crisis, countries with substantial upcoming payments should be monitored particularly closely. In the immediate time horizon, the 2020 and 2021 period, Honduras and Senegal will need to redeem a bond, which coupled with their coupon payments in that same period, results in a total debt service equal to more than 2% of their GDP. Over the same period, in Côte d’Ivoire, Ghana and Zambia, coupon payments are close to 1% of GDP, despite not having any redemption due. Honduras, Senegal and Ghana have sought emergency financing from the IMF; they are IDA-eligible countries that could benefit from the G20 proposal to reschedule debt service repayments. However, the exclusion of the private sector means any gains could be channelled to these bond repayments. The global economic

contraction, causing declining export revenues and remittances and leading to declining revenues overall, mean these debts are a competing claim on resources needed to fund increased expenditure in public health to combat the pandemic.

Current analyses of the risk of debt distress underplay the importance of these factors. Not all these vulnerabilities are captured by the latest DSF risk ratings. While we are not making a strict comparison with the LIC DSF ratings, we do want to highlight some key points. We focus here on those countries that had a low or moderate risk rating and compare this with our findings above. At the time of writing, three of the countries at low or moderate risk of debt distress have sought emergency funding from the IMF, and it is likely that more will follow. These include eight countries, as shown in Table 2.

Benin has one issuance, from the latest of the three periods with higher average issuances. Its repayment schedule is spread over the three years 2024–2026. Given its recent trading, there are not many data points, and as such, its correlation results with the global liquidity indicators might not be reliable. It is assessed under the new LIC DSF, and is given a moderate risk rating, with market financing risk being low on the external DSF, and unavailable for the public DSA. Despite not being registered in the DSF, in the IMF Article IV country report itself there is some ambivalence:

Table 2 Global liquidity risks

Country	Correlation NFCI	Correlation OFR-FSI	Bunching	Issued in peak times	Bond payments to GDP 2020–2021
Benin	–0.11	0.37	Yes	Yes	0.19%
Côte d’Ivoire	0.47	0.46	Yes	Yes 5 out of 8	0.77%
Kenya	0.36	0.55	Yes	Yes 6 out of 6	0.40%
Honduras	0.43	0.26	Yes	Yes 1 out of 3	2.47%
Senegal	0.43	0.63	Yes	Yes 4 out of 5	2.10%
Papua New Guinea	0.46	0.41	Yes	Yes	0.17%
Rwanda	0.67	0.48	No	No	0.24%
Uzbekistan	–0.23	0.32	Yes	Yes 2 out of 2	0.07%

Note: the correlations are those reported in Table 1 and are averages for the countries with multiple issuances. Bunching occurs when the country has bond payments due in the 2024–2030 period. Peak times refer to the four periods defined above of ample global liquidity and a higher concentration of issuances.

Source: Authors’ elaboration

the refinancing risk is expected to decrease over the short term, given the improved access to longer-term financing. At the same time, over the medium-term or once the Eurobond comes close to maturity, refinancing risk is expected to increase. (IMF, 2019b: 5).

And:

Faster-than-expected normalization of monetary policies of advanced economies, ... could result in ... reversals of capital flows going to frontier markets. This could make the refinancing of the Eurobond more difficult and could raise debt servicing costs. (Ibid: 5)

The market financing realism tool, a new addition in the latest review of the LIC DSF, has two components – a gross financing needs benchmark and an EMBI spread benchmark – which did not exist for Benin at the time of the country report; there were no breaches of the Gross Financing Needs benchmark.

Côte d’Ivoire. The last debt sustainability analysis was undertaken using the previous DSF framework and hence it is not possible to check how the market financing stress test fares. Its overall risk rating was moderate. From our analysis we see that five out of the eight issuances were done in periods of high liquidity, and that most of its series correlate well with the global liquidity indicators.

Honduras. The external and public DSA indicate low liquidity requirements and for all DSF indicators, market financing stress testing does not reveal breaches of the threshold. However, Honduras’ redemption or refinancing periods, together with the close correlation that the issuances have with global liquidity, may require closer monitoring, which is mentioned in the country report (IMF, 2019c). The uncertainty over global liquidity conditions is not factored into the DSF tables. Furthermore, rather than focusing solely on addressing the global pandemic,

Honduras will face heightened refinancing difficulties soon, despite IMF financing, as one of its bonds is due for redemption in December 2020.

Kenya. In the last assessment of Kenya’s debt sustainability assessment under the LIC DSF, Kenya is assigned a moderate risk rating; it was undertaken on 13 June 2018, using the old framework, and thus does not provide any assessment of the market financing risks. As our analysis indicates, all its issuances were made in the ‘peak period’ of high global liquidity and several redemptions are due in the 2023–2030 period.

For these three countries (Côte d’Ivoire, Honduras and Kenya), outstanding bonds represent a sizeable proportion of GDP (respectively 13.92%, 6.96% and 5.98%); and upcoming payments equal 0.4% of GDP, with potential sizeable negative consequences for the domestic economy as financing conditions tighten.

Senegal and Papua New Guinea are considered as being at a moderate risk of debt distress, and Uzbekistan and Rwanda are considered to be at low risk. None of the signal or tailored stress tests indicates vulnerability through the market financing components of the DSF.¹⁷ Our analysis suggests that in Papua New Guinea, Senegal and Rwanda, bond yields present positive and fairly high correlations with the key global financing condition indicators. With the exception of the first bond issued in Senegal and Rwanda, all the bonds were issued under loose global financing conditions and are due to be refinanced in the 2023–2030 period. This suggests that the DSF does not properly take into account the extent to which these countries are exposed to global liquidity conditions. Furthermore, in Senegal, outstanding bonds are large compared to GDP, and there are substantial payments due in the next two years, with one bond due for redemption. The current stressed conditions are likely to have serious negative influences on the country’s economy.

Overall, this shows that these new bonds present a number of potential new risks for LIDCs that are not necessarily captured in full by the DSA. The current pandemic-related crisis is placing serious

17 Papua New Guinea’s latest DSA was published right after the issuance of its first bond, and this is mentioned in the report. However, its impact on debt sustainability is not analysed using the market financing stress test.

stress on all countries, through multiple channels. Importantly, this will include those countries whose risk is not fully accounted for by the DSA ratings. Our analysis above suggests Côte d'Ivoire, Kenya, Honduras and Senegal look particularly vulnerable in these respects, given their large issuance, upcoming debts due, current debt burden and connection to global liquidity. Despite the debt service relief and rescheduling planned through the IMF and G20, without comprehensive inclusion of private creditors, this relief could be redirected to the substantial upcoming bond redemptions.

The new DSF's assumptions about market financing stress greatly underestimate the scale of the problem, if and when it occurs. The DSF's 'Market financing shock' aims to assess refinancing risks resulting from a deterioration in global risk sentiment and is understood as a 400 basis points increase in the cost of new external commercial borrowing, a shortening of commercial external borrowing to five years, and a one-off foreign exchange depreciation equivalent to 15% in the second year (IMF, 2018b). The DSF also includes an additional signalling tool to ascertain the extent of market financing problems in the baseline. This is done by comparing projected baseline public gross financing needs and current market sentiment as measured by the latest EMBI spread to respective benchmarks. If a country's public refinancing needs over the next three years are greater than 14% of its GDP or its EMBI spread exceeds 570 basis points, this suggests strong financing pressures exist and would inform the IMF staff's judgement when determining the risk rating. However, the coronavirus pandemic period of market stress, as well as past examples, indicate that the scale of shocks in the DSF are much smaller than the ones that occur in practice. Over the period 2015 to 2016, the Africa EMBI spread tightened considerably to almost 800 basis points, has remained on average about 400 basis points since then, and again has shot up in the current crisis to more than 1,000 basis points (Smith, 2020). In these conditions it will be prohibitive to refinance any debt, suggesting that the DSF is not able to capture conditions of serious global

financial tightening, let alone translate them into a reasonable reading of the pressures that each country faces.¹⁸

5.2 Use of proceeds, fees and commissions

Using the bond prospectuses, we collected information on the stated 'use of proceeds' – how the governments intended to use the funds borrowed. Prospectuses state the variety of uses to which the proceeds will be put, with numerous objectives included. It has not been possible to ascertain which of these has priority or has in fact materialised. In Table A5 in the Annex, we created categories for different types of stated use, and grouped them into two broad categories: *spending* and *refinancing*. *Spending* includes mentions of general budget support, financing fiscal deficits (mentioned as two separate uses, which in practice may be similar) and financing development, which involves uses that explicitly mention investment, capital or specific sectoral use of the funds including investment in social services. Most frequently these refer to sectors, or projects, and so their use may cohere with general budget support. *Refinancing* is the second broad category for which bond proceeds are used, which we divide into refinancing domestic debt, repaying short-term debt, financing the purchase of principal amount of existing bonds and bond exchanges and repaying foreign bank loans due. These broad groups – borrowing to fund current expenditure (investment or consumption) or borrowing for debt management operations, and to manage balance sheet considerations – could be a useful way to discuss the implications of the new sovereign bond issues for LIDCs.

Refinancing is common debt management practice, but the devil is in the detail. It appears that in several instances, sovereign bonds have been used to refinance domestic debt into foreign debt, which, given the foreign currency and legal risk involved, is puzzling. It would certainly involve an upgrading in governing law, from domestic to foreign. Several international bonds

18 Conducting debt sustainability analysis in conditions of fundamental uncertainty is, in any case, an impossible exercise, considering the inability of having a reliable view on the future on which the analysis depends (see Wyplosz, 2011).

have been issued, not for the purpose of productive investment in physical or social infrastructure, but to lend on to domestic enterprises that have debts falling due (often external debts), and on occasion, to recapitalise those enterprises. Many international bonds have been used to repay specific foreign commercial bank debt, effectively transforming part of the commercial bank debt into bonded debt. In some instances, sovereign bond issues have been used to repurchase principal amounts outstanding from older issues and exchange old issues with newer ones. On one occasion a sovereign bond was issued for the explicit reason of refinancing short-term debt. While these latter occasions (with the exception of distressed bond exchanges, such as Mozambique) may represent debt management practices that extend maturities and refinance existing loans in times when costs may be lower, the coupon rates paid in general are high, and the rationale for taking on currency and legal risk is unclear.

These patterns suggest that bond issuance is, to a large degree, related to balance sheet and debt management operations rather than financing government spending or investment. While this is a strategy for LIDC governments that need to alter their debt profile, it can be a risky one as the debt incurred *may* be cheaper in terms of its pure interest costs than the one it replaces, but it generates a strong link to global liquidity conditions, which imposes risks in terms of refinancing as well as in real domestic terms in case of domestic currency depreciation. Issuances are the result of LIDCs exploiting the opportunity of easier financing conditions, which are, however, volatile and might not be present at the time of maturity.

With regards to fees and commissions, it is worth mentioning that substantial fees and commissions are charged for the issuance of foreign bonds. While we do not have concrete comparative costs for other forms of borrowing, these fees are substantial and important to consider. All the proceeds amounts that we have recorded are issued gross but available use of proceeds are in net amounts after fees and commission are charged. These are sizeable amounts for LICs. While there is insufficient

transparency in the bond contracts to ascertain the charges in each case, some examples include: Côte d'Ivoire 2014 Q3 issuance charged \$1.9 million, Ghana's 2013 Q3 charged \$2 million and Nigeria's 2011 Q1 issuance charged \$3 million in fees and commission. In relation to the size of loan, these are small amounts, but, nevertheless, they are substantive absolute values, especially in light of the emergency financing needed for funding public health. Not all prospectuses mention the amounts charged. For the bonds issued at 100%, it may be possible to infer the charges from the net amount received. For instance, for Honduras 2013 Q1, the nominal amount issued and the net proceeds received have a difference of \$5.8 million.

5.3 Legal risks

Using our prospectus dataset, we examined the details of the provisions of sovereign bond contracts to ascertain the legal risk of LIDCs' new bond issuances. The legal framework for issuing sovereign bonds is important because if debt repayment difficulties arise, the actual terms and conditions included in the bonds will define the way that creditors and debtors negotiate over any payment dispute, including whether a minority of creditors are able to attempt a recovery and disrupt debt restructuring (UNCTAD, 2015).

Debt repayment prospects are weakening across all developing countries in light of the coronavirus pandemic, and calls for deep debt relief are growing. Typically, debt crises have usually been dealt with in ad hoc ways characterised by 'too little, too late', at great social cost, with creditors' interests having taken precedence over those of debtors. This is a consequence of the lack of a fair approach for dealing with debt crises (see Barry et al., 2007; Guzman et al., 2016; Ocampo, 2016; Stiglitz and Heymann, 2014). These concerns have been behind UNCTAD's consistent promotion of statutory rather than ad hoc mechanisms for resolving debt crises based on impartial assessments of a country's debt situation.¹⁹ In response to the pandemic, UNCTAD (2020) makes a similar proposal to address developing countries' debt.

¹⁹ Attempts to establish a multilateral process under the auspices of the United Nations have been persistently and historically blocked by creditor countries (for a brief overview of these efforts see Laskaridis, 2019).

The diverse creditor make-up of the current debt situation means that when these debt repayment difficulties arise, countries will have to deal with their creditors in a variety of forums, jurisdictions and committees. Different categories of debt have their own respective problems and delays. Wright (2011) finds that LIDC debts to foreign private sector creditors, including bondholders, have been the most time-consuming to restructure, taking 75% more time than for upper-middle-income countries. Delays have been particularly long in sub-Saharan Africa. These problems are increasingly evident in the current debt crisis: the gains that may be made through the debt service relief by the IMF (2020a) and the announcement by the G20 to suspend debt service payments for 76 of the poorest countries from May to the end of this year could be used to repay private creditors.

Sovereign bonds contain clauses that stipulate the details of each party's obligations and the terms and conditions of the contract, which will constrain the room for manoeuvre and negotiation in the case of debt repayment difficulties. The format of what needs to be included as part of an international bond listing is regulated by law and is substantially more cumbersome than domestic listings.²⁰

From our sample of 57 bond issuances, we examined the 55 contracts that we were able to source.²¹ We focused on different clauses that we identified as potentially problematic for LIDCs: governing law; *pari passu* wording; the type of majority action collective action clauses; allowances given in case of default; and cross acceleration clauses and triggering amounts. We now examine each in turn.

Governing law. Bonds governed by local law can be amended by acts of parliament.²² In addition, foreign investors would find it harder to chase their claims in domestic courts. Bonds

governed by English or New York state law may signal that in the event of a dispute, courts are more likely to uphold creditors' rights. While there are several reasons for this, one of the reasons suggested by Patricio Ferreira Lima (forthcoming) is that they treat sovereign debt contracts, and most crucially sovereign debt restructuring, as a private, commercial transaction. Hence, any reduction in the amount of debt owed to bondholders relies on contractual mechanisms, and any defence based on grounds of or related to inability to pay is unlikely to be successful before these courts.

Of the 55 contracts examined, four countries – Honduras, Papua New Guinea, Tajikistan and Viet Nam – made a total of six issuances under New York state law. All other issuances are governed by English law. Countries with multiple issuances made all issuances under the same governing law. One of the reasons that issuers may be opting for English law has been suggested by Olivares-Caminal (2013). The 2011 and 2012 rulings by US District Court Judge Griesa against Argentina and in favour of a small minority of holdout creditors may have prompted issuing countries to opt for English law, where such risks of a small minority of creditors undermining a restructuring deal are less likely. An indication that the UK would not adopt the same interpretation as Judge Griesa was signalled by the Bank of England, which reported its position on why his controversial interpretation was incorrect (Financial Markets Law Committee, 2005).²³

Pari passu. This clause has been the subject of much controversy. It is generally interpreted to mean that bonds rank *pari passu* (on equal footing) with the sovereigns' other unsecured debts, and depending on the precise wording, other obligations the sovereigns may have, of varied scope. This clause has been used by

20 For eurobonds, for instance, see EU Prospectus Directive (Commission Regulation (EC) No 809/2004 of 29 April 2004, implementing Directive 2003/71/EC).

21 We were unable to source contracts in two cases.

22 A recent example of this was the Greek restructuring of 2012, where through an act of parliament, domestic law bonds were retroactively amended in a unilateral way. For more examples of unilateral modifications of sovereign bonds see Audit (2011).

23 Another issue is the degree to which colonial history bears on choice of governing law.

holdout creditors, popularly known as ‘vulture funds’, to try to frustrate debt restructurings by insisting on being repaid in full. It has been interpreted by courts in some instances to mean that *all* creditors are to be paid on a pro rata basis even if a restructuring agreement has already taken place that gives preference to consenting creditors (Gulati and Scott, 2016). This raised a host of concerns that holdout litigation would be encouraged, and collective action problems exacerbated in times of debt restructuring. International organisations (see IMF, 2015) supported modifications to the clause, and in 2014 the main industry trade body (the International Capital Markets Association (ICMA)) published draft wording of a modified *pari passu* clause.²⁴

Given that our study contains some issuances before 2014, we are interested in whether any modifications to the *pari passu* clause over time have resulted from the changed guidance of the ICMA; and whether any issuers take further steps to explicitly disavow the ‘ratable payment’ interpretation that *all* creditors are to be paid on a pro rata basis. We are also interested in whether there is mention of the Argentinean litigation case and whether any contracts contain the wording of the *pari passu* clause that caused the problems for Argentina.²⁵ To do this, we follow an approach of checking bond contracts along the lines of Gulati and Scott (2016).

Our review had three main findings:

1. Most contracts (78%) follow ICMA guidelines and include a clarifying statement which excludes the obligation to effect ratable payments. The earliest to do this in our sample was Honduras in 2013, followed by Ghana in 2014. The 22% that do not are from seven countries’ early issuances; they all subsequently modified their contracts to follow ICMA guidelines.
2. Some outliers exist that have gone even further – for instance Honduras, explicitly disavows the ratable payments interpretation by making reference to the *NML vs Argentina* case, and Viet Nam’s 2024 issuance has done away with the wording ‘*pari passu*’, replacing it with the word ‘equally’.
3. The version of the *pari passu* clause that NML Capital used to make its case against Argentina is found in three recent cases, Uzbekistan’s two issuances and Mozambique’s. However, in all three cases, additional wording has been added to ensure that the ratable payment interpretation used by Judge Griesa is disavowed.

Collective action clauses (CACs). The CACs that have been used in restructuring international sovereign bonds are majority action clauses, which allow a qualified majority to force the minority of holdouts to abide by a restructuring plan, or which allow a qualified majority to prevent the holdout minority from enforcing their claims (Olivares-Caminal, 2016). These clauses describe the way coordination among the disparate number and location of sovereign bondholders will be arranged to facilitate changes to payment terms, currency units or other reserved matters, should that prove necessary. CACs have become widely used since 2003.²⁶ In the absence of a sovereign debt restructuring mechanism, attention has focused on CACs to provide incentives to reach agreements, assist restructuring and withdraw power from minority holdouts.

CACs have evolved over time in response to difficulties caused by earlier versions. Initially CACs took the form of bond-series-by-bond-series voting. As restructurings could be frustrated if bondholders accumulated blocking minorities within one single bond series, a second generation was introduced, known as

24 See <https://www.icmagroup.org/resources/Sovereign-Debt-Information/>

25 As mentioned in Gulati and Scott (2016: 16), the wording of the *pari passu* clause used by NML capital, the hedge fund leading the case against Argentina was: ‘The bonds rank and will rank *pari passu* in right of payment ...’.

26 CACs have a long history; however, the emerging market bond market was initiated with the Brady bonds, mainly issued under New York law that required unanimous consent to be amended (Gelpern, in Guzman et al., 2016).

‘two limb’ CACs. These require a majority of bondholders to consent both in aggregate (all bond series together) and per bond series. The 2013 Eurozone CACs are of this kind.²⁷ However, this second generation still presents an opportunity for holdouts to acquire blocking positions in a single bond series. Further modifications to CACs were made in the third generation, known as ‘single limb’ CACs. Based on recommendations from the ICMA, endorsed by the IMF Board, these single limb CACs enable a supermajority of creditors to restructure in one vote across many bond series.²⁸ The rationale was that even if owners of one bond series blocked a restructuring, if enough holders of other series were in favour, it would bind those that disagreed too. These changes necessitate a much larger amount of money for holdouts to block restructuring deals, and hence appear to make it harder for holdouts. It remains to be seen how effective they have been.

Our review had two main findings:

1. One quarter of contracts contain only ‘first generation’ series by series CACs. Under these, the bond issuer (the borrower) can change payment terms and other reserved matters with the consent of the holders of 75% of the principal amount of outstanding debt of the specific series. The latest issuance with an old type CAC was Côte d’Ivoire in the first quarter of 2015. The countries which have old type CACs still trading are Kenya, Nigeria, Rwanda, Senegal, Zambia, Côte d’Ivoire and Ghana.
2. Most contracts (71%) employ the third generation of CACs, as published by the ICMA in 2014.²⁹

English law bonds generally follow the wording laid out by the ICMA, whereas New York law uses different wording, though effectively they are the same generation of CACs.

Grace periods. Grace periods define the time given to the debtor who has entered an ‘event of default’ to rectify the situation. Bond prospectuses define what an ‘event of default’ consists of. These are defined broadly to include a wide range of eventualities, for instance, non-payment of principal and interest or cross-default, i.e. the default by the borrower on other obligations. Ceasing to be a member of the IMF is also considered an event of default. The grace period varies slightly across the contracts: 10 to 20 days for a default on payment of principal, 10 to 30 days for interest payments, with 30 days being the typical length.

Acceleration clauses. These enable creditors to accelerate future payments of principal, making it due immediately under certain circumstances, including all events of default. All the bonds in our sample contain acceleration clauses and are valid to be triggered for defaults on payments that are typically greater than \$25,000 and in one case (Uzbekistan) \$50,000.

Negative pledge. The negative pledge clause aims to make sure that the available resources of the borrower will ‘remain unencumbered to satisfy the claims of *all* unsecured creditors of the borrower’ (Olivares-Caminal, 2017: 176). According to Olivares-Caminal (ibid: 164), the ‘main purpose is to ensure that other creditors do not obtain a preferred claim over the assets of the debtor in the event of insolvency’. This protects bondholders in order to secure assets that can be used to service all unsecured creditors of the borrower. This restricts borrowers’ ability to use security or collateral with other lenders, thereby reducing the available pool of assets. All the contracts in our sample contain negative pledge clauses.

Low-income borrowing countries are not exempt from creditor litigation even when the bulk of their borrowing is multilateral or bilateral, as evidence from litigation against Heavily Indebted Poor Countries (HIPC) shows.

27 Since 2013 all Eurozone bonds issued after 2013 must include the model CAC; see ESM Treaty, Art. 12, para 3. For more on the evolutions of CACs, see Olivares-Caminal (2016) and Weidemaier and Gulati (2012).

28 For more on the evolutions of CACs, see Olivares-Caminal (2016) and Weidemaier and Gulati (2012).

29 The remaining 4% of issuances contain stricter multiple series aggregation options, needing a higher degree of agreement to restructure. See <https://www.icmagroup.org/resources/Sovereign-Debt-Information>

Many commercial creditors did not commit to multilateral debt relief initiatives and several put great pressure on the HIPC's to settle claims by resorting to litigation and other unilateral actions. In several cases, creditors were awarded more than double the amount of their initial claim in nominal terms, and the average duration per case was more than five years with several cases lasting a decade or even two (Laskaridis, 2019). For HIPC's, efforts to reduce the recoverable

amounts that commercial creditors can receive were legislated in the UK government's Debt Relief (Developing Countries) Act 2010; however, this Act does not cover our sample's outstanding bonds, and the problems of litigation in the case of sovereign bonds continue (Guzman et al., 2016). In light of the unfolding debt crisis, the UK Debt Relief Act could be extended to protect LICs from potential litigation should they not be able to make the bond payments that are due.

6 Conclusions

LIDCs are badly hit by the coronavirus pandemic, and there is a mounting risk of a widespread sovereign debt crisis that could dramatically set back progress.

This report has examined the situation and the risks posed by the rise in borrowing from private sources by this group of countries in recent years, focusing on those countries that have gone furthest in this direction by issuing sovereign bonds.

Three major conclusions can be drawn for LIDCs and the international community in the coming years when debt issues are likely to dominate their economic policy-making.

1. The costs and availability of borrowing are linked to global financial conditions, and so debt risks and problems are not solely due to country circumstances. Therefore, policy responses that focus on domestic adjustment are misdirected, particularly as adjustment that involves spending cuts would be disastrous when large-scale expenditures on health provision and domestic income support are needed.
2. The fact that developing countries have borrowed extensively from international private creditors will complicate debt-restructuring efforts, and introduces several minefields on the road ahead, including major refinancing spikes and the legal complexities inherent in restructuring bond debts.
3. Standstills and debt restructurings must be comprehensive and include private as well as public creditors if they are to work for all countries, and if they are to avoid the problem of private creditors being ‘bailed out’ by public creditors. This happens when private creditors become more likely to be repaid thanks to resources temporarily freed up by public creditors, as is currently the case.

Commitments were made in April 2020 by the IMF to six months’ debt service relief for 25 countries and by the G20 to suspending debt service payments for 76 of the poorest countries from May to the end of this year (G20, 2020; IMF, 2020a). The findings of this report highlight the risk that this relief could be redirected to repaying private creditors, including the substantial upcoming bond servicing and redemptions that are due. These small steps will not be enough given the scale of the crisis that is unfolding. This report’s findings highlight the need for immediate action to mitigate the wave of recessions and crises the world now faces, and the need for standstills on all debt payments, followed by a more comprehensive approach towards restructuring and cancellation. The report gives impetus to the creation of effective debt work-out mechanisms for countries in crisis, to restructure all debts simultaneously in a fair and rapid manner.

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Annex 1 Supporting data

Table A1 Country list and key information

Country	No. of issuances (2010–2019)	GNI \$ per capita (2017) Atlas method	GDP (2020) Current \$m	International bonds outstanding % 2020 GDP	Bonds payments 2020–2021 % GDP	Latest risk rating
Benin	1	820	15,478	3.49%	0.19%	Moderate
Cameroon	1	1200	40,621	1.94%	0.18%	High
Côte d'Ivoire	8	1520	48,354	13.92%	0.77%	Moderate
Ethiopia	1	660	103,607	1.10%	0.06%	High
Ghana	9	1380	69,757	10.38%	0.94%	High
Honduras	3	2150	25,314	6.96%	2.47%	Low
Kenya	6	1380	109,128	5.98%	0.40%	Moderate
Mozambique	2	480	16,695	5.96%	0.27%	In debt distress
Nigeria	11	2450	494,830	2.43%	0.27%	–
Papua New Guinea	1	2160	23,935	2.12%	0.17%	Moderate
Rwanda	1	700	11,061	3.92%	0.24%	Low
Senegal	5	950	25,768	16.70%	2.10%	Moderate
Tajikistan	1	1110	8,632	6.13%	0.41%	High
Uzbekistan	2	2220	70,156	1.65%	0.07%	Low
Viet Nam	2	2050	284,847	0.38%	0.02%	–
Zambia	3	1300	23,342	12.53%	1.02%	High
Total	57	Median 1340				

Note: Nigeria and Viet Nam are recent Poverty Reduction Growth Trust graduates and therefore are not assessed through the LIC DSF.

Source: authors' elaboration based on IMF (2019d) and WB-WDI and individual bond prospectuses.

Table A2 Bond issuance details

Bond ID	Issue date	Maturity date	Yield at issuance	Value (m)	Tenor (years)	Rating
Benin 16_26	26/03/16	26/03/26	6.000%	€500	10	B+
Cameroon 15_25	19/11/15	19/11/25	9.750%	750	10	B
Côte d'Ivoire 14_24	23/07/14	23/07/24	5.822%	750	10	B
Côte d'Ivoire 15_28	03/03/15	03/03/28	6.625%	€1000	13	B
Côte d'Ivoire 17_33	15/06/17	15/06/33	6.250%	1250	16	B+
Côte d'Ivoire 17_25	15/06/17	15/06/25	5.125%	€625	8	B+
Côte d'Ivoire 18_48	22/03/18	22/03/48	6.625%	€850	30	B+
Côte d'Ivoire 18_30	22/03/18	22/03/30	5.250%	€850	12	B+
Côte d'Ivoire 19_31	17/10/19	17/10/31	6.000%	€850	12	B+
Côte d'Ivoire 19_40	17/10/19	17/10/40	6.875%	€850	21	B+
Ethiopia 14_24	01/12/14	01/12/24	6.600%	1000	10	B
Ghana 13_23	07/08/13	07/08/23	8.000%	1000	10	B
Ghana 14_26	18/09/14	18/09/26	8.250%	1000	12	B-
Ghana 15_30	14/10/15	14/10/30	10.750%	1000	15	BB-
Ghana 15_22	15/09/16	15/09/22	9.250%	750	7	B-
Ghana 18_29	16/05/18	16/05/29	7.625%	1000	11	B
Ghana 18_49	16/05/18	16/05/49	8.627%	1000	31	B
Ghana 19_27	26/03/19	26/03/27	7.875%	750	8	B
Ghana 19_32	26/03/19	26/03/32	8.125%	1250	13	B-
Ghana 19_51	26/03/19	26/03/51	8.950%	1000	32	B-
Honduras 13_24	15/03/13	15/03/24	7.500%	500	9	B+/B(-)
Honduras 13_20	16/12/13	16/12/20	8.750%	500	7	B
Honduras 17_27	19/01/17	24/06/27	6.250%	700	10	B+/B(-)
Kenya 14_19	03/12/14	24/06/19	5.000%	750	5	B+
Kenya 14_24	03/12/14	24/06/24	5.900%	2000	10	B+
Kenya 18_28	28/02/18	28/02/28	7.250%	1000	10	B+
Kenya 18_48	28/02/18	28/02/48	8.250%	1000	30	B+
Kenya 19_27	22/05/19	22/05/27	7.000%	900	8	B+
Kenya 19_32	22/05/19	22/05/32	8.000%	1200	13	B+
Mozambique 16_23	06/04/16	18/01/23	10.500%	726.5	7	CC
Mozambique 19_31	30/10/19	15/9/31	*	900	12	CCC
Nigeria 11_21	28/01/11	28/01/21	7.000%	500	10	B+
Nigeria 13_18	12/07/13	12/07/18	5.375%	500	5	BB-
Nigeria 13_23	12/07/13	12/07/23	6.625%	500	10	BB-
Nigeria 17_32	16/02/17	16/02/32	7.500%	1500	15	B
Nigeria 17_27	28/11/17	28/11/27	6.500%	1500	10	B
Nigeria 17_47	28/11/17	28/11/47	7.625%	1500	30	B

Bond ID	Issue date	Maturity date	Yield at issuance	Value (m)	Tenor (years)	Rating
Nigeria 18_30	23/02/18	23/02/30	7.143%	1250	12	B
Nigeria 18_38	23/02/18	23/02/38	7.696%	1250	20	B
Nigeria 18_25	21/11/18	21/11/25	7.625%	1118.35	7	B
Nigeria 18_31	21/11/18	21/01/31	8.747%	1000	13	B
Nigeria 18_49	21/11/18	21/01/49	9.248%	750	31	B
Papua New Guinea 18_28	04/10/18	04/10/28	8.380%	500	10	B
Rwanda 13_23	02/05/13	02/05/23	6.875%	400	10	B
Senegal 11_21	13/05/11	13/05/21	9.125%	500	10	B+
Senegal 14_24	30/07/14	30/07/24	6.250%	500	10	B+
Senegal 17_33	23/05/17	23/05/33	6.250%	1100	16	B+
Senegal 18_28	13/03/18	13/03/28	4.750%	€1000	10	B+
Senegal 18_48	13/03/18	13/03/48	6.750%	1000	30	B+
Tajikistan 17_27	14/09/17	14/03/27	7.125%	500	10	B-
Uzbekistan 19_24	20/02/19	20/02/24	4.750%	500	5	BB-
Uzbekistan 19_29	20/02/19	20/02/29	5.375%	500	10	BB-
Viet Nam 10_20	29/01/10	29/01/20	6.750%	1000	10	
Viet Nam 14_24	19/11/14	19/11/24	4.800%	1000	10	BB-
Zambia 12_22	20/09/12	20/09/22	5.625%	750	10	B+
Zambia 14_24	14/04/14	14/04/24	8.625%	1000	10	B+
Zambia 15_27	30/07/15	30/07/27	9.375%	1250	12	B

Note: Amounts for values are in US dollars unless otherwise specified. *The issuance of Mozambique 19_31 was part of a debt restructuring process, and its interest cost time varying, hence it lacks a single yield at issuance.

Source: Official prospectuses. Amounts for values are in US dollars unless otherwise specified. *The issuance of Mozambique 19_31 was part of a debt restructuring process, and its interest cost time varying, hence it lacks a single yield at issuance.

Table A3 Global liquidity indicators

Variable name	Description	Original frequency	Source
NFCI	US financial conditions	Weekly	Chicago Fed
OFR-FSI	Other advanced economies' financial conditions	Daily	Office for Financial Research
US_SR	US shadow policy rate	Daily	(Krippner, 2013)
EA_SR	Euro Area shadow policy rate	Daily	(Krippner, 2013)
JP_SR	Japan shadow policy rate	Daily	(Krippner, 2013)
UK_SR	UK shadow policy rate	Daily	(Krippner, 2013)
VIX	Volatility index S&P500	Daily	Datastream
VSTOXX	Volatility index STOXX50	Daily	Datastream
REER	US dollar broad real effective exchange rate	Monthly	BIS
NEER	US dollar broad nominal effective exchange rate	Monthly	BIS

Table A4 Cross-correlations: bond yields and global liquidity

Correlation									
P-values	NFCI	OFR_FSI	VIX	VSTOXX	EA_SR	JP_SR	UK_SR	US_SR	NEER
NFCI	1.00								
	–								
OFR_FSI	0.93	1.00							
	0.00	–							
VIX	0.77	0.85	1.00						
	0.00	0.00	–						
VSTOXX	0.85	0.90	0.87	1.00					
	0.00	0.00	0.00	–					
EA_SR	0.68	0.55	0.52	0.47	1.00				
	0.00	0.00	0.00	0.00	–				
JP_SR	0.76	0.61	0.42	0.63	0.69	1.00			
	0.00	0.00	0.00	0.00	0.00	–			
UK_SR	-0.32	-0.13	-0.02	-0.16	-0.28	-0.40	1.00		
	0.00	0.15	0.81	0.08	0.00	0.00	–		
US_SR	-0.56	-0.36	-0.23	-0.41	-0.65	-0.78	0.80	1.00	
	0.00	0.00	0.01	0.00	0.00	0.00	0.00	–	
NEER	-0.64	-0.44	-0.34	-0.42	-0.87	-0.80	0.52	0.87	1.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	–
BENIN_19_26	-0.11	0.38	0.14	0.24	0.86	-0.19	-0.09	0.83	-0.44
	0.73	0.23	0.67	0.46	0.01	0.65	0.82	0.01	0.17
CAMEROON_15_25	0.70	0.81	0.53	0.76	0.16	0.59	0.11	-0.35	0.21
	0.00	0.00	0.00	0.00	0.27	0.00	0.47	0.01	0.13
COTE_D_IVOIRE_14_24	0.53	0.62	0.50	0.63	0.46	0.39	0.16	-0.16	-0.01
	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.20	0.91
COTE_D_IVOIRE_15_28	0.41	0.59	0.59	0.54	0.54	0.24	0.32	-0.01	0.15
	0.00	0.00	0.00	0.00	0.00	0.07	0.02	0.93	0.27
COTE_D_IVOIRE_17_25	0.30	0.54	0.32	0.46	0.66	0.18	0.03	0.52	0.03
	0.09	0.00	0.07	0.01	0.00	0.35	0.89	0.00	0.88
COTE_D_IVOIRE_17_33	0.35	0.73	0.54	0.53	0.61	-0.18	0.52	0.84	0.37
	0.05	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.04
COTE_D_IVOIRE_18_30	0.19	0.59	0.43	0.53	0.46	0.30	0.30	0.83	0.19
	0.37	0.00	0.03	0.01	0.04	0.20	0.20	0.00	0.39
COTE_D_IVOIRE_18_48	0.18	0.54	0.46	0.52	0.51	0.34	0.29	0.81	0.19
	0.40	0.01	0.02	0.01	0.02	0.14	0.22	0.00	0.38
COTE_D_IVOIRE_19_31	0.93	0.10	-0.35	0.20	NA	NA	NA	NA	0.95
	0.02	0.87	0.57	0.75	NA	NA	NA	NA	0.05

Correlation									
P-values	NFCI	OFR_FSI	VIX	VSTOXX	EA_SR	JP_SR	UK_SR	US_SR	NEER
COTE_D_IVOIRE_19_40	0.92	0.00	-0.40	0.15	NA	NA	NA	NA	0.94
	0.03	1.00	0.50	0.81	NA	NA	NA	NA	0.06
ETHIOPIA_14_24	0.75	0.71	0.34	0.66	-0.06	0.65	-0.37	-0.48	0.05
	0.00	0.00	0.01	0.00	0.65	0.00	0.00	0.00	0.69
GHANA_13_23	0.84	0.76	0.34	0.81	0.03	0.70	-0.21	-0.44	-0.15
	0.00	00	0.00	0.00	0.79	0.00	0.07	0.00	0.19
GHANA_14_26	0.90	0.86	0.41	0.84	-0.01	0.78	-0.19	-0.60	-0.06
	0.00	0.00	0.00	0.00	0.96	0.00	0.14	0.00	0.61
GHANA_15_30	0.88	0.90	0.40	0.86	-0.04	0.84	-0.19	-0.68	0.05
	0.00	0.00	0.00	0.00	0.78	0.00	0.20	0.00	0.72
GHANA_16_22	0.76	0.28	0.28	0.43	-0.68	0.92	-0.96	-0.87	0.08
	0.00	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.62
GHANA_18_29	0.49	0.62	0.72	0.74	0.42	0.47	0.24	0.63	0.18
	0.02	0.00	0.00	0.00	0.08	0.05	0.34	0.01	0.43
GHANA_18_49	0.45	0.59	0.72	0.71	0.35	0.50	0.30	0.66	0.28
	0.04	0.00	0.00	0.00	0.15	0.04	0.22	0.00	0.21
GHANA_19_27	0.34	0.37	0.16	0.36	0.52	0.11	-0.14	0.47	0.03
	0.28	0.24	0.62	0.25	0.19	0.79	0.74	0.24	0.94
GHANA_19_32	0.39	0.40	0.28	0.47	0.31	-0.21	-0.34	0.36	0.18
	0.21	0.20	0.39	0.13	0.45	0.62	0.41	0.38	0.59
GHANA_19_51	0.36	0.29	0.21	0.42	0.22	0.00	-0.21	0.25	0.25
	0.25	0.36	0.50	0.17	0.60	1.00	0.62	0.56	0.45
HONDURAS_13_20	0.41	0.23	0.21	0.51	0.54	0.80	-0.28	-0.84	-0.72
	0.00	0.05	0.07	0.00	0.00	0.00	0.02	0.00	0.00
HONDURAS_13_24	0.47	0.16	0.12	0.34	0.68	0.77	-0.58	-0.82	-0.77
	0.00	0.14	0.26	0.00	0.00	0.00	0.00	0.00	0.00
HONDURAS_17_27	0.41	0.40	0.21	0.41	0.44	0.27	-0.14	0.10	0.03
	0.01	0.01	0.20	0.01	0.01	0.13	0.42	0.55	0.88
KENYA_14_19	0.20	0.35	0.29	0.24	0.08	0.11	0.23	-0.003	0.12
	0.1144	0.006	0.02	0.06	0.53	0.39	0.07	0.98	0.36
KENYA_14_24	0.63	0.68	0.39	0.60	0.04	0.40	-0.23	-0.13	0.19
	0.00	0.00	0.00	0.00	0.75	0.00	0.06	0.32	0.11
KENYA_18_28	0.29	0.58	0.43	0.50	0.61	0.13	0.10	0.66	0.02
	0.15	0.00	0.03	0.01	0.00	0.57	0.67	0.00	0.93
KENYA_18_48	0.30	0.59	0.41	0.48	0.49	0.26	0.21	0.69	0.21
	0.14	0.00	0.04	0.02	0.02	0.25	0.35	0.00	0.32
KENYA_19_27	0.31	0.48	0.34	0.42	0.67	-0.19	0.07	0.66	0.10
	0.38	0.16	0.34	0.23	0.15	0.71	0.89	0.16	0.79

Correlation									
P-values	NFCI	OFI_FSI	VIX	VSTOXX	EA_SR	JP_SR	UK_SR	US_SR	NEER
KENYA_19_32	0.36	0.47	0.33	0.43	0.74	-0.33	-0.07	0.71	0.04
	0.30	0.17	0.35	0.21	0.09	0.53	0.90	0.11	0.91
MOZAMBIQUE_16_23	0.44	0.17	-0.29	0.26	-0.37	0.59	-0.76	-0.60	-0.11
	0.00	0.24	0.04	0.07	0.01	0.00	0	0	0.46
MOZAMBIQUE_19_31	0.91	-0.39	-0.93	-0.94	NA	NA	NA	NA	0.98
	0.09	0.61	0.07	0.06	NA	NA	NA	NA	0.13
NIGERIA_11_21	0.40	0.52	0.39	0.59	0.01	0.40	0.23	0.03	0.02
	0.00	0.00	0.00	0.00	0.93	0.00	0.02	0.79	0.85
NIGERIA_13_18	0.23	0.28	0.32	0.24	0.16	-0.04	0.20	0.13	0.15
	0.07	0.03	0.01	0.06	0.21	0.76	0.11	0.31	0.25
NIGERIA_13_23	0.78	0.78	0.48	0.76	-0.06	0.41	-0.11	-0.10	0.14
	0.00	0.00	0.00	0.00	0.61	0.00	0.36	0.38	0.23
NIGERIA_17_27	0.34	0.62	0.49	0.52	0.54	0.28	0.43	0.73	0.34
	0.08	0.00	0.01	0.00	0.01	0.18	0.03	0.00	0.08
NIGERIA_17_32	0.16	0.65	0.60	0.43	0.48	-0.16	0.45	0.69	0.55
	0.35	0.00	0.00	0.01	0.01	0.38	0.01	0.00	0.00
NIGERIA_17_47	0.30	0.59	0.47	0.45	0.40	0.39	0.57	0.78	0.58
	0.12	0.00	0.01	0.02	0.05	0.06	0.00	0.00	0.00
NIGERIA_18_25	0.52	0.64	0.75	0.71	0.79	0.39	0.11	0.69	-0.06
	0.04	0.01	0.00	0.00	0.00	0.21	0.73	0.01	0.84
NIGERIA_18_30	0.25	0.52	0.40	0.45	0.43	0.28	0.27	0.67	0.31
	0.23	0.01	0.05	0.02	0.05	0.21	0.24	0.00	0.14
NIGERIA_18_31	0.53	0.55	0.77	0.74	0.69	0.34	0.07	0.59	0.08
	0.04	0.03	0.00	0.00	0.01	0.28	0.82	0.04	0.78
NIGERIA_18_38	0.16	0.44	0.31	0.36	0.37	0.29	0.31	0.69	0.41
	0.46	0.03	0.13	0.08	0.10	0.20	0.17	0.00	0.05
NIGERIA_18_49	0.54	0.57	0.76	0.74	0.67	0.34	0.04	0.57	0.10
	0.03	0.02	0.00	0.00	0.02	0.28	0.90	0.05	0.71
PAPUA_NEW_GUINEA_18_28	0.46	0.41	0.65	0.71	0.49	-0.02	-0.05	0.36	0.23
	0.06	0.10	0.00	0.00	0.09	0.95	0.88	0.23	0.40
RWANDA_13_23	0.68	0.48	0.23	0.54	0.43	0.69	-0.55	-0.61	-0.44
	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
SENEGAL_11_21	0.74	0.71	0.54	0.74	0.66	0.84	-0.33	-0.63	-0.62
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SENEGAL_14_24	0.71	0.69	0.44	0.75	0.33	0.66	-0.02	-0.48	-0.19
	0.00	0.00	0.00	0.00	0.01	0.00	0.87	0.00	0.12
SENEGAL_17_33	0.29	0.69	0.55	0.54	0.70	-0.27	0.51	0.80	0.27
	0.09	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.13

Correlation									
<i>P-values</i>	NFCI	OFR_FSI	VIX	VSTOXX	EA_SR	JP_SR	UK_SR	US_SR	NEER
SENEGAL_18_28	0.21	0.52	0.39	0.50	0.78	-0.01	-0.07	0.70	-0.19
	0.34	0.01	0.06	0.01	0.00	0.97	0.76	0.00	0.39
SENEGAL_18_48	0.20	0.54	0.37	0.51	0.59	0.00	0.06	0.71	0.02
	0.34	0.01	0.07	0.01	0.01	0.99	0.80	0.00	0.91
TAJIKISTAN_17_27	0.22	0.05	0.20	0.08	0.00	0.30	0.61	0.48	0.64
	0.25	0.79	0.30	0.69	0.99	0.14	0.00	0.01	0.00
UZBEKISTAN_19_24	-0.23	0.32	0.01	0.04	0.93	0.17	0.14	0.85	-0.63
	0.44	0.29	0.98	0.90	0.00	0.67	0.71	0.00	0.03
VIETNAM_10_20	0.78	0.68	0.59	0.60	0.88	0.80	-0.28	-0.64	-0.76
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VIETNAM_14_24	0.55	0.50	0.37	0.61	0.41	0.54	-0.09	-0.44	-0.24
	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.06
ZAMBIA_12_22	-0.36	0.07	0.24	-0.19	-0.25	-0.52	0.47	0.58	0.61
	0.00	0.49	0.02	0.07	0.02	0.00	0.00	0.00	0.00
ZAMBIA_14_24	-0.20	0.14	0.29	-0.14	-0.02	-0.41	0.48	0.59	0.60
	0.10	0.23	0.01	0.26	0.85	0.00	0.00	0.00	0.00
ZAMBIA_15_27	-0.17	0.13	0.35	-0.01	0.22	-0.18	0.57	0.41	0.56
	0.22	0.33	0.01	0.92	0.12	0.20	0.00	0.00	0.00

Note: The table calculates pairwise correlation coefficients based on monthly data. The second row in each one of them shows the *P*-value. Coefficients significant at the 5% level are highlighted in bold.

Source: see Table A3. Note: The table calculates pairwise correlation coefficients based on monthly data. The second row in each one of them shows the *P*-value. Coefficients significant at the 5% level are highlighted in bold.

Table A5 Use of proceeds

Stated purpose of the proceeds	Country and issue	Stated purpose of the proceeds	Country and issue
General budget support	Benin 2016 Q3	Refinancing domestic debt	Ghana 2013 Q3
	Honduras 2013-Q1		Ghana 2015 Q4
	Honduras 2013 Q4		Zambia 2015 Q3
	Nigeria 2011 Q1	Repay short-term debt	Ghana 2014 Q3
	Papua New Guinea 2018 Q4		Finance the purchase of principal amount of existing bonds and bond exchanges
	Uzbekistan 2019 Q2 1		Côte d'Ivoire 2017 Q2 2
	Uzbekistan 2019 Q2 2		Côte d'Ivoire 2019 Q3 1
	Viet Nam 2014 Q4		Côte d'Ivoire 2019 Q3 2
	Zambia 2012 Q3		Ghana 2019 Q1 1
Financing fiscal deficit	Nigeria 2018 Q4 1		Ghana 2019 Q1 2
	Nigeria 2018 Q4 2		Ghana 2019 Q1 3
	Nigeria 2018 Q4 3		Ghana 2018 Q2 1
	Zambia 2015 Q3		Ghana 2018 Q2 2
Financing development (with specific sector mentioned)	Cameroon 2015 Q4		Honduras 2013-Q1
	Côte d'Ivoire 2014 Q3		Honduras 2013 Q4
	Côte d'Ivoire 2015 Q1		Kenya 2019 Q2 1
	Côte d'Ivoire 2017 Q2 1		Kenya 2019 Q2 2
	Côte d'Ivoire 2017 Q2 2		Senegal 2011 Q2
	Côte d'Ivoire 2018 Q1 2		Senegal 2018 Q2 1
	Côte d'Ivoire 2019 Q3 1		Senegal 2018 Q2 2
	Côte d'Ivoire 2019 Q3 2		Viet Nam 2014 Q4
	Ethiopia 2014 Q4		Mozambique 2016 Q2
	Ghana 2013 Q3	Repaying foreign bank loans due	Cameroon 2015 Q4
	Ghana 2014 Q3		Kenya 2018 Q1 1
	Ghana 2018 Q2 1		Kenya 2018 Q1 2
	Ghana 2018 Q2 2		Senegal 2014 Q3
	Kenya 2014 Q4 1		Senegal 2017 Q2
	Kenya 2014 Q4 2		Senegal 2018 Q2 1
	Kenya 2018 Q1 1		Senegal 2018 Q2 2
	Kenya 2018 Q1 2		On lend to state owned enterprise to repay its debts, at times external
	Kenya 2019 Q2 1		Rwanda 2013 Q2
	Kenya 2019 Q2 2		Tajikistan 2017 Q3
	Nigeria 2013 Q3 1		Zambia 2015 Q3
	Nigeria 2013 Q3 2		
	Nigeria 2017 Q4 1		
	Nigeria 2017 Q4 2		
	Nigeria 2018 Q1 1		
	Nigeria 2018 Q1 2		
	Senegal 2011 Q2		
	Senegal 2018 Q2 1		
	Senegal 2018 Q2 2		
	Zambia 2014 Q2		

Source: authors' elaboration based on prospectuses



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