Bank Lending Rates and Spreads in EMDEs

Evolution, Drivers, and Policies

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Abstract

This paper analyzes the main trends and patterns of nominal lending interest rates and lending-deposit interest rate spreads in emerging markets and developing economies. Using data from 140 emerging markets and developing economies, analysis shows that nominal lending rates and spreads declined between 2003 and 2017, with regional heterogeneity. In addition, it finds that less economically and financially developed countries tend to exhibit higher lending rates and spreads. These higher rates tend to be driven by higher spreads, not deposit interest rates. Also, illustrative regressions suggest that relevant correlates of nominal lending rates include inflation, public debt, and policy interest rate (macro-fiscal conditions); overhead costs,

nonperforming loans, and non-interest income (banking characteristics); and credit bureau coverage and time to resolve insolvency (business environment). Finally, illustrative decompositions of the level and 10-year change between 2007 and 2017 of nominal lending rates find relative differences across regions. On the decline of nominal interest rates in that decade, rising public debt and nonperforming loans have pushed rates up, which was counterbalanced by a reduction in inflation, the policy interest rate, and overhead costs and a better business environment. Since the global financial crisis, a common global factor has increased in importance and has contributed to the downward trend in nominal lending rates.

Bank Lending Rates and Spreads in EMDEs: Evolution, Drivers, and Policies

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1. Introduction

Banks dominate credit intermediation and savings mobilization in most Emerging Markets and Developing Economies (EMDEs). A key driver of lending interest rates is the lending-deposit interest spread, the difference between the lending and deposit interest rates, which captures the efficiency with which banks allocate society's savings to its most productive uses. High lending rates and spreads pose a challenge for policy makers: they can affect monetary policy transmission, hinder private investment and job creation, inhibit financial development and inclusion, and can ultimately compromise financial stability.

This paper quantitatively analyzes the main factors that are correlated with lending rates and spreads in EMDEs. The empirical literature suggests that rates and spreads are driven by three factors: *macro-fiscal conditions*, *banking sector characteristics*, and the *business environment.* These affect four components that make up the spread: *bank operational costs*, *risk premia*, *quasi-taxes*, and *returns*.

Using data from 140 EMDEs, we show that the country median nominal lending rate and spread declined in EMDEs in the 15-year period between 2003 and 2017. However, country experiences differ: in the decade 2007-2017, rates and spreads have increased in 33% and 40% of the countries, respectively. The analysis also shows that rates and spreads have been consistently higher in Latin America and the Caribbean (LAC) and Sub-Saharan Africa (AFR) and are also a policy challenge in many countries in Europe and Central Asia (ECA), including Turkey and the Russian Federation. They are typically lower in East Asia and Pacific (EAP) and Middle East and North Africa (MENA), but exceptions exist (e.g., EAP: the Lao People's Democratic Republic, Mongolia, Indonesia. MENA: the Arab Republic of Egypt, Lebanon, Tunisia).

In addition, based on a quantitative analysis of lending rates and spreads, we find that:

- First, less economically and financially developed countries tend to exhibit higher lending rates and spreads. These higher rates tend to be driven by higher spreads, not deposit rates, suggesting that intermediation efficiency is what matters most in less developed countries.

- Second, illustrative regressions suggest that relevant correlates of nominal lending rates include: inflation, public debt, and policy interest rate (*macro-fiscal conditions*), overhead costs, non-performing loans, and non-interest income (*banking characteristics*), and credit bureau coverage and time to resolve insolvency (*business environment*).

- Third, we conduct illustrative decompositions of the level and change of nominal lending rates and find relative differences across regions. As regards the 2017 average lending rate, high public debt and inflation (in South Asia-SA- and AFR) and high overhead costs (ECA, LAC, and AFR) appear to be key components. Weak insolvency frameworks (AFR and MENA) and high non-performing loans (NPLs) (MENA, ECA, and AFR) are also important. As regards the decline in the decade 2007-2017, rising public debt and NPLs have pushed rates up which was counter-balanced by a reduction in inflation, policy interest rate, overhead costs and a better business environment. Moreover, since the global financial crisis, a common global factor has increased in importance and has contributed to the downward trend in nominal lending rates.

What are the policy implications to sustainably reduce rates and spreads? Policy makers in many EMDEs have intervened through, inter alia, interest rate restrictions and directed credit and subsidy programs -- these measures may carry unintended consequences. Policy makers are advised to consider focusing on root causes. We elaborate on eight policy considerations which should be evaluated holistically to avoid compromising macro-financial stability:

- <u>Macro-fiscal conditions</u>. First, *strengthen macro-fiscal fundamentals* since they exert a first-order effect on benchmark interest rates and balance sheets. Second, *avoid crowding out the private sector* particularly in shallow financial sectors.

- <u>Banking sector characteristics</u>. Third, *support competition* including from markets, non-banks, and fintechs. Fourth, *facilitate operational and scale efficiencies* through enabling policy frameworks such as for digital financial services. Fifth, *strengthen bank regulation and supervision* to increase confidence in the resilience of the banking system.

- <u>Business environment</u>. Sixth, *improve insolvency and creditor rights regimes* which protects banks against losses and promotes restructuring of viable firms. Seventh, *improve*

information and collateral registries frameworks which reduces agency frictions. Eighth, *revisit direct policy interventions* by assessing the design and impacts of, inter alia, reserve requirements frameworks, interest rates restrictions, and directed credit and interest subsidy programs.

This paper is organized as follows. Section 2 is the conceptual framework, which describes the relevance of lending rates and spreads for economic development and discusses the main drivers of lending rates and spreads according to the literature. Section 3 shows the main trends and patterns of lending interest rates in the 15-year period 2003-2017, presents an illustrative econometric analysis of common correlates of lending rates and spreads, and proposes decomposition of level and change of the average lending rate in EMDEs during the decade 2007-2017. Section 4 presents eight considerations which should be assessed holistically to formulate a coherent policy mix that deals with the roots of high and persistent lending interest rates and spreads in some EMDEs.

2. Why do bank interest rates and spreads matter? A conceptual framework

A. Relevance for development

Bank interest rates are fundamental to macroeconomic and financial sector outcomes. Banks dominate credit intermediation and savings mobilization in many EMDEs and constitute a primary vehicle for monetary policy transmission. Bank interest rates therefore influence the available capital in the economy (e.g., cost and volume), the pool of viable investments (e.g., size and composition), and the health of public and private balance sheets. As a result, bank interest rates have a significant impact on private sector-led investment, economic growth, job creation, and the overall progress towards the twin goals.

Bank lending rates reflect nominal benchmark interest rates which are determined by macro-economic factors. In a small, closed economy, nominal benchmark rates are determined by the real interest rate and expected inflation. However, when the capital account is fully open and

neo-classical conditions hold, the domestic interest rates would depend on world interest rates through arbitrage and expected devaluation (e.g., Edwards and Khan, 1985). Most EMDEs fall between these extremes and various market frictions and risks exist which can keep benchmark interest rates high. In this light, EMDEs with high public financing needs, high inflation, and exchange rate pressures, may need to maintain high policy rates. The determinants of benchmark interest rates are not the focus of this paper.

Bank lending rates also reflect the efficiency with which banks intermediate savings to its most productive uses. The price of intermediation is commonly captured by the interest rate spread, the difference between interest rates on lending and deposits, the main funding source for most banks in EMDEs. The spread reflects four components: operational costs, risk premia, quasi-taxes, and returns. Saving and term deposit rates in EMDEs typically closely align with nominal benchmark interest rates with corresponding maturities such as the policy rate and government yields. However, sight deposits -- which can be withdrawn at any time -- form a large portion of the deposit base in many countries and typically carry a negligible nominal deposit rate.

The intermediation spread, and therefore the nominal lending rate, is influenced by various market imperfections and risks. These include transaction costs and agency frictions along the credit life cycle as banks originate, monitor, restructure, enforce and write-down loans -- this drives a wedge between lending and deposit rates which is amplified by weak macro-fiscal fundamentals, small and uncompetitive banking sectors, and challenging business environments which all impose additional costs. Banks and depositors in EMDEs typically insulate themselves against the associated risks by charging higher spreads, keeping lending and deposits at shorter maturities and tightening other lending conditions (e.g., collateral, volume).

High bank interest rates and intermediation spreads pose an important challenge for policy makers (Box 1). Box 6 provides an overview by region. Table 1 shows the countries with the highest rates and spreads for each region. Box 3 offers a discussion on the case of Brazil.

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Box 1: Policy challenges of high interest rates and spreads

They may signal impediments to development and growth through the following channels:

- Monetary policy: The bank lending component of the credit channel of monetary policy (Bernanke and Gertler, 1995) may become impaired with concomitant impacts on confidence, investment, and aggregate demand. In particular, at high rates and spreads, few borrowers will be in the market. Moreover, their demand for credit will likely be less responsive to interest rate changes.

- Financial repression: Historically, governments have attempted to manage fiscal challenges by putting downward pressure on nominal interest rates (e.g., McKinnon, 1973; and Kirkegaard and Reinhardt, 2012). Examples of such measures include directed lending schemes and bank interest rate restrictions. However, these measures are distortionary and may have unintended consequences (see Box 5).

- Financial access: High lending rates amplify informational frictions which can result in credit rationing (Stiglitz and Weiss, 1981) and distortions in credit allocation, away from otherwise viable borrowers which are more opaque, have less pledgeable collateral, and are more dependent on bank finance (Rajan and Zingales, 1998). As a result, the poor and small and medium-sized enterprises are disproportionately affected (Haber et al., 2003; Rajan and Zingales, 2003; Morck et al., 2005).

- Financial development: Chronically high and volatile lending rates may induce a bias towards shorter-term investments as markets for longer-term finance remain underdeveloped. This could result in underinvestment in projects with higher social returns such as housing and infrastructure.

- Financial stability: High rates weaken balance sheets of firms and households, particularly for those with short-term and floating-rate debts. This may affect loan portfolios of banks and reduce their appetite to extend credit to the real economy. However, high spreads can also reflect high bank profits which provide a buffer against shocks.

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B. Drivers of bank interest rates and spreads

The literature suggests that the main demand and supply drivers that underpin the formation of bank interest rates and spreads can be grouped into three clusters: macro-fiscal conditions, banking sector characteristics, and the business environment (Figure 1). See Annex 1 for a discussion of relevant examples of these determinants for EMDEs.

1. Macro-fiscal conditions: Macro-fiscal conditions determine benchmark interest rates and the overall economic outlook which drives balance sheet health and collateral values of existing and prospective borrowers and their demand for credit. Moreover, macro-fiscal

conditions drive banks' risk appetite and their cost of funding which in turn co-determines their supply of credit.

2. <u>Banking sector characteristics</u>: Banking sector features such as the structure of assets and liabilities, the prevalence of floating versus fixed rate and foreign currency loans, market and pricing power, business models, economies of scale, and capacity to diversify revenue sources are all relevant supply factors.

3. <u>Business environment</u>: The business environment mainly comprises implicit and explicit taxes (e.g., (unremunerated) reserve requirements, directed lending and interest subsidy programs, interest rate restrictions, counter-cyclical capital buffers), the information environment (e.g., credit bureaus, collateral registries), and contracting and enforcement costs (e.g., (unremunerated) reserve requirements, directed lending and interest subsidy programs, interest rate restrictions, counter-cyclical capital buffers), the information environment (e.g., credit bureaus, collateral registries), and contracting and enforcement costs which determine the expected loss to the bank when a borrower defaults (e.g., the insolvency and creditor rights framework).

Bank intermediation spreads can be decomposed into four basic components:

1. <u>Operational costs</u>: Staff and administrative costs are transferred to borrowers and depositors and typically form the largest component in lending rates and spreads (De la Torre et al, 2006; Poghosyan, 2012; Calice and Zhou, 2018). Operational costs are typically lower in larger banking systems, which initially have more capacity to generate economies of scale, and in a favorable business environment which, inter alia, allows for more accurate borrower screening, better contract enforcement, and higher collateral recovery.

2. <u>Risk premia</u>: Banks need to make allowances against expected and unexpected losses arising from credit and other risks in their operations for economic and regulatory reasons.[1] A key determinant is the composition of the credit portfolio. The associated

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[1] Many jurisdictions are moving to using expected credit loss (ECL) models for accounting provisioning purposes which recognize losses earlier compared to incurred loss models (e.g., the adoption IFRS 9). For a regulatory perspective, see the Basel III framework which governs minimum (capital) requirements for credit, market, liquidity and other risks.

expected losses are determined by three factors: i) the probability of default (PD), ii) the loss the bank is exposed to when default occurs (Exposure at Default or EAD), and iii) the ratio of the exposure that can be recovered (Loss Given Default or LGD). The PD is influenced by macro-fiscal factors and corporate restructuring frameworks. The EAD is determined by the outstanding amounts. And the LGD is determined by the amount of collateral and how much of it can be recovered, which is a function of the insolvency and credit rights framework.

3. <u>Quasi-taxes</u>: Monetary and macro-prudential policy instruments such as (not fully) remunerated reserves and counter-cyclical capital buffers represent a regulatory cost for banks (Brock and Rojas, 2000; Saunders and Schumacher, 2000; Gelos, 2006; De la Torre et al, 2006; Calice and Zhou, 2018). Moreover, directed lending and interest subsidy programs, interest rate restrictions, and other "financial repression"-type tools affect rates and spreads. Moreover, directed lending and interest subsidy programs, interest rate restrictions, and other "financial repression"-type tools affect rates and spreads. For example, much of the costs of directed lending programs in Brazil seem to be borne by small depositors who earn below-market rates.

4. <u>Returns</u>: Bank investors demand a required return on capital which determines the rate of return on lending portfolios. This is affected by factors such as the competitive environment and the bank's capital structure. For example, larger bank equity buffers, which have a higher required return than other funding sources, may translate into higher lending spreads.[2] Indeed, there has been considerable analysis undertaken on how the Basel III capital requirement increases would translate into higher lending rates and spreads (BCBS, 2010).

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[2] Notwithstanding the irrelevance result of capital structures by Modigliani and Miller (1958).

Figure 1: Drivers and macro-financial outcomes of bank lending rates and intermediation spreads

Policy drivers and country characteristics | Bank intermediation efficiency | Macro-financial outcomes

Examples:
- Sovereign risk
- Monetary conditions
- Crowding out
- Financial openness

Macro-fiscal conditions

- Scale
- Competition
- Leverage
- Funding

Banking sector characteristics

- Information and collateral environment
- Insolvency and creditor rights
- Direct policy interventions

Business environment

Intermediation spread

Returns
Oper-ational costs
Quasi taxes
Risk premia
Cost of funding
Lending rate

Macro-economic
- Investment
- Savings
- Monetary policy

Financial sector
- Depth
- Access
- Stability

3. Empirical Results

A. Global trends and patterns of nominal lending interest rates and spreads

Using information from 140 EMDEs, the following patterns of lending interest rates and spreads between 2003 and 2017 are found:

a) <u>Nominal lending rates</u> – In the 15-year period, nominal lending rates have consistently declined across all regions and the EMDE median has fallen by a third -- however significant heterogeneity within and between regions persists (Figures 2A, 2B, and 3A). And the median lending rate has fallen by almost 5 percentage points between 2003 and 2017. The decline is consistent over time, except for the global financial crisis, when interest rates slightly increased. However, large variation across regions persist. The dispersion within region is also significant. In the decade 2007-2017, two-thirds of EMDEs saw their nominal lending rates decline.

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b) <u>Real lending rates</u> – In the same period, EMDE median real lending rates have declined by almost half. However, median real rates have increased slightly in EAP and LAC (Figure 2C and 2D). While real rates dropped sharply during the height of the global financial crisis in 2008 due to a spike in inflation, they rebounded quickly and were largely stable since. Consistent with the pattern in nominal rates, real rates of poor performers (75th percentile) are high in AFR and LAC (>10%). In the decade 2007-2017, 45% of EMDEs in our sample experienced a decline in real lending rates.

c) <u>Lending-deposit interest rate spreads</u> – The median interest spread declined by one-fifth. Only MENA experienced a slight increase in spreads (Figure 2E, 2F, and 3B). EMDE median lending and deposit rates have fallen in tandem, consistent with a stable median spread. The most recent spreads for 2013-17 remain the highest in LAC and AFR, respectively. MENA is the only region where the median spread has slightly increased since 2003. In the decade 2007-2017, 60% of EMDEs saw their spreads decline.

d) <u>Net interest margins (NIM)</u> – Consistent with the trend in spreads, the median NIM in EMDEs has declined by over one percentage point. Indeed, since the global financial crisis in 2007, 70% of countries experienced a fall in NIM in the wake of the global financial crisis as policy rates and government yields fell, private borrower risk and defaults increased, and banks increased their exposure to the sovereign. The rise in private sector risk premia did not keep pace with or was properly anticipated with the rise in realized defaults that drove the compression in NIMs. It is important to highlight that the NIM is impacted by holdings of interest-bearing government securities and non-performing assets which do no accrue interest income – this might distort the picture.

Box 2: Data and main variables

Data from World Bank FinStats 2019, World Development Indicators and International Financial Statistics is used to form a panel of about 75 EMDEs for the period 2003-2017.

- *Lending rates* are defined as the volume-weighted average interest rate charged by banks on short- to medium-term loans with fixed interest rates and with own funds to individuals and corporations. This rate is normally differentiated according to creditworthiness of borrowers and objectives of financing. For example, riskier segments such as unsecured consumer lending,

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> SME lending and microfinance carry higher rates than loans to large enterprises. The terms and conditions (e.g., maturity, collateral) attached to these rates differ by country, however, limiting their comparability. We calculate real lending rates by subtracting cotemporaneous annual inflation from the lending rate. We calculate real lending rates by subtracting cotemporaneous annual inflation from the lending rate.
>
> - Similarly, *deposit rates* are derived rates offered to resident customers and are weighted by deposits amounts. Term deposits are not immediately redeemable and thus provide a more stable source of funding – as a result, these carry higher interest rates, particularly in wholesale markets. Redeemable sight deposits are most common for retail customers and are used for payments and safekeeping – these often carry very low interest rates.
>
> - We define our main proxy of bank intermediation efficiency, the *interest spread*, as the difference between the lending and deposit interest rate.
>
> - We use the *net-interest margin* (NIM) as an alternative, common efficiency measure based on accounting data. The NIM is defined as the difference between actual interest income (e.g., loans and securities) and interest costs (e.g., deposits, interbank funding) divided by interest-bearing assets. Net interest margins are not used by the private sector to make investment decisions and they may give a distorted picture of credit intermediation efficiency through securities holdings. Furthermore, net-interest margins are affected by interest rate changes through duration differences of assets and liabilities.

Countries with higher nominal and real lending rates, spreads, and net interest margins tend to be less economically developed (Figure 4).[3] This pattern also holds for measures of intermediation efficiency. The pattern is less apparent for real interest rates. However, the difference in GDP per capita between the lowest and highest tercile of real lending rates is still almost $400.

High nominal and real lending rates are driven by intermediation inefficiencies, not high deposit rates (Figure 5). Naturally, deposit and lending rates move together (Figure 5A). But which component of lending rates is more important: funding costs or intermediation efficiencies?[4] Our

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[3] We separately sort countries by their average 2003-17 rates, spreads and NIMs and create terciles and then calculate the median GDP per capita for each tercile. For example, median GDP per capita for countries with the lowest nominal interest rates is almost $6,000. In contrast, countries with the highest nominal rates have a median GDP per capita of just $1,700.

[4] To answer this question, we sort countries into quintiles – which give us more granularity than terciles to show marked differences between countries -- based on their 2003-17 average intermediation spread. For each quintile, we calculate medians of the average deposit and lending rates. Across quintiles, deposit rates increase moderately from 3.5% in the 1st quintile with the lowest spreads to a peak of 4.6% in the 4th quintile. In contrast, nominal (and real) lending rates increase rapidly from 5.4% in the 1st quintile to 21% in the 5th quintile with the highest spreads.

results show that deposit rates are not higher in countries with higher intermediation spreads. In contrast, nominal (and real) lending rates are. The wedge between nominal and real lending rates is also higher for countries with high spreads suggesting that they suffer from weaknesses in the macro-fiscal environment (Figure 5B, 5C, and 5D).

As expected, intermediation spreads are closely aligned with net interest margins. But the link is weaker in countries with higher spreads, perhaps due to developmental challenges which lead to risk mispricing and defaults (Figure 5B). The NIM is smaller in countries with higher spreads. For example, in the 5th quintile, spreads are almost twice as large as the NIM. Given that deposit rates are not significantly higher in the 5th quintile, this suggests that banks are not able to sustain adequate levels of interest income, possibly due to defaults or unsuccessful restructuring procedures.

Box 3: A Historical Perspective on High Interest Rates and Rate Spreads in Brazil

Brazil is among one of the most developed emerging economies, having achieved a sound macroeconomic policy framework. However, its financial sector continues to face many challenges including high interest rates and spreads. Brazil has had a long history of high and volatile inflation. To contain inflation, Brazil implemented an inflation targeting regime in 1999 which significantly reduced it. Nonetheless, high lending interest rates and spreads persisted which concerns Brazilian policy makers. Notwithstanding their high levels, Brazilian interest rates have fallen from 78% on average in 1997 to 46% in 2017. Similarly, interest rate spreads have fallen from 54 percentage points to 36 percentage points in the same period.

What drives high interest rates and spreads?
The literature on the drivers of interest rates and interest rate spreads in Brazil is mixed. Typically, the findings reflect macroeconomic and microeconomic determinants, with the importance of each varying by study.[5] The main drivers found in that literature are:

Macroeconomic factors: Brazil's history of high and volatile inflation and macroeconomic fundamentals (e.g., low savings and fiscal risk) are often cited as the major contributors to high interest rates. The low level of savings (consistently below 20%), combined with fiscal financing needs, have crowded out private credit markets. In addition, due to the history of high inflation, there is perhaps a tendency to overestimate medium-term inflation risk. This fosters the tendency to borrow at very high nominal rates which have made private financial intermediation mostly short term. This has constrained financing for longer-term capital investment and has led to high spreads.

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[5] Some studies such as De la Torre et al. (2006) and Afanasieff, Lhacer and Nakane (2002) find that macroeconomic factors are the main drivers of high interest rates and interest rates spread in Brazil, while Jorgensen and Apostolou, (2013) find that microeconomic factors are more important.

Banking sector structure: The efficiency of the banking system in Brazil is relatively low due to the non-competitive market structure. Lopes (2014) finds evidence that the structure of Brazil's banking sector plays an important role in keeping interest rates and interest rate spreads high. Over 72% of the commercial banking system's total assets belongs to the four largest banks. Due to a relative lack of competition, banks can increase lending interest rates and spreads to make up for the decline in credit growth.

Credit market segmentation: Segmentation also contributes to the intermediation inefficiencies. The Brazilian development bank (BNDES) provides earmarked lending to specific sectors at below market (subsidized) rates that are tied to the "long term interest rate" (TJLP). In Jan 2019, for household credit, interest rates for earmarked credit were 40 percentage points lower than interest rates on non-earmarked credit. For credit to non-financial corporations the difference was 9 percentage points. Total earmarked lending represents approximately 50% of total credit at end-2015. After declining to one-third of total credit in 2007, it is back to the levels in late 1990s.

During 2008-15, earmarked credit increased from 12 to close to 30% of GDP. Initially, the objective was to counteract the retrenchment in lending by private lenders. For example, real estate lending for households is predominantly provided through earmarked credit, and the variation in rates across lenders is modest. These lending rates generally do not change when the central bank moves the policy rate which means that non-subsidized credit rates need to be kept higher to achieve the same tightening effect. As a result, nominal lending interest rates and spreads remain high.

A recent study (Pazarbasioglu et al., 2017) estimates that the fiscal cost of explicit and implicit subsidies amounts to about 3.7% of general government revenues (1.5% of GDP) for 2015. This is mainly due to the differential between regulated rates and market interest rates at which the government finances its lending. Additionally, savers and employees each contribute about 0.3% of GDP to lowering interest rates on earmarked credit. The savers and employees receive low remuneration on deposits and contributions to FGTS, respectively.

Business environment: The business environment is cited as a factor behind high interest and interest rate spreads as it appears to lead to higher costs that are passed on to the borrowers. High costs are driven by implicit and explicit taxation (including under-remunerated reserve requirements and quasi taxes associated with directed lending schemes) and high administrative costs. Administrative costs are important especially in the smaller banks. These costs are exacerbated by the high costs of doing banking business in Brazil such as the cost of perfecting and enforcing credit contracts. Implicit and explicit taxation are estimated to account for 30% of interest rates spread while administrative costs are estimated to account for approximately 25%.[6]

What has been the policy response?
To reduce the cost of financial intermediation, the government implemented various policy reforms:

Reduction of informational asymmetries and improvement of business environment: The central bank set up a database of large borrowers with the aim of reducing informational barriers to entry to the financial system. In addition, a Bill to change the rules governing the "Cadastro Positivo" was recently signed into law. That reform will require the mandatory contribution of negative and positive credit events, on an opt-out basis, and will enable financial institutions to access the data on borrowers' credit

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[6] De la Torre et al. (2006).

scores. This will increase the scope of the credit bureaus and contribute to reducing the cost of credit by improving financial institutions' and other non-financial companies' ability to determine the creditworthiness of clients. That reform is meant to lower non-performing loans and therefore lower interest charges.

In addition, the central bank took measures to strengthen the regulatory framework for banks. Specifically, the country adopted reform of "duplicata eletrônica," to improve the efficiency of registration and trading of trade acceptances (duplicatas). The "duplicata eletrônica" reform will eliminate paper-based documents, thereby reducing forgery and fraud and improving the legal and transactional certainty (transparency) through the usage and registration of electronic documents. Hence, it is expected to lead to increased efficiency and transparency and reducing transaction costs.

Reduction of credit market segmentation and long-term finance: Brazil is also reforming the lending practices of the BNDES in order to reduce credit market segmentation. In 2017 Congress approved a Bill replacing the Long-term Interest Rate (TJLP) with a new rate for contracts signed with BNDES, called the Long-term Rate (TLP). The TLP, which is pegged to inflation and to the National Treasury's cost of funds, became effective in January 2018.[7] The aim of the newly introduced rate is to allow BNDES to fill gaps in the market for long-term finance without imposing a cost to the government. It also mitigates the impact on monetary transmission.

Reduction of opportunity costs and implicit taxes: In 2018 the central bank reduced reserve requirements on savings and checking accounts. The central bank also issued a new set of rules allowing smaller financial companies to access services provided by banks, such as automatic debit and transfers between institutions.

B. Illustrative econometric analysis of common correlates of lending rates and spreads

In a first exploration of a battery of commonly used variables in the empirical literature, we calculate descriptive statistics to identify the macro-fiscal, banking, and business environment factors which appear to be strongly associated with nominal interest rates and spreads. Table 2 shows the descriptive statistics of key drivers of spreads by tercile of the variable in column 1 (i.e., nominal interest rate, lending-deposit spread, net interest margin, and real interest rate). The following patterns emerge:[8]

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[7] BNDES 2017 annual report.
[8] We first sorted countries by the 2003-2017 average value of the variables in column 1, and then calculated the median value of each factor by tercile.

- Macro-fiscal conditions: Countries with have higher inflation rates and volatility tend to have higher nominal and real interest rates, and higher spreads**.**

- Banking sector characteristics: Countries with more efficient banking sectors (proxied by overhead costs) and more diversified income sources (proxied by non-interest income) have lower lending rates and spreads.

- Business environment: Countries with strong contract enforcement and rule of law tend to have lower lending rates and spreads.

The results from econometric analysis corroborates the abovementioned associations (Box 4 and Table 3):[9]

- Macro-fiscal conditions: The inflation rate, inflation volatility, the level of public debt, and the policy interest rate are key correlates of lending rates. However, inflation, inflation volatility, and policy rate are not statistically associated with spreads. In addition, high levels of public debt and government yields raise lending rates and spreads through different channels: i) the quality of banks' lending portfolio to the government can deteriorate as risk of sovereign default increases (sovereign-bank nexus), ii) the cost of funding increases as benchmark interest rates increase as sovereign risk increases, and iii) the public sector could crowd out banks from domestic financial markets, particularly when sovereign yields are high.

- Banking sector characteristics: Overhead costs are the most important driver of both lending interest rates and spreads. Those banking sectors with lower efficiency ratios tend to have higher lending rates. In addition, a more concentrated banking sector (which is arguably less competitive), with a higher credit risk (measured by NPL-to-total gross loans), and with less sources of income diversification tend to have larger lending interest rates.[10]

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[9] We would like to stress that this quantitative exercise is illustrative as many other factors are associated with interest rates (e.g., productivity trends, demographics, money supply trends). As such, the results presented here should be interpreted with caution: deeper country-level analysis is required given country idiosyncrasies such as the policy environment and data issues.

[10] Private credit to GDP is positively correlated to nominal interest rates, but the coefficient is not statistically significant in general. The literature has found that the size of operations (proxied here by private credit to GDP) is

- <u>Business environment</u>: Well-functioning insolvency regimes as well as institutions aimed at reducing informational asymmetries (i.e., credit bureaus) are key correlates for lower lending rates and spreads. Long periods to resolve insolvency are reflected in higher lending rates and spreads. Finally, strong credit rights and contract enforcement are associated with a lower cost of credit.

Regressions that account for annual global conditions produce qualitatively similar results.[11] In the wake of the global financial crisis, the impact of global conditions on nominal lending rates in EMDEs has increased significantly suggesting a common downward trend. We also find that annual global conditions such as world interest rates and liquidity conditions (i.e., year-fixed effects) produce qualitatively similar results as presented in Table 3, Panel A (see Annex 2). Moreover, the impact of global factors on lending rates has increased significantly in magnitude after the global financial crisis suggesting a common global driver (e.g., low or negative interest rates in advanced economies) which has contributed to the downward trend in domestic lending rates.

In the robustness tests in Annex 3, macro variables such as the standard deviation of inflation (using 5-year window), and the devaluation rate of exchange rate vis-à-vis the US dollar were included. The results showed that; (i) inflation volatility is still positive and significant for lending rate but not for spreads (Panels A and B, equations 16 and 17); and (ii) the devaluation is not statistically significant for either lending rate or spread (Panels A and B, equations 18 and 19).

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positively associated with interest rates and spreads: the banking sector faces larger expected losses when engaged in larger operations, for a given credit and market risk (Ho and Saunders, 1981; Maudos and Solis, 2009; Calice and Zhou, 2018). Another hypothesis is that the coefficient is capturing the relationship between lending interest rates and the cyclical part of lending to the private sector (as the country effects included in the regression capture structural elements of the variable). Consequently, the positive relationship is driven by changes in demand for credit, as excess demand for credit (i.e., increase in cyclical private credit) might drive increments in the lending interest rates.

[11] Our baseline regressions presented in the main text did not include year-fixed effects because they absorb the variation of slow-moving variables such as for the business environment.

C. Illustrative decomposition of the level and change in the nominal bank lending rate

In the decade 2007-2017, the average[12] nominal interest rate in EMDEs fell 2.7 percentage points, from 13.7% to 11%. We decompose the level of the nominal lending interest rate for 2017, and the change observed of the rate during those 10 years among macro-fiscal conditions, banking sector characteristics, and business environment (Figure 6).

The lending interest rate in 2017 (11%) can be decomposed as follows: 2.2 percentage points explained by macro-fiscal conditions; 3.2 percentage points by banking sector characteristics, and 0.35 percentage points by the business environment. Other components are the expected mean of lending interest rate for EMDEs (6.4 percentage points – the constant in the regression), other country-specific unobserved conditions, and the error term.

In the decomposition analysis (Box 4), our calculations show that the main drivers are public debt in the macro-fiscal factors, overhead costs, bank concentration, and private credit in the bank sector factors, and long insolvency processes in the business environment factors. For example, the average public debt is 46.8% of GDP for EMDEs in 2017, which explains 1.5 percentage points of the interest rate. In addition, overhead costs, bank concentration, and the private credit to GDP impact lending rates via banking characteristics, explaining 3 percentage points of the lending rate. Finally, longer insolvency processes increase rates in 1.1 percentage points while better coverage of credit bureaus reduces the rate in 0.75 percentage points.

The reduction of nominal interest rates between 2007 and 2017 has been led by improvements in the business environment, followed by macroeconomic factors, while bank characteristic factors have driven rates up. For example, increments of the credit bureau coverage (to 44.2% of total adults in 2017 from 17% in 2007, on average) and the reduction in the number of years to resolve insolvency processes (to 2.4 years from 3.2 years in the same period) reduced nominal lending interest rates in 1 percentage point.

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[12] To ensure consistency with the regression framework which produces a conditional mean, we focus on the average lending rate.

Macro factors have low impact on rates reduction due to high and rising public debt. EMDEs have stabilized inflation rates and volatility in the period 2007-2017, driving lending rates and spreads down. In addition, policy interest rates have reduced from 6.8 percent to 4.9 percent on average, as result of more stable monetary and financial conditions in EMDEs. However, rising public debt (% GDP) partially offsets the benefits of low and stable inflation, and lower policy rates. The average public debt increased to 46.8% of GDP in 2017 from 34.5% of GDP in 2007.

Banking sector factors have deteriorated interest rates due to rising non-performing loans. Banking sectors in EMDEs have experienced a decline in overhead costs, less concentrated banking sectors, and more diversified sources of income which put downward pressure on rates and spreads. However, the average NPL to total gross asset ratio increased to 6.2% from 4.3% in the 10-year period 2007-2017.

Macro factors are important drivers for the level of the nominal lending rate in SA and AFR, bank factors in EAP, ECA, and AFR, and business environment in AFR and MENA (Table 4). In SA and AFR rising public debt drives lending interest rates up. Also inflation and inflation volatility have an important impact on lending interest rates in those regions. Bank factors are led by the private credit to GDP ratio in EAP. Overhead costs are an important driver of lending rates in LAC, ECA, and AFR, and high non-performing loans has an important effect on rates in MENA, ECA, and AFR. Finally, business environment factors are led by time consuming insolvency processes that increase the lending interest rate in those regions. Between 2007 and 2017, improvements in business environment have benefited all regions except AFR, driving down lending interest rates. More stable macro conditions have also driven interest rates down in all regions except SA and AFR. Bank factors have driven up rates due to rise in non-performing loans (ECA, AFR, and LAC) and increase in bank concentration (EAP and SA).

Box 4: An illustrative econometric estimation of the components in the nominal lending interest rate

The decomposition of the nominal lending interest rate is calculated using a panel data regression model with country fixed effects and first-order error structure to adjust for serial correlation. We use the method of Baltagi and Wu (1999) to estimate coefficients. The Baltagi and Wu (1999) method uses feasible generalized least squares (FGLS). We use annual data between 2005 and 2017.

Independent variables: the basic model has the following RHS variables:
- Macro-fiscal conditions: inflation rate, inflation volatility (rollover standard deviation of inflation rate for a window of last 12 months), public debt (% GDP), savings rate (% GDP), GDP per capita, and policy interest rate. Sources: IMF-IFS, IMF Global Debt Database, World Bank World Development Indicators.
- Banking sector characteristics: overhead cost (% of total assets), non-performing loans (% of total gross loans), non-interest income (% total income), bank asset concentration for three major banks (% total banking system assets), and private credit (% GDP). Source: World Bank Finstats 2019.
- Business environment: credit bureau coverage (% of adults), time to resolve insolvency (years). and rule of law index. Sources: World Bank Doing Business, and Governance Indicators (Kaufmann et al., 2010).

Decomposition of interest rate (level): Once the coefficients are estimated, we attribute each estimated coefficient to a value of each driver. For instance, to decompose the average lending interest rate in 2017, we calculate the average value of each driver for that year across 64 countries and multiply them to the corresponding coefficient. Later, the results of that multiplication are added based on the three main driving groups (i.e., macro-fiscal conditions, banking sector characteristics, and business environment). We put together country-fixed effects and the regression estimated constant as part not explained by the drivers. These calculations determine the components of the lending interest rate (level).

Decomposition of interest rate (changes): We calculate the difference between the average values of the drivers in 2017 vs. the average value of drivers in 2007. Later, we multiply that difference by the corresponding estimated coefficient and add the results using the three driving groups. The final result is the change in the interest rate attributed to changes in a particular driving group between 2007 and 2017.

Regional decompositions: We follow the same methodology but adjusting with country fixed effects associated with the countries that belong to the same region.

Caveats: The decomposition is based on a panel regression using data between 2005 and 2017. Consequently, non-linear relationships between variables, or regime structure changes are not captured by the model. The estimations use information at country level data so, some bank-level regressors are not included due to no existence of similar variable as a country-level information.

4. Policy Implications

A. Common policy interventions

Policy makers in many EMDEs have intervened in deposit and lending markets to promote development objectives or protect customers. While potentially useful to temporarily support nascent markets or disadvantaged populations, these measures may carry unintended consequences, particularly if they are not well designed to ensure and monitor additionality**.** This type of policies will be less effective when borrowers and savers have alternatives such as capital markets or overseas financial institutions which is often not the case in EMDEs. Common policy interventions to correct or compensate for market failures include the following:

- Interest rate restrictions (see Box 5): Policy makers have imposed caps to protect vulnerable borrowers from high lending interest rates, increase access to financial services, and to address high market power of banks. Restrictions on deposit rates also occur in an attempt to reduce lending rates or prevent excessive competition for deposits during liquidity shortages. However, there are important side-effects on the composition and maturity of bank loans and deposits (see for example Safavian and Zia, 2018 for the case of Kenya). These include a reduction in the supply of credit to safer clients and away from smaller and medium enterprises, a rise in non-performing loans, a fall in deposit rates to preserve spreads, a reduction in competition and innovation, an increase in non-interest fees, and an increase in informal lending. Promoting financial consumer literacy and consumer protection frameworks may prove more effective policies to protect consumers from high interest rates.

- Directed credit and interest subsidy programs: These programs are designed to provide credit at low (or subsidized) cost to certain sectors and population segments. However, those schemes might contribute to credit market segmentation and distortions in credit allocation as banks tend to increase interest spreads for clients in other business lines to compensate for the costs associated with directed credit. Further, public programs may displace private banks altogether from certain markets. Also, monetary policy

transmission may become less effective because part of the banking sector's portfolio is associated with direct credit which does not react to changes in monetary policy.

B. Considerations for policy makers

Policy makers should consider focusing on root causes to sustainably lowering lending rates and intermediation spreads. Eight considerations are offered, which should be assessed holistically to formulate a coherent policy mix. These considerations are based on World Bank operational work, the literature, and the analysis presented in this paper.

Macro-fiscal conditions

1. **Strengthen macro-fiscal fundamentals.** A straightforward recommendation is for policy makers to continue to build strong public balance sheets and sound monetary, exchange rate, and debt management frameworks since these exert a first-order effect on intermediation spreads and bank funding conditions. Overall, EMDEs have strengthened these frameworks in the last few decades. However, fiscal conditions in various EMDEs have recently deteriorated and inflation (expectations) remains vulnerable to global demand and oil shocks (Ha et al., 2019). And for example, in AFR there has been a rise in public debt levels and an increased reliance on domestic sources of funding.

2. **Avoid crowding out the private sector.** Large public sector debt levels financed through bank lending may dissuade banks from lending to a riskier private sector and result in a substantial increase in lending rates, particularly in countries with shallow banking systems.

Banking sector characteristics

3. **Support competition.** Banking sectors in EMDEs are often dominated by large and profitable players which reduces intermediation efficiency. While competition differs across business segments, policy makers could consider judiciously reducing restrictions on market entry and permitted activities; allowing competition from non-bank financial

institutions including fintech and bigtech companies[13]; leveling the playing field in interbank markets and moving large (quasi-) government deposits from selected commercial banks to the central bank; deepening capital markets and strengthening institutional investors as a viable alternative to banks' financial services; and reducing or eliminating switching costs such as through open banking initiatives which democratize the use of bank customer data, and requiring effective disclosure of interest rates and fees by bank to facilitate product comparisons. Stronger competition will not only reduce monopoly rents, but also incentivize banks to innovate and become more efficient.

4. **Facilitate operational and scale efficiencies.** Banks in EMDEs are often relatively small and may operate under legacy business models which prevent them for reaping economies of scale and reducing operating costs which diminishes intermediation efficiency. Indeed, high operating costs are among the most important drivers of interest spreads and lending rates in EMDEs. Policy makers could consider encouraging bank consolidation (with due consideration for the effects on competition and creating "too-big-to-fail" issues), providing enabling policy frameworks for the expansion of financial services through agent networks, and the adoption of digital financial services such as mobile and internet banking as well as the automation of banking services and back-office processes such as risk management and credit scoring. The adoption of financial technologies will also reduce the need for maintaining a costly branch network and allow a reduction in staff costs.

5. **Strengthen bank regulation and supervision.** A strong supervisory approach, underpinned by prompt corrective actions, will prevent the build-up of risks in bank balance sheets and will promote good corporate governance and risk management, as well as compliance with supervisory standards. This increases confidence in the soundness of the banking system which improves intermediation efficiency through downward pressure on funding costs and risk premia.

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[13] For further policy considerations to reap the welfare benefits from financial technologies while mitigating the risks, see the World Bank – IMF Bali Fintech Agenda.

6. **Improve insolvency and creditor rights regimes.** Weak regimes contribute to contracting and enforcement costs which boost bank operating costs and lower loan recovery rates (LGD) and thus higher lending rates and lower intermediation efficiency. Policy makers could consider strengthening legal and regulatory frameworks that inhibit viable businesses from corporate restructuring; improving commercial insolvency regimes to facilitate effective firm exit and collateral recovery; and promoting the efficiency and independence of the judiciary and insolvency practitioners.

7. **Improve information and collateral registries frameworks.** Strong frameworks lower agency and transaction costs and improve intermediation efficiency. Policy makers could consider strengthening the legal and regulatory underpinnings of these frameworks; updating local accounting principles and practices; promoting coverage and the quality of information held in credit and collateral registries; and support the exchange of information between eligible market players, such as through open Application Programming Interfaces (APIs)[14] which may also strengthen competition.

8. **Revisit direct policy interventions.** While these may prove useful to compensate for market failures and achieve fiscal or socio-economic objectives in the short term, they may carry unintended consequences and reduce intermediation, particularly if they are not well designed to ensure additionality. Policy makers could consider reviewing the impacts of (unremunerated) reserve requirements frameworks, interest rates restrictions, and directed credit and subsidy programs and carefully balance these impacts against stated objectives to justify the merit of their distortionary effects. In doing so, it is important not to compromise monetary and stability objectives. In this context, the literature has shown that financial liberalization should be pursued with care and institutional pre-conditions should be met first (e.g. Demirgüç-Kunt and Detragiache, 1998).

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[14] Subject to strong covenants for consumer data safeguards and cybersecurity.

Box 5: Interest Rate Caps Around the World[15]

Interest rate caps are a policy instrument that many EMDEs as well as developed economies use to protect consumers from usury or to make credit more accessible. At least 76 countries recently imposed restrictions on lending rates. Among them, there are 25 lower-middle income countries (50% of total), suggesting a more prevalent trend of imposing ceilings on lending rates in this income group.

The use of interest rate caps around the world
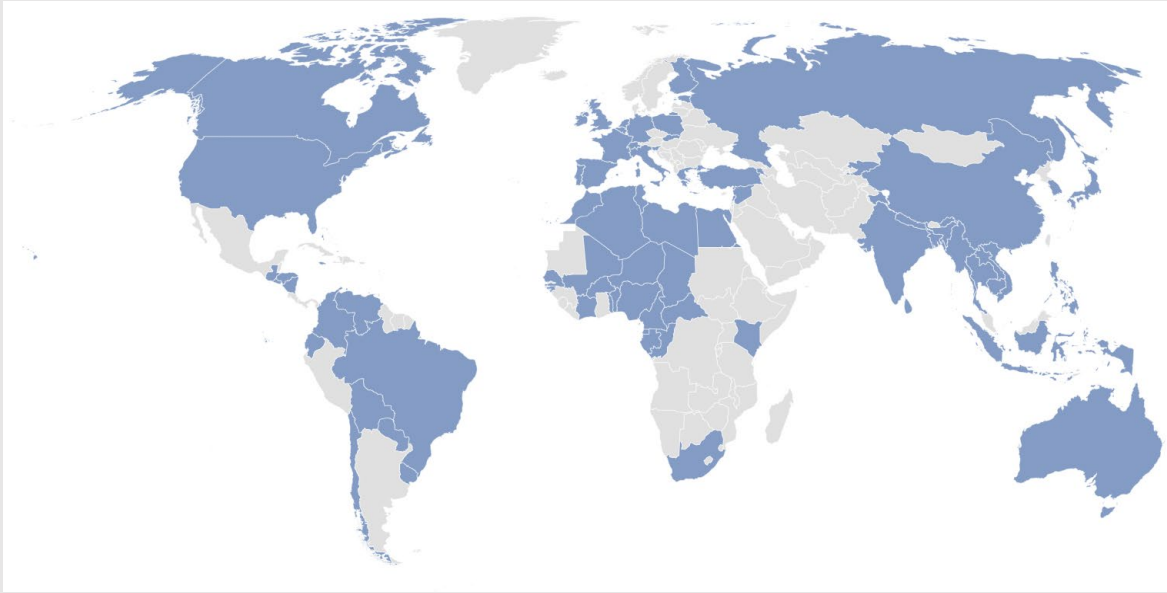
Sources: EIU Global Microscope for Financial Inclusion, ADB, IMF, World Bank, National Authorities. From Ferrari et al. (2018).

Restrictions on interest rates vary substantially across countries, vis-à-vis coverage and how they work. A taxonomy of recent trends in the use of interest rate caps classifies interest rate caps based on the following features:

- Scope: Caps include certain types of credit instrument (e.g. payday loans, credit cards, mortgages), cover loans by different institutions (e.g. MFIs or credit unions) or cover all types of credit operations in the economy. For example, Canada and Australia have limits on payday loans.
- Number of ceilings: A single blanket cap for all transactions or multiple caps have been used in countries. South Africa has implemented ceilings for mortgages, credit facilities, unsecured credit transactions, development credit, short- term transactions, other credit and incidental credit agreements and El Salvador has established interest rate caps across all financial institutions.
- Type: Interest rate caps are usually defined as a fixed, absolute cap or as a relative cap that depending on the level of a benchmark interest rate. Of the 76 countries, 26 rely on absolute caps (of which 70% are lower middle-income countries); 30 uses relative caps (predominantly

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[15] This box is largely based on Maimbo and Gallegos (2014) and Ferrari et al. (2018).

developed countries) and 20 countries uses some form of weighted market interest rate to determine the level of the benchmark.

- <u>Binding:</u> Caps can be defined as binding (below market rates) or non-binding (above market rates).

Effectiveness and unintended consequences of interest rate caps

<u>Effectiveness</u> -- The effectiveness of interest rate caps in improving access to credit has not been substantiated. The main challenge is to identify the causal effects from interest rate caps to access to credit due to the multiplicity of types of caps used across countries. While some forms of interest rate caps can indeed reduce the cost of borrowing for consumers and help protect borrowers from predatory lending, caps on interest rate often have substantial side-effects. In fact, evidence regarding the effects of interest rate caps points to significant negative effects. International experience shows that caps have produced undesirable outcomes such as: reduction in credit supply; higher non-interest fees and commissions and reduced transparency in the cost structure of bank lending origination; adverse compositional changes in loan and deposit maturity; and reduce the effectiveness of money supply (for Kenya, see Safavian and Zia, 2018).

<u>Credit supply</u> -- The extent of the decline in credit supply depends on the scope of the restrictions on interest rates. While narrow caps usually target a specific market segment, broad or blanket caps affect the overall market and further change the credit distribution from small borrowers (e.g., SMEs and riskier sector) to less risky borrowers or the government. As lending institutions reallocate their portfolio to larger loan sizes, borrowers may be forced to increase borrowing amounts to maintain access to external finance, thereby increasing the risk of over-indebtedness.

<u>Adverse selection</u> -- Interest rate caps can distort the market and exacerbate adverse selection problems. For instance, due to high origination costs and/or high perceived risk, financial entities can reduce their lending supply to those who need it most and have little access to alternative sources of credit. In extreme cases where ceilings are set at unprofitable levels, banks and microfinance institutions may withdraw from certain locales such as rural areas or from expensive market segments because they cannot cover their costs.

<u>Transparency</u> -- Cost structure transparency of lending origination is also affected by interest rate caps. In countries where interest rate caps do not cover fees and commissions, financial institutions may charge fees and commissions that are not considered part of the cost of the loan. This reduces price transparency and makes it more complicated for borrowers to assess the overall cost of loans. It is also argued that the reverse is true, that is, when caps are not set too low, interest rates will still tend to rise toward the caps.

<u>Monetary policy</u> -- Interest rate caps may also reduce the effectiveness of monetary policy transmission. For example, if ceilings are linked to the policy rate and the central bank were to lower policy rates to stimulate credit growth, the accompanied decline in the lending rate ceiling would counter the intended effect on credit growth and economic activity.

Box 6: Regional Perspectives

<u>Sub-Saharan Africa</u>[16]

Major Trends

Overall, median lending rates and lending-deposit spreads declined in the Sub-Saharan Africa (AFR) region while both indicators remained above the global medians for developing countries. Median nominal lending rate in the AFR region stood at 11.6% in 2017, down from 18.6% in 2003, a much larger decline than in median country inflation (0.9 percentage points). The decline in median country lending-deposit spread (-2.7 percentage points) was the highest among the World Bank regions, but nevertheless it remains above the global median of developing countries. In 2017, the top-3 countries in the region with the highest lending rates were: Madagascar (60%), Malawi (39%) and The Gambia (29%). In terms of lending-deposit spreads, Madagascar, the Democratic Republic of Congo, and São-Tomé and Príncipe have the highest spreads.

Major Challenges

The challenges facing the region are multidimensional ranging from a more challenging macro-financial environment, acute banking system distress in some countries, and structural obstacles. There has been a rapid build-up of public debt levels across a wide range of countries in the region since the Global Financial Crisis and the commodity prices shocks, with an increased and material reliance on domestic (primarily banking) sources of funding putting upward pressure on interest rate and crowding out private sector lending. Even though the debt to GDP ratio of the median country at 35.2% of GDP in 2016 is still some 9½ percentage points of GDP lower than in 2003, it is substantially above post-HIPC levels. Some countries are experiencing wide banking system distress with the government actively engaged in resolution. The very challenging operating environment for many banking systems in the region (e.g., relatively small scale, costly contract enforcement, low recovery rates, deficient telecommunications and power infrastructure, costly security provision) is reflected in the very high cost-to-income ratio (92.5% in 2017).

Policy Overview

The region has seen a variety of responses to the high interest rate challenge from building and strengthening credit contracting infrastructure, to government/central bank provision of credit and guarantees to specific sectors, and to the use of interest rate caps. Credit reporting systems have started operations recently in various countries; collateral registries (including for moveable assets) are being put in place. However, the effects of these initiatives will take time to manifest in lower rates as borrower coverage and lender reporting is still limited, better infrastructure is required to support efficient consultation of registries (e.g. digital access) and the quality of information (e.g. inclusion of positive information) slowly improves. Government interventions aimed at lowering borrowing cost have included the provision of public credit guarantees, subsidized credit to specific sectors which in some cases is having a seriously distortive effect with quite limited transparency in operations.

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[16] This regional section is based on substantive inputs provided by Mariano Cortes (FCI-AFR), and Philip Schuler (MTI-AFR).

East Asia and Pacific[17]

Major Trends

Median nominal lending rates and lending deposit spreads declined -- particularly during 2010-17 -- in virtually all countries and are below the global median. Large countries such as China, the Philippines, Thailand and Malaysia have single-digit average lending rates. The median nominal lending rate in the East Asia and Pacific (EAP) region was about 8.1 in 2017 after a decline of 2.2 percentage points within the past 15 years. Even though this median rate is below the global median of EMDEs, important disparities exist between Lower-Middle Income Countries (LMIC) and Upper-Middle Income Countries (UMIC). In comparison with the global median, most countries with high nominal lending rates are LMIC (excluding Vanuatu and the Philippines). For instance, the Lao People's Democratic Republic (20%), Mongolia (20%), and Indonesia (11.1%) had the highest nominal lending rates in 2017. Similarly, the lending-deposit interest rate spread in EAP has been narrowing down over since 2000. Indeed, many countries had average spreads of 5% or less during the 2010-2017 period, including China, the Republic of Korea, Japan, Myanmar, Thailand and Vietnam. The median lending deposit spreads have been higher in LMIC (6.1%) than in UMIC (3%) in 2017.

Major Challenges

High lending rates and spreads are not a major issue across EAP. Most of the countries with higher spreads are low income countries, many of which have poor financial sector data. Nominal lending rates remain very high in: (i) Laos PDR potentially due high external debt (113.2% of GDP in 2017); and (ii) Mongolia arguably because the country faces macroeconomic challenges including high dollarization and external public debt (71% of GDP in 2017). In addition to those macroeconomic factors, poor competition in the banking sector as well as weak credit infrastructure and institutional framework are contributing to high lending rates in some countries. In Indonesia, nominal lending rates have come down but remain high, with dispersion across credit markets (lowest for investment lending, higher for consumption, micro credit, and working capital). In general, foreign banks have lower spreads than state-owned banks.

Policy Overview

Some countries have attempted to overcome those challenges by capping interest rates, but results were mixed. Indonesia introduced deposit rate caps in 2013 to overcome excessive competition in deposit markets due to aggregate liquidity shortages. Contributing factors of high lending rates in Indonesia include liquidity tightening, lack of economies of scale, high risk premiums, operational inefficiencies, high market power of large banks, and weaknesses in the institutional environment.

In addition to interest rate caps, some countries introduced portfolio targets to direct credit to micro, small, and medium enterprises (MSMEs) and launched guarantee and interest subsidy programs. To foster credit to MSMEs, the government extended its credit guarantee and interest subsidy programs to MSME and micro lending.

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[17] This regional section is based on substantive inputs provided by Ana Maria Aviles (FCI-EAP), and Richard Record (MTI-EAP).

<u>Europe and Central Asia</u>[18]

Major Trends

In Europe and Central Asia (ECA), there are several countries with persistently high lending rates and spreads. In particular, countries in Central Asia (Tajikistan, Kyrgyz Republic), South Caucasus (Armenia, Azerbaijan, Georgia), Eastern Europe (Ukraine, Moldova, Belarus), Turkey and the Russian Federation all show lending rates at or above 10%. In general, these countries also show high interest rate spreads (in excess of 4%), with the notable exception of Georgia and Belarus. Conversely, despite having relatively low interest rates (5-6 percent), some countries have high interest rate spreads (4-5 percent), such as Albania, Bulgaria, Macedonia and Romania, indicating very low deposit rates.

High lending rates and interest rate spreads are generally observed across all lending markets. Riskier segments, such as unsecured consumer and SME lending and microfinance show higher lending rates than mortgages and corporate lending. Also, lending rates in local currency tend to be higher than in foreign currency. Foreign-owned banks, particularly those belonging to Western European banking groups, can offer lower lending rates as they have access to funding at a relatively lower cost. In some countries, domestic-owned banks offer higher deposit rates to increase their market share.

Overall, nominal lending rates declined over the past 15 years in several ECA countries but there is a dichotomy in lending rate levels in the Commonwealth of Independent States (CIS) and non-CIS countries, while median spreads are similar in both groups. Median nominal lending rate in the ECA region declined from 15.9% in 2003-2007 to 12.3% in 2013-2017, but it remained high in comparison with the global median of developing countries. Median nominal lending rates are higher in CIS countries (14.4% in 2017) than in non-CIS countries (5.6% in 2017). While median lending-deposit spreads are similar in CIS and non-CIS countries, there are ECA countries that, despite having relatively low interest rates, present high interest rate spreads, such as Albania, Bulgaria, Macedonia and Romania, all of them with lending rates of 5-6 percent and spreads of 4-5 percent, indicating very low deposit rates and a higher premium for commercial bank.

Major Challenges

High nominal lending rates in ECA are fueled by inflation and dollarization as the former generates macroeconomic instability, and the latter worsens the inefficiency of the banking sector structure. High nominal lending rates are driven by inflationary pressures in various countries. Several countries with high lending rates have experienced significant currency devaluations in the last decade resulting in a lower appetite for deposits in local currency, and an increase in dollarization. There is a general lack of long-term funding which can contribute to high lending rates. Low savings rates and high inflation contribute to the relatively high cost of funding. Many ECA countries have significant shortcomings in the business environment including credit information systems, insolvency frameworks, secured transactions framework, and payment systems. Furthermore, there is a lack of competition in several ECA countries, and some have scale efficiency issues. Moreover, credit risk is particularly high in CIS countries while risk aversion is prompting banks to hold more (government) securities in some countries.

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[18] This regional section is based on substantive inputs provided by Eva Gutierrez, Raquel Letelier, and Alena Kantarovich (FCI-ECA), and David Knight (MTI-ECA).

Policy Overview

Some ECA countries attempted to reduce nominal lending rates by capping interest rates, and subsidizing interest rates but they had mixed results, and structural reforms were implemented by countries with low interest rates. Turkey introduced interest cap in March 2019 on deposit rates for state-owned banks. In some countries, subsidized interest rates or special loan programs have been developed to reduce nominal lending rates in specific sectors. While directed lending practices and other type of subsidies are likely to result in lower interest rates charged to certain segments of the market, it appears that these practices tend to be unsustainable.

Latin America and Caribbean[19]

Major Trends

Both nominal lending rates and lending-deposit spreads are particularly high in Latin America and the Caribbean (LAC) countries although both declined during the past 15 years. In the LAC region, median nominal lending rate stood at 13% in 2013-2017 after being at 15.6% in 2003-2007. In comparison with a global median lending rates of 8.7% during the period 2013-2017, lending rates remained particularly high in Brazil (46.9%), Argentina (31.2%) and Uruguay (13.8%). Lending rates are lower for loans extended in foreign currency. Despite high deposit rates (22% in Argentina, 14% in Uruguay, 9% in Brazil, 3% in Mexico in 2017), spreads are among the highest in the world (e.g., Brazil with 38% in 2017). There is no clear trend of a decline in median spreads, although they declined in Uruguay, Mexico and Peru, remained stable in Brazil, and increased in Argentina and Colombia in 2013-2017.

Major Challenges

High and volatile inflation rates stemming from macroeconomic imbalances and policy uncertainties were important drivers of high interest rates in LAC, but banking sector issues need to be addressed. Historically, a main reason for high interest rates in LAC were high and volatile inflation rates stemming from macroeconomic mismanagement and policy uncertainties. High nominal lending rates were necessary to keep real rates in positive territory. The substantial decline in inflation and improvements in macroeconomic management in most LAC countries (except the recent inflation spike in Argentina) over the last 15 years have thus been important reasons behind the fall in lending rates. However, inflation is not the only factor that explain LAC's high lending rates. For instance, in 2017 real interest rates stood at 43% in Brazil, 9.6% in Colombia and 7.6% in Uruguay. One key issue of the financial sector in LAC is the concentration of banking assets which may reflect lower competition. The median market share of the top 3 banks in LAC was 65.9% in 2017 and it reaches 79.6% in Peru. Competition is often affected by the presence of large financial conglomerates that operate across countries. Another source of inefficiency in LAC countries stems from the high presence of state-owned banks.

Policy Overview

There are institutional shortcomings regarding the strength of legal rights and depth of credit information in LAC. In some countries, the public sector intervenes heavily in the financial sector, both through direct lending via state-owned banks or subsidized lending by development banks, lending

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[19] This regional section is based on substantive inputs provided by Oliver Masetti and Federico Diaz Kalan (FCI-LAC), and Joost Draaisma (MTI-LAC).

quotas, and interest rates caps. Special rules may apply for lending for agriculture and housing projects and applications. Those policies may have a limited impact on nominal lending rates and lending-deposit spreads because: (i) banks may charge higher lending rates for projects that do not benefit from directed credit schemes, (ii) bank competition is low and overhead cost is relatively high, and (iii) sovereign risks is significant.

<u>Middle East and North Africa</u>[20]

Major Trends

Nominal lending interest rates have been generally low and falling in the region. The median lending rate declined to 8.1% in 2017 from 10.3% in 2003 but intra-regional heterogeneity has been observed, with high interest rates in the Arab Republic of Egypt, Lebanon, and Tunisia.

In addition, Middle East and North Africa (MENA) overall has relatively low lending-deposits spreads. While the spread for MENA countries was 5.7% in 2017, on average, it was 7.4% in the rest of the world in the same period. However, spreads in the region have been steadily increasing since 2012, and in countries like Djibouti, the spread reached 10% in 2017.

Major Challenges

Macro-fiscal conditions associated with high public financing needs and inflationary pressures are challenges to the reduction of lending rates in some countries. Countries like Lebanon, Egypt, Tunisia are maintaining high interest rates to stabilize their currencies, contain inflation or to finance the public sector, which is crowding out the private sector from the credit market. As a result, banks' net claims on government is rising to 66% of domestic credit as of November 2018.

A lack of competition impedes innovation and financial inclusion, although its impact on lending rates is unclear given the general lack of access to financial services. The median bank asset concentration of the top three banks in MENA stood at 74.8% of total banking assets in 2017, while the global median of developing countries stood at 60.5% in 2017. Moreover, some countries (e.g., Gulf Cooperation Council -GCC- countries, Iraq, Tunisia, Egypt) have large state ownership (direct and indirect) in the banking sector, which may be associated with an unlevel playing field and limited competition due to significant advantages enjoyed by the state-owned banks (SOBs), including implicit guarantees, lower cost of funding, and privileges in providing services to the public sector. Moreover, regulatory frameworks are not always conducive to the development of non-bank financial service providers and the entrance of foreign institutions.

Policy Overview

Credit infrastructures are being developed in various MENA countries, but more efforts are required for the region to catch up with best practices from an overall low starting point. Improvement was observed across the region in recent years. For example, Egypt passed the Secured Transactions Law in November 2015, launched an electronic secured transactions registry and passed the Law of

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[20] This regional section is based on substantive inputs provided by Syed Mehdi Hassan, Djibrilla Issa, and Haocong Ren (FCI-MENA), and Emmanuel Pinto Moreira (MTI-MENA).

Restructuring, Preventive Reconciliation and Bankruptcy in 2018. Jordan established a credit bureau in 2015 and passed the insolvency and secured transaction laws in 2018. West Bank and Gaza passed the Secured Transactions Law and set up a new collateral registry in 2017. Djibouti created a credit information system by law in 2016. Other countries (e.g. above-mentioned and Tunisia) expanded the scope of information collected and reported by their credit bureaus, and credit bureaus in Morocco, Qatar and United Arab Emirates (UAE) recently started to provide credit scores.

Credit guarantee and subsidized programs are common but issues regarding designing, targeting, and displacement of private credit providers distort their effects. The use of interest rate caps is less prevalent. Credit guarantee schemes have been recently used by several MENA countries, but those programs suffer from cumbersome process, poor targeting, and design issues related to eligibility criteria, pricing mechanism, and sustainability, resulting in limited impacts of the programs. In addition, subsidized programs are common in the region, run by large state-owned banks, and especially focused on MSMEs and housing, which create market distortions and crowd out private creditors willing to finance at market-based rates. Finally, some countries have interest rate restrictions, while others have interest caps on loans benefiting from government incentives or subsidies, with potential distortions in credit markets (Ferrari et al.,2018).

<u>South Asia</u>[21]

Major Trends

In comparison with other regions, median lending rates and lending-deposit spreads marginally declined in the South Asia Region (SAR) but both rates are above the global median of developing countries. Median nominal lending rate in SAR declined to about 9.8% in 2017 from 12% in 2003, and it remained above the global median of developing countries. The decline in median lending-deposit spreads was the lowest among regions (-1%) during the reference period but median lending-deposit spreads in SAR remains above the global median of developing countries. In 2017, countries with the highest lending rates are as follows: Bhutan (14.2%), Sri Lanka (11.5%) and Maldives (10.1%). In terms of lending-deposit spreads, Bhutan, Maldives, and Bangladesh have the highest spreads in descending order.

Major Challenges

Challenges to interest rate levels in SAR differ depending on the countries' macro-financial health and the appetite of their public sectors for national savings. Some countries continue to have large stocks of non-performing loans (NPLs) which by necessity add to higher lending rates for the less risky customers. Extensive informality of many SAR economies keeps the pool of eligible borrowers much below potential, while small capital markets concentrate most of the real sector financing risks in the banking sector which is dependent on retail deposits – all contributing to elevated lending rates and spreads.

Policy Overview

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[21] This regional section is based on substantive inputs provided by Marius Vismantas (FCI-SAR), and Muhammad Waheed (MTI-SAR).

SAR is considered to be the region with the highest real (inflation-adjusted) base interest rates in the world. Based on market sources, Sri Lanka, Pakistan, and India are among the top-5 countries in this respect, with the benchmark policy rates adjusted for inflation all exceeding 4%. Sri Lanka's rate is 6.2%, the highest in the world. While monetary policy transmission mechanisms in SAR are still below policy makers' expectations, the high real policy rates exert significant influence on the market rates, keeping them high and above global medians. With banks playing central roles in financial intermediation and depending strongly on shorter-term fixed rate deposits for their funding, while extending largely floating-rate loans, the spreads remain high to cover the interest rate risks.

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Figure 2: Interest rates and spreads trends in EMDEs

Median nominal and real lending rates have declined across all regions. However significant heterogeneity within and between regions persists. The median interest rate spread however barely fell, but has declined significantly in various regions.

A. Nominal lending interest rate

75th and 25th percentiles in dotted lines.

B. Nominal lending rate by region
2003-2017

Median value in black line. 75th and 25th percentiles box top and bottom.
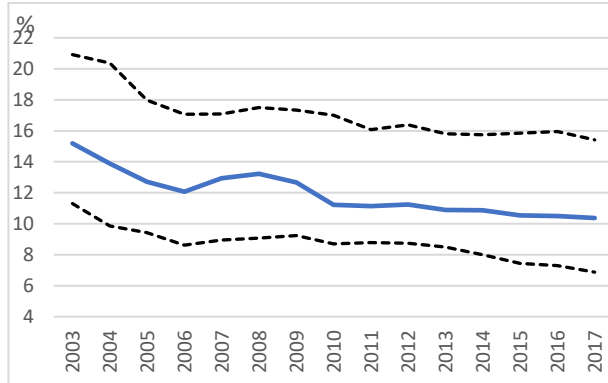
C. Real lending interest rate
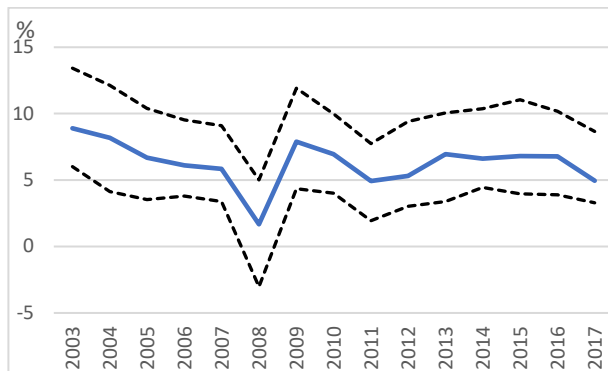
Note: real interest rate=nominal interest rate-inflation rate
75th and 25th percentiles in dotted lines.

D. Real lending rate by region
2003-2017

Median value in black line. 75th and 25th percentiles box top and bottom.

E. Lending-deposits spread
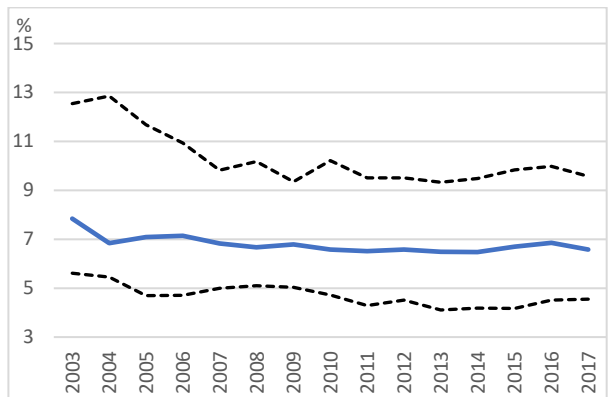
75th and 25th percentiles in dotted lines.
Source: World Bank Finstats 2019
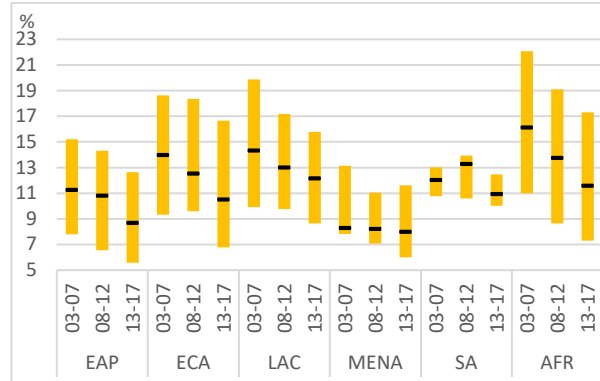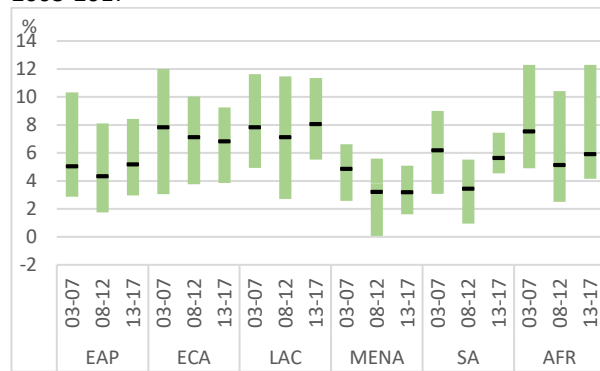
F. Lending-deposit spread by region
2003-2017
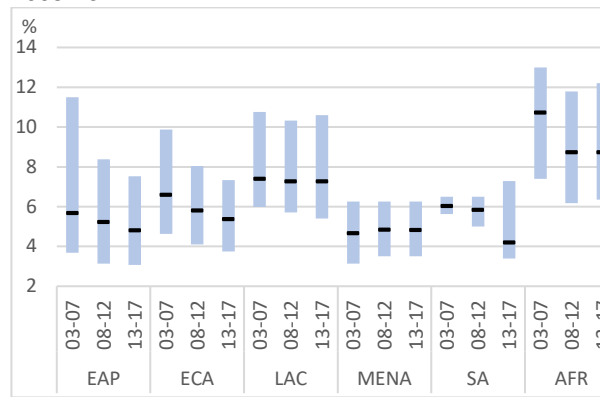
Median value in black line. 75th and 25th percentiles box top and bottom.

Figure 3: Country-level interest rates and spreads in EMDEs: 2017 vs 2007

Nominal interest rates and interest spreads have declined in most countries in the decade 2007-2017.

A. Nominal lending interest rate, 2007 vs. 2017
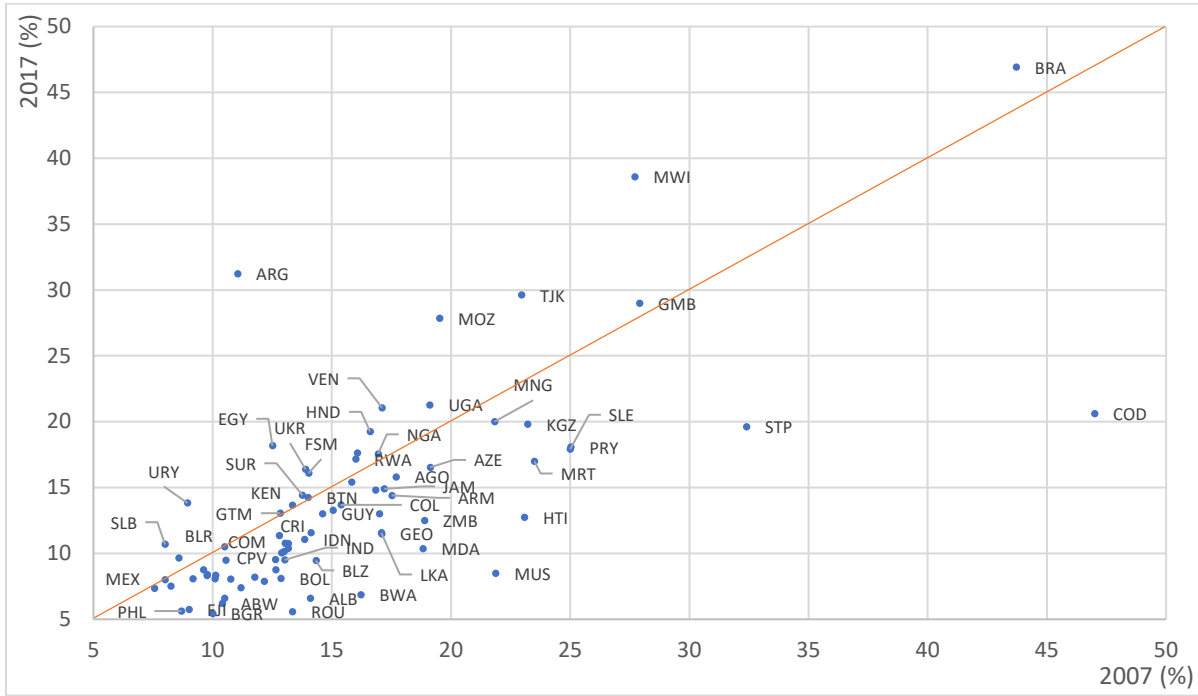
B. Lending-deposit interest rate spread, 2007 vs. 2017

Source: World Bank Finstats 2019

Figure 4: Economic development and rates, spreads, and margins

Countries with higher nominal and real lending rates, spreads, and net interest margins tend to be significantly less economically developed as measured by GDP per capita.

GDP per capita by tercile of nominal lending interest rate, real lending interest rate, lending-deposit spread, or net interest margin (US Dollars)
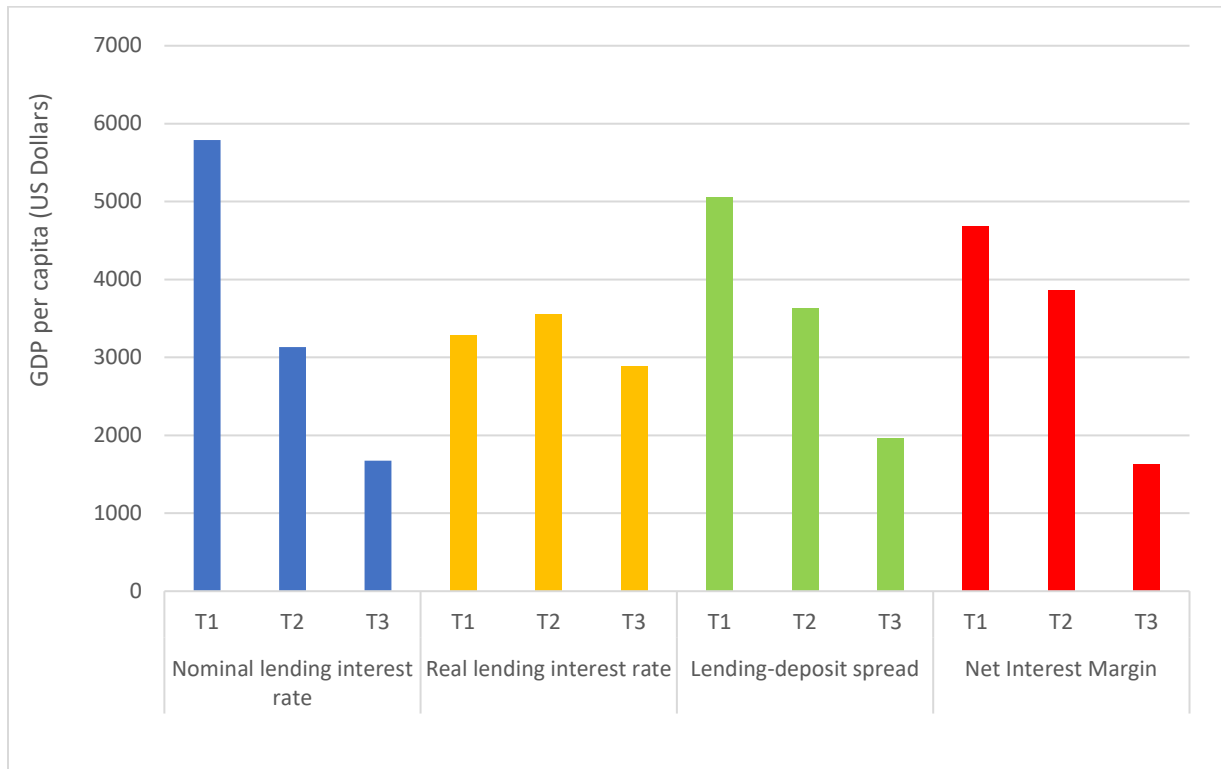
Note: Countries sorted from lowest to highest 2003-2017 average x-axis indicator. T1 and T3 are terciles with the lowest and highest values, respectively. Median GDP per capita by tercile is shown.
Source: World Bank-World Development Indicators, World Bank Finstats 2019.

Figure 5: Relationship between bank interest rates and spreads

High nominal and real lending rates are driven by intermediation inefficiencies, not high deposit rates. Intermediation spreads are closely aligned with net interest margins, but the link is weaker in countries with higher spreads, perhaps due to developmental challenges.

A. Median interest rates and spread in EMDEs (%)
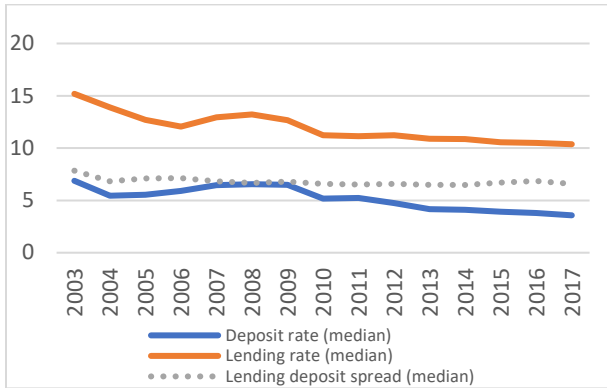
B. Interest spread vs deposit rate (2003-17 averages)
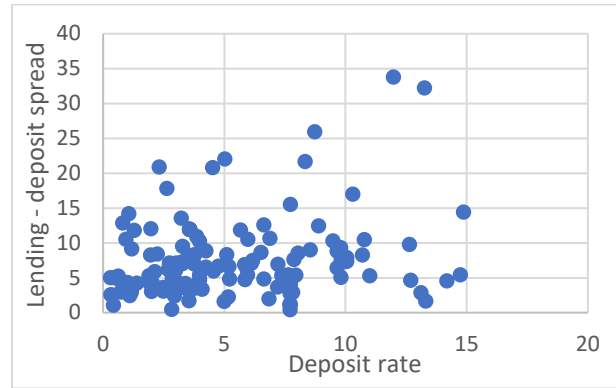
C. Interest spread vs lending rate (2003-17 averages)
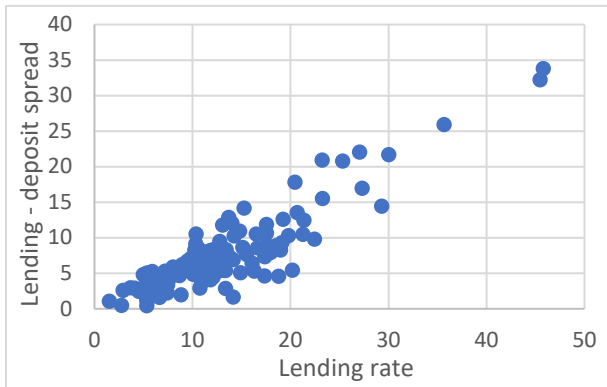
D. Median interest rates by quintile of the intermediation spread (2003-17 average)
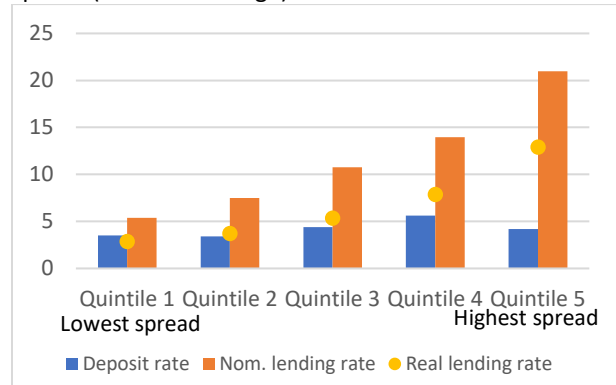
E. Median intermediation spread and net interest margin by quintile of the intermediation spread (2003-17 average)
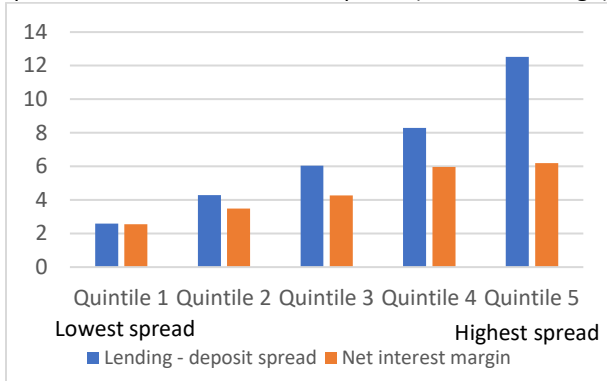
Source: World Bank Finstats 2019.

Table 1: Top five of countries with high nominal lending rates and lending-deposit spreads in 2017 by region

Regions	Countries with Highest Nominal Lending Rate (%)	Countries with Highest Lending Deposit Spreads (%)
East Asia & Pacific	Mongolia (20.0) Micronesia, Fed. Sts. (16.1) Timor-Leste (13.2) Myanmar (13) Indonesia (11.0)	Micronesia, Fed. Sts. (15.6) Timor-Leste (12.5) Solomon Islands (10.3) Papua New Guinea (7.87) Mongolia (7.05)
Europe & Central Asia	Tajikistan (29.6) Kyrgyz Republic (19.8) Azerbaijan (16.5) Ukraine (16.3) Armenia (14.4)	Tajikistan (26.0) Kyrgyz Republic (17.0) Azerbaijan (8.11) Ukraine (7.25) Albania (5.82)
Latin America & Caribbean	Brazil (46.9) Argentina (31.2) Venezuela, RB (21.0) Honduras (19.2) Paraguay (18.0)	Brazil (38.4) Paraguay (14.1) Guyana (11.9) Jamaica (11.1) Honduras (11.0)
Middle East & North Africa	Egypt, Arab Rep. (18.1) Lebanon (8.09) Algeria (8) Qatar (4.7)	Algeria (6.25) Egypt, Arab Rep. (6.08) Qatar (1.79) Lebanon (1.18) -
South Asia	Bhutan (14.2) Sri Lanka (11.5) Maldives (10.1) Bangladesh (9.54) India (9.50)	Bhutan (11.4) Maldives (6.57) Bangladesh (3.93) Pakistan (3.73) Sri Lanka (2.56)
Sub-Saharan Africa	Madagascar (60) Malawi (38.5) Gambia, The (29) Mozambique (27.8) Uganda (21.2)	Madagascar (45) Congo, Dem. Rep. (16.4) São Tomé and Príncipe (15.4) Sierra Leone (13.8) Gambia, The (13.2)

Source: World Bank Finstats 2019.

Table 2: Descriptive statistics of selected drivers on nominal and real lending interest rates, spreads, and net interest margin

Median values by tercile

	Tercile	Nominal Rate (%)	Lending-deposit spread (%)	NIM (%Earning Assets)	Macro-fiscal					Bank sector					Business	
					Inflation (%)	St. Dev. inflation (%)	Public Debt (% GDP)	GDP per capita (US dollar)	Policy rate (%)	Overhead costs (% Total Assets)	3 bank concentrtion (% Bank system assets)	NPLs (%Total Gross Loans)	Non-interest income (% Total Income)	Priv. credit (%GDP)	Credit Bureau Coverage (% Adults)	Rule of law [-2.5 (weak) to 2.5 (strong)]*
Nominal lending interest rate	T1	7.1	4.2	3.7	2.3	1.2	44.0	5,792.0	3.2	3.4	69.8	7.5	18.2	49.7	0.0	-0.147
	T2	12.2	6.9	5.1	6.6	1.6	42.8	3,132.8	6.0	3.6	73.0	5.7	16.1	31.4	1.8	-0.521
	T3	19.2	10.5	7.1	8.5	2.1	42.2	1,676.0	9.6	5.5	68.7	6.1	16.6	15.1	3.1	-0.632
Lending-deposit spread	T1	7.5	3.7	3.5	3.6	1.4	39.4	5,056.2	4.9	3.0	66.7	4.7	17.9	43.0	2.0	-0.453
	T2	12.1	6.9	5.4	5.2	1.5	43.2	3,625.9	6	3.9	62.4	8.8	14.6	32.3	0.8	-0.324
	T3	19.5	12.0	6.4	6.6	2.0	44.3	1,959.2	7.4	5.1	78.3	6.9	18.0	15.0	0.0	-0.801
Net Interest Margin	T1	8.9	4.8	3.0	3.8	1.4	49.9	4,678.2	3.6	2.3	72.6	5.5	17.2	46.4	0.0	-0.436
	T2	11.4	6.5	5.0	5.0	1.4	39.7	3,862.2	5.5	4.2	62.4	6.2	18.3	31.4	3.3	-0.427
	T3	17.6	9.1	7.9	7.6	2.2	42.2	1,624.8	7.2	5.8	78.3	7.2	15.8	19.3	2.6	-0.635
Real lending interest rate	T1	7.0	3.7	4.1	4.2	1.6	42.2	3,285.5	4.5	3.8	66.3	5.5	20.3	26.3	0.7	-0.468
	T2	10.7	6.7	5.6	5.3	1.5	42.2	3,548.8	4.9	4.1	64.9	7.6	14.4	39.1	1.8	-0.262
	T3	19.2	10.7	6.6	6.6	2.0	48.1	2,886.1	6.3	4.7	75.8	6.4	15.8	21.3	2.2	-0.500

Note: Terciles calculated from country average values 2003-2017 of the variable (i.e., nominal interest rate, spread, NIM, or real interest rate), and sorted from the lowest to the highest levels. T1 shows the lowest tercile, and T3 the highest tercile. Data for drivers is median values by tercile.

*The rule of law indicator captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. For more details, see Kaufmann et al. (2010)

Source: IMF-IFS, World Bank Finstats 2019, World Bank Governance Indicators, World Bank Doing Business

Table 3: Main drivers of nominal lending interest rates and lending-deposit spread

Econometric Results

Panel A. Dependent variable: Nominal lending interest rate

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
								Nominal lending interest rate							
Macro-fiscal conditions															
Inflation (%)	0.077***	0.074***	0.077***	0.081***	0.114***	0.111***	0.110***	0.140***	0.148***	0.142***	0.115***	0.116***	0.142***	0.066*	0.070**
	(4.635)	(4.231)	(4.259)	(4.448)	(5.215)	(4.937)	(4.569)	(5.830)	(5.701)	(5.456)	(4.347)	(4.385)	(5.426)	(1.800)	(2.007)
St. Deviation Inflation (%)		0.050**	0.047**	0.299***	0.377***	0.392***	0.403***	0.217***	0.213***	0.219***	0.201***	0.208***	0.216***	0.123**	0.093
		(2.131)	(1.994)	(6.827)	(7.249)	(7.504)	(7.417)	(4.404)	(4.057)	(4.153)	(3.583)	(3.720)	(4.097)	(1.993)	(1.599)
Public Debt (%GDP)			0.014**	0.014**	0.017**	0.019**	0.043***	0.013	0.040***	0.040***	0.040**	0.043***	0.040***	0.032*	0.037**
			(2.157)	(2.138)	(2.219)	(2.449)	(3.738)	(1.024)	(2.967)	(2.930)	(2.520)	(2.684)	(2.943)	(1.756)	(2.325)
GDP percapita				0.000	-0.001**	-0.001**	-0.001**	-0.001***	-0.000	-0.000	-0.000	0.000	-0.000	-0.000	-0.000**
				(0.451)	(-2.339)	(-2.513)	(-2.570)	(-3.751)	(-1.588)	(-1.526)	(-0.143)	(0.162)	(-1.396)	(-0.331)	(-2.051)
Total Savings (%GDP)					0.019	0.022	0.044*	0.016	0.032	0.036	0.031	0.032	0.036		
					(1.161)	(1.326)	(1.852)	(0.729)	(1.384)	(1.529)	(1.237)	(1.271)	(1.534)		
Policy/money market rate (%)														0.191***	0.205***
														(4.335)	(4.859)
Banking sector characteristics															
Overhead costs (%Total Assets)						0.093	0.189**	0.214***	0.431***	0.432***	0.439***	0.416***	0.425***	0.173	0.244**
						(1.151)	(1.998)	(2.698)	(4.771)	(4.727)	(4.428)	(4.174)	(4.628)	(1.436)	(2.126)
Three bank concentration (% Total bank system assets)							0.001	0.016	0.029**	0.032**	0.024	0.018	0.031**	0.012	0.026*
							(0.079)	(1.240)	(2.163)	(2.323)	(1.602)	(1.232)	(2.267)	(0.744)	(1.659)
Non-performing loans (% Total Gross Loans)								0.095**	0.087**	0.083**	0.121***	0.120***	0.084**	0.083	0.051
								(2.584)	(2.296)	(2.183)	(2.626)	(2.595)	(2.209)	(1.618)	(1.135)
Non-interest income (% Total Income)									-0.033***	-0.034***	-0.033***	-0.033***	-0.033***	-0.024*	-0.023*
									(-3.435)	(-3.433)	(-2.981)	(-2.961)	(-3.382)	(-1.883)	(-1.901)
Private credit (% GDP)										0.005	0.029	0.029	0.007	0.034*	0.014
										(0.295)	(1.460)	(1.484)	(0.419)	(1.706)	(0.764)
Business environment															
Credit Bureau Coverage (% adults)											-0.011	-0.011*		-0.015*	
											(-1.380)	(-1.692)		(-1.809)	
Time to resolve insolvency (years)												0.443**		0.473***	
												(2.405)		(2.623)	
Rule of Law (Kaufmann et al.,2010)													-0.643		-1.327
													(-0.737)		(-1.272)
Constant	12.403***	12.330***	11.623***	11.073***	14.001***	13.783***	11.796***	12.171***	7.432***	7.124***	5.410***	3.989***	6.771***	6.438***	8.995***
	(178.574)	(164.356)	(87.859)	(53.230)	(24.620)	(22.630)	(16.838)	(15.997)	(9.123)	(8.376)	(5.914)	(4.200)	(7.561)	(5.320)	(8.685)
Observations	1,404	1,313	1,262	1,255	1,058	1,021	935	654	651	650	575	572	650	445	491
Number of country_code	109	103	102	101	94	92	84	64	64	64	63	62	64	50	51

Note: Annual information between 2005 and 2017 for 51 EMDE countries. *Public debt* includes debt data for general government. In case this data is not available, debt data for the central government is used. *Policy rate* is the Central Bank or Monetary Authority's benchmark interest rate for monetary policy. In case that policy rate is not available, money market rate is used.

Panel data regressions with first-order error structure to adjust for serial autocorrelation. Country-fixed effects included. Dummy variable capturing Global Financial Crisis period included.

t-statistics in parentheses *** p<0.01, ** p<0.05, * p<0.1

## Panel B. Dependent variable: Lending-deposit interest rate

	VARIABLES	Lending-deposit interest rate spread														
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Macro-fiscal conditions	Inflation (%)	-0.018	-0.018	-0.022	-0.017	-0.010	-0.012	-0.010	-0.005	-0.002	-0.003	-0.005	-0.005	-0.005	0.033	0.025
		(-1.286)	(-1.232)	(-1.487)	(-1.112)	(-0.545)	(-0.615)	(-0.489)	(-0.240)	(-0.108)	(-0.140)	(-0.219)	(-0.212)	(-0.242)	(1.097)	(0.866)
	St. Deviation Inflation (%)		0.014	0.010	0.174***	0.225***	0.223***	0.214***	0.037	0.026	0.025	0.029	0.034	0.013	0.040	0.023
			(0.722)	(0.523)	(4.521)	(4.800)	(4.686)	(4.371)	(0.769)	(0.497)	(0.484)	(0.479)	(0.568)	(0.248)	(0.580)	(0.380)
	Public Debt (%GDP)			0.020***	0.019***	0.023***	0.024***	0.057***	0.019*	0.036***	0.039***	0.028**	0.032**	0.038***	0.037**	0.039***
				(3.314)	(3.198)	(3.035)	(3.094)	(4.828)	(1.746)	(3.156)	(3.329)	(2.108)	(2.349)	(3.313)	(2.447)	(3.094)
	GDP percapita				0.000	-0.001**	-0.001**	-0.000**	-0.000***	-0.000*	-0.000	0.000	0.000	-0.000	0.000	-0.000
					(0.136)	(-2.325)	(-2.293)	(-2.189)	(-3.458)	(-1.758)	(-0.500)	(0.267)	(0.430)	(-0.124)	(0.488)	(-0.533)
	Total Savings (%GDP)					0.008	0.008	0.021	0.025	0.033*	0.027	0.028	0.028	0.027		
						(0.602)	(0.610)	(1.045)	(1.392)	(1.737)	(1.392)	(1.325)	(1.337)	(1.416)		
	Policy/money market rate (%)														-0.015	-0.014
															(-0.398)	(-0.404)
Banking sector characteristics	Overhead costs (%Total Assets)						0.064	0.164**	0.155**	0.271***	0.246***	0.350***	0.345***	0.232***	0.251**	0.227**
							(0.895)	(1.982)	(2.391)	(3.641)	(3.240)	(4.035)	(3.951)	(3.074)	(2.432)	(2.398)
	Three bank concentration (% Total bank system assets)							0.004	0.026***	0.036***	0.034***	0.028**	0.026**	0.031***	0.020	0.031**
								(0.347)	(2.605)	(3.307)	(3.108)	(2.355)	(2.124)	(2.878)	(1.528)	(2.548)
	Non-performing loans (% Total Gross Loans)								0.053*	0.047	0.047	0.090**	0.086**	0.052	0.049	0.019
									(1.714)	(1.466)	(1.473)	(2.400)	(2.283)	(1.632)	(1.202)	(0.542)
	Non-interest income (% Total Income)									-0.013	-0.011	-0.021**	-0.020**	-0.009	-0.018*	-0.010
										(-1.573)	(-1.364)	(-2.167)	(-2.116)	(-1.157)	(-1.690)	(-0.989)
	Private credit (% GDP)										-0.030**	-0.003	-0.001	-0.022	0.001	-0.013
											(-2.096)	(-0.161)	(-0.063)	(-1.523)	(0.047)	(-0.872)
Business environment	Credit Bureau Coverage (% adults)											-0.003	-0.003		-0.008	
												(-0.424)	(-0.433)		(-1.230)	
	Time to resolve insolvency (years)												0.265*		0.270*	
													(1.800)		(1.900)	
	Rule of Law (Kaufmann et al.,2010)													-2.136***		-2.250***
														(-2.928)		(-2.685)
	Constant	7.995***	7.852***	6.976***	6.659***	9.539***	9.286***	6.658***	5.925***	3.007***	3.817***	2.222***	1.297	2.797***	2.734***	3.746***
		(145.575)	(132.229)	(68.952)	(39.759)	(21.273)	(19.503)	(12.786)	(12.308)	(5.566)	(6.426)	(2.891)	(1.583)	(4.410)	(2.906)	(4.848)
	Observations	1,318	1,227	1,175	1,148	964	931	860	628	621	617	541	538	617	415	464
	Number of country_code_	110	104	103	100	89	86	80	64	63	63	61	60	63	48	50

Note: Annual information between 2005 and 2017 for 64 EMDE countries. *Public debt* includes debt data for general government. In case this data is not available, debt data for the central government is used. *Policy rate* is the Central Bank or Monetary Authority's benchmark interest rate for monetary policy. In case that policy rate is not available, money market rate is used.

Panel data regressions with first-order error structure to adjust for serial autocorrelation. Country-fixed effects included. Dummy variable capturing Global Financial Crisis period included.

t-statistics in parentheses *** p<0.01, ** p<0.05, * p<0.1

Figure 6: Illustrative decomposition of nominal lending interest rate and changes between 2007 and 2017
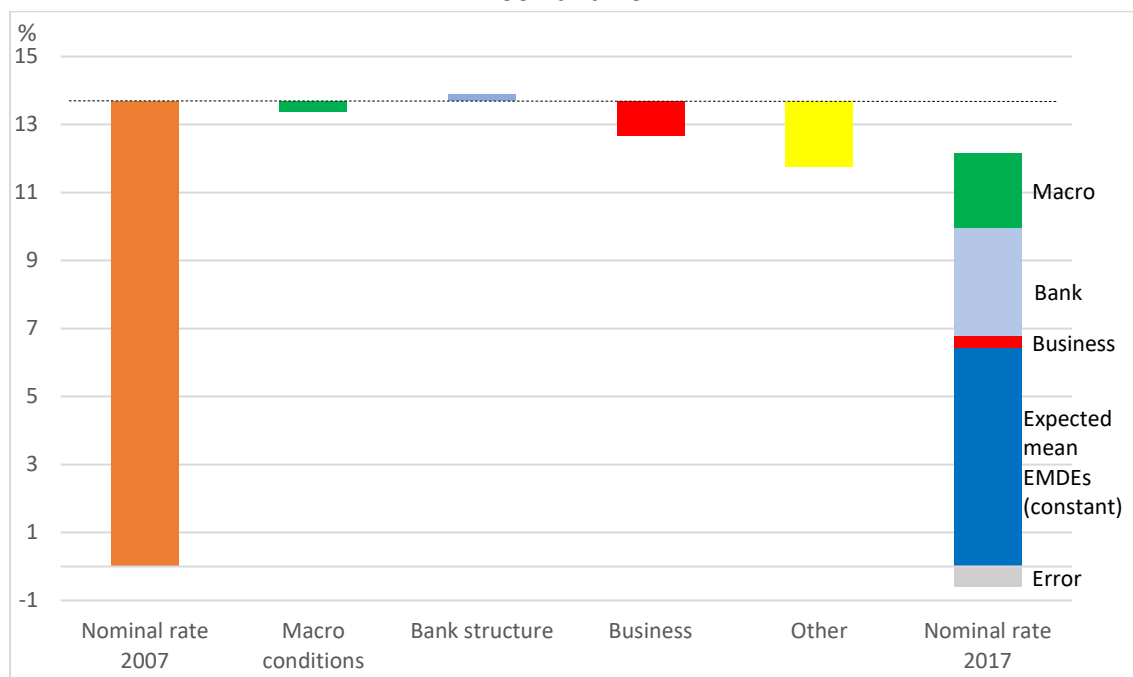
Note: Average nominal lending interest rate across all EMDEs in the sample (50 countries) for 2007 and 2017. "Other" captures country specific effects and estimation error.
Source: Authors' calculations.

Table 4: Illustrative decomposition of nominal lending interest rate and changes between 2007 and 2017 by region

Percent

Region 2017	Observed Rate	Estimated Rate	Macro	Bank	Business	Other	Estimation Error
EMDEs	**11.0**	**12.1**	**2.2**	**3.2**	**0.3**	**6.4**	**-1.2**
EAP	6.4	6.6	1.5	3.6	0.3	1.3	-0.2
ECA	8.8	10.5	2.2	3.1	0.3	4.8	-1.7
LAC	16.9	15.9	1.9	2.8	0.3	10.9	0.9
MENA	8.0	8.6	1.1	2.7	0.6	4.2	-0.6
SA	11.6	10.9	4.5	2.8	-0.1	3.7	0.7
AFR	11.1	12.2	3.3	3.9	1.3	3.7	-1.1
Difference 2017 vs. 2007							
EMDEs	**-2.7**	**-0.8**	**-0.3**	**0.2**	**-1.0**	**0.3**	**-1.6**
EAP	-2.3	-1.9	-0.5	0.2	-1.6	0.0	-0.5
ECA	-4.0	-1.5	-0.1	0.3	-1.2	-0.5	-2.5
LAC	-0.6	-0.6	-0.4	0.0	-0.7	0.5	0.0
MENA	-0.6	1.5	-0.3	-1.3	-0.5	3.6	-2.1
SA	-0.8	0.0	0.4	0.5	-1.7	0.7	-0.8
AFR	-2.2	3.6	0.3	0.2	0.1	2.9	-5.8

Note: Average nominal lending interest rate in 2017 by region. "Other" captures constant and country specific effects.
Source: Authors' calculations.

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Annex 1: Determinants of bank lending rates and spreads

A. Macro-fiscal factors

<u>Macroeconomic fundamentals</u>: Sound monetary, fiscal, and exchange rate framework underpin the general economic outlook which drives the overall health of public and private balance sheets and thus the demand and supply of bank credit. Illustrative examples of macroeconomic factors that increase benchmark interest rates include:[22]

- Tighter global financial conditions determined by world interest rates and investor appetite.

- A deterioration in sovereign creditworthiness, particularly when debt levels are high and (external) refinancing needs are acute.

- (Expectations of) currency depreciations which are also associated with higher default risk, particularly when currency mismatches are prevalent, and can pass-through to inflation. Moreover, significant devaluations may also affect local currency deposit volumes and rates.

- High and volatile inflation and weakly anchored inflation expectations. For example, Demirgüç-Kunt et al. (2004), Claeys and Van der Vennet (2008), and Poghosyan (2012) find a positive relationship between inflation and intermediation spreads, particularly for EMDEs.

- Low domestic savings rates are often cited as a contributing factor to funding and liquidity shortages resulting in high interest rates (see for example Segura-Ubiergo, 2012).

- Structural current account deficits can contribute to aggregate liquidity shortages and increase risk in the banking system.

Further, given that government securities can be used as collateral for interbank and liquidity transactions, sovereign risk has an impact on banks' funding costs (De la Torre et al., 2006).

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[22] This is a non-exhaustive discussion. It is beyond the scope of this paper to discuss the vast macro literature on the determinants of policy interest rates.

<u>Fiscal dominance of monetary policy</u>: In a situation where sovereign risk is high, the dynamic between macro-fiscal factors becomes more complicated and drive up interest rates and spreads. A rise in the policy rate to contain inflation may increase sovereign default risk and trigger a currency depreciation which in turn will lead to higher, not lower inflation.

<u>Crowding out effects</u>: Large public sector financing needs relative to the size of the banking sector (particularly when there are few institutional investors who could hold absorb the government debt) could crowd out the private sector and drive up bank interest rates and spreads. As a result, bank may increase their exposures to government securities or outright lending to (quasi-) government entities.

B. Banking sector characteristics

<u>Leverage and funding profiles</u>: Banks with weak capital and funding structures will incur higher costs to supply loans and may have limited capacity to intermediate lending. More liquid banks are better able to withstand funding shocks and reduce lending rate volatility. Finally, more risk-averse banks will prefer to build stronger capital buffers -- an expensive source of funding – and avoid riskier investments or demand a higher premium.

<u>Scale of bank operations</u>: The presence of economies of scale in financial intermediation implies lower interest rates and spreads since fixed costs (e.g., core corporate functions, branch networks) can be distributed over a larger client base and risks can be better diversified (Angbazo, 1997; Maudos and Fernandez de Guevara, 2004; De la Torre et al., 2006).

<u>Competition and market segment contestability</u>: The degree of competition in lending and deposit markets is a key determinant of intermediation spreads (Ho and Sauders, 1981). More competition provides banks with incentives to innovate and become more efficient as high profits driven by monopoly rents fall. The degree of competition typically differs by market segment (e.g., wholesale and retail deposits, credit cards, large corporates) and geography (e.g., in rural areas competition is typically much lower than in urban areas), but larger banks with higher market shares are often able to exert more pricing power.

Bank ownership: The type of ownership of banks – public, private, foreign – can have an important bearing on key drivers such as risk appetite, strategic focus, and funding costs which affect rates and spreads. For example, foreign-owned banks could be in a more favorable position to offer lower lending rates, as they have access to intra-group and wholesale funding at lower cost.

Product diversification: Banks with diversified sets of products and services can offer loans with lower intermediation spreads as lending products can be cross-subsidized with other fee-based financial services. Moreover, banks with more diversified sources of income are better able to withstand shocks to specific business lines and thus are better able to meet the targeted rate of return which lowers the cost of funding.

Credit portfolio composition (e.g., floating versus fixed rate loans, currencies, non-performing assets): The composition of banks' lending portfolio has implications for rates and spreads. For example, in countries where fixed-rate lending prevails, volatility of funding costs implies a risk of compressed margins and potential losses, particularly in the absence of well-developed derivatives markets which is the case in most EMDEs. Moreover, rates and spreads typically differ for foreign currency lending as funding and credit risk issues differ from domestic currency lending. Finally, banks that suffer from debt overhang problems, may respond by increasing rates and spreads to strengthen buffers.

Macro- and micro-prudential regulation and supervision: Strong regulatory and supervisory frameworks ensure that the banking sector is safe and resilient and that (systemic) risks and shocks are properly identified and mitigated. They also ensure that banks adopt proper governance and risk management frameworks. Taken together, strong regulation and supervision can strengthen bank balance sheets at the individual and systemic level which bolsters confidence in the banking system and help reduce intermediation costs.

C. Business environment

Insolvency and creditor rights framework: Weak insolvency and creditor rights frameworks make loan restructuring, contract enforcement, and collateral recovery more expensive and time consuming. For example, if banks cannot efficiently recuperate collateral – because, for example ownership cannot be ascertained or courts act too slowly -- then banks will not extent credit or only at high interest rates. Insolvency regimes are also important for the effective management of non-performing loans which weigh on intermediation efficiency. This has a direct impact on the loan recovery ratio (LGD) when a borrower defaults, and therefore the expected losses which determine lending rates and spreads. A 2012 study of Brazil's 2005 bankruptcy law reform found a 10-17 percent increase in debt finance at the firm level, and an 8-17 percent reduction in the cost of credit, resulting from a reform in insolvency and creditor rights frameworks (Araujo et al, 2012). A 2012 study on Italy's bankruptcy reform yielded similar conclusions (Rodano, et al, 2012). Reforms to creditor rights frameworks in Romania and other jurisdictions have also been shown to yield reductions in the cost of credit and increased access (Safavian, 2006).

Information environment: Asymmetric information creates agency frictions which increases the cost of credit intermediation. Well-functioning and regulated credit registries and private credit bureaus can reduce information asymmetries. Similarly, strong secured transaction laws and collateral registries allow borrowers to leverage their assets as collateral to reduce agency costs. Open banking initiatives and Application Programming Interfaces (APIs) democratize the flow of information and help to further alleviate these frictions and increase competition.

Direct policy interventions: These include directed lending and interest subsidy programs, interest rate restrictions, and high (unremunerated) reserve or liquidity requirements. These interventions are distortionary and thus affect interest rates and spreads (see also Common Policy Interventions).

Annex 2: Impact of global conditions on nominal lending rates

Figure 7: Impact of global conditions (global interest rates and liquidity) on nominal lending rates
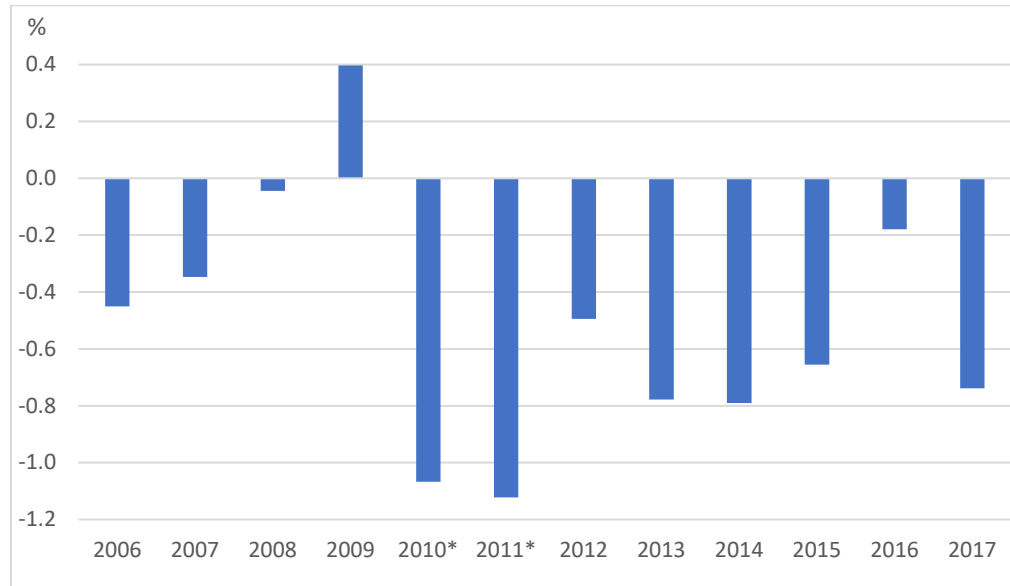
Note: Year fixed effects from a panel regression using the same framework as in Table 3, Panel A, equation 14. Year fixed effects is an indicator of the impact of global conditions (i.e., global interest rates and liquidity) on nominal lending interest rates in EMDEs. Years in asterisk are the effect coefficients that are significantly different from zero. Panel data regression with annual information between 2005 and 2017 for 50 EMDE countries, country and year fixed effects included, and robust errors.
Source: Authors' calculations.

Annex 3: Robustness tests econometric results

Panel A. Dependent variable: Nominal lending interest rate

		Nominal lending interest rate					
	VARIABLES	(14)	(15)	(16)	(17)	(18)	(19)
Macro-fiscal conditions	Inflation (%)	0.066*	0.070**	0.053	0.053	0.065*	0.066*
		(1.800)	(2.007)	(1.504)	(1.511)	(1.779)	(1.872)
	St. Deviation Inflation (%)	0.123**	0.093			0.133**	0.107*
		(1.993)	(1.599)			(2.096)	(1.812)
	5-year St. Deviation Inflation (%)			0.249***	0.235***		
				(5.813)	(5.474)		
	Public Debt (%GDP)	0.032*	0.037**	0.033**	0.024	0.035*	0.043**
		(1.756)	(2.325)	(1.979)	(1.485)	(1.877)	(2.469)
	GDP percapita	-0.000	-0.000**	-0.000	-0.000*	-0.000	-0.000*
		(-0.331)	(-2.051)	(-0.728)	(-1.933)	(-0.395)	(-1.738)
	Policy/money market rate (%)	0.191***	0.205***	0.197***	0.197***	0.196***	0.198***
		(4.335)	(4.859)	(4.820)	(4.833)	(4.394)	(4.593)
	Devaluation rate (%)					-0.007	-0.011
						(-0.721)	(-1.181)
Banking sector characteristics	Overhead costs (%Total Assets)	0.173	0.244**	0.153	0.199*	0.171	0.214*
		(1.436)	(2.126)	(1.355)	(1.769)	(1.413)	(1.853)
	Three bank concentration (% Total bank system assets)	0.012	0.026*	0.007	0.016	0.011	0.024
		(0.744)	(1.659)	(0.448)	(1.046)	(0.677)	(1.489)
	Non-performing loans (% Total Gross Loans)	0.083	0.051	0.043	0.056	0.085*	0.065
		(1.618)	(1.135)	(0.915)	(1.232)	(1.653)	(1.381)
	Non-interest income (% Total Income)	-0.024*	-0.023*	-0.016	-0.016	-0.022*	-0.017
		(-1.883)	(-1.901)	(-1.337)	(-1.334)	(-1.750)	(-1.357)
	Private credit (% GDP)	0.034*	0.014	0.049**	0.053***	0.036*	0.024
		(1.706)	(0.764)	(2.580)	(2.793)	(1.788)	(1.238)
Business environment	Credit Bureau Coverage (% adults)	-0.015*		-0.018**		-0.015*	
		(-1.809)		(-2.289)		(-1.803)	
	Time to resolve insolvency (years)	0.473***		0.509***		0.463**	
		(2.623)		(3.018)		(2.564)	
	Rule of Law (Kaufmann et al.,2010)		-1.327		-2.112**		-1.997*
			(-1.272)		(-2.087)		(-1.859)
	Constant	6.438***	8.995***	6.139***	7.306***	6.370***	7.914***
		(5.320)	(8.685)	(4.944)	(6.021)	(5.239)	(7.395)
	Observations	445	491	455	463	445	473
	Number of country_code_	50	51	51	52	50	51

Note: Annual information between 2005 and 2017 for 51 EMDE countries. *Public debt* includes debt data for general government. In case this data is not available, debt data for the central government is used. *St.Deviation Inflation* refers to standard deviation of monthly inflation rate y-o-y, using a one-year rolling window. *5-year St.Deviation Inflation* refers to standard deviation of monthly inflation rate y-o-y, using a 5-year rolling window. *Devaluation rate* is the y-o-y change of the exchange rate vs. US dollar.
Benchmark regressions in columns (14) and (15).
Panel data regressions with first-order error structure to adjust for serial autocorrelation. Country-fixed effects included. Dummy variable capturing Global Financial Crisis period included.
t-statistics in parentheses *** p<0.01, ** p<0.05, * p<0.1

Panel B. Dependent variable: Lending-deposit interest rate

	VARIABLES	Lending-deposit interest rate spread					
		(14)	(15)	(16)	(17)	(18)	(19)
Macro-fiscal conditions	Inflation (%)	0.033	0.025	0.031	0.029	0.033	0.022
		(1.097)	(0.866)	(1.054)	(0.999)	(1.100)	(0.753)
	St. Deviation Inflation (%)	0.040	0.023			0.046	0.022
		(0.580)	(0.380)			(0.651)	(0.362)
	5-year St. Deviation Inflation (%)			0.047	0.029		
				(1.125)	(0.701)		
	Public Debt (%GDP)	0.037**	0.039***	0.038***	0.034**	0.038**	0.041***
		(2.447)	(3.094)	(2.659)	(2.504)	(2.482)	(3.057)
	GDP percapita	0.000	-0.000	0.000	0.000	0.000	-0.000
		(0.488)	(-0.533)	(0.437)	(0.221)	(0.441)	(-0.340)
	Policy/money market rate (%)	-0.015	-0.014	-0.014	-0.013	-0.013	-0.004
		(-0.398)	(-0.404)	(-0.391)	(-0.375)	(-0.353)	(-0.124)
	Devaluation rate (%)					-0.004	-0.008
						(-0.446)	(-1.020)
Banking sector characteristics	Overhead costs (%Total Assets)	0.251**	0.227**	0.230**	0.244**	0.250**	0.219**
		(2.432)	(2.398)	(2.302)	(2.500)	(2.414)	(2.299)
	Three bank concentration (% Total bank system assets)	0.020	0.031**	0.017	0.022*	0.019	0.026**
		(1.528)	(2.548)	(1.291)	(1.708)	(1.460)	(2.062)
	Non-performing loans (% Total Gross Loans)	0.049	0.019	0.040	0.043	0.050	0.025
		(1.202)	(0.542)	(1.012)	(1.135)	(1.226)	(0.682)
	Non-interest income (% Total Income)	-0.018*	-0.010	-0.016	-0.014	-0.017	-0.008
		(-1.690)	(-0.989)	(-1.496)	(-1.401)	(-1.616)	(-0.779)
	Private credit (% GDP)	0.001	-0.013	0.002	0.007	0.002	-0.004
		(0.047)	(-0.872)	(0.103)	(0.431)	(0.115)	(-0.269)
Business environment	Credit Bureau Coverage (% adults)	-0.008		-0.009		-0.008	
		(-1.230)		(-1.348)		(-1.224)	
	Time to resolve insolvency (years)	0.270*		0.276*		0.265*	
		(1.900)		(1.966)		(1.857)	
	Rule of Law (Kaufmann et al.,2010)		-2.250***		-2.381***		-2.587***
			(-2.685)		(-2.786)		(-3.007)
	Constant	2.734***	3.746***	2.862***	2.476***	2.702***	3.204***
		(2.906)	(4.848)	(3.086)	(2.717)	(2.866)	(3.910)
	Observations	415	464	425	433	415	445
	Number of country_code_	48	50	49	50	48	50

Note: Annual information between 2005 and 2017 for 50 EMDE countries. *Public debt* includes debt data for general government. In case this data is not available, debt data for the central government is used. *St.Deviation Inflation* refers to standard deviation of monthly inflation rate y-o-y, using a one-year rolling window. *5-year St.Deviation Inflation* refers to standard deviation of monthly inflation rate y-o-y, using a 5-year rolling window. *Devaluation rate* is the y-o-y change of the exchange rate vs. US dollar.
Benchmark regressions in columns (14) and (15).
Panel data regressions with first-order error structure to adjust for serial autocorrelation. Country-fixed effects included. Dummy variable capturing Global Financial Crisis period included.
t-statistics in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$