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Banking on the Future? – An Analysis of the High Cost of Domestic Financial Intermediation in Eastern and Southern Africa[1]

Background paper for the 2026 ICSOE "Bridging Eastern and Southern Africa: Connectivity, Trade and Investment for a More Integrated Continent", Windhoek, Namibia, from 10th-13th November 2026.

Academic debates around the cost of capital in Africa tend to focus on topics such as the perceived bias in credit-rating agencies, the relatively high cost of sovereign debt, 'innovative finance' (broadly defined) or the role of development banks. Relatively little attention is paid to the cost of domestic financial intermediation. Yet there is a lot of a priori evidence that inefficiencies in domestic financial intermediation - in the form of persistently large spreads between lending and deposit rates – is one of the main contributors to the high cost of capital.

This paper examines the determinants of persistently high banking spreads across Eastern and Southern Africa. Bank profitability coexists with limited credit access in Africa — a pattern that raises questions about whether high spreads reflect risk pricing, thin provisioning buffers, or market structure, rather than cost pass-through alone. Using panel data for 2000–2020, we estimate the drivers of interest spreads with a fixed-effects model, and examine their interaction with financial depth and real economic activity using a panel VAR.

[1] This draft paper was prepared by Emmanuel Bahati, an intern with UNECA from July-September 2026, and who is currently on sabbatical from the Central Bank of Rwanda (BNR) and undertaking his PhD at the University of Libson. The paper was prepared at the initiative and under the guidance of Andrew Mold, Director of the Sub-Regional Office for Eastern Africa of UNECA, and with valuable inputs from Sonia Essobmadje, UNECA, and Ricardo Gottschalk, RCO South Africa.

Introduction

A well-functioning domestic financial sector is a major pillar of sustainable development. Efficient financial sector promotes economic growth (Levine, 2005), (Levine, 2005); (Cho, Desbordes, & Eberhardt, 2025) and also alleviates poverty and narrows income inequality (Beck, Demirgüç-Kunt, & Levine, 2007). Within this broader role, the banking system plays a more fundamental allocative function still: channelling capital toward emerging sectors and firms with high growth potential. This intermediation role — mobilizing savings and directing them toward productive investment — is not only about lending volume but also about quality, a pattern that become highly relevant after the global financial crisis (Aizenman, Jinjarak, & Park, 2015)..

The efficiency with which banks perform this function has direct implications for real economy: it is a matter of which sectors receive finance and on what terms. However, a significant body of empirical studies has focused their attention on the quantity dimension of finance's effect on economic growth (Valickova, Havranek, & Horvath, 2015) ; (Özmen & Taşdemir, 2026). Few studies have analysed the role of financial development through the lens of quality. (Aizenman, Jinjarak, & Park, 2015) examine the relationship between financial development and sectoral output growth.

Building on this gap, the study attempts to determine the drivers of an inefficient banking system, proxied by interest rate spread, and its dynamic effects on financial depth and economic growth. Higher deposit rates offer savers higher excepted returns, while lower lending rates make external financing accessible to investment-constrained firms. When the gap between these two rates — the interest spreads — increases, both sides of the intermediation chain are affected simultaneously: lower returns on deposits discourage savers, and borrowers face a higher cost of capital. Low financial intermediation efficiency therefore disconnects savers from borrowers, so that only a fraction of mobilized savings by banks is ultimately channelled into productive investment. High bank lending rates and wider interest rates spread weaken monetary policy transmission mechanism, reduce private investment and job creation, constrain financial development and inclusion and ultimately undermine financial stability (Feyen & Huertas, 2020).

Historically, interest rate spreads in African banking systems have ranked among the highest in the world (Tennant & Folawewo, 2009). Despite decades of financial-sector reform, they have remained high relative to other regions. This is not merely a technical banking-sector issue. High intermediation costs constrain access to finance, reduce the credit available for productive investment, and limit the pool of capital available to firms — with consequences for growth and structural transformation. Central banks and prudential authorities carry a clear responsibility to safeguard the stability and efficiency of the banking system. Yet effective policy responses require a deeper understanding of what drives these costs and how they affect real activity. This paper takes up that question. (Tennant & Folawewo, 2009)

A strand of empirical literature classifies the determinant of interest spread into bank-specific, industry-or market-specific, and macroeconomic factors. Bank characteristics include bank size, operational inefficiency (cost), profitability, and price balance-sheet risks such as credit risks, liquidity risks and capital risks (Demirgüç-Kunt, Leaven, & Levine, 2003); (Ahokpossi, 2013). The underlying logic is straightforward. Financial institutions facing riskier clients or a deteriorating

loan portfolio are expected to charge higher rates to compensate for expected losses. A purely descriptive examination of regional banking-sector data, however, reveals that this relationship is far from uniform across African countries. That heterogeneity — both across geography and across the dimensions of bank risk — constitutes the core empirical puzzle this study seeks to describe and interpret.

The study investigates the correlates of persistently elevated interest rate spreads in Africa's banking industry and assesses their implications for financial depth and real output growth. Spreads are known to vary systematically by income and geography (Tennant & Folawewo, 2009). Much of the existing literature nonetheless examines financial intermediation costs at the continent level, treating regions as broadly homogeneous (Ahokpossi, 2013); (Tarus & Manyala, What determines bank interest rate spread? Evidence from Sub-Saharan Africa?, 2018). We depart from that approach by examining the determinants of the lending-deposit gap at regional level, which allows the heterogeneity documented above to be interpreted rather than averaged away. Finally, the study evaluates the extent to which elevated and volatile interest spreads are associated with financial depth and real output growth. This last link speaks directly to the broader development consequences of intermediation inefficiency.

The remainder of the paper proceeds as follows. Section 2 presents descriptive evidence on financial depth, access, efficiency, and stability across African subregions. Section 3 reviews related literature. Section 4 outlines the data and empirical methodology. Section 5 discusses the results, and Section 6 concludes.

1. Stylized facts

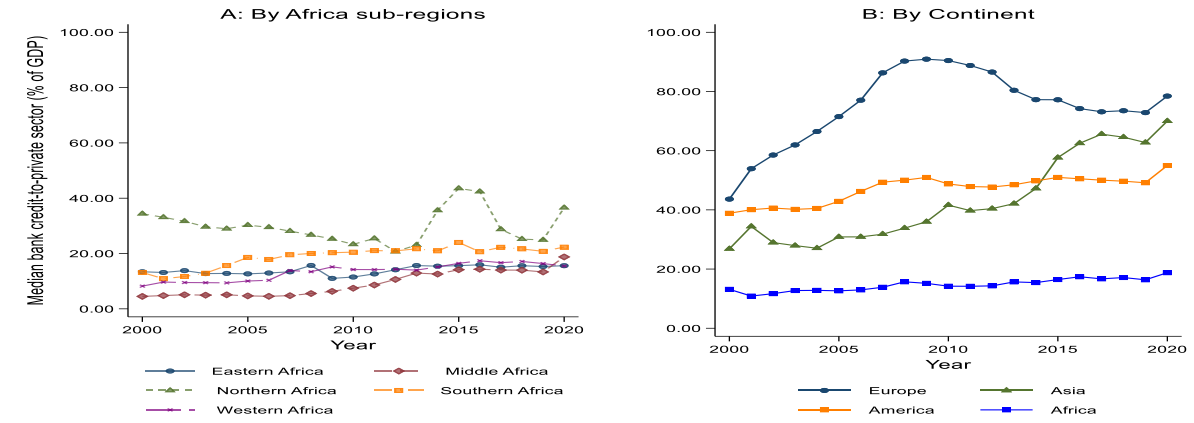
This section presents descriptive evidence of financial development and its key dimensions, with particular attention to financial depth, access, efficiency, and stability.

Figure 1 reports median financial sector depth across regions, measured by bank credit to the private sector as a share of GDP. Financial depth remains low across all Africa regions relative to other parts of the world, highlighting the continent's persistent financing gap relative to the scale of economic activity. Despite gradual improvement, depth has changed only modestly across most African regions over the two decades considered (Panel A). The narrow improvement in the regional depth suggests that the expansion of financial intermediation has been insufficient to close the gap with other regions. Panel B plots financial depth across continents between 2000 and 2020. Africa's depth remained persistently below that of other continents throughout the period.

Regional aggregates, however, can conceal considerable cross-country heterogeneity. Figure 2 compares bank credit to private sector of Africa countries by region in 2010 and 2020. The comparison indicates that most countries recorded increases in financial depth, but the gains were modest with a few exceptions. Notable improvements occurred in Mauritius and Botswana in the South; Seychelles, Rwanda, Comoros and Tanzania in the East; Algeria in the Northen region and Cabo Verde, Senegal, Burkina Faso, Mali and Togo in the Weste. In contrast, some countries recorded declines such as Egypt, Zimbabwe, South Africa, Djibouti and Libya. The figure also highlights pronounced within-region heterogeneity. In Southern Africa, for instance, credit to the private sector in South Africa and Mauritius remains substantially higher than

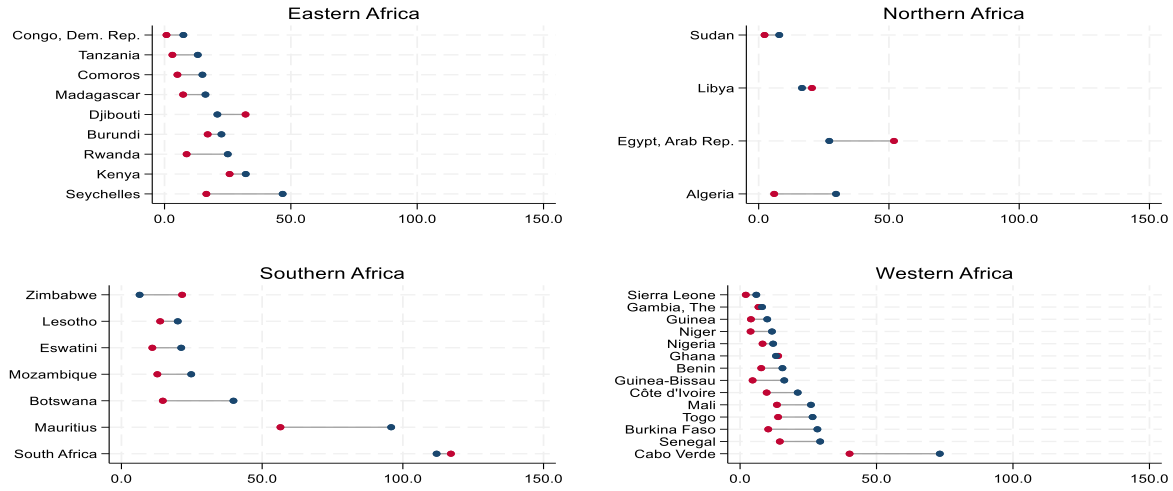
elsewhere in the region. Similar differences are evident in the other subregions, which indicates that regional averages alone may give an incomplete picture of the evolution of financial development. These disparities motivate a broader assessment of the development of financial sector covering its multiple dimensions, including access, depth, efficiency, and stability. The following subsections examine each dimension in turn, beginning with access.

Figure 1: Median bank credit to private: 2000-2020



Source: Global Financial Development Database

Figure 2: Bank credit to private sector by region and country (% of GDP): 2000 vs 2020



Source: Global Financial Development Database
Red = 2000, Blue = 2020

Note: Only countries with data availability in 2000 and 2020 are reported. Figure A.2 compares 2000 vs 2019 before the covid-19 pandemic.

Table 1 describes financial access indicators by region. The data reveals substantial within-continent heterogeneity in access and credit conditions. Within Africa, Northern and Southern Africa exhibit higher bank-account penetration and branch density than Eastern and central Africa. However, access to formal credit remains broadly limited across all African regions. The share of small firms with a bank loan or credit line ranges from 13.9 percent in Southern Africa to 19.6

percent in Northern Africa, compared with 40.6 percent in the Caribbean, 46.0 percent in South America and 50 percent in Western Europe. Credit constraints are particularly pronounced in Western and Central Africa regions, where 49.5 percent and 42.7 percent of firms, respectively, identify access to finance as a major constraint. Moreover, collateral requirements more than or close to double the loan amount. These patterns suggest that differences in financial development reflect not only the availability of banking infrastructure but also the terms of credit and firms' ability to obtain formal financing. We next turn to analyse the financial intermediation efficiency, specifically the magnitude of spread and whether it is systematically linked to financial depth, cost structures, or market concentration.

Table [1]: Median financial access indicators by region: 2010-2020

Indicator	Africa					Asia		America		Europe	
	East	Central	North	South	West	Eastern	South	Caribbean	South	Sout	West
Bank accounts per 1,000 adults	249.5	206.1	678.3	621.0	330.8	19.3	532.7	512.2	933.2	977.5	.
Bank branches per 100,000 adults	7.1	6.8	11.5	12.4	6.2	31.4	13.3	35.4	14.7	35.8	34.0
Collateral/Loan (%)	227.0	219.5	199.8	195.7	216.1	217.1	236.1	190.7	207.4	174.1	159.8
Loan rejection (%)	8.2	29.7	16.8	16.9	12.5	11.2	10.9	1.5	3.7	8.4	7.9
SMEs with a bank loan or credit line (%)	18.9	16.1	19.6	13.9	15.5	23.0	22.1	40.6	46.0	40.8	50.0
Firms identify finance as a major constraint (%)	30.6	42.7	25.6	30.0	49.5	17.5	26.5	36.3	19.6	14.9	10.7
Firms with a bank loan or line of credit (%)	24.8	17.4	23.8	18.9	20.7	33.6	27.0	44.4	54.4	45.6	52.3

Source: World Bank Global Financial Development Database (GFDD).

Table A.1 reports the pairwise correlations among selected indicators of banking efficiency, profitability, financial depth and market concentration. The literature identifies several factors that may influence interest spread, including the degree of banking competition, portfolio risk, and macroeconomic conditions (Aizenman, Jinjarak, & Park, 2015). The results indicate that financial efficiency, measured by the lending-deposit interest spread[2], is negatively associated with financial depth, measured by bank credit to the private sector. Economies with deeper credit markets therefore tend to exhibit narrower intermediation margins. The spread is also positively associated with the cost-to-income ratio, a proxy for bank efficiency, indicating that higher operating costs tend to coincide with wider interest margins. This finding is consistent with the view that operating costs are an important component of interest rate spreads (Griffith-Jones & Gottschalk, 2016). By contrast, the relationship between interest rate spread and bank profitability, measured by return on equity and assets, is positive but weak. This is consistent with the ambiguous relationship between bank concentration and interest rate spreads reported elsewhere (Dwumfour, 2019). Overall, depth and operating costs appear more closely associated with spreads than either concentration or profitability.

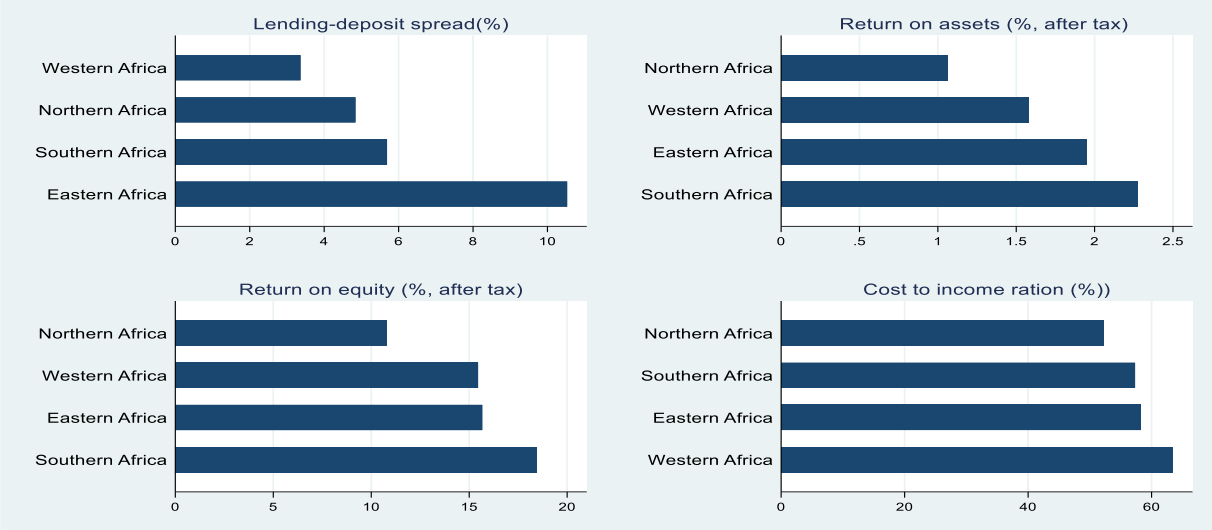
Table A.1 further reports the pairwise correlations for the same indicators across African regions, and the results reveal considerable within-continent heterogeneity. The negative association between the spread and bank credit to the private sector is particularly pronounced in Eastern and Southern Africa regions, which points to a stronger link between depth and margins in these

[2] Agapova and McNulty (2016) and Brock and Rojas-Suarez (2000) argue is the theoretically cleaner measure, because it reflects *current, forward-looking market pricing* rather than the return on an existing back-book of assets.

regions. The association between the spread and profitability is positive across all African subregions except Western Africa. This regional heterogeneity indicates that the relationships among efficiency, financial depth, and bank profitability are unlikely to be uniform across African economies.

Figure 3 presents the median financial efficiency indicators across African subregions during the decade to 2020. Regional variations in lending–deposit spreads are evident. Eastern Africa records the highest median spread, at approximately 14 percent, whereas Northern Africa exhibits the lowest. At the country level, Madagascar records the highest average spread during the period, at approximately 42.5 percent[3], followed by South Sudan (13.2 percent), Uganda (10.5 percent), Seychelles (9.0 percent), Rwanda (8.9 percent), Tanzania (7.2 percent), and Kenya (7.0 percent). The coexistence of relatively high profitability and high spreads in Eastern Africa is particularly noteworthy. It suggests that wider margins may accompany bank profitability in some African economies, though descriptive evidence alone cannot establish the direction of causality. Finally, the relatively small differences in cost-to-income ratios across subregions suggest that variation in operating costs alone does not fully explain the regional differences in spreads.

Figure 3: Median financial efficiency indicators by African Region: 2010-2020



Source: World Bank Global Financial Development Database (GFDD).

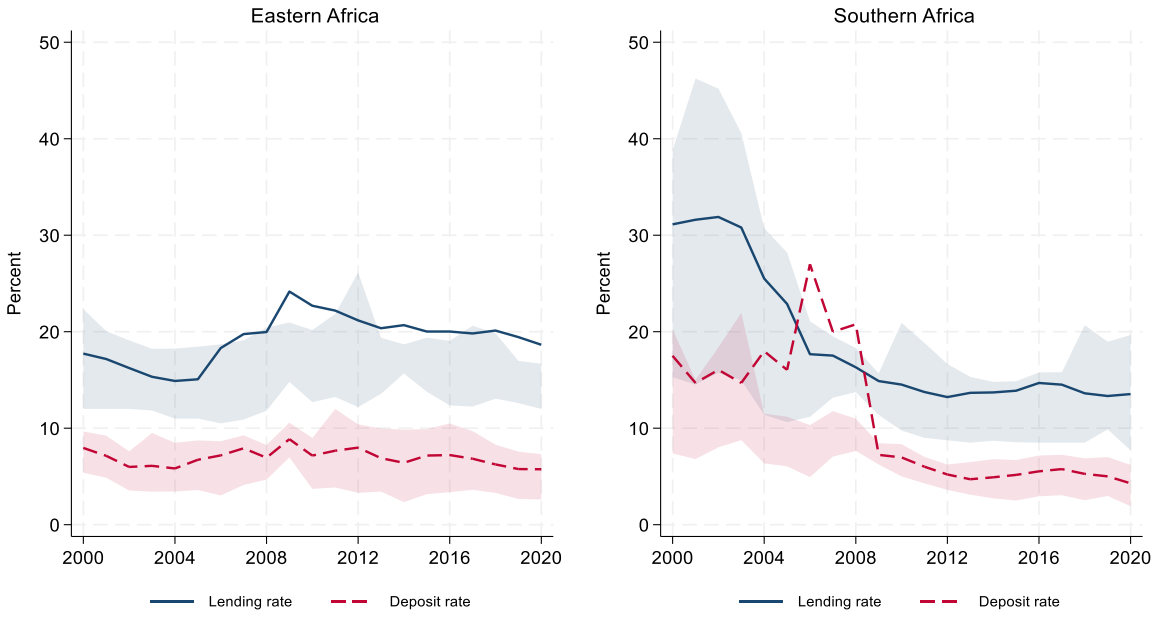
Note: Middle Africa region has substantial data gaps for these financial indicators.

Figure 4 presents the spread by its components for Eastern Africa (Panel A) and Southern Africa (Panel B). Lending and deposit rates in Eastern Africa changed little over the two decades to 2020. Southern Africa followed a different path: both rates fell sharply after 2008, to levels below those in the East, and have remained there since. Figure A.2 disaggregates these trends by country and shows what lies behind the regional pattern — nearly every Southern African country

[3] The exceptionally high spread observed in Madagascar warrants particular attention and may partly account for the relatively high regional median in Eastern Africa if the underlying country coverage and classification are confirmed.

recorded a marked decline in both rates. Thus, the regional average in Southern Africa reflects a broad shift rather than movement in a few large economies.

Figure 4: Median Lending and Deposit rates by region: 2000-2020



Shaded areas show the cross-country interquartile range.

Source: Global Financial Development Database (GFDD) and Authors' calculations

Table 4 reports average indicators of financial competitiveness and prudential soundness across regions. With few exceptions, banking concentration in Africa is broadly comparable to that observed elsewhere: levels in Northern and Western Africa are similar to those in Europe and higher than in Asia. These patterns provide no clear evidence that differences in concentration alone explain the high spreads observed in African banking systems. The subregions with the widest spreads are not those with the most concentrated banking sectors, which suggest that other structural and institutional factors also contribute to wide spreads.

Table 4: Average financial competitiveness and prudential soundness indicators by region: 2010-2020

Indicator	Africa					Asia		America		Europe	
	East	Central	North	South	West	East	South	Caribbean	South	South	West
NPL-to-Gross Loan (%)	8.3	12.0	10.0	5.0	15.8	0.9	7.0	6.4	2.3	13.6	2.3
Capital-to-total assets (%)	11.1	12.9	7.8	10.5	12.6	7.2	11.0	10.3	10.3	10.5	6.5
Regulatory capital to risk-weighted assets (%)	18.8	18.2	14.4	18.3	21.1	15.3	18.8	18.0	15.5	16.7	18.8
Liquid assets to deposits (%)	44.3	38.5	43.9	34.1	33.6	24.9	24.8	34.0	31.5	24.9	54.3
Credit- to-deposits (%)	61.8	84.4	62.7	75.9	73.3	113.5	72.6	73.9	99.0	101.3	88.7
Provisions to- NPLs (%)	53.6	73.7	71.0	58.5	60.4	98.7	66.1	66.8	156.0	67.1	46.8
Concentration	73.9	86.0	67.0	70.8	66.9	60.8	58.7	89.0	61.8	68.9	66.7

Source: Global Financial Development Database (GFDD).

One potential explanation is the high cost of borrowing in African economies. A strand of the literature attributes higher borrowing costs to elevated credit risk, which may induce banks to

charge higher lending rates to compensate for the probability of default. The evidence in Table 4, however, provides only limited support for this explanation. Non-performing loans (NPLs) are high across African subregions, and they vary considerably ranging from roughly 15.8 percent in Western Africa to 5.0 percent in the South, yet these differences do not translate into a correspondingly strong regional pattern in spreads.

Figure A.4 provides further evidence by examining the relationship between interest rate spreads and selected financial stability indicators. The association between interest rate spreads and NPLs is weak (0.12), further suggesting that credit risk as captured by aggregate NPL ratios, is unlikely to be the main explanation for persistently high spread. This weak relationship may also reflect differences in the composition of credit risk across sectors. Aggregate NPL ratios can conceal substantial sectoral variation, and banks may respond to elevated risk in particular sectors by raising lending rates more broadly. Such pricing can leave borrowing costs high even for borrowers with comparatively low individual credit risk.

The sectoral composition of NPLs provides additional evidence of this heterogeneity. For instance, figure A.6 presents the distribution of gross NPLs by economic sectors in Kenya and shows substantial differences across sectors. This variation of credit risk across sectors suggests that aggregate NPL measures may not fully capture the mechanisms through which credit risk affects lending rates and ultimately spreads. Besides, NPLs are not entirely exogenous to bank performance. Inefficient banking operations may weaken screening, monitoring, and recovery processes, thereby increasing the incidence of NPLs. (Berger & DeYoung, 1997) find a positive relationship between banking inefficiency and NPLs, which points to a potentially bidirectional link between credit risk and bank efficiency.

Finally, the stability indicators show comparatively limited regional variation. Capital-to-total-assets ratios and regulatory capital relative to risk-weighted assets are broadly comparable across regions. African banks, however, hold markedly higher liquidity ratios than banks on other continents. While such buffers may strengthen resilience to liquidity shocks, persistently high liquidity holdings may also indicate a degree of intermediation that remains below the banking system’s available funding capacity. The coexistence of high liquidity, low financial depth, and wide spreads therefore points to a broader issue of financial intermediation efficiency that warrants further investigation.

2. Related Literature

The study draws on theoretical literature on the microeconomics of the banking firm. Two foundational approaches underpin this literature. First, the hedging hypothesis views the bank as seeking to match the maturities of its assets and liabilities in order to avoid the reinvestment or refinancing risks that arise when assets are either too short- or too long-term relative to liabilities. Second, the expected utility approach posits that banks are profit and wealth maximisers, and postulates that financial intermediation would always exist whenever a positive risk premium on loans and a negative premium on deposits were simultaneously present. Both approaches establish the necessary conditions for the existence of banks' margins but stop short of identifying the factors that determine their size. Building on these models, (Ho & Saunders, 1981) develop the dealership model, which examines the drivers of banks' interest margins. Ho and Saunders

show that banks charge a positive spread because the price of intermediation services embeds the uncertainty generated by the stochastic behaviour of loan demand and deposit supply.

The study also relates to a growing empirical literature on the drivers of interest rate spread. These studies typically classify the determinants of spread as bank-specific, industry-specific, and macroeconomic. (Tennant & Folawewo, 2009), for instance, find that a market specific factor, the banking sector reserve requirement, significantly and positively affects interest spread. (Ahokpossi, 2013) and (Carbó & Rodríguez, 2007) similarly show that bank-specific factors such as credit risk, liquidity risk, and bank equity, are important determinants of interest margins. Bank capital in particular is widely used as a proxy for risk aversion within the Ho–Saunders framework, following (Maudos & Guevara, 2004) the expected sign is ambiguous. (Brock & Rojas Suarez, 2000) argue that less-capitalised banks have stronger incentives to take risk, which widens margins as compensation.

Market structure and the regulatory environment have also received considerable attention. (Carbó & Rodríguez, 2007) analyse the determinants of banking margins in European banking and find that bank's diversification into non-traditional activities increase market power, which in turn alters interest margin. (Beck & Hesse, 2009) use bank- level data to examine the drivers of high spreads in Uganda and find that concentration widens them. The evidence on the effect of competition, however, is inconclusive. (Demirgüç-Kunt, Leaven, & Levine, 2003) reached a different conclusion: once activity restrictions, reserve requirement or banking freedom are controlled for, the negative effect of concentration on interest spread vanishes. The study therefore argue that, after accounting for macroeconomic stability and regulatory impediments, concentration and interest rate spread are unrelated.

Macroeconomic conditions also play an important role. (Demirgüç-Kunt, Leaven, & Levine, 2003) analyse the impact of bank regulations, market structure, and national institutions on bank net interest margins. The study finds a positive relationship of interest margins with inflation, alongside a weak negative relationship with economic growth. (Crowley, 2007) similarly finds that inflation, interest rates and public sector involvement affect the spread. In contrast to Demirgüç-Kunt et al. (2003), however, Crowley finds that GDP growth has no effect on interest spread. Using a panel of banks from 32 OECD countries over the period 2003–2014, (Cruz-García, Guevara, & Maudos, 2017) extend this line of inquiry and find a quadratic impact of interest rates on margins, with the effect strongest at low interest rates.

Tarus and Manyala (2018) however, find a heterogeneous impact of GDP growth across income groups: GDP growth has a positive and significant effect on margins in low-income countries, but a negative and insignificant effect in lower-middle-income and upper-middle-income countries. Beyond growth, interest rate volatility itself has also been linked to margins. (Saunders & L. Schumacher, 2000) show that interest rate volatility increases interest margins.

Institutional factors also such as property rights protection and the degree of economic freedom have likewise been linked to spreads. (Demirgüç-Kunt, Leaven, & Levine, 2003) finds that better institutions are negatively associated with margins, which suggests that countries with strong institutions provide a more conducive environment for private sector competition and consequently sustain lower margins. Tarus and Manyala (2018) reach a similar conclusion:

institution indicators such as government effectiveness, political stability and the rule of law are all negatively and significantly related to spreads, and the effect is strongest for low-income countries.

Taken together, the studies reviewed above focus specifically on the determinants of margins or spreads. Studies that link interest rate spread to economic growth, however, remain scarce — particularly in the African context. (Jalloh & Guevera, 2017) examine the joint effects of financial deepening, interest rate spread and economic growth using data from Sub-Sahara African (SSA) countries over the period 2000 – 2013. Using fixed-effect and dynamic models, they find that spread exerts an adverse effect on growth.

As Section 2 shows, spreads differ markedly across regions in Africa. It follows that their drivers and their consequences for growth anf financial development, may also vary regionally. The present study contributes to this literature by examining the determinants of spread and its joint effects on real output growth and financial deepening in Eastern and Southern Africa regions.

3. Data and Methodology

4.1. Data

To investigate the determinants of interest rate spreads, we follow previous studies and group the determinants into bank-specific variables, market structure variables and macroeconomic factors. Bank-specific and market-structure indicators — including credit risk, liquidity risk, capitalization, profitability, operational efficiency, and market concentration — are drawn from the Global Financial Development Database (GFDD), which aggregates bank-level financial statement data (Cihák, Demirgüç-Kunt, Feyen, & Levine, 2012). Macroeconomic controls and institutional quality are sourced from the IMF's International Financial Statistics and the World Bank's World Development Indicators (WDI). Institutional quality is measured by government effectiveness. Table 5 describes the variables and their sources, and Table 6 reports summary statistics by region. The resulting dataset is an unbalanced panel of Eastern and Southern African countries observed over 2000-2020.

Table 5: Variable description, classification and source

Variable	Short Description	Source	Expected sign
Liquid Reserves	Bank liquid reserves to bank assets ratio (%)	World Bank, WDI	**Positive**: Higher ratio acts as an implicit financial tax or an opportunity cost of forgoing investment of these reserves in profitable assets. Bank reacts by charging higher margins. (Tennant & Folawewo, 2009); (Cruz-García, Guevara, & Maudos, 2017)
Liquidity risk	Liquid assets/deposits and short-term funding.	World Bank, GFDD	**Negative**: Liquid banks are better able to withstand funding shocks and reduce lending rate volatility (Feyen & Huertas, 2020).
Cost	Bank overhead cost-to-income ratio	World Bank, GFDD	**Positive**: The higher the cost-to-income ratio i.e. low operation efficiency, the higher the spread to cover at least the operating costs (Maudos & Guevara, 2004).
Diversification	Net interest revenues/other operating income.	World Bank, GFDD	**Positive**: Banks with less sources of income diversification tend to have larger lending interest rates and spreads (Feyen & Huertas, 2020).
Concentration	Assets of three largest banks as a share of total commercial banking assets.	World Bank, GFDD	**Positive**: A more concentrated banking sector tends to have larger margins (Feyen & Huertas, 2020).

Financial depth	Credit to private sector/GDP	World Bank, GFDD	**Ambiguous:** Used as a proxy for the overall financial sector development, a competitive banking system reduces spread (Demirguc-Kunt & Huizinga, 1998). (Feyen & Huertas, 2020) find a positive relationship while (Tennant & Folawewo, 2009) report an insignificant effect.
GDP growth	Year-on-year GDP growth	World Bank, WDI	**Ambiguous**: Conceptually, the effect of GDP growth on spread is negative. For instance, during recessions, default rates rise which raises credit risks and bank compensate with higher spread (Ahokpossi, 2013). (Tennant & Folawewo, 2009) and (Ahokpossi, 2013) find no significant effect of GDP growth or GDP per capita on spread.
Inflation	annual percentage change in the CPI.	IMF, IFS	**Positive**: Higher and volatile inflation increases spread (Feyen & Huertas, 2020).
Exchange rate volatility	The standard deviation of the percentage change in the real US$ exchange rate for the 3 preceding years.	IMF, IFS and Authors' estimation	Positive: A proxy for macroeconomic volatility. Higher volatility increases bank's risks and positively correlated with interest spread (Tennant & Folawewo, 2009).
Institution quality	Government effectiveness	World Bank, Worldwide Governance Indicators	**Negative**: Countries with strong institutions tend to have lower lending rates and spreads (Feyen & Huertas, 2020).

The descriptive statistics show that Southern Africa has a lower average interest rate spread, at 9.05 percent, than Eastern Africa, at 12.63 percent. However, both regions exhibit considerable within-region variation, with standard deviations of 10.01 for Eastern Africa and 9.94 for Southern Africa. Given that these standard deviations are close to, or exceed, the regional means themselves, this points to substantial heterogeneity in banking-sector efficiency and competitive conditions across countries within each region— a feature the panel estimation accommodates through country fixed effects. By splitting interest spread from its components (lending and deposit rate) is instructive: lending rates are similar in the two regions, at 19.23 in the East against 18.34 percent in South. The regional gap in spreads is therefore driven mainly by the deposit side.

The bank- and market-level characteristics point to differences in the depth and sophistication of the two regions' financial systems. Risk aversion, proxied by the capital-to-asset ratio, is higher in Eastern Africa (11.06 percent) than in Southern Africa (10.01 percent), suggesting that Eastern African banks hold thicker capital buffers. Two things may explain these developments. First, this could be a response to a riskier or less predictable operating environment. Second, this may also suggest a stricter regulatory minimum, rather than evidence of stronger balance sheets per se. This is reinforced by the liquid reserves-to-asset ratio, which is markedly higher in Eastern Africa (30.3 percent, SD = 45.6) than in Southern Africa (19.6 percent, SD = 18.3). The unusually high dispersion in the East points to wide disparities in liquidity management across its banking systems, with some countries holding far larger precautionary buffers than others. Shallow interbank and money markets, which limit banks' ability to manage liquidity through active trading, are a likely explanation. Credit risk, proxied by the ratio of non-performing loans (NPLs) to gross loans, is also higher in Eastern Africa, at 10.4 percent, nearly double the Southern Africa level. Provisioning coverage, however, runs the other way: 58.7 percent in the South against 55.7 percent in the East. Southern African banks therefore match loss-absorption capacity to realised credit risk more closely, whereas Eastern African banks combine higher credit risk with thinner

provisioning. That combination may itself widen margins, as banks price residual risk through the spread rather than through reserves.

The Southern African banking sector is also more diversified. Non-interest income accounting for 43.3 percent of total income there, against 38.6 percent in East, which is consistent with a more mature financial system offering a broader range of fee-based services beyond traditional lending. Cost efficiency, by contrast, shows little difference between the two regions: the overhead-cost ratio stands at 5.7 percent in the South and 5.6 percent in the East. Operational efficiency is therefore not a major source of divergence in intermediation costs. Bank concentration, proxied by the share of three largest commercial banks in total banking assets, is somewhat higher in Southern Africa at 77.3 percent (SD= 16.1) than in Eastern Africa at 74.0 percent (SD=19.6).

Table 6: Summary Statistics (2000-2020 averages)

Panel A: Bank and Market Characteristics

	Eastern Africa			Southern Africa		
	Mean	**SD**	**N**	**Mean**	**SD**	**N**
Interest rate spread	12.63	10.01	184	9.05	9.94	203
Deposit interest rate	6.89	4.15	184	10.80	20.72	212
Lending interest rate	19.23	11.95	207	18.34	15.43	229
Liquid reserves	30.29	45.64	233	19.61	18.26	209
Cost	5.62	2.44	184	5.72	2.54	212
Diversification	38.61	14.15	183	43.26	9.61	219
Concentration	74.01	19.58	194	77.25	16.11	220
Financial depth	16.09	9.21	233	39.01	38.31	183
Institutional quality	0.35	0.16	154	0.44	0.10	176

Panel B: Macroeconomic Variables (PPP-GDP-weighted)

	Eastern Africa			Southern Africa		
	Mean	**SD**	**N**	**Mean**	**SD**	**N**
Inflation	9.18	30.59	248	10.97	34.87	222
Exchange rate volatility (log)[4]	1.01	1.35	285	0.68	1.18	232
Real GDP growth	3.60	6.20	282	3.21	4.50	242

Financial deepening differs far more sharply. Private sector credit averages 39 percent of GDP in Southern Africa, more than double the 16.1 percent observed in the East. The gap is accompanied by much higher dispersion in the South (SD = 38.3) than in the East (SD = 9.2). The Southern African mean is therefore pulled upward by a small number of comparatively developed economies, notably South Africa and Mauritius, and does not describe a typical country in the region.

The macroeconomic variables differ far less between the two regions. Average inflation is somewhat higher in Southern Africa, at 11.0 percent against 9.2 percent in the East — a gap unlikely on its own to explain the sizeable bank-level differences documented above. Annual average real GDP growth stood at 3.6 percent (SD = 6.2) in Eastern Africa against 3.2 percent (SD = 4.5) in Southern Africa. In both cases the standard deviations are large relative to the

[4] Exchange rate volatility is log-transformed to limit the influence of Zimbabwe's 2007–2008 currency depreciation episode.

means, which indicates considerable heterogeneity in growth performance within each region. Exchange rate volatility, our proxy for broader macroeconomic instability, is moderately higher in the East than in the South (1.0 against 0.7). Taken together, the macroeconomic indicators are broadly similar across regions while the bank-level indicators diverge sharply. That pattern tentatively suggests that structural and institutional factors within the banking sector, rather than the macroeconomic environment, are the more likely proximate drivers of the regional gap in spreads — a hypothesis the multivariate analysis takes up next.

4.2. Baseline Static Model

To formalize the objective of the study, the general model takes the following form:

$$IRS_{c,t} = \alpha_{c,t} + \alpha_{j,t}\mathrm{X}_{ct}^{j} + \alpha_{m,t}\mathrm{X}_{c,t-1}^{m} + \alpha_{k,t}\mathrm{X}_{c,t}^{k} + \mu_c + \lambda_t + \varepsilon_{c,t} \qquad (1)$$

Where $IRS_{c,t}$ denotes interest rate spread of country c in period t; $\propto$ is a constant term; X_{ct}^{j} and X_{ct}^{m} are vectors denoting bank-specific and market structure variables, respectively X_{ct}^{k} represent of the vector of macroeconomic factors. μ_c and λ_t are country and year fixed effects, capturing time-invariant country heterogeneity and common shocks; $\varepsilon_{c,t} \sim N(0, \sigma^2)$ is the idiosyncratic error term. Equation (1) is estimated by fixed-effects, with standard errors clustered at the country level to account for serial correlation and heteroskedasticity within countries (Petersen, 2009).

The problem is compounded by the likely endogeneity of market characteristics and macroeconomic factors with respect to the spread itself. In particular, the observed correlations between the spread and financial-depth indicators documented in the descriptive analysis above are uninformative about the direction of causality. The spread and credit to the private sector may be jointly determined by a country's financial development path. Causality could also run in either direction: wide spreads may ration credit demand, while constrained supply may induce banks to widen margins. We address the first concern directly and the second only partially, by entering market characteristics with a one-period lag so that they are predetermined with respect to the current spread.

4.3. Dynamic estimation

Interest rate spreads are typically persistent. Adjustment to shocks is gradual, reflecting menu costs, relationship banking, and slow-moving expectations (Ho & Saunders, 1981). To accommodate this persistence, and to absorb the influence of omitted slow-moving explanatory variables, the baseline model is augmented with a lagged dependent variable:

$$IRS_{c,t} = \alpha_{c,t} + IRS_{c,t-1} + \alpha_{j,t}\mathrm{X}_{ct}^{j} + \alpha_{k,t}\mathrm{X}_{ct}^{k} + \mu_c + \lambda_t + \varepsilon_{ct} \qquad (2)$$

The inclusion of $IRS_{c,t-1}$ renders standard fixed-effects estimation inconsistent, because the lag is mechanically correlated with the demeaned error term (Nickell, 1981).

Equation (2) is estimated using the bias-corrected least-squares dummy variable estimator of Kiviet (1995), as extended by Bruno (2005) and initialised by the (Arellano & Bond, 1991) estimator. This choice is dictated by the structure of the panel. The system GMM estimator of (Blundell & Bond, 1998) is justified asymptotically for large N and small T, whereas our sample comprises roughly twenty countries observed over two decades. In that configuration the

instrument count approaches or exceeds the number of cross-sectional units even after collapsing, which weakens the Hansen test and biases estimates back toward the uncorrected within estimator (Roodman, 2009). The bias-corrected estimator avoids this problem. It corrects the Nickell bias directly, without instruments, so the problem of instrument proliferation does not arise. Standard errors are obtained by bootstrap with 1,000 replications. We note that this estimator addresses dynamic panel bias but not simultaneity; the estimates are accordingly interpreted as conditional associations robust to unobserved country heterogeneity and common shocks, rather than as causal effects.

4.4. Impulse Responses

Equation (2) estimates a single equation for the spread and does not trace how a spread shock propagates to the rest of the system. To recover those dynamics, we use local projections (LP) method of (Jordà, 2005) to study the paths of output and financial depth following a spread shock. The approach has been applied widely, particularly in settings marked by heterogeneity and potential nonlinearities (Jalles & Campmas, 2026). Local projections are preferable to a panel vector autoregression here for the same reason that the bias-corrected estimator is preferable to GMM: each horizon is estimated as a separate regression, so no system needs to be inverted and no instrument set is required. Misspecification at one horizon therefore does not contaminate the others.

We estimate the following equation for each horizon $h = 0,1, \dots 5$:

$$y_{i,t+h} - y_{i,t} = \alpha_i^h + \lambda_t^h + \sum_{j=0}^{1} \beta_j^h \, irs_{i,t-j} + \sum_{k=0}^{1} \Gamma_k^h \Delta y_{i,t-k} + \psi_c'^h X_{i,t} + u_{i,t}^h$$

Where $y_{i,t+h} - y_{i,t}$ is the cumulative change in the outcome— real output or financial depth— between t and $t+h$. The coefficients $\beta_{0,h}$ trace the dynamic response of output and financial depth to spread. Because the dependent variable is the cumulative change over horizon h, the reported responses measure the total effect relative to the pre-shock level, not marginal year-on-year growth. Lags of the spread capture its persistence, and lags of the outcome control for serial correlation. Country and time effects α_i^h and λ_t^h absorb time-invariant heterogeneity and common shocks, and $X_{i,t}$ is a vector of controls. Identification rests on a recursive assumption: contemporaneous output and depth do not affect the spread within the same year. This is plausible at annual frequency, given that lending and deposit rates adjust slowly. Responses are estimated separately for the full sample and for each region and reported for horizons of up to five years[5].

[5] We stop at 5 years because local projections estimator of IRF(h) requires additional h lags of data, which depletes the effective sample as h becomes large.

5. Estimation Results

5.1 Baseline regression

Bank characteristics are not precisely estimated. Operating cost carries a positive coefficient in almost all specifications, consistent with the view that operational inefficiency raises intermediation costs and therefore margins similar to (Ahokpossi, 2013) for Sub-Saharan Africa, Carbó (Carbó & Rodríguez, 2007) for Europe, and (Gelos, 2006) for Latin America. Liquidity risk, proxied by liquid assets to short-term funding, changes sign across specifications, which points to an imprecisely estimated relationship rather than a stable one. Income diversification behaves similarly.

Market characteristics are likewise imprecisely estimated. Liquid reserves carry the expected positive sign and are weakly significant: banks appear to maintain wider spreads to offset the income forgone on reserves that could otherwise be held in higher-yielding assets. The coefficient on concentration is less stable. It is negative, as expected, in specifications without macroeconomic controls, but turns positive once those controls enter. To probe this, we extend the specification by interacting concentration with institutional quality, proxied by government effectiveness. Both concentration and institution are correctly specified while their interaction is positive and significant. The marginal effect of concentration is therefore negative where governance is weak and improves as institutional quality rises.

Macroeconomic conditions matter most. Inflation is positively and significantly associated with the spread and is the most robust result in the table, surviving wild cluster bootstrap inference. Exchange rate volatility is also positive and significant at the 10 percent level. This is unsurprising, given that most countries in the sample are commodity exporters and therefore exposed to global price shocks and the currency volatility they generate. GDP growth carries a positive coefficient but is never significant.

Regional Heterogeneity

Regional heterogeneity in the drivers of the spread can be tested in more than one way. One approach introduces a regional dummy (Ahokpossi, 2013) and tests its significance. We follow a second approach and estimate the model separately for each subsample, then compare the results (Aizenman, Jinjarak, & Park, 2015). We do not treat differences in coefficient size as a formal test of equality. They are, however, informative about the intensity with which each variable explains the spread once other correlates are held constant. The overall objective remains to identify the drivers of spreads and their joint effects on real output growth and financial depth.

Table 4 reports results for Eastern Africa (columns 1–4) and Southern Africa (columns 5–8), using the same specifications as the full sample. The two regions differ substantially. In Eastern Africa, operating costs carry a coefficient several times larger than in the pooled sample, which suggests that cost structures weigh more heavily on spreads there. Market characteristics play only a minor role once all variables enter.

Table [3]: Determinants of Interest Rate Spread: Fixed-effects model, Full Sample

Variables	(1) Bank factors	(2) Market factors	(3) Bank and market	(4) All + controls	(5) Concentration-Cost interaction	(6) Concentration-Institution interaction
Non-interest income	0.259		0.041	-0.067	-0.080	-0.092
	(0.184)		(0.110)	(0.109)	(0.116)	(0.113)
Liquidity risk	0.117		-0.007	-0.019	-0.009	0.002
	(0.079)		(0.028)	(0.031)	(0.027)	(0.026)
Reserves (t-1)		0.046	0.053*	0.033	0.031	0.024
		(0.032)	(0.029)	(0.030)	(0.030)	(0.030)
Total private credit/GDP (t-1)		-0.114	-0.082	-0.027	-0.009	0.052
		(0.082)	(0.087)	(0.076)	(0.077)	(0.084)
Inflation				0.060***	0.066***	0.057***
				(0.008)	(0.008)	(0.010)
Exchange rate volatility				1.481	1.450	1.614*
				(0.857)	(0.861)	(0.897)
GDP growth				0.042	0.049	0.045
				(0.088)	(0.083)	(0.078)
Government effectiveness				-0.176	-0.185	-0.771**
				(0.190)	(0.183)	(0.288)
Concentration (t-1)		-0.007	-0.013	0.061	0.155	-0.238**
		(0.053)	(0.054)	(0.048)	(0.107)	(0.107)
Cost	0.644		0.490	0.560	1.704	0.612
	(0.807)		(0.629)	(0.468)	(1.100)	(0.450)
Concentration*Cost					-0.016	
					(0.014)	
Concentration*Government effectiveness						0.007**
						(0.003)
Constant	-7.025	14.449***	10.397*	12.606**	5.430	34.320***
	(12.045)	(4.277)	(5.488)	(5.763)	(10.374)	(8.533)
Observations	304	235	227	218	218	218
R-squared	0.172	0.088	0.118	0.245	0.253	0.275
Number of countryid	19	18	18	18	18	18
Country FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: Standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Southern Africa shows a different pattern. Operating cost is unstable across specifications and turns positive only in the full model with interactions. The concentration–institutions interaction also behaves differently in the two regions: it is positive and insignificant in the East but negative and significant in the South. The concentration–cost interaction is negative in both regions, though significant only in the South.

Macroeconomic conditions likewise differ. Exchange rate volatility raises the spread significantly in both regions, and more sharply in the East. Inflation is positive and significant in Southern Africa but negative and insignificant in the East. GDP growth enters negatively in the South and positively in the East, and is not significant in either.

Table [4]: Determinants of Interest Rate Spread: Eastern and Southern Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Eastern Africa				Southern Africa	
Variables	Bank and market	Full	Full + conc*cost	Full+ Conc*institution	Bank and market	Full	Full + concentration*cost	Full+ conc*institution
Non-interest income	-0.147	-0.378	-0.378	-0.368	0.146	0.007	-0.011	-0.015
	(0.343)	(0.342)	(0.346)	(0.346)	(0.090)	(0.020)	(0.023)	(0.019)
Liquidity risk	0.025	0.161	0.163	0.160	0.013	-0.016	-0.002	0.017
	(0.051)	(0.093)	(0.092)	(0.089)	(0.038)	(0.020)	(0.020)	(0.022)
Reserves (t-1)	-0.135**	-0.156*	-0.152	-0.151*	0.060**	0.033	0.026*	0.026*
	(0.054)	(0.069)	(0.085)	(0.070)	(0.022)	(0.020)	(0.013)	(0.014)
Total private credit/GDP (t-1)	0.182	0.451	0.457	0.393	-0.104	-0.052	-0.033	0.004
	(0.184)	(0.294)	(0.312)	(0.237)	(0.060)	(0.033)	(0.028)	(0.036)
Inflation		-0.109	-0.107	-0.101		0.049***	0.057***	0.051***
		(0.073)	(0.077)	(0.077)		(0.005)	(0.003)	(0.004)
Exchange rate volatility		2.737**	2.742**	2.573**		1.438***	1.314***	1.272***
		(0.971)	(0.978)	(0.955)		(0.216)	(0.219)	(0.358)
GDP growth		0.314	0.318	0.358		-0.091	-0.091	-0.057
		(0.193)	(0.193)	(0.235)		(0.053)	(0.051)	(0.033)
Government effectiveness		-0.807	-0.817	-0.237		-0.034	-0.045	-0.688**
		(0.500)	(0.506)	(0.728)		(0.081)	(0.073)	(0.216)
Concentration (t-1)	0.014	0.108	0.129	0.363	0.002	0.084	0.179**	-0.303**
	(0.061)	(0.103)	(0.181)	(0.404)	(0.066)	(0.070)	(0.067)	(0.108)
Cost	2.639*	2.312**	2.510*	2.436**	-0.510	-0.146	1.137**	0.050
	(1.263)	(0.839)	(1.278)	(0.858)	(0.382)	(0.233)	(0.370)	(0.188)
Concentration*Cost			-0.003				-0.017***	
			(0.019)				(0.004)	
Concentration*Government effectiveness				-0.007				0.008**
				(0.009)				(0.002)
Constant	4.749	19.495	17.981	0.749	7.371*	3.641	-3.475	31.746***
	(26.123)	(30.530)	(33.499)	(47.691)	(3.687)	(4.760)	(4.900)	(8.216)
Observations	99	95	95	95	128	123	123	123
R-squared	0.300	0.508	0.508	0.516	0.431	0.634	0.657	0.714
Number of countryid	8	8	8	8	10	10	10	10
Country FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

5.2 Dynamic regression analysis

Interest spread is commonly persistent as banks take time to revise their models. To take into account this, we conduct a dynamic regression using the biased correct LSDV model using full sample. The results of the dynamic regression are presented in Table [5]. The results show that lagged interest spread is strongly associated with current interest spread, reflecting higher persistence across all samples.

The coefficient on non-interest income is correctly signed and significant, so greater diversification into non-interest activities reduces the spread. Banking concentration enters positively and

significantly, which suggests that less competitive banking industry widens spread. Liquid reserves and operating cost carry their expected signs but are not significant, which suggests that part of their apparent explanatory power in the static model was capturing persistence in the spread itself.

Macroeconomic variables also continue to matter. Exchange rate volatility raises the spread strongly, and more sharply in Eastern Africa than in Southern Africa. Inflation is positively associated with the spread and significant in Southern Africa, but the coefficient is negative and insignificant in the East and positive but insignificant in the full sample. GDP growth is negatively signed throughout, though never significant.

Table [5]: Determinants of interest spread: Dynamic models

	(1)	(2)	(3)
Variables	Full sample	Eastern Africa	Southern Africa
Spread (t-1)	0.867***	0.962***	0.802***
	(0.043)	(0.086)	(0.071)
Cost	0.024	0.120	-0.183
	(0.155)	(0.645)	(0.113)
Non-interest income	-0.082***	-0.230**	-0.034
	(0.032)	(0.116)	(0.023)
Liquidity risk	-0.011	0.046	-0.027
	(0.021)	(0.074)	(0.019)
Reserves	0.007	0.071	0.005
	(0.018)	(0.130)	(0.011)
Concentration	0.135***	0.358***	0.044*
	(0.030)	(0.092)	(0.025)
Total private credit/GDP	0.039	-0.131	0.004
	(0.036)	(0.293)	(0.025)
Inflation	0.016	-0.067	0.018**
	(0.011)	(0.146)	(0.007)
Exchange rate volatility	0.989***	1.342**	1.209***
	(0.261)	(0.593)	(0.299)
GDP growth	-0.015	-0.200	-0.019
	(0.068)	(0.235)	(0.048)
Government effectiveness	-0.006	0.027	0.004
	(0.055)	(0.227)	(0.056)
Country FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	223	97	126

Standard errors in parentheses. Bias-corrected LSDV (Kiviet 1995; Bruno 2005), initialised by Arellano-Bond (1991). Bootstrapped standard errors, 1000 replications. Market characteristics enter lagged one period. Regional differences are assessed by comparing coefficient magnitudes across columns (2) and (3); this is a descriptive comparison, not a formal test of coefficient equality. Goodness-of-fit statistics are not reported: xtlsdvc applies a post-estimation bias correction and returns no residual decomposition. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

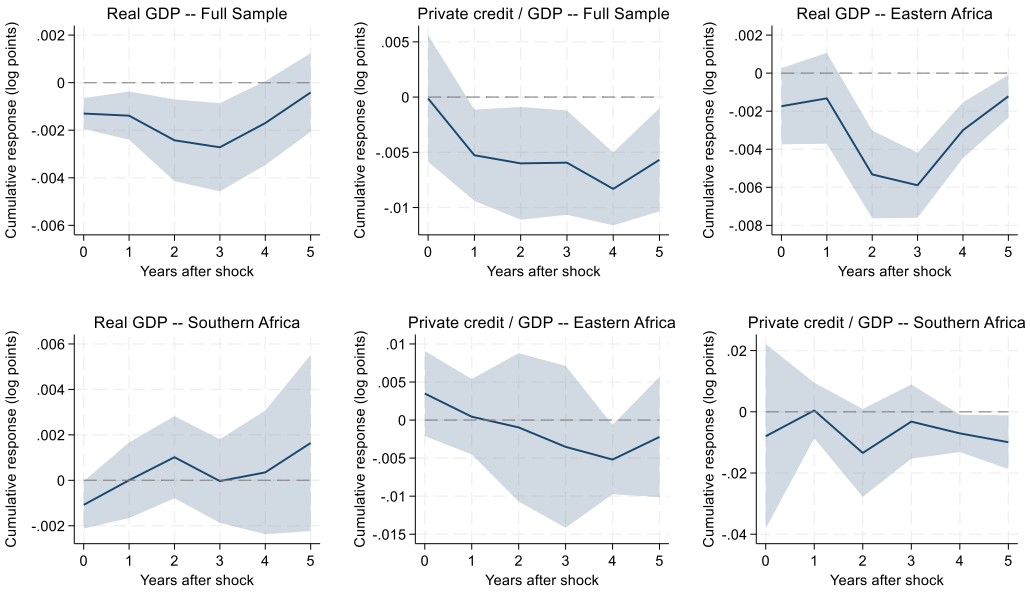
5.3 Impulse response

This section examines how real output and financial depth respond to a shock to the interest rate spread. Figure 4 reports the impulse responses by region. A positive spread shock produces a long-lived contraction in both output and depth. Output declines steadily until year three, reaching a trough of about −0.3 percent, then begins to recover without returning to its pre-shock level within five years. The effect on financial depth is more immediate and deeper, reaching roughly −0.8 percent in the fourth year and improving only marginally, to −0.57 percent, by the fifth.

The regional responses diverge sharply, and the full-sample profile closely tracks Eastern Africa. In the East, a spread shock produces a modest decline in the first year before output falls more steeply to a trough of about −0.3 percent in year three; recovery begins thereafter but is

incomplete at the five-year horizon. Financial depth in the East follows a similar path, reaching a trough of −0.52 percent in the fourth year and improving to −0.22 percent in the fifth. Southern Africa behaves quite differently. There, the negative effect on output is short-lived: growth turns positive after the first year and remains so thereafter. The response of financial depth in the South is volatile rather than persistent, moving from 0.04 percent in the first year to −1.34 percent in the second and back to 0.32 percent in the third. That volatility suggests the response of depth to a spread shock in Southern Africa is transitory and country-specific, rather than a systematic regional pattern. The contrast matters for policy: in Eastern Africa a spread shock imposes a sustained real cost, whereas in Southern Africa the economy absorbs it within a year or two.

Figure [4]: Response to an Interest spread Shock



Conclusion

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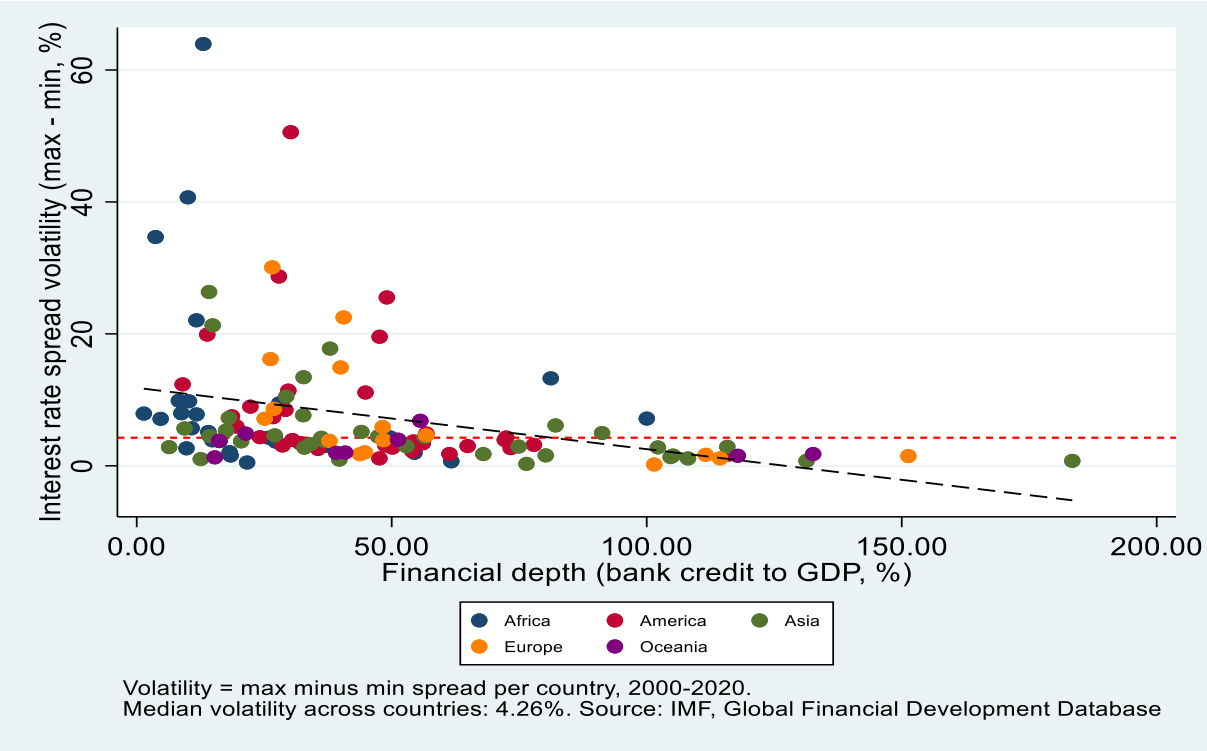
Appendix

Table [A.1]: Pairwise correlations between financial indicators: 2010-2020

	Full sample					
Indicator	Lending-deposit Gap (%)	Return on assets (%)	Return on equity (%)	Cost to income ratio (%)	Bank credit to private sector/GDP (%)	Bank asset concentration
Lending-deposit Gap (%)	1					
Return on assets (%)	0.210**	1				
Return on equity (%)	0.142	0.773***	1			
Cost to income ratio (%)	0.304***	-0.255**	-0.275***	1		
Bank credit to private sector to GDP (%)	-0.393***	-0.338***	-0.263***	-0.366***	1	
Bank asset concentration[1]	0.176*	0.0201	0.112	-0.0907	-0.0444	1

Note: [1]: It measures assets of five largest commercial banks as a share of total commercial banking assets.

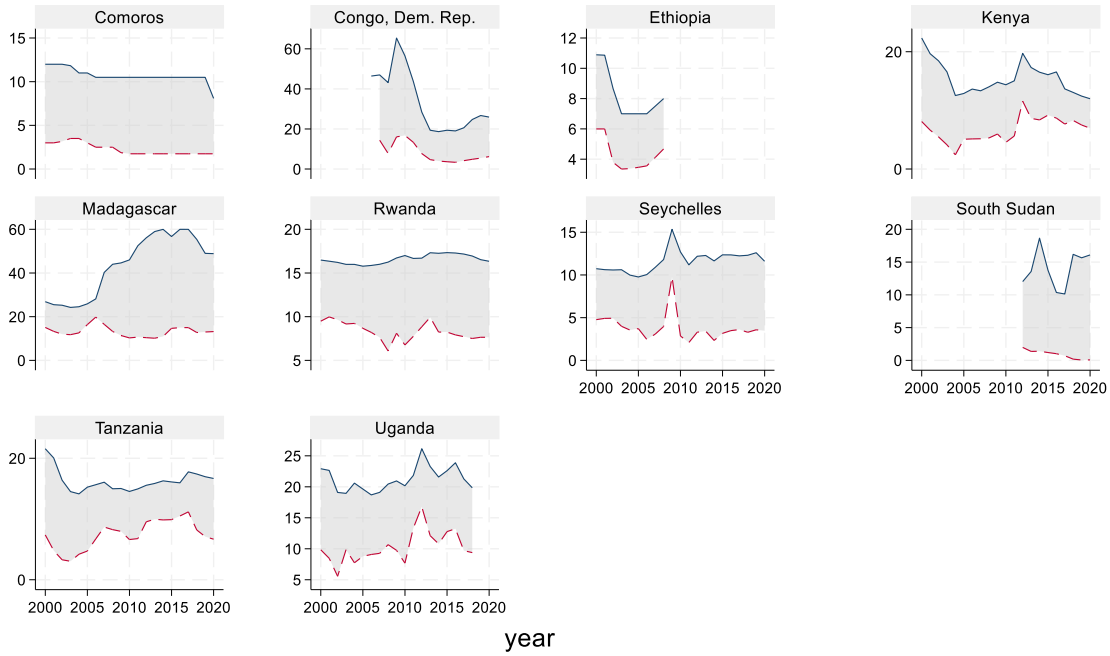
Figure [A.1]. Interest rate spread volatility and financial depth, by country



Note: For each country, only years with both interest spread and bank credit to private sector/GDP available are included in the average calculation.

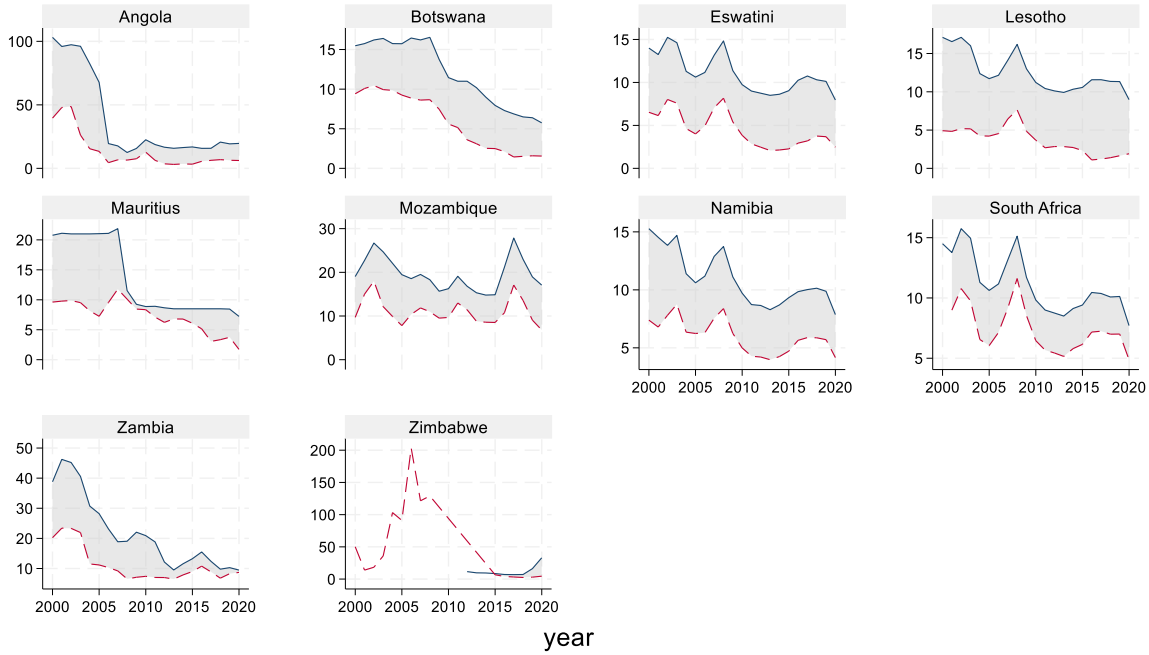
Figure A.2: Lending and Deposit rates by country (%): 2000-2020

Panel A: Eastern Africa



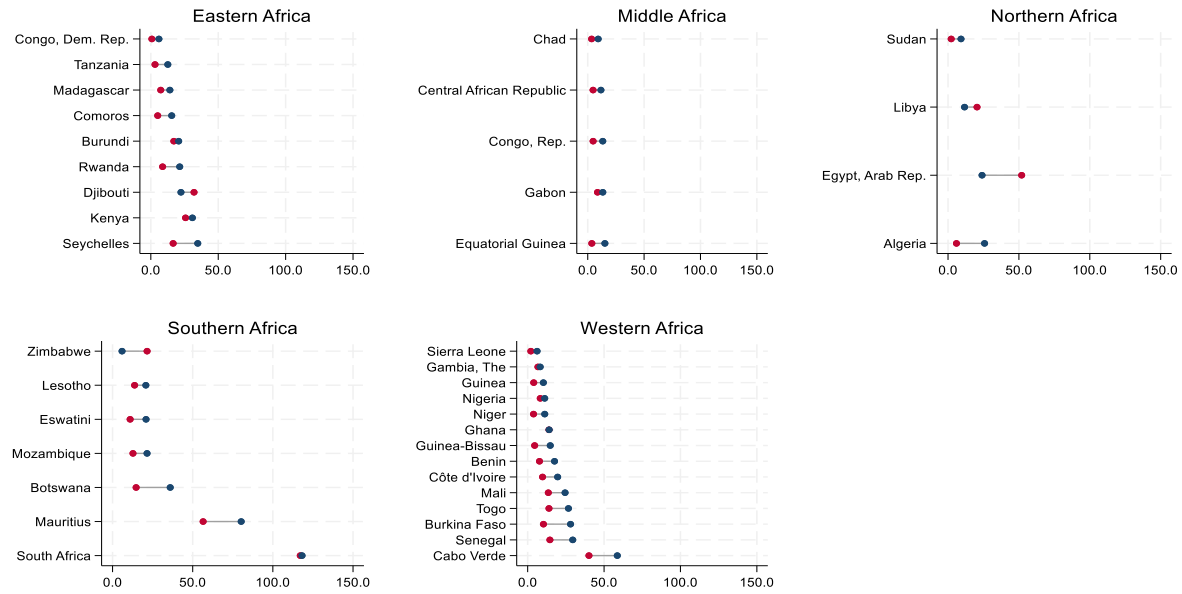
Note: Solid and dotted lines are lending and deposit line respectively. Shaded area is the lending-deposit spread. Y-axis scales differ across panels. Countries with fewer than five years of overlapping data are omitted.

Panel B: Southern Africa



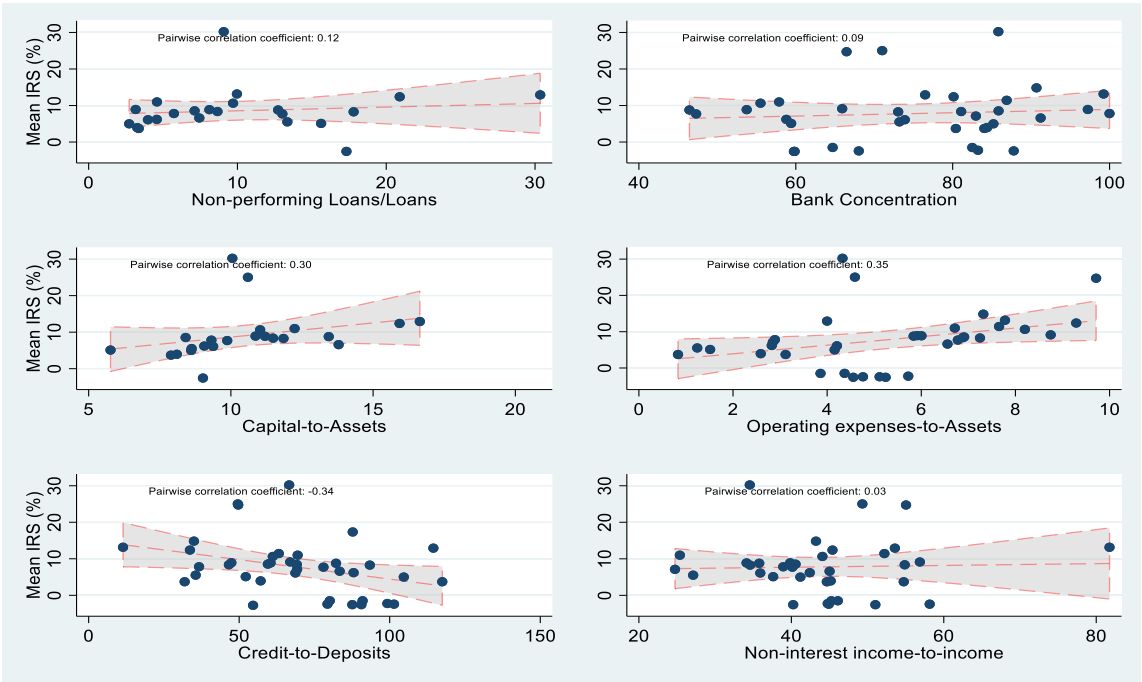
Note: Solid and dotted lines are lending and deposit line respectively. Shaded area is the lending-deposit spread. Y-axis scales differ across panels. Countries with fewer than five years of overlapping data are omitted.

Figure [A.3]: Bank credit to private sector by region and country (% of GDP): 2000 vs 2019



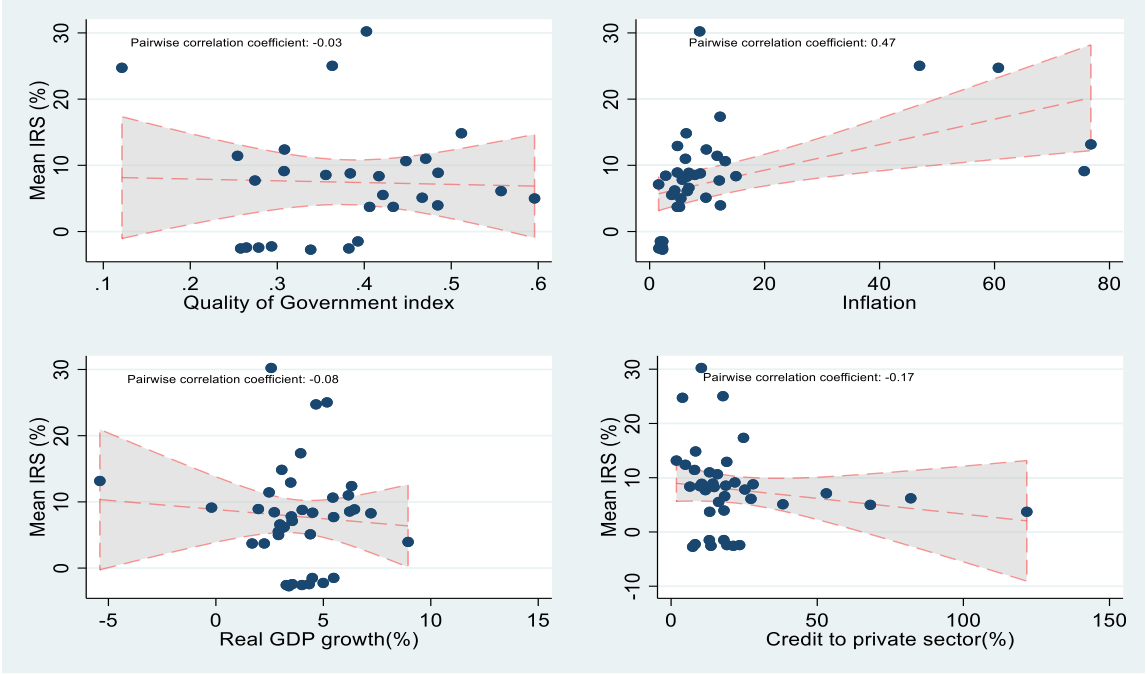
Source: Global Financial Development Database
Red = 2000, Blue = 2019

Figure [A.4]: Correlations of interest rate spread and Financial Stability Indicators: 2000-2020



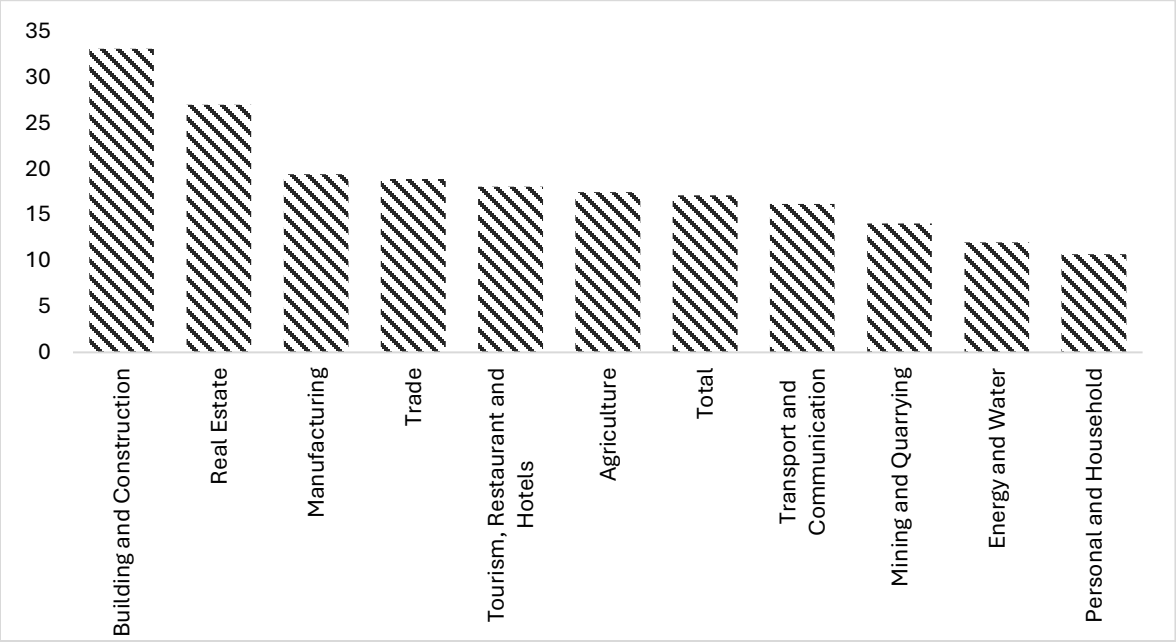
Source: Global Financial Development Database

Figure [A.5]: Correlations of interest rate spread and macroeconomic factors: 2000-2020



Source: Global Financial Development Database

Figure [A.6] NPLs to total gross Loans by Sector in Kenya: 2024



Source: Central Bank of Kenya, Bank Supervision Annual Report: 2024

Table [A.2]: Mean interest spread by region (%)

Region/country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Eastern Africa	**10.0**	**10.1**	**9.8**	**8.9**	**8.6**	**7.9**	**7.8**	**12.2**	**13.4**	**16.6**	**16.8**	**15.6**	**13.9**	**14.0**	**14.8**	**13.4**	**13.4**	**13.5**	**14.5**	**14.3**	**13.7**
Burundi																					
Comoros	9.0	9.0	8.8	8.3	7.5	8.0	8.0	8.0	8.0	8.6	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	6.3
Congo, Dem. Rep.								32.6	35.4	49.3	39.7	30.4	20.7	14.7	14.7	15.7	15.7	16.4	19.9	21.3	19.8
Eritrea																					
Ethiopia	4.9	4.9	4.9	3.6	3.6	3.5	3.4	3.4	3.3												
Kenya	14.2	13.0	13.0	12.4	10.1	7.8	8.5	8.2	8.7	8.8	9.8	9.4	8.2	8.7	8.1	6.9	7.9	6.0	4.8	4.9	5.0
Madagascar	11.8	12.2	13.3	12.5	12.0	9.5	8.4	23.8	30.8	33.2	35.7	41.9	45.7	48.8	49.0	42.1	45.0	45.0	42.6	36.0	35.7
Rwanda	7.0	6.4	6.6	6.8	6.8	7.1	7.7	8.4	10.2	8.6	10.2	8.9	7.9	7.4	9.0	9.1	9.4	9.5	9.4	8.9	8.7
Seychelles	6.0	5.7	5.7	6.6	6.4	6.0	7.6	7.8	7.8	5.6	9.8	9.1	8.9	8.9	9.3	9.2	8.9	8.6	9.0	9.0	8.1
Somalia																					
South Sudan													10.0	12.2	17.3	12.6	9.3	9.4	16.0	15.6	16.0
Tanzania	14.2	15.2	13.1	11.5	9.9	10.5	8.9	7.4	6.7	7.1	7.9	8.2	6.0	5.9	6.4	6.2	5.5	6.6	9.2	9.9	10.0
Uganda	13.1	14.2	13.5	9.1	12.9	10.9	9.6	9.8	9.8	11.2	12.5	8.5	9.4	11.2	10.8	9.8	10.6	11.6	10.5		
Middle Africa		**22.0**	**22.4**	**20.1**	**18.3**	**19.0**	**18.6**	**19.7**	**19.7**	**19.2**	**17.8**	**14.6**	**13.3**	**13.3**	**14.3**	**16.4**	**15.5**	**15.4**	**16.1**	**15.7**	**15.9**
Cameroon																					
Central African Republic																					
Chad																					
Congo, Rep.																					
Equatorial Guinea																					
Gabon																					
São Tomé and Principe		22.0	22.4	20.1	18.3	19.0	18.6	19.7	19.7	19.2	17.8	14.6	13.3	13.3	14.3	16.4	15.5	15.4	16.1	15.7	15.9
Northern Africa																					
Sudan																					
Southern Africa	**17.0**	**14.1**	**14.0**	**16.5**	**15.7**	**14.0**	**8.7**	**7.7**	**6.6**	**6.5**	**6.4**	**6.6**	**6.1**	**5.8**	**5.9**	**5.7**	**6.2**	**6.3**	**6.5**	**7.1**	**8.2**
Angola	63.6	48.1	48.6	69.9	66.9	54.3	15.0	10.9	6.0	8.1	9.8	12.4	13.1	12.7	12.9	13.6	10.2	9.5	13.8	12.9	13.5
Botswana	6.1	5.7	5.8	6.5	5.9	6.5	7.6	7.6	7.9	6.3	5.9	5.9	7.4	7.1	6.5	5.4	5.2	5.4	5.0	4.8	4.2
Eswatini	7.5	7.1	7.2	7.0	6.7	6.6	6.2	6.1	6.7	6.0	5.9	6.2	6.3	6.4	6.5	6.8	7.3	7.6	6.6	6.4	5.5
Lesotho	12.2	11.7	11.9	10.9	8.1	7.5	7.6	7.7	8.5	8.2	7.5	7.7	7.3	7.1	7.6	8.2	10.5	10.4	10.0	9.7	7.1
Malawi																					
Mauritius	11.2	11.3	11.1	11.5	12.9	13.8	11.5	10.1	1.4	0.8	0.5	1.8	2.4	1.7	1.7	2.4	3.3	5.4	5.2	4.7	5.5
Mozambique	9.3	7.7	8.7	12.5	12.2	11.7	8.2	7.7	7.3	6.2	6.6	6.1	5.4	6.5	6.2	6.3	10.4	10.8	9.4	9.9	10.3
Namibia	7.9	7.7	6.0	5.9	5.0	4.4	4.9	5.3	5.4	4.9	4.7	4.4	4.4	4.3	4.5	4.6	4.2	4.1	4.3	4.2	3.7
South Africa		4.8	5.0	5.2	4.7	4.6	4.0	4.0	3.5	3.2	3.4	3.3	3.3	3.3	3.3	3.3	3.3	3.1	3.1	3.1	2.8
Zambia	18.6	22.8	21.9	18.6	19.2	17.0	12.8	9.7	12.5	15.0	13.5	11.8	5.2	3.0	3.7	4.3	4.7	3.5	3.0	2.0	0.8
Zimbabwe																1.8	3.0	3.6	4.6	13.2	28.5
Western Africa	**13.4**	**12.0**	**11.8**	**10.9**	**11.6**	**6.0**	**3.4**	**3.2**	**2.5**	**2.2**	**2.6**	**2.7**	**2.9**	**3.3**	**3.3**	**2.8**	**2.7**	**7.6**	**7.7**	**8.1**	**8.8**
Benin						0.4	-3.1	-3.1	-3.1	-3.6	-3.3	-3.2	-3.0	-2.4	-1.9	-1.8	-1.6	1.7	1.4	1.4	1.4
Burkina Faso						1.3	-3.1	-3.1	-3.1	-3.6	-3.3	-3.2	-3.0	-2.4	-1.9	-1.8	-1.6	0.9	1.4	1.4	1.4
Cabo Verde							7.5	7.3	6.2	8.1	7.9	6.5	6.1	6.3	7.4	7.5	7.0	7.0	7.1	7.7	7.3
Côte d'Ivoire						-0.6	-3.1	-3.1	-3.1	-3.6	-3.3	-3.2	-3.0	-2.4	-1.9	-1.8	-1.6				
Gambia, The	11.5	11.5	11.3	12.9	14.5	17.6	17.1	15.0	14.1	11.5	12.4	16.3	16.5	14.6	12.0			13.2	19.0	19.9	21.2
Ghana																					
Guinea	11.9	4.9																			
Guinea-Bissau							-3.1	-3.1	-3.1	-3.6	-3.3	-3.2	-3.0	-2.4	-1.9	-1.8	-1.6				
Liberia	14.3	16.2	14.0	11.8	14.3	13.6	12.1	11.3	10.4	10.1	10.7	10.7	10.0	9.6	9.3	9.6	9.7	8.2			
Mali						1.1	-3.1	-3.1	-3.1	-3.6	-3.3	-3.2	-3.0	-2.4	-1.9	-1.8	-1.6				
Mauritania	16.2	14.5	13.0	13.0	13.0	15.1	16.0	15.5	12.3	11.5	9.0	9.0	13.0	13.7	12.5	12.3	11.7	11.3			
Niger						3.2	-3.1	-3.1	-3.1	-3.6	-3.3	-3.2	-3.0	-2.4	-1.9	-1.8	-1.6				
Nigeria	9.6	8.2	8.1	6.5	5.5	7.4	7.1	6.7	3.3	6.0	11.1	10.3	8.4	8.8	7.2	7.7	9.4	8.0	7.2	6.5	9.0
Senegal						-0.6	-3.1	-3.1	-3.1	-3.6	-3.3	-3.2	-3.0	-2.4	-1.9	-1.8	-1.6				
Sierra Leone	17.0	16.5	12.8	10.3	10.9	12.8	12.9	14.2	13.9	12.4	11.8	10.7	10.6	11.7	12.8	14.2	10.9	10.1	9.9	11.6	12.3
Togo						1.1	-3.1	-3.1	-3.1	-3.6	-3.3	-3.2	-3.0	-2.4	-1.9	-1.8	-1.6				