

David SAWADO

Email: davidsawad7@gmail.com

ORCID: 0009-0000-9001-2918

CEDRES – Université Thomas SANKARA

Relwendé SAWADO

Email: relwende.sawadogo@ujkz.bf

ORCID: 0009-0002-7368-766X

IBAM, Université Joseph KI-ZERBO

Effect of Social Capital on the Cost of Banking Intermediation in Sub-Saharan Africa

Abstract: This paper determines whether high social capital contributes to reducing the costs associated with bank intermediation through net interest margins, and consequently, to improving financial efficiency in Sub-Saharan Africa. Using panel data covering the period 2010-2021 for a sample of 296 commercial banks, this paper uses the fixed-effects econometric model to estimate the impact of social capital on the net margin of bank interest rates. The results reveal a negative and significant relationship, thus confirming the theory that increased social capital density does indeed reduce the costs associated with bank intermediation. These results contribute to the existing literature by clarifying the importance of social capital in the context of Sub-Saharan African countries. Furthermore, the results suggest that policymakers could encourage the development of social capital to enhance the efficiency of the banking sector while maintaining adequate lending standards to ensure financial stability.

Keywords : Social capital - Net Interest Margin - Financial intermediation - Information asymmetry - Sub-Saharan Africa.

Effet du capital social sur le coût de l'intermédiation bancaire en Afrique subsaharienne

Résumé : Cet article détermine si un capital social élevé contribue à réduire les coûts liés à l'intermédiation bancaire par le biais des marges d'intérêt nettes et, par conséquent, à améliorer l'efficacité financière en Afrique subsaharienne. À partir de données de panel couvrant la période 2010-2021 pour un échantillon de 296 banques commerciales, l'article utilise un modèle économétrique à effets fixes pour estimer l'impact du capital social sur la marge nette des taux d'intérêt bancaires. Les résultats révèlent une relation négative et significative, confirmant ainsi la théorie selon laquelle une densité accrue du capital social réduit effectivement les coûts liés à l'intermédiation bancaire. Ces résultats contribuent à la littérature existante en clarifiant l'importance du capital social dans le contexte des pays d'Afrique subsaharienne. Les résultats suggèrent en outre que les décideurs politiques pourraient encourager le développement du capital social afin d'améliorer l'efficacité du secteur bancaire tout en maintenant des normes de crédit adéquates pour garantir la stabilité financière.

Mots-clés : Capital social - Marge d'intérêt nette - Intermédiation financière - Asymétrie d'information - Afrique subsaharienne.

JEL Classification: G21 - G41 - D82 - N37.

Received for publication: 20251016.

Final revision accepted for publication: 20260630

1. Introduction

The foundational theoretical framework of financial systems developed by Gurley & Shaw (1960) rests on two core premises. First, the primary function of financial systems is to facilitate the alignment of financial surpluses and deficits across economic agents. Second, this structural adjustment operates through two distinct channels: direct and indirect finance. Indirect finance relies on financial intermediaries, whose operations incur transaction and administrative costs that exhibit significant regional variation.

Modern theories of financial intermediation clarify the economic rationale underlying these institutions. As established by Fama (1985), banks emerge primarily to mitigate market imperfections that impede direct financing. These frictions originate from transaction costs and severe information asymmetries between lenders and borrowers, particularly when borrowers possess superior ex-ante information regarding project quality and risk. Consequently, financial contracting necessitates that intermediaries implement robust ex-post monitoring mechanisms to ensure the proper allocation of loaned funds and mitigate default risk.

Building on these microeconomic foundations, the banking literature extensively analyzes the determinants of the net interest margin (NIM) defined as the spread between lending rates and deposit returns. The NIM serves as a conventional proxy for bank intermediation efficiency (Beck & Demirguc-Kunt, 2009) and stands as a pivotal indicator of banking viability and credit accessibility. *Ceteris paribus*, compressed interest margins reduce the cost of credit, thereby fostering broader capital accumulation in the real economy (Beck & al., 2003). Mechanistically, a wide margin indicates that lending rates are heavily decoupled from deposit rates, escalating the cost of capital for borrowers. Ultimately, the NIM is highly contingent upon the broader macroeconomic environment, regulatory frameworks, and prevailing monetary policy, all of which dictate the aggregate accessibility of bank credit.

Social capital broadly conceptualized as the networks, norms, and trust that facilitate coordination (Putnam, 2000), encompasses both bonding and bridging dimensions. It extends beyond interpersonal relationships to encompass institutional facets, such as governance quality (Baudassé & Montalieu, 2007), thereby driving economic performance by lowering transaction costs and reinforcing contractual trust. The nexus between social capital and net interest margins reflects its fundamental role in enhancing bank performance. By fostering trust and mitigating information asymmetries (North, 1990), social capital optimizes borrower screening and constrains opportunistic behavior. Given that bank margins are fundamentally driven by cost structures and risk management capabilities (Berger & Hannan, 1989), social capital indirectly bolsters profitability by improving operational efficiency and reducing default risk.

Building on these foundational tenets, an emerging strand of literature explicitly investigates the impact of social capital on net interest margins as a primary measure of bank intermediation costs. This line of research emphasizes how social capital acts as a catalyst for overall financial development and intermediation efficiency (Hmaittane & al., 2021).

In the literature, the significance of social capital has been documented across various dimensions, including its relationship with peer-to-peer lending (Wang & al., 2024), corporate risk-taking (Panta, 2020), loan collateralization (Papadimitri & al., 2021), and the cost of equity (Gupta & al., 2018). These dynamics touch upon fundamental questions regarding institutional ethics and financial architecture (Putnam, 2000). Consequently, understanding the exact nature of the relationship between social capital and net interest margins has garnered significant scholarly attention. Empirically, however, this relationship remains highly controversial, yielding positive, negative, or mixed results depending on the institutional context.

On the one hand, Hasan & al. (2017) demonstrate that social capital minimizes credit risk and monitoring costs by enhancing information flows through social networks, thereby optimizing borrower screening and indirectly strengthening net margins. Similarly, Guiso & al. (2004) find that social capital mitigates asymmetric information and reinforces borrower discipline, which ultimately facilitates financial transactions. Utilizing voter turnout and blood donations as proxies for social capital, they show that higher social capital is associated with a greater reliance on formal financial instruments such as credit, checks, and bank deposits even after controlling for income differentials. This is consistent with the foundational macroeconomic evidence provided by Keefer & Knack (1997) and La Porta & al., (1997), who establish that social capital indicators, namely generalized trust and civic norms, exert a strong positive influence on aggregate economic performance.

However, some studies question the positive impact of social capital on the cost of banking intermediation. According to Portes (2000), a high level of social capital can sometimes lead to overconfidence or moral hazard. Banks may grant loans on overly lenient terms to members of their network, which could increase the risk of default and, consequently, reduce net margins if these loans become non-performing. In some cases, high social capital can create exclusive or oligopolistic networks where competition is limited, which can lead to artificially high but unsustainable net interest margins, particularly if the market opens up to new players or if regulations change (Granovetter, 1983).

Furthermore, some authors (Burt, 2000) argue that there is a nonlinear relationship between net interest margins and social capital. At moderate levels, social capital can have a beneficial effect on net interest margins through increased efficiency and trust. However, beyond a certain threshold, an excess of social capital could saturate the market, leading to a decline in margins. For example, excessive social cohesion may limit access to new or external information, thereby reducing profit opportunities. The effect of social capital may also vary depending on the dynamics of social networks. Bridging social capital could foster innovation and access to new opportunities, thereby increasing net margins, while bonding social capital can sometimes lead to economic stagnation or inertia, which has a negative impact on margins (Putnam, 2000).

Existing research suggests that social capital can have various effects on the net interest margins of financial institutions. The positive effects manifest themselves mainly in the reduction of transaction costs and the improvement of trust, while the negative impacts

can emerge from over-trust or exclusive networks. The nonlinear relationship emphasizes the need to balance the benefits of relational networks with the risks of saturation or inefficiency. For those in the banking industry, understanding and navigating these dynamics is crucial to optimizing their financial performance. Based on the theory and empirical work mentioned above, this study examines the nature of the effect the nature of the effect of social capital on the costs of banking intermediation in Sub-Saharan Africa. Indeed, studies on the determinants of net interest margins have focused on banks' own characteristics, macroeconomic variables, and the institutional and political environment (Ahokpossi, 2013; Claessens & al., 2018). To our knowledge, the effect of social capital on net interest margins has not yet been the subject of a study in the Sub-Saharan African (SSA) area.

This article is part of the perspective of examining the impact of social capital on bank net interest margins in SSA while controlling for the specific characteristics of banks. Net interest margins could be high because the financial sector is relatively small, concentrated, and shallow in most African countries (Ahokpossi, 2013). There are significant costs associated with banking, including the costs of setting up a branch network to be close to customers, to collect deposits and to grant loans, as well as information acquisition costs. If markets are small, banks may not reap the benefits of economies of scale. As a result, we assume that higher levels of social capital enable banks to maintain lending rates at a lower level, which in turn contributes to a reduction in net interest margins.

Our contribution to the literature is threefold. First, this research enriches the existing literature on bank intermediation costs by incorporating a conceptual framework of social capital. We argue that trust, social norms, and networks of cooperation reduce information asymmetries and monitoring costs, thereby justifying narrower interest margins. Second, the unique nature of our sample provides a novel empirical application. We focus on Sub-Saharan Africa, an economic region that has remained under-explored in the previous literature (Ho & Wong, 2007). Third, our study relies on a highly disaggregated panel of commercial banks. This microeconomic approach ensures greater homogeneity among observations while allowing us to capture the structural heterogeneity of banking behavior across the region. By contrasting with the majority of existing studies that rely on aggregated data, this bank-level analysis provides a more granular empirical understanding of the determinants of intermediation costs in Sub-Saharan Africa.

The remainder of this paper is structured as follows. Section 2 reviews the literature on the relationship between social capital and net interest margins. Section 3 describes the data, variables, and econometric methodology used to test our hypotheses. Section 4 presents and discusses the empirical results, and Section 5 concludes the paper with relevant policy implications.

2. Literature review

This section reviews the existing literature at the intersection of social capital and finance. First, the theoretical frameworks underpinning this relationship are outlined, followed by a critical discussion of the empirical literature linking social capital to bank intermediation efficiency.

2.1. The theoretical review of social capital and the activity of banks

Social capital has historically garnered significant attention across diverse disciplines, including sociology, political science, law, and economics (Coleman, 1988; Putnam & al., 1992). In the economic sphere, a strong nexus exists between social capital and finance, primarily driven by the mutual trust that underpins financial contracts. However, the theoretical debate surrounding social capital remains heavily focused on its measurement rather than its specific mechanisms and impacts on financial outcomes.

The literature offers various conceptualizations of social capital, leading to ongoing debates regarding its precise nature and its relationship with trust. For instance, Jacobs & Tillie (2004) conceptualize social capital through localized neighborhood networks. Conversely, Putnam (1995) provides a broader, more widely accepted definition, characterizing social capital as the features of social life specifically networks, norms, and social trust that facilitate cooperation and collective action. This study adopts Putnam's framework, as it establishes a direct theoretical link between social capital and institutional or interpersonal trust. Hartlieb & al. (2020) conceptualize this form of capital as "community capital," emphasizing that it does not belong to a specific firm or manager, but is instead embedded within the local community. They argue that residents in high-social-capital areas share a common set of beliefs and feel morally compelled to behave ethically. This collective norm effectively deters opportunistic behavior that violates prescribed societal values. In general, this tendency to conform to shared societal principles is enforced by both internal sanctions, such as guilt, and external sanctions, including shame and social ostracism (Elster, 1989; Coleman, 1990; Posner & Rothbart, 2000).

The consensus within the literature is that social capital constrains opportunistic and unethical behavior, improves contractual reliability, increases the propensity to honor financial obligations, and ultimately mitigates agency problems (Yang & al., 2018; Gao & al., 2020). Consequently, it reduces information asymmetry and reshapes financial relationships. Furthermore, emerging research suggests that the influence of social capital extends beyond individual decision-making to encompass corporate governance and managerial choices (Hasan & al., 2017; Panta, 2020). As a result, managers operating in regions with high levels of social capital are more likely to align their actions with the long-term interests of the firm and its stakeholders (Hartlieb et al., 2020).

The theory of social capital and finance assumes that at the country level, social capital can reduce the implicit cost of equity. Existing studies confirm that individuals in communities with higher levels of social capital are less likely to engage in opportunistic and selfish behaviors (Hoi & al., 2018). This mitigating effect applies, for instance, to moral hazard in the insurance market (Hartlieb et al., 2020) and strategic defaults on

mortgage loans (Guiso & al., 2004). These authors broadly agree that social capital fundamentally shapes the economy in general, and finance in particular, through the mechanism of trust. In this regard, North (1990) defines institutions as the rules shaping human behavior and highlights the key role of informal norms. These norms influence economic prosperity and development by fostering cooperation and trust, thereby facilitating contractualization and collective action insights that are further supported by the social capital literature.

2.2. The empirical review on social capital and bank intermediation

On the empirical level, some studies have tested the hypothesis that social capital has an impact on financial outcomes. For example, recent research has focused on the effect of social capital on financial development. The econometric work of Keefer and Keefer & Knack (1997) and La Porta & al. (1997) shows that social capital (measured by trust or civic-mindedness) significantly influences economic performance.

Furthermore, Guiso & al. (2004) demonstrate that in financial relationships, social capital improves information availability regarding borrower risk and ensures that borrowers exert the necessary effort to honor their debts. It therefore partially mitigates the problems posed by information asymmetry between lenders and borrowers, which also explains the success of certain informal finance experiments. Utilizing voter turnout and blood donations as proxies, their study highlights that higher regional social capital in Italy correlates with a more widespread use of financial instruments such as check usage, credit uptake, and bank deposits even after controlling for differences in GDP per capita.

Pasiouras & Samet (2022), show that higher social capital reduces banks' cost of equity by improving information flows and limiting agency problems, although this effect weakens in the presence of strong formal institutions. While prior studies focus mainly on non-financial firms, this paper extends the analysis to banking by examining the impact of social capital on intermediation costs, controlling for bank-specific and macroeconomic factors.

Based on the theory and empirical work mentioned above, it is highly relevant to analyze the effect of social capital on the costs of bank intermediation in Sub-Saharan Africa. Indeed, existing literature on the determinants of net interest margins has primarily focused on banks' internal characteristics, macroeconomic variables, the institutional and political environment, as well as on microfinance (Kamukama & Natamba, 2013).

3. Methodology

This section reviews the analytical framework used to examine the data. It begins by discussing the conceptual and empirical models, followed by a presentation of the statistical analysis and estimation methodologies.

3.1. Empirical model

To empirically evaluate the theoretical assumption that social capital affects bank interest rate spreads while controlling for bank-specific characteristics, market structure,

and macroeconomic variables, the following empirical model is specified, building on Ho & Saunders (1981):

$$NIM_{i,c,t} = \alpha + \beta_1 X_{i,c,t}^B + \beta_2 X_{i,c,t}^S + \beta_3 X_{i,c,t}^M + \beta_4 CAPISO_{ct} + \varepsilon_{it} \quad (1)$$

where the indices i , c , and t represent individual banks, a country, and the time variable, respectively. The dependent variable NIM represents bank net interest margins, and are respectively vectors of bank-specific variables ($X^B X^S X^M$); ε represents residuals.

3.1.1. Variables of interest

The net interest margin (NIM): This is the difference between the lending interest rate and the deposit interest rate. It is generally used to capture the cost of bank intermediation according to Fisher (1930).

Net Interest Margin (NIM):

$$NIM = (Interest\ Income - Interest\ Expense) / Total\ Assets \quad (2)$$

Regarding social capital, the analysis utilizes the Legatum Prosperity Index. It captures five dimensions of social capital, each contributing 20% to the overall sub-index: (a) civic and social participation, (b) institutional trust, (c) interpersonal trust, (d) personal and family relationships, and (e) social networks. Collectively, these dimensions reflect the foundational aspects discussed in the theoretical literature. They align closely with those used in: (i) empirical studies capturing regional variations in the United States and Italy (Coleman, 1988), and (ii) cross-country studies that primarily employ generalized trust as the central proxy for social capital (Algan & Cahuc, 2010). Accordingly, we define our primary explanatory variable as SOCAP.

3.1.2. Control variables

We use variables related to banks' own characteristics to better control the robustness of our model.

Credit risk: is measured here by the *loans/deposits* and short-term financing. The higher the ratio, the more exposed bank is to the risk of default¹, and banks use higher margins to cover this risk. Credit risk is the risk that a borrower will fail to meet their contractual obligations. This includes not only the risk of complete default but also the risk of deterioration in credit quality, late payments, or partial recovery of sums lent

Bank size: is typically measured as the natural logarithm of total assets to capture scale effects and reduce data skewness. It is a key determinant of bank behavior, influencing access to financing, risk diversification, and operational efficiency (Berger & al., 1995). Larger banks also benefit from economies of scale and improved risk management capacity, which can enhance financial performance (Boot & Thakor, 1997).

¹ We can also use alternative measures of credit risk: the ratios of "impaired loans to equity" and "net amortization".

Liquidity risk: the risk related to a situation in which the bank does not have sufficient liquidity or borrowing capacity to meet withdrawal deposits or new loan applications. Liquidity risk is expected to have a positive effect on bank margins (Angbazo, 1997) Banks with high liquidity risk tend to borrow funds urgently at a high cost and therefore charge a liquidity premium that translates into margins. We measure liquidity risk as the cash-to-deposit ratio and short-term funding. Therefore, lower ratios correspond to higher liquidity risks, and the sign of our estimated coefficient should be negative.

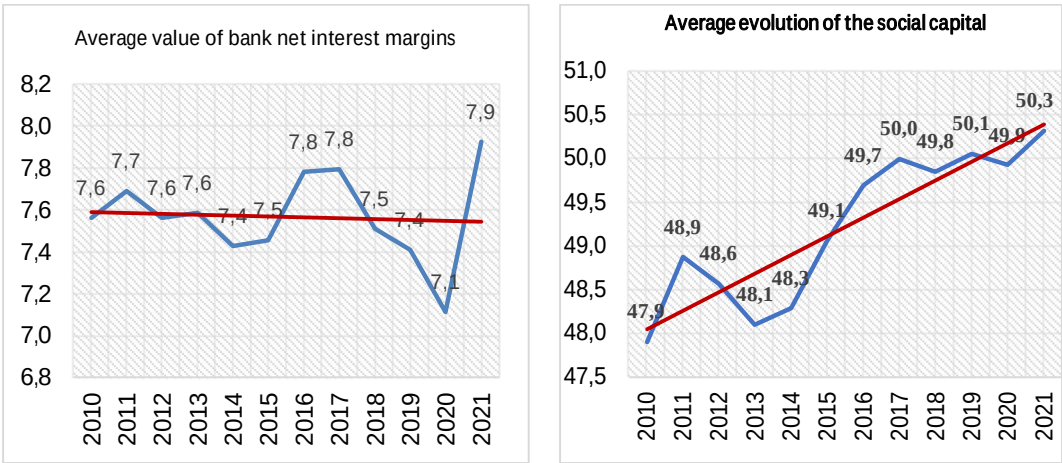
At the macroeconomic level, we have essentially retained inflation and GDP *per capita* in accordance with the literature (Schumpeter, 1934). Indeed, he showed the relationship between economic growth and financial innovation.

3.2. Descriptive statistics

In this paper, data from a panel of 296 commercial banks from 39 countries in Sub-Saharan Africa for the period 2010-2021 is used. The bank data comes from the Bankscope database. The analysis includes commercial banks only, to obtain data suitable for analysis. Macroeconomic data come from the World Bank's World Development Indicators database, Legatum Prosperity for social and institutional capital data, and the World Government Indicators WGI database. This section presents some statistics and the evolution of net interest margins, as well as the average evolution of the level of social capital during the period 2010-2021.

The period covered by our study is marked by the development of the banking sector and the measures to regulate banking activity following the 2008 subprime crisis. During the period from 2010 to 2015, an average evolution of the net interest margin around 7.5 percentage points was observed. From 2015 onwards, there was a slight increase, placing the level of the interest margin at around 7.8 points. The decline began in 2018 and reached 7.1 points in 2020 before soaring to 7.9 points in 2021 (Figure 1).

Figure 1: Average evolution of commercial banks' net interest margins vs. share capital



Source: Authors construction based on 2021 Bankscope data

Concurrently, social capital is a synthetic index of civic-mindedness, interpersonal trust, family relationships, and the institutional trust of economic actors. The graph on the right illustrates the evolution of the social capital over the period 2010-2021. From 2010 to 2021, there was an average change of 2.6 points. Overall, sub-Saharan African countries have gained in social capitalization, reaching the highest level in 2021 (50.3).

Table 1 reports the descriptive statistics for the primary variables utilized in the empirical analysis. The sample displays a mean net interest margin (NIM) of 7.57%, exhibiting substantial cross-sectional and temporal volatility, with the minimum NIM recorded at -10.20% in 2016, and the maximum reaching 61.40% in Nigeria. Across the Sub-Saharan African cohort, the social capital index averages 49.22 points, ranging from a sample low of 20.52 in Togo (2010) to a peak of 61.79 in Mauritius. Regarding bank-level structural characteristics, the mean bank size, measured by total assets, stands at USD 2.16 billion per institution. This variable reflects the profound financial heterogeneity within the region: the minimum asset size is observed in Mozambique at USD 5.65 million, whereas the sample maximum is registered by a South African institution in 2010, with total assets scaling to USD 124.00 billion.

Table 1: Descriptive statistics variable

Variables	Obs	Mean	Std. Dev	Min	Max
<i>Net interest margin</i>	3552	7.576	5 425	-10.2	61.396
<i>Liquidity</i>	3552	25.459	15.302	-0.07	99.62
<i>Liquidity risk</i>	3553	45.596	15.783	0	78.52
<i>Social capital</i>	3552	49 219	5 332	20 525	61. 788
<i>Inflation</i>	3552	11.311	36.663	-3.233	557.202
<i>Gross domestic product per capita</i>	3551	1.751	3.883	-22.312	18.066
<i>Bank size</i>	3549	19.978	1 .491	15.461	36.95

Source: Authors based on bankscope data 2021)

The correlation matrix (Table 2) is used to assess multicollinearity among variables. Following Gujarati (2004), multicollinearity is suspected when correlation coefficients exceed 0.8. The results show that none of the coefficients surpass this threshold, indicating no multicollinearity in the sample. In addition, a negative correlation is observed between net interest margins and social capital

Table 2: Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Net interest margins	1.000						
(2) Liquidity	-0.020	1.000					
(3) Gross domestic product per capita	0.016	0.035	1.000				
(4) Bank size	-0.292	-0.221	-0.110	1.000			
(5) Inflation	0.062	0.049	-0.199	0.005	1.000		
(6) Social Capital	-0.085	-0.119	-0.020	0.070	-0.055	1.000	
(7) Credit Risk	0.032	-0.131	-0.008	-0.032	-0.015	0.078	1.000

Source: Authors

3.3. Empirical estimation

Before estimating the empirical model to determine the effect of social capital on bank intermediation costs, several preliminary tests must be conducted.

3.3.1. Estimation methods

The analysis covers a sample of 296 banks over the period 2010-2021. To address potential econometric challenges, this study employs the fixed-effects method. This modeling choice helps prevent omitted variable biases in panel data analysis (Hausman, 1978). The central issue hinges on whether the unobserved individual effects are correlated with the regressors. If such a correlation exists, the random-effects estimator becomes biased and inconsistent, making the fixed-effects model the preferred choice. Furthermore, a robustness check is conducted by incorporating alternative sets of control variables and applying the Driscoll & Kraay (1998) estimation technique. Within this framework, all explanatory variables are lagged by one period to mitigate potential endogeneity issues. A key justification for choosing the Driscoll & Kraay (1998) approach is that this non-parametric estimator imposes no restrictions on the limiting behavior of the number of panels relative to the time dimension T (Ouoba 2016; Diallo & Ouoba 2024). Additionally, this method effectively accounts for cross-sectional and spatial dependence by generating standard errors that are fully robust to heteroskedasticity and serial correlation (Tsani 2013; Hashmi & Alam 2019).

3.3.2 Cross-sectional dependency test

Before applying a fixed-effects specification to panel data, it is essential to rigorously evaluate the model specification and perform diagnostic tests to ensure unbiased inference. It is particularly crucial to detect cross-sectional dependence (CSD), as its presence violates the assumption of independent error terms, thereby invalidating the statistical inferences derived from standard panel estimators (Pesaran, 2015). In the presence of CSD, classical ordinary least squares (OLS) and fixed-effects estimators exhibit serious inefficiencies and biased standard errors. This distortion necessitates the adoption of alternative frameworks, such as spatial econometric models or estimation techniques robust to cross-sectional correlation (e.g., Driscoll-Kraay standard errors or

common-correlated-effects estimators). Empirically, for the Sub-Saharan African cohort covering the period 2010-2021, the diagnostic results presented in Table 3 reject the null hypothesis of cross-sectional independence, confirming the presence of significant cross-sectional spatial dependence. The test results indicate highly significant p-values ($p < 0.001$) for both Friedman’s test and Pesaran’s simple Lagrange multiplier test, thereby justifying the use of the Driscoll-Kraay estimator as a robustness check.

Table 3 Results of the cross-sectional dependency test

Tests	Statistic(T/Chi2)
<i>Friedman Test</i>	22.211***
<i>Pesaran LM test</i>	$\chi^2(296) = 8.3 \times 10^5$ ***
<i>Pesaran CD test</i>	17.493***

*Source: Authors; *** significant at 1%, ** significant at 5%, *- significant at 10%*

3.3.3. Hausman's Test

The Hausman test (Hausman, 1978) is used to choose between fixed and random effects in panel data models by comparing two estimators under the null and alternative hypotheses. The test statistic follows a chi-square distribution based on differences in coefficients weighted by their variance covariance matrix. The results (Table 4) show a p-value below 1%, leading to the rejection of the random-effects model in favor of the fixed-effects specification.

Table 4 Result of the Hausman test of model specification

Test	Null hypothesis (H ₀)	Statistic
<i>Hausman Test</i>	Difference in non-systematic coefficients	$\chi^2(6) = 53.73$ ***

Source: Authors; *** significant at 1%

4. Results and discussions

This section first outlines the preliminary diagnostic tests for the panel data, followed by the model specification, and finally discusses the corresponding test results.

4.1. Analysis of the effect of social capital on the cost of bank intermediation

The model is estimated using a fixed-effects panel data specification. In this section, the analysis examines the effect of social capital on bank intermediation costs measured by the net interest margin while controlling for bank-specific characteristics and institutional quality in Sub-Saharan Africa over the period 2010-2021. The various regressions estimate the effect of social capital on net interest margins by sequentially altering the set of control variables.

The empirical results (Table 5) consistently show that social capital has a significant negative effect on the cost of banking intermediation. The coefficient for social capital is negative (between -0.032 and -0.035) and statistically significant at the 5% level in all specifications, indicating an inverse relationship between social capital and net interest margins. This result suggests that higher social capital, by strengthening trust and cooperation, reduces information and monitoring costs, thereby lowering intermediation costs. It supports the view that social capital mitigates information asymmetries and agency problems (Fukuyama, 2001).

Our results align with Gupta & al. (2018), who find a negative relationship between social capital and the cost of equity, suggesting that social trust can substitute for formal governance mechanisms. Similarly, Pasiouras & Samet (2022), show that stronger social capital environments reduce banks' funding costs by lowering risk premia. Overall, social capital emerges as a structural determinant of bank performance, improving intermediation efficiency and fostering trust-based financial inclusion, particularly where formal institutions are weak.

Table 1: Result of the effect of social capital on the cost of bank intermediation

VARIABLES	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
<i>Bank liquidity</i>	-0.0215*** (0.0043)		-0.0207*** (0.0044)	-0.0199*** (0.000)	-0.0206*** (0.0043)
<i>Liquidity risk</i>	0.3436 (0.0128)	0.2312 (0.0034)			0.1873 (0.0036)
<i>Social Capital</i>	-0.0343 *** (0.0128)	-0.03227** (0.0128)	-0.0348*** (0.0128)	-0.035*** (0.006)	-0.0349*** (0.0128)
<i>Inflation</i>	0.0053*** (0.0011)	0.0050*** (0.0011)	0.0053*** (0.0011)		0.050314 (0.000)
<i>Gross domestic product per capita</i>	-0.0116 (0.0106)	-0.0722 (0.0107)	-0.0011 (0.0106)	0.0025 (0.0103)	
<i>Bank Size</i>	-0.2975 *** (0.0899)	-0.2238** (0.012)	-0.2961*** (0.0898)	-0.3086*** (0.0901)	-0.3092*** (0.0892)
<i>Constant</i>	15.6703*** (1.8459)	13.5828*** (1.8001)	15.6198*** (1.8435)	15.9857*** (1.8508)	15.9488*** (1.8283)
<i>Observation</i>	3535	3535	3535	3535	3535
<i>Overall significance</i>	***	***	***	***	***
<i>Number of banks</i>	296	296	296	296	296

Source: Authors, based on estimates. Notes: Standard Errors in Parentheses

Standard errors are in parentheses, *** significant at 1%, ** significant at 5%, *- significant at 10%

4.2. Robustness test

To verify the stability of our results, several robustness checks are undertaken. First, alternative sets of control variables are introduced into the baseline specification to re-estimate the fixed-effects model. Second, we employ the Driscoll & Kraay (1998) estimation technique applied to a Pooled OLS framework. This approach effectively

accounts for cross-sectional dependence, heteroskedasticity, and serial correlation within the error structure, while potential endogeneity is mitigated by lagging the explanatory variables by one period.

4.2.1 Robustness testing with control variables

To assess the robustness of our baseline results, we augment the empirical specification by introducing the bank solvency ratio and country-level institutional quality as additional control variables. Extensive literature establishes the critical role of institutional frameworks in shaping macroeconomic and financial outcomes (North, 1990 ; Acemoglu & al., 2001).

In this paper, institutional quality is operationalized via a comprehensive synthetic index. The structural estimations reported in Table 6 account for these additional covariates. Upon controlling for institutional quality and bank solvency, the estimated coefficients for social capital remain robust and statistically significant at the 5% level across all specifications (-0.0328; -0.0343; -0.0332). Notably, the marginal impact of social capital is attenuated in environments characterized by high institutional quality. This finding implies a nuanced interplay between formal and informal institutions, suggesting that robust regulatory frameworks partially substitute for or complement informal social trust mechanisms.

To explore potential non-linearities the analysis investigates whether a critical threshold exists beyond which social capital begins to compress intermediation costs. By incorporating a quadratic term for the social capital variable into our model, an inverted U-shaped trajectory is mapped. Formally, our model isolates a clear inflection point 49.56. Below this index value of 49.56, the marginal effect of social capital on the net interest margin is positive; however, beyond this turning point, the relationship becomes strictly negative, structurally lowering the cost of bank intermediation. These non-linear dynamics parallel the cross-country findings of Pasiouras & Samet (2022), who demonstrate that country-level social capital alters the cost of bank equity capital globally, and that its marginal impact varies significantly depending on the strength of a nation's formal institutional environment.

Table 6: Robustness test with additional control variables

VARIABLES	Model (1)	Model (2)	Model (3)
<i>Bank liquidity</i>	-0.0204*** (0.0043)	-0.0207*** (0.0055)	-0.0213*** (0.0458)
<i>Social Capital</i>	-0.0328** (0.0128)	-0.0343*** (0.0128)	-0.0332*** (0.0132)
<i>Level of inflation</i>	0.0049*** (0.0011)	0.0053*** (0.0011)	0.0054*** (0.0010)
<i>Bank Size</i>	-0.2943*** (0.0898)	-0.3278*** (0.0919)	-0.3161*** (0.00)
<i>Solvability ratio</i>			0.1152* (0.0564)
<i>Institutional quality</i>	6225631 (0.038)		
<i>Constant</i>	15.8495*** (1.8435)	16.3917*** (1.902)	9.4122*** (0.7258)
<i>Observation</i>	3535	3535	3535
<i>Overall significance</i>	(0.000)	(0.000)	(0.000)
<i>Number of banks</i>	296	296	296

Source: Authors, based on estimates. Notes: Standard Errors in Parentheses

Standard errors are in parentheses, *** significant at 1%, ** significant at 5%, *- significant at 10%

4.2.1. Robustness test with an alternative estimator

To test the robustness of the baseline results, estimations are carried out using the Driscoll and Kraay estimator.

The results presented in models (1) and (2) of Table 7 confirm the robustness of the main determinants of bank intermediation costs, as measured by the net interest margin. The social capital variable remains significantly negative in both models, although the coefficient is now significant at the 10% level. This result supports the central hypothesis of our study, namely that a high level of social capital reduces information asymmetries and limits opportunistic behavior. The persistence of this effect under the Driscoll-Kraay estimator indicates that it is not an artifact related to specific characteristics of the data structure.

Overall, the models' joint significance, combined with the stability of the coefficients, reinforces the credibility of the baseline results. The use of the Driscoll-Kraay estimator helps eliminate biases related to the error structure and confirms the robustness of the conclusions regarding the decisive role of social capital in reducing bank intermediation costs in Sub-Saharan Africa.

Table 7: Robustness Test Results with the Kraay Driscoll Estimator

VARIABLES	Model (1)	Model (2)
<i>Bank liquidity</i>	-0.0210*** (0.0069)	-0.0199*** (0.0072)
<i>Social capital</i>	-0.0343* (0.0183)	-0.0351* (0.0187)
<i>Level of inflation</i>	0.0053*** (0.0006)	
<i>Bank Size</i>	-0.2975** (0.1436)	-0.3086** (0.1533)
<i>Constant</i>	15.67034*** (2.1610)	15.98578*** (2.2943)
<i>Observation</i>	3535	3535
<i>Overall significance</i>	****	****
<i>Number of banks</i>	296	296

Source: Authors, based on estimates. NB: Standard errors are in parentheses, *** significant at 1%, ** significant at 5%, *- significant at 10%

5. Conclusion and implication of economic policies

This paper has investigated the empirical impact of social capital on the cost of bank intermediation across Sub-Saharan Africa. Utilizing a comprehensive panel dataset of 3,256 observations across 296 banks in 39 countries spanning the 2010-2021 period, the empirical framework isolates a robust, statistically significant negative relationship between social capital and the net interest margin. Specifically, banks operating in environments characterized by high social capital exhibit significantly compressed intermediation margins, demonstrating that civic infrastructure directly influences formal credit pricing.

In terms of transmission channels, these findings provide strong empirical backing for asymmetric information theory. Social capital operationalized through localized norms of trust, civic cooperation, and social networks acts as an informal governance mechanism that mitigates ex-ante adverse selection and ex-post moral hazard. By constraining opportunistic behavior and reducing agency frictions, high social trust facilitates efficient information dissemination and optimal resource allocation, ultimately bolstering banking system stability across the region.

These dynamics yield critical policy implications for developing financial markets. To structurally lower financing costs and foster inclusive credit access, regional policymakers and development agencies could deliberately cultivate institutional trust and support community-based financial infrastructures.

A primary caveat of this study, however, stems from the inherent difficulty in fully operationalizing the multidimensionality of social capital; regional data constraints necessitate a reliance on aggregate institutional proxies rather than granular, individual-level network metrics. To advance this literature, future research should leverage emerging data from digital networks and mobile money ecosystems. Analyzing how

technological connectivity reconfigures informal social trust will offer deeper insights into how modern intermediation dynamics evolve in the digital age.

6. Références

- Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The Colonial Origins of Comparative Development: An Empirical Investigation. *American Economic Review*, 91(5), 1369-1401. <https://doi.org/10.1257/aer.91.5.1369>
- Ahokpossi, C. (2013). Determinants of Bank Interest Margins in Sub-Saharan Africa. *IMF Working Papers*, 13. <https://doi.org/10.5089/9781475551136.001>
- Algan, Y., & Cahuc, P. (2010). Inherited Trust and Growth. *American Economic Review*, 100(5), 2060-2092. <https://doi.org/10.1257/aer.100.5.2060>
- Angbazo, L. (1997). Commercial bank net interest margins, default risk, interest-rate risk, and off-balance sheet banking. *Journal of Banking & Finance*, 21(1), 55-87. [https://doi.org/10.1016/S0378-4266\(96\)00025-8](https://doi.org/10.1016/S0378-4266(96)00025-8)
- Baudassé, T., & Montalieu, T. (2007). L'hypothèse du capital social une application à la finance et au développement. *Revue Tiers Monde*, (2), 417-434.
- Beck, T., & Demirguc-Kunt, A. (2009). *Financial Institutions And Markets Across Countries And Over Time—Data And Analysis*. The World Bank. <https://doi.org/10.1596/1813-9450-4943>
- Beck, T., Demirgüç-Kunt, A., & Levine, R. (2003). Law and finance: Why does legal origin matter? *Journal of Comparative Economics*, 31(4), 653-675. <https://doi.org/10.1016/j.jce.2003.08.001>
- Berger, A. N., & Hannan, T. H. (1989). The price-concentration relationship in banking. *The review of Economics and Statistics*, 291-299.
- Berger, A. N., Herring, R. J., & Szegö, G. P. (1995). The role of capital in financial institutions. *Journal of Banking & Finance, The Role of Capital in Financial Institutions*, 19(3), 393-430. [https://doi.org/10.1016/0378-4266\(95\)00002-X](https://doi.org/10.1016/0378-4266(95)00002-X)
- Boot, A. W., & Thakor, A. V. (1997). Financial system architecture. *The Review of Financial Studies*, 10(3), 693-733.
- Burt, R. S. (2000). The Network Structure Of Social Capital. *Research in Organizational Behavior*, 22, 345-423. [https://doi.org/10.1016/S0191-3085\(00\)22009-1](https://doi.org/10.1016/S0191-3085(00)22009-1)
- Claessens, S., Coleman, N., & Donnelly, M. (2018). “Low-For-Long” interest rates and banks’ interest margins and profitability : Cross-country evidence. *Journal of Financial Intermediation*, 35(PA), 1-16.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American journal of sociology*, 94, S95-S120.
- Coleman, J. S. (1990). *Foundations of social theory*. Harvard University Press.

- Diallo, S., & Ouoba, Y. (2024). Effect of energy policies on industrial development in sub-Saharan African countries. *International Journal of Technology Management & Sustainable Development*, 23(1), 105-122. https://doi.org/10.1386/tmsd_00087_1
- Driscoll, J. C., & Kraay, A. C. (1998). Consistent covariance matrix estimation with spatially dependent panel data. *Review of economics and statistics*, 80(4), 549-560.
- Elster, J. (1989). Social Norms and Economic Theory. *The Journal of Economic Perspectives*, 3(4), 99-117.
- Fama, E. F. (1985). What's different about banks? *Journal of Monetary Economics*, 15(1), 29-39. [https://doi.org/10.1016/0304-3932\(85\)90051-0](https://doi.org/10.1016/0304-3932(85)90051-0)
- Fisher, I. (1930). *The theory of interest as determined by impatience to spend income and opportunity to spend It*.
- Fukuyama, F. (2001). Social capital, civil society and development. *Third World Quarterly*, 22(1), 7-20. <https://doi.org/10.1080/713701144>
- Gao, L. (Xuehui), Melero-Polo, I., & Sese, F. J. (2020). Customer Equity Drivers, Customer Experience Quality, and Customer Profitability in Banking Services : The Moderating Role of Social Influence. *Journal of Service Research*, 23(2), 174-193. <https://doi.org/10.1177/1094670519856119>
- Granovetter, M. (1983). The Strength of Weak Ties : A Network Theory Revisited. *Sociological Theory*, 1, 201-233. <https://doi.org/10.2307/202051>
- Guiso, L., Sapienza, P., & Zingales, L. (2004). The role of social capital in financial development. *American economic review*, 94(3), 526-556.
- Gujarati, D. N. (2004). *Basic econometrics: McGraw-Hill*.
- Gupta, A., Raman, K., & Shang, C. (2018). Social capital and the cost of equity. *Journal of Banking & Finance*, 87, 102-117. <https://doi.org/10.1016/j.jbankfin.2017.10.002>
- Gurley, J. G., & Shaw, E. S. (1960). *Money in a Theory of Finance*. *Brookings*.
- Hartlieb, S., Loy, T. R., & Eierle, B. (2020). Does community social capital affect asymmetric cost behaviour? *Management Accounting Research*, 46, 100640. <https://doi.org/10.1016/j.mar.2019.02.002>
- Hasan, I., Hoi, C. K., Wu, Q., & Zhang, H. (2017). Social Capital and Debt Contracting : Evidence from Bank Loans and Public Bonds. *The Journal of Financial and Quantitative Analysis*, 52(3), 1017-1047.
- Hashmi, R., & Alam, K. (2019). Dynamic relationship among environmental regulation, innovation, CO2 emissions, population, and economic growth in OECD countries : A panel investigation. *Journal of cleaner production*, 231, 1100-1109.

- Hausman, J. A. (1978). Specification Tests in Econometrics. *Econometrica*, 46(6), 1251-1271. <https://doi.org/10.2307/1913827>
- Hmaittane, A., Mnasri, M., Bouslah, K., & M'Zali, B. (2021). Social Capital and Cost of Bank Loans During the Financial Crisis. *Management International / International Management / Gestión Internacional*, 25(2), 107-123. <https://doi.org/10.7202/1077787ar>
- Ho, T. S. Y., & Saunders, A. (1981). The Determinants of Bank Interest Margins : Theory and Empirical Evidence. *The Journal of Financial and Quantitative Analysis*, 16(4), 581-600. <https://doi.org/10.2307/2330377>
- Ho, Y.-P., & Wong, P.-K. (2007). Financing, Regulatory Costs and Entrepreneurial Propensity. *Small Business Economics*, 28(2), 187-204. <https://doi.org/10.1007/s11187-006-9015-0>
- Hoi, C. K., Wu, Q., & Zhang, H. (2018). Community Social Capital and Corporate Social Responsibility. *Journal of Business Ethics*, 152(3), 647-665.
- Jacobs, D., & Tillie, J. (2004). Introduction : Social capital and political integration of migrants. *Journal of Ethnic and Migration Studies*, 30(3), 419-427. <https://doi.org/10.1080/13691830410001682016>
- Jarrow, R. A. (2009). Credit Risk Models. *Annual Review of Financial Economics*, 1, 37-68.
- Kamukama, N., & Natamba, B. (2013). Social capital : Mediator of social intermediation and financial services access. *International Journal of Commerce and Management*, 23(3), 204-215. (world). <https://doi.org/10.1108/IJCoMA-02-2012-0013>
- Keefer, P., & Knack, S. (1997). Why don't poor countries catch up ? A cross-national test of an institutional explanation. *Economic inquiry*, 35(3), 590-602.
- La Porta, R., Lopez-De-Silanes, F., Shleifer, A., & Vishny, R. W. (1997). Legal Determinants of External Finance. *The Journal of Finance*, 52(3), 1131-1150. <https://doi.org/10.1111/j.1540-6261.1997.tb02727.x>
- North, D. C. (1990). A Transaction Cost Theory of Politics. *Journal of Theoretical Politics*, 2(4), 355-367. <https://doi.org/10.1177/0951692890002004001>
- Ouoba, Y. (2016). Natural resources : Funds and economic performance of resource-rich countries. *Resources Policy*, 50, 108-116. <https://doi.org/10.1016/j.resourpol.2016.09.003>
- Panta, H. (2020). Does social capital influence corporate risk-taking? *Journal of Behavioral and Experimental Finance*, 26, 100301.
- Papadimitri, P., Pasiouras, F., Pescetto, G., & Wohlschlegel, A. (2021). Does political influence distort banking regulation? Evidence from the US. *Journal of Financial Stability*, 53, 100835. <https://doi.org/10.1016/j.jfs.2020.100835>

- Pasiouras, F., & Samet, A. (2022). Social capital and the cost of bank equity : Cross-country evidence. *Journal of Banking & Finance*, 141, 106535. <https://doi.org/10.1016/j.jbankfin.2022.106535>
- Pesaran, M. H. (2015). Testing Weak Cross-Sectional Dependence in Large Panels. *Econometric Reviews*, 34(6-10), 1089-1117. <https://doi.org/10.1080/07474938.2014.956623>
- Portes, A. (2000). The Two Meanings of Social Capital. *Sociological Forum*, 15(1), 1-12. <https://doi.org/10.1023/A:1007537902813>
- Posner, M. I., & Rothbart, M. K. (2000). Developing mechanisms of self-regulation. *Development and Psychopathology*, 12, 427-441. <https://doi.org/10.1017/S0954579400003096>
- Putnam, R. D. (1995). Tuning in, tuning out : The strange disappearance of social capital in America. *PS: Political science & politics*, 28(4), 664-683.
- Putnam, R. D. (2000). *Bowling alone : The collapse and revival of American community*. Simon and schuster.
- Putnam, R. D., Leonardi, R., & Nanetti, R. Y. (1992). *Making Democracy Work : Civic Traditions in Modern Italy*. Princeton University Press.
- Schumpeter, J. A. (1934). The theory of economic development. Cambridge, MA: Harvard. *SchumpeterThe Theory of Economic Development1934*.
- Tsani, S. (2013). Natural resources, governance and institutional quality : The role of resource funds. *Resources Policy*, 38(2), 181-195.
- Wang, Q., Niu, G., & Zhou, Y. (2024). Social Trust and Household FinTech Adoption. *China Journal of Economics*, 11(2), 205-225. <https://doi.org/10.26599/CJE.2024.9300207>
- Yang, S., Li, Z., Ma, Y., & Chen, X. (2018). Does Electronic Banking Really Improve Bank Performance? Evidence in China. *International Journal of Economics and Finance*, 10, 82-94. <https://doi.org/10.5539/ijef.v10n2p82>

Appendix

Table 8: The variables of the model

Variables	Source	Definition	Expected sign
<i>Net interest margin</i>	Ex-Bankscope (Fitchconnect) 2022	It is the difference between the total interest income and debit on the average asset	
<i>Social capital</i>	Legutium 2022	It is a synthetic index designed on the basis of the elements of trust within society.	-
<i>Bank size</i>	Ex-Bankscope (Fitchconnect) 2022	It is commonly used as an approximation of the size of the bank. The natural logarithm transformation is used to smooth out large differences in the size of different banks.	+/-
<i>Bank Liquidity</i>	Ex-Bankscope (Fitchconnect) 2022	Actifs liquides/financement à court terme	-
<i>Inflation</i>	WDI	Taux de croissance de l'IPC	+
<i>Credit Risk</i>	Ex-Bankscope (Fitchconnect) 2022	Ratio of net loans to total assets. It shows the share of total assets that is made up of loans.	+
<i>Gross domestic product/capita</i>	WDI 2022	It measures GDP per capita as a percentage	-

Source: The source of all variables is the Bankscope 2021 and WGI 2021 database