Financial sector transparency and bank interest margins: do quality of political and financial regulatory institutions matter?

Baah Aye Kusi
Department of Banking and Finance, Central University, Ghana and Department of Finance, Business School, University of Ghana, Accra, Ghana

Received 11 October 2020
Revised 26 January 2021
Accepted 30 March 2021

Abstract

Purpose – This study aims to examine the effect of private (PRST) and public (PUST) sector-led financial sector transparencies on bank interest margins (BIM) termed as social cost of financial intermediation in different institutional quality setups.

Design/methodology/approach – This study uses a two-step dynamic generalized method of moments panel data and bootstrapped quantile models with 91 economies between 2004 and 2016. Data is sourced from World Development Indicator and Global Development Finance databases.

Findings – The results show that under strong and weak political and financial regulatory institutional setups, the reducing effect of PRST on BIM are observed and reported while the full sample reports no significant nexus between PRST and PUST on BIM. Furthermore, under political institutional quality sample, economies with strong corruption control and regulatory quality are able to reinforce the dampening effect of PRST on BIM while under the same political institutional quality sample, economies with weak rule of law are able to heighten the reducing effect of PRST on BIM. Moreover, under financial regulator institutional quality sample, economies with strong overall weighted and unweighted, chief executive officer and policy dependent central banks are able to intensify the diminishing effect of PRST on BIM while under the same financial regulator institutional quality sample, economies with weak limits on lending are able to amplify the reducing effect of PRST on BIM. However, PUST is reported to propel lower levels BIM in the bootstrap models, especially in strong institutional economies.

Practical implications – These findings imply that policymakers may rely on PRST to reduce BIM, especially under financial regulatory institutional quality. Additionally, economies must be careful on their reliance on PRST because the effectiveness of PRST to tame high BIM is dependent on the strength of political and financial regulatory institutions.

Originality/value – To the best of the authors' knowledge, this study presents first time international evidence on the effect of private and public sector-led financial transparency on BIM in strong and weak political and financial regulatory institution economies.

Keywords Private sector, Public sector, Institutional quality, Bank interest margins, Financial sector transparency

Paper type Research paper

Introduction

The finance literature suggests that transparency in the financial market promotes the interest and wellbeing of financial market participants and the financial system in totality (Asongu *et al.*, 2019; Asongu, 2017). It has empirically been advanced that transparency in the financial sector boosts investor confidence in the financial system (Dunning, 2006; Wurgler, 2000), reduce cost of finance (Asongu *et al.*, 2019; Asongu, 2017), reduce credit allocation constraints (Dierkes *et al.*, 2013; Brown *et al.*, 2009) and enhance stability of

Journal of Financial Regulation and Compliance
Vol. 29 No. 4, 2021
pp. 409-433

1358-1988
DOI 10.1108/JFRC-10-2020-0097

financial system by reducing credit risk (Kusi *et al.*, 2017; Kusi *et al.*, 2016a, 2016b). With information asymmetry theory indicating that lack of transparency in the financial market may increase bank loan prices as a result of increased banking uncertainty, risk premium and credit risk, these tend to widen bank interest margins (BIM) as these risks and uncertainties are passed on bank clients through loan pricing. Learning from prior studies (Gyeke-Dako *et al.*, 2018; Poghosyan, 2013; Naceur and Kandil, 2009) that state that BIM is cost borne by financial market participants, it is intuitive to argue that improving transparency in the financial market should reduce social cost of financial intermediation measured with BIM. Yet, empirical studies that examine the nexus between financial sector transparency and BIM in the finance literature are limited despite theoretical and arguable relationship between financial sector transparency and BIM.

From the finance literature, the studies of Ho and Saunders (1981) and Maudos and De Guevara (2004) state that the pricing of loans and deposits are complex and impeded by lack of complete and reliable information; hence causing lenders to price their loans and deposits higher and lower, respectively, to cater for uncertainties arising from the financial intermediation process. More so, with prior studies (Maria and Agoraki, 2010; Martinez *et al.*, 2004) showing that banks incorporate their inefficiencies including nonperforming loans and loan provisions (credit risk and losses) into loan pricing which increases BIM, improving transparency in the financial market may reduce the incorporation of credit risks and losses into the loan prices which may reduce BIM. That is, with Kusi *et al.* (2017, 2016a, 2016b) showing that transparency in the banking sector reduces bank credit risk and losses, it will as well reduce the passage of credit risk and losses into loan prices hence reducing BIM. By these arguments, one can advance that the lack of transparency in the financial market resulting from the lack, incomplete and inaccurate information in the credit market may widen the difference between lending and deposit prices which is termed as BIM or cost of financial intermediation. Given that wider and volatile BIM could have serious unfavorable implications for bank management, financial participants and financial systems soundness (Islam and Nishiyama, 2016; Hawtrey and Liang, 2008), it is imperative at this time to investigate how transparency in the financial market serves as a medium through which wider BIM can be narrowed and tamed under strong and weak institutional setups. Thus, little to no studies investigate how transparency in the financial market influence BIM under strong and weak institutional frameworks.

One critical factor that may reinforce the effect of transparency in the financial market on BIM is the establishment of strong political and financial regulatory institutions. While this study advances the obvious but less examined effect of financial sector transparency on cost of financial intermediation, this study further shows the relevance of both financial regulatory and political institutions in enforcing transparency in the financial sector. For instance, Kusi *et al.* (2019) studied central bank independence and economic welfare in Africa and confirmed the relevance of institutions in fostering the positive nexus between central bank independence and economic welfare. Hence, this study deems it fit to examine how financial sector transparency led by private and public sectors affect BIM or social cost of financial intermediation under strong and weak political and financial regulator institutional quality [1] setups. In the context of institutional quality, this study contributes or expands the knowledge on institutions by using both political and financial regulatory institutions to make a case for the role played by institutional quality between financial sector transparency and cost of financial intermediation or BIM. Thus, central bank independence variable created by Garriga (2016) is used to measure financial regulatory institution quality while political institution quality is measured using Kaufmann *et al.* (2006) indicator of political institutions quality. The rest of this study is organized into

overview, literature review, hypotheses development, methodology, empirical results and discussions, robustness checks and diagnostics and conclusions and policy recommendations sections.

Overview of bank interest margins, private and public sector-led financial transparencies

This section presents an overview on BIM, private (PRST) and public (PUST) sector transparencies between 2004 and 2016. Specifically, yearly trends in BIM and financial sector transparencies are reported in Table 1 while the overall period averages (2004–2016) of economies with strong and weak institutions (political and financial regulator institutions) are reported in Tables 2 and 3. Financial sector transparency is measured as private credit bureau coverage (PRST) and public credit

Table 1. Yearly trends in bank interest margins, private and public sector-led financial transparencies

Variables	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
BIM	5.22	4.932	4.892	5.092	4.816	4.724	4.684	4.668	4.573	4.454	4.292	4.156	4.284
PrST	15.661	15.275	16.583	18.756	19.637	21.151	22.432	24.37	24.398	26.774	27.588	28.682	29.327
PuST	3.378	3.314	3.931	4.268	5.243	6.351	6.992	8.103	8.912	10.126	10.389	11.701	12.504

Notes: BIM: bank interest margin; PRST: financial sector transparency led by private sector; PUST: financial sector transparency led by public sector – figures or values are in percentages

Table 2. Average bank interest margins, private and public sector-led financial transparencies in economic with string and weak political institutions

Political institutions sample	BIM	PRST	PUST
Full sample	4.673	23.235	8.022
Strong political institutional environment	3.273	38.092	10.192
Weak political institutional environment	5.85	12.145	6.401
t-stat	24.742***	−20.048***	−5.412***
H0	Diff = 0		

Notes: BIM: bank interest margin; PRST: financial sector transparency led by private sector; PUST: financial sector transparency led by public sector. Values are in percentages with the exception of *t*-stat values

Table 3. Average bank interest margins, private and public sector-led financial transparencies in economic with string and weak financial institutions

Financial regulator institution sample	BIM	PRST	PUST
Full sample	4.673	23.235	8.022
Economies with strong financial regulator institution	4.524	25.614	9.64
Economies with weak financial regulator institution	5.002	16.954	3.748
t-stats	3.816***	−5.63***	−7.635***
H0	Diff = 0		

Notes: BIM: bank interest margin; PRST: financial sector transparency led by private sector; PUST: financial sector transparency led by public sector. Values are in percentages with the exception of *t*-stat values

registry coverage (PUST) which are credit information sharing variables that offer transparency in the credit or banking market. While private credit bureau coverage and public credit registry coverage measures financial sector transparency led by the private sector and public sector, respectively, BIM is the ratio of the difference between bank interest income and interest expense to total assets.

From Table 1, BIM shows a declining movement in 2004 from 5.22% to 4.98% in 2006 after which it increased in 2007 to 5.09%. The increase in 2007 may be attributed to the 2007 global financial crises which caused the prices of financial assets to go up. However, after 2007 BIM have constantly declined from 5.09% in 2007 to 4.16% in 2015 and marginally increased in 2016 to 4.28%. In general, BIM is observed to declining gradually. On the contrary, financial sector transparency led by the private (PRST) and public (PUST) sectors have generally and persistently increased from 15.28% and 3.31% in 2005 to 29.33% and 12.50% in 2016, respectively. This is an indication that transparency in the financial market has continuously improved between 2005 and 2016. Interestingly, while BIM consistently declined over the period, private and public sector-led financial sector transparencies also improved over the period. Given the observations, could PRST and PUST be causing the decline in BIM? While this observation may intuitively suggest so, this evidence is not strong enough to conclude, hence a need for further robust analysis.

In Tables 2 and 3, the study reports on the period averages (2004–2016) of BIM, PRST and PUST in economies with strong and weak political and financial regulator institutional quality, respectively. The average of BIM, PRST and PUST are 4.67%, 23.33% and 8.02%, respectively, for the full sample (Table 2). Interesting for economies with strong and weak political institutional quality reported average BIM of 3.27% and 5.85%, respectively (Table 2). Similarly, economies with strong and weak financial regulator institutional quality reported average BIM of 4.52% and 5%, respectively (Table 3). These provide indications that economies with strong political and financial regulator institutional quality tend to have lower BIM compared with economies with weak political and financial regulator institutional quality. Testing for the significant in the mean difference of economies with weak and strong political and financial regulator institutional quality, the study finds that the difference in the mean values of economies with weak and strong political and financial regulator institutional quality are significantly different from zero implying that the differences are not because of randomness or chance.

Similarly, the study observes that economies with strong and weak political institutional quality reported average PRST and PUST of 38.09% and 12.15% and 10.19% and 6.40%, respectively (Table 2). The study observes similar trends as economies with strong and weak financial regulator institutional quality reported average PRST and PUST 25.61% and 16.95% and 9.64% and 3.75%, respectively (Table 3). These observations provide indications that economies with strong political and financial regulator institutional quality tend to have higher PRST and PUST compared with economies with weak political and financial regulator institutional quality. Testing for the significant in the mean difference of economies with weak and strong political and financial regulator institutional quality, the study finds that the difference in the mean values of economies with weak and strong political and financial regulator institutional quality are significant different from zero implying that the differences are not because of randomness or chance. This therefore supports justification for the splitting and running of results for economies with strong and weak institutional quality.

Literature review: theoretical, conceptualization and empirics of bank interest margins

BIM is theoretically explained by the financial intermediation theory (or dealership theory) and usually conceptualize by academics to proxy bank profitability (Dietrich and Wanzenried, 2011; Kasman *et al.*, 2010; Ben Naceur and Goaied, 2008), competiveness (Carbó *et al.*, 2009) and social cost of financial intermediation (Gyeke-Dako *et al.*, 2018; Mensah and Abor, 2014; Naceur and Kandil, 2009; Naceur, 2003). The differences in the conceptualization of BIM project the complex nature of how authors view BIM, hence severe and different studies on the determinants of BIM. However, this study conceptualizes BIM following the social cost of intermediation perspective. From a theoretical point of view, BIM stems from the financial intermediation or dealership theory (Ho and Saunders, 1981; Maudos and De Guevara, 2004; Kusi *et al.*, 2020). That is, bank margins results from the match making functions of banks where deficit spending units are linked with surplus spending units. In this intermediation process, banks are faced with pricing and risk issues resulting from lack of complete, accurate and reliable information (information asymmetry) in the credit market (William, 2007). Thus, given the uncertainties and risky nature of the intermediation process resulting from information asymmetry, banks cost their loans and deposits relatively higher and lower, respectively to safe guard themselves. This therefore implies that improving transparency in the financial market may lead to reduced bank margins. As a result, the information sharing theory coincides with the information asymmetry theory stating that sharing information among lenders can reduce information asymmetry. From this, it is intuitive to state that enhance transparency through credit information sharing among lenders can reduce the social cost of financial intermediation for the betterment of financial market participants. And given that both political and financial institutions may enact, implement, supervise and enforce transparency in the financial sector, it is cogent and imperative to study how the relationship between transparency in financial market and net interest margin is affected by high and low political and financial institutional quality.

In terms of empirics, a number of studies have focused on BIM as a social cost of financial intermediation variable. For the purpose this discussion, this study focuses on studies the conceptualization net interest margins as social cost of financial interest variable. First, Kusi *et al.* (2020) investigated how financial sector transparency led by the private and public sector influence BIM using over eighty-six economies between 2005 and 2016. Using both dynamic and static models, their results show that BIM conceptualized as social cost of financial intermediation is reduced through improvements in financial sector transparency. Their findings suggest that while private sector led financial transparency is more weightier in reducing BIM, public sector led financial transparency is more consistent in reducing bank interest margins across more continents. Similarly, Gyeke-Dako *et al.* (2018) studied BIM as a measure of social cost of financial intermediation and focused on the effect of financial development. Employing a generalized methods of moments (GMM) panel data of 260 banks from 29 countries in Africa between 2006 and 2013, their findings show that financial development dampened wide BIM and countries with developed financial markets had lower social cost of financial intermediation. Also, Gungoraydinoglu *et al.* (2017) examined how political environment shapes the financial intermediation cost and financing patterns. Using GMM panel data of firms from 43 economies covering periods between 1990 and 2012, the results show that financial intermediation cost in the form of bond and equity spreads reduced when institutional quality improved across the firms. Interestingly, both short-term and long-term bond and equity spreads responded negatively to improvements in political institutions.

Likewise, Rahman *et al.* (2017) investigated how banking efficiency influence bank capital holdings and cost of financial intermediation across 1,190 banks in five emerging and developing economies between 2000 and 2015. Using GMM panel models their results show that more efficient banks hold higher capital and charge lower financial intermediation costs. Additionally, while they find that cost efficiency has a marginal positive impact on bank capital during the global financial crisis of 2007–2009, they also report that banks on the average increase the cost of financial intermediation during crisis. Furthermore, Pasiouras (2018) examined how cost of financial intermediation is influenced by financial consumer protection policies using a dataset of over 3,000 commercial banks across 100 countries. Using random effect panel models, the results show that the presence of internal mechanisms for handling complaints, requirements for fair treatment, supervisory power related to consumer protection and various disclosure requirements reduced cost of financial intermediation in advanced economies. However, in the context of developing economies, it is observed that most of the financial consumer protection policies rather increase the cost of financial intermediation implying that banks in developing economies pass on the regulatory burdens or cost of financial consumer protection to their customers. More so, Poghosyan (2013) evaluates the drivers of financial intermediation costs in low-income economies comparing the result to emerging market economies. The results show that particularly in low-income economies, riskiness of credit portfolio, lower bank capitalization and smaller bank size contributed to financial intermediation cost at the bank level. At the industry and macroeconomic level, higher levels of bank sector concentration, lower levels of banking competition and weakness in institutional quality significantly impeded lowering of financial intermediation cost.

Moreover, Naceur and Kandil (2009) examined the effect of capital regulations on cost of financial intermediation in Egypt. Using a dynamic panel of bank level data, the results suggest that increasing capital adequacy results in a higher cost of financial intermediation. Similarly, other factors including operational cost, liquidity and capital-to-assets ratios increased cost of financial intermediation while economic activities and inflation dampened cost of financial intermediation in Egypt's banking sector. Furthermore, Demirguc-Kunt *et al.* (2003) studied the effect of regulations, market structures and national institutions on financial intermediation cost using over 1,400 bank across 72 economies. Their results show that tightening regulations on bank entry and activities widens the financial cost of intermediation while market structures representing bank concentration also increases the cost of financial intermediation. However, when regulatory impediments on competition and inflation are controlled for, the positive relationship between concentration and cost of financial intermediation becomes insignificant revealing the relevance of institutions in forcing regulations.

Hypotheses development

It is clear from the theoretical and empirical review that there is a nexus between social cost of financial intermediation and financial sector transparency although less empirically examined. While the study finds that quite a number of studies have examined cost of financial intermediation determinants, empirical studies that focus on the relationship between transparency in the financial market and BIM are less existent to the best of our research abilities and capacities. Again, with studies (Kusi *et al.*, 2019; Gungoraydinoglu *et al.*, 2017) showing that institutional quality especially political institutions are relevant for financial and economic outcomes, this study investigates how both political and financial regulator institutions reinforce the nexus between financial sector transparency and cost of financial intermediation (measured as BIM). It is against this background that this study

contends the following: (i) that financial sector transparency should significantly narrow the cost of financial intermediation and (ii) that political and financial regulatory institutions should matter for reinforcing the relationship between transparency and cost of financial intermediation. Given the above, the null hypotheses are stated as follows:

H0. There is no significant relationship between financial sector transparency and cost of financial intermediation.

H0. Political and financial regulatory institutions do not significantly reinforce the nexus between financial sector transparency and cost of financial intermediation.

Methodology

In this study, a panel data strategy is used to examine the hypothesis outlined. Following the econometric literature (Brooks, 2019; Baltagi *et al.*, 2003), the panel data provides more reliable, accurate and consistent results compared to the traditional cross-sectional and time series data because it combines and corrects the strengths and weaknesses of the traditional cross-sectional and time series data respectively. The data for this study is sourced from World Development Indicators and Global Financial Development Database between 2005 and 2016. That is, the bank related variables are sourced from Global Financial Development Database while financial sector transparency variables are obtained from World Development Indicators Database. The data covers 91 economies across the globe. From the panel framework, the study expresses the general panel model as follows:

$$Y_{i,t} = \alpha_{ij} + \gamma_{tj} + \beta X_{i,t} + \varepsilon_{i,t} \quad (1)$$

where subscript i signifies the cross-sectional dimension (country) $i = 1 \ldots N$ and t signifies the time series dimension (time), $t = 1 \ldots T$; Y_{it} is the dependent variable; α_i is scalar and constant term for all periods (t) and specific to a country's fixed effect (i); γ_t is the time fixed effect t; β is a $k \times 1$ vector of parameters to be estimated on the independent variables; $X_{i,t}$ is a $1 \times$ k vector of observations on the independent variables comprising of input variables in the model which includes controlled variables and $\varepsilon_{i,t}$ which is iid is the error term.

In terms of estimation strategy, this study employs the two-step GMM. This estimation strategy is employed for a number of reasons. First, BIM is deemed to be persistent as prior years BIM dictate present year BIM; hence necessitating the using of the two-step GMM to capture the persistent nature of BIM. Second, there is a possibility of potential endogeneity (specifically simultaneity problem) arising from the used of BIM (as dependent variable) and non-interest margins (independent variable) as they jointly determine each other (Nguyen, 2012). In view of these, the two-step GMM is deemed fit to control for mentioned endogeneity and additional control for possible heteroscedasticity and autocorrelation which the one-step GMM is unable to control for. To ensure robustness in the findings and results, bootstrap quantile regression models which the ability to overcome outliers (Koenker, 2011; Cade and Noon, 2003) and small sample problems (Wei *et al.*, 2006) are used. The quantile models also avoid the parametric distribution assumptions of the error process (Koenker, 2011; Cade and Noon, 2003) and further offer us the opportunity to identify thresholds for which transparency in the financial market affects BIM significantly. The study following prior studies (Tarus *et al.*, 2012; Carbó *et al.*, 2009) specifies our BIM as follows:

$$BIM_{i,t} = \beta_1 BIM_{i,t-1} + \beta_2 PrST_{i,t} + \beta_3 PuST_{i,t} + +\beta_4 CAPITAL_{i,t} + \beta_5 COST - EFF_{i,t} + \beta_6 BANKDIV_{i,t} + \beta_7 INFL_{ij,t} + +\beta_8 GDPPC_{i,t} + \beta_9 RRATE_{i,t} + \varepsilon_{i,t} \quad (2)$$

Variable definition and selection

Bank interest margin

BIM measured as ratio of different between bank interest income to bank interest expense to total assets (Carbó *et al.*, 2009) is used as the dependent variable a proxy for social cost of financial intermediation. Allen (1988) states that BIM may be termed as bank markup or spread and summarizes the profits of banks, competiveness of the banking sector and cost borne by the society owing to the financial intermediation process.

Financial sector transparency (PRST and PUST)

In this study, financial sector transparency is measured using the coverage of private and public sector-led information sharing systems and obtained from World Development Indicator database. These indicators measure the extent to which the financial and credit records of adult population in an economy is available to financial institutions for making decisions. This reduces information asymmetry, risk (Asongu *et al.*, 2019; Asongu, 2017) and hence improving certainty in the financial market by sanitizing credit losses and risk. This makes the financial market safer and translates into lower risk premium and loan pricing. Hence, the study expects financial sector transparency whether led by the private or public sectors to reduce BIM although the study expects private sector-led financial transparency to be more effective following the argument of Miller (2003). Furthermore, one expects financial sector transparency to have a more significant effect in economies with strong political and financial regulator institutions given that stronger institutions are able to enforce transparency in the financial market to have a desirable significant effect.

Operating cost efficiency (COST-EFF)

Operating cost efficiency is measure as a ratio of operating expenses to total income. Following the normal accounting preparation of income statement increased operational expenses should lead to lower margins. However, in banking sector banks pass on the operating cost to their clients through the rates they charge; hence resulting in a positive relationship between operating cost efficiency and BIM (Maria and Agoraki, 2010; Martinez *et al.*, 2004). Similarly, following the cost and pricing strategies in business, costs are costed and factored into determining prices of products and services; hence a positive effect of bank cost on interest margins is rational and intuitive.

Capital (CAPITAL)

Capital is an indicator of the adequacy of bank equity to absorb risk and losses that accrue in the operations of the bank. It is measured as a ratio of equity capital to total assets. From the risk-return hypothesis, well-capitalized banks have the financial muscles and risk appetite and capacity to take on more bank businesses, hence increased BIM. Thus, a positive effect is expected between bank capital and interest margins.

Bank income diversification (BANKDIV)
Bank income diversification is used as measure of income or earnings diversification and shows the earnings generated by banks outside the core banking business. It is measured as ratio of non-interest income to total income. Following the prior study of Stiroh (2004), a deviation from the core banking business activities should result in a reduction in the income generated from the core banking business; hence a negative nexus between bank income diversification and BIM. Put differently, the two are alternative sources of incomes and as such an increase in one leads to a reduction in the other.

Inflation (INFL)
Inflation measures the degree of price instability in an economy and is measured with consumer price index. The literature on inflation and BIM is said to be either positive or negative depending whether are responsive enough to adjust they rates to cater for inflation (Rasiah, 2010; Perry, 1992). Where banks a responsive enough, they would adjust the rates to reflect inflationary moments and hence a positive relationship will be expected. However, where banks a less responsive enough, they would fail adjust the rates to reflect inflationary moments and hence a negative relationship will be expected.

Gross domestic product per capita
Gross domestic product per capita (GDPPC) is used as a measure of citizenry welfare and measured as the natural log of GDPPC. The literature argues that the link between BIM and GDPPC l could be positive (Claessens *et al.*, 2001) or negative (Islam and Nishiyama, 2016; Tarus *et al.*, 2012; Demirguc-Kunt *et al.*, 2003). While the positive studies state that GDPPC is an indication improved welfare leading to increased repayment of loans and hence increased BIM, those that find negative argue that improved GDPPC represents enhanced welfare and signals ability of clients to honor credit obligations and causing banks to reduce premium charges leading to a negative link between GDPPC and BIM. Hence, the studies expects both positive and negative link between GDPPC and BIM.

Real interest rate (RRATE)
Real interest rate is used to capture price of loans or credit advanced by banks. Following the fisher effect approximation formula, real interest rate is computed as lending rate less inflation and is expected to increase interest margins. Thus, banks rely on interest rate to generate of their interest income and hence a positive relationship is expected between real interest rate and interest margins. This expectation is in accordance with prior studies including Saunders and Schumacher (2000) and Wong (1997). Table 4 summarizes all the variables for clarity.

Empirical results and discussions

Using the descriptive statistics table (Table 5), the study screens and checks for outliers which has the ability to adversely affect the accuracy, consistency and reliability of the results and findings. Following the mean, standard deviation, minimum and maximum values the study finds no evidence of outliers. Furthermore, in Table 6 the pairwise correlation is reported to check for multicollinearity. Following Kennedy (2008) who set multicollinearity threshold at 0.7, no evidence of multicollinearity is observed. More so, the variance inflation factor (VIF) values which show the degree of acceptability of each of the variables in the estimated models reveal all the variables are within the acceptable VIF threshold of 10. Hence, all the variables are acceptable in the estimated models.

Symbols	Names	Measurements	Expected signs	Sources
BIM	Net interest margins	[Interest income − Interest expense]/ total assets		Global Financial Development
PRST	Private sector financial sector transparency	Percentage of adult population covered by private bureaus	−	World Development Indicators
PUST	Public sector financial sector transparency	Percentage of Adult Population covered by public registries	−	World Development Indicators
COST-EFF	Cost efficiency	Operational cost/total income	+	Global Financial Development
CAPITAL	Capital adequacy	Equity capital/ total assets	+/−	Global Financial Development
INFL	Inflation	Consumer price index	+/−	World Development Indicators
GDPPC	Gross domestic product per capita	GDP/total population	+/−	World Development Indicators
BANKDIV	Bank diversification	Non-interest income/total income	−	Global Financial Development
RRATE	Real interest rate	Lending rate − Inflation	+	Computed by Authors

Table 4.
Description and summary of variables

Notes: BIM: bank interest margin; PRST: financial sector transparency led by private sector; PuST: financial sector transparency led by public sector; COST-EFF: cost efficiency; CAPITAL: bank capital adequacy; INFL: inflation; GDPPC: gross domestic product per capita; BANKDIV: bank diversification; RRATE: real interest rate. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Variable	Obs	Mean	Std. dev.	Min	Max
BIM	2,350	4.673	2.822	0.125	20.489
PRST	2,431	23.235	34.072	0	100
PUST	2,431	8.022	17.186	0	100
CAPITAL	1,481	10.138	3.978	1.49	24.849
COST-EFF	2,362	3.749	3.785	0.001	89.423
BANKDIV	2,011	39.041	14.417	2.466	93.701
INFL	2,509	5.58	11.766	−18.109	379.848
LNGDPPC	2,673	9.152	1.225	6.211	11.852
RRATE	1,831	6.007	14.156	−369.482	62.618

Table 5.
Descriptive statistics

Notes: BIM: bank interest margin; PRST: financial sector transparency led by private sector; PUST: financial sector transparency led by public sector; COST-EFF: cost efficiency; CAPITAL: bank capital adequacy; INFL: inflation; GDPPC: gross domestic product per capita; BANKDIV: bank diversification; RRATE: real interest rate. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

In Tables 7–12, this study presents the effect of private and public sector-led financial transparency on BIM. The findings and results cover about ninety-one economies between 2004 and 2016. Specifically, GMM results are reported in Tables 7–9 while bootstrap quantile model results are reported in Tables 10–12. In Tables 7 and 10, the full samples are

Variables	VIF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) BIM	–	1.000								
(2) PRST	*1.641*	−0.287*	1.000							
(3) PUST	*1.126*	−0.136*	0.005	1.000						
(4) CAPITAL	*1.373*	0.567*	−0.206*	−0.110*	1.000					
(5) COST-EFF	*2.239*	0.532*	−0.156*	−0.116*	0.353*	1.000				
(6) BANKDIV	*1.308*	−0.111*	−0.022	−0.134*	0.065*	0.249*	1.000			
(7) INFL	*1.979*	0.214*	−0.111*	−0.051*	0.221*	0.144*	0.076*	1.000		
(8) LNGDPPC	*2.683*	−0.614*	0.500*	0.243*	−0.401*	−0.416*	−0.132*	−0.208*	1.000	
(9) RRATE	*2.024*	0.156*	−0.045*	0.018	0.163*	0.121*	0.007	−0.821*	−0.152*	1.000

Notes: BIM: bank interest margin; PRST: financial sector transparency led by private sector; PUST: financial sector transparency led by public sector; COST-EFF: cost efficiency; CAPITAL: bank capital adequacy; INFL: inflation; GDPPC: gross domestic product per capita; BANKDIV: bank diversification; RRATE: real interest rate. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6.
Pairwise correlations

	(1)	(2)	(3)	(4)	(5)
		Political institutions sample		Financial institutions sample	
Variables	Full sample	Strong	Weak	Strong	Weak
L.BIM	0.630***	0.651***	0.456***	0.610***	0.516***
	(0.113)	(0.0240)	(0.137)	(0.0702)	(0.128)
PRST	−0.00173	−0.00203**	−0.00874**	−0.00371**	−0.000418
	(0.00156)	(0.000756)	(0.00396)	(0.00184)	(0.00251)
PUST	−0.000890	−0.00123	0.00446	−0.00231	−0.000525
	(0.00215)	(0.000909)	(0.00839)	(0.00265)	(0.00386)
CAPITAL	0.0297*	0.0287***	0.0672**	0.0309**	0.0613**
	(0.0178)	(0.00659)	(0.0270)	(0.0146)	(0.0280)
COST-EFF	0.263***	0.323***	0.436***	0.286***	0.503**
	(0.0718)	(0.0369)	(0.127)	(0.0805)	(0.187)
BANKDIV	−0.0347***	−0.0172***	−0.0684***	−0.0377***	−0.0235**
	(0.00766)	(0.00225)	(0.0184)	(0.00876)	(0.00978)
INFL	0.0421***	0.0461***	0.0311*	0.0256	0.0697***
	(0.0113)	(0.00643)	(0.0167)	(0.0169)	(0.0214)
LNGDPPC	−0.0231	0.0535	−0.132	−0.00563	0.139
	(0.110)	(0.0611)	(0.205)	(0.108)	(0.150)
RRATE	0.0205**	0.0126*	0.0186	0.0112	0.0476**
	(0.00935)	(0.00624)	(0.0122)	(0.0108)	(0.0219)
Constant	1.644	0.0577	3.732	1.809	−1.102
	(1.379)	(0.622)	(2.284)	(1.139)	(1.447)
Observations	668	317	351	465	203
Number of countries	91	46	51	88	38
Instruments	11	32	17	63	18
F-stats	276.37***	925.13***	78.27***	273.22***	564.94***
AR(1)	−4.00(0.000)	−3.35(0.001)	−3.02(0.003)	−4.46(0.000)	−2.40(0.017)
AR (2)	−1.52(0.127)	−0.85(0.397)	−1.62(0.105)	−1.62(0.106)	0.00(0.999)
Sargan	0.17(0.682)	55.41(0.000)	11.91(0.104)	103.88(0.000)	20.64(0.008)
Hansen	0.12(0.728)	28.76(0.152)	8.36(0.302)	53.07(0.471)	7.48(0.486)

Notes: BIM: bank interest margin; PRST: financial sector transparency led by private sector; PUST: financial sector transparency led by public sector; COST-EFF: cost efficiency; CAPITAL: bank capital adequacy; INFL: inflation; LNGDPPC: gross domestic product per capita; BANKDIV: bank diversification; RRATE: real interest rate. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 7.
Effect of financial sector transparency on bank interest margins

Table 8.
Effect of financial transparency on cost of financial intermediation – political institutions sample

	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
	Strong political institution sample						Weak political institution sample					
Variables	CC	GE	PS	RQ	RL	VA	CC	GE	PS	RQ	RL	VA
L.NIM	0.736***	0.706***	0.684***	0.626***	0.484***	0.564***	0.554***	0.478***	0.499***	0.418***	0.605***	0.490***
	(0.145)	(0.171)	(0.155)	(0.181)	(0.165)	(0.104)	(0.109)	(0.109)	(0.118)	(0.124)	(0.151)	(0.131)
PRST	−0.00255*	−0.000210	−0.000640	−0.00240*	−0.00211	−0.00144	−0.00382	−0.00876	−0.00395	−0.0101	−0.00784*	−0.00119
	(0.00141)	(0.00164)	(0.00126)	(0.00135)	(0.00191)	(0.00197)	(0.00463)	(0.00680)	(0.00403)	(0.00710)	(0.00395)	(0.00644)
PUST	−0.00127	−0.000515	0.000626	−0.000492	0.000197	0.000767	0.00117	−0.000279	−0.00516	−0.00282	−0.000300	−0.00773
	(0.00139)	(0.00123)	(0.00175)	(0.00207)	(0.00147)	(0.00260)	(0.00446)	(0.00647)	(0.00719)	(0.0111)	(0.00488)	(0.00765)
CAPITAL	−0.000419	0.0115	0.0112	0.0140	0.0491*	0.0150	0.0584***	0.0661***	0.0688***	0.0804***	0.0512***	0.0638**
	(0.0250)	(0.0247)	(0.0231)	(0.0327)	(0.0292)	(0.0209)	(0.0196)	(0.0202)	(0.0164)	(0.0274)	(0.0190)	(0.0251)
COST-EFF	0.342***	0.297**	0.299**	0.420**	0.435***	0.333**	0.336***	0.402***	0.334***	0.417***	0.365**	0.352**
	(0.121)	(0.128)	(0.132)	(0.160)	(0.150)	(0.129)	(0.0659)	(0.0988)	(0.110)	(0.145)	(0.152)	(0.142)
BANKDIV	−0.0183***	−0.0216***	−0.0168***	−0.0233***	−0.0225***	−0.0285***	−0.0538***	−0.0653***	−0.0619***	−0.0690***	−0.0603***	−0.0541***
	(0.00562)	(0.00657)	(0.00537)	(0.00617)	(0.00696)	(0.00562)	(0.00985)	(0.0131)	(0.0149)	(0.0166)	(0.0212)	(0.0144)
INFL	0.0459	0.0478**	0.0503**	0.0393	0.0573***	0.0636**	0.0361***	0.0269**	0.0450**	0.0269*	0.0296**	0.0345*
	(0.0294)	(0.0218)	(0.0245)	(0.0245)	(0.0190)	(0.0243)	(0.0131)	(0.0128)	(0.0185)	(0.0143)	(0.0111)	(0.0188)
LNGDPPC	0.140	0.0904	0.103	0.225*	0.0413	0.00650	−0.0299	−0.0747	−0.180	−0.0901	−0.00788	−0.132
	(0.115)	(0.132)	(0.109)	(0.124)	(0.172)	(0.128)	(0.149)	(0.196)	(0.144)	(0.202)	(0.161)	(0.133)
RRATE	0.00591	0.00807	0.0180	0.0221	0.0295*	0.0287	0.0199*	0.0160	0.0243*	0.0192	0.0140*	0.0192
	(0.0304)	(0.0209)	(0.0259)	(0.0174)	(0.0168)	(0.0229)	(0.0104)	(0.00980)	(0.0126)	(0.0126)	(0.00817)	(0.0138)
Constant	−0.758	−0.216	−0.504	−1.490	0.394	1.138	2.196	3.256	4.011**	3.755*	2.029	3.394**
	(1.162)	(1.347)	(1.261)	(1.455)	(1.831)	(1.394)	(1.601)	(2.026)	(1.629)	(2.146)	(1.969)	(1.316)
Observations	307	345	336	360	302	333	361	323	332	308	366	335
Countries	43	51	53	50	45	51	57	53	54	49	54	52
Instrument	32	23	44	13	19	43	23	23	44	19	18	43
F-stats	237.83***	272.54***	130.28***	418.25(0.00)	150.59***	68.30***	149.09***	122.16***	119.76***	45.07***	114.8***	132.66***
AR(1)	−2.83(0.01)	−2.28(0.01)	−2.70(0.01)	−3.20(0.00)	−2.61(0.01)	−2.81(0.01)	−3.68(0.00)	−3.39(0.00)	−3.46(0.00)	−2.99(0.00)	−3.48(0.00)	−3.04(0.00)
AR(2)	−0.76(0.45)	−1.32(0.19)	−0.97(0.33)	−0.66(0.51)	−1.11(0.27)	−1.07(0.28)	−1.54(0.12)	−1.58(0.11)	−1.62(0.11)	−1.77(0.08)	−1.3(0.19)	−1.53(0.13)
Sargan	39.12(0.01)	14.92(0.31)	56.81(0.01)	2.03(0.57)	21.44(0.01)	56.81(0.01)	6.75(0.91)	7.88(0.85)	64.93(0.00)	10.32(0.33)	9.36(0.31)	78.11(0.00)
Hansen	25.06(0.29)	13.24(0.43)	34.87(0.43)	1.98(0.58)	12.04(0.27)	34.03(0.42)	7.2(0.89)	8.64(0.80)	32.83(0.53)	8.96(0.44)	7.78(0.46)	36.8(0.30)

Notes: BIM: bank interest margin; PRST: financial sector transparency led by private sector; PUST: financial sector transparency led by public sector; COST-EFF: cost efficiency; CAPITAL: bank capital adequacy; INFL: inflation; LNGDPPC: gross domestic product per capita; BANKDIV: bank diversification; RRATE: real interest rate. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ – corruption control (CC), government efficiency (GE), political stability (PS), regulation quality (RQ), rule of law (RL) and voice and accountability (VA)

	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
	Strong central bank independence sample						Weak central bank independence sample					
Variables	U	W	CEO	OBJ	POL	LIM	U	W	CEO	OBJ	POL	LIM
L.BIM	0.683***	0.610***	0.512***	0.739***	0.610***	0.478***	0.250*	0.537***	0.536***	0.183	0.427***	0.595***
	(0.142)	(0.0702)	(0.101)	(0.129)	(0.0837)	(0.110)	(0.143)	(0.0889)	(0.0780)	(0.146)	(0.0651)	(0.0724)
PRST	−0.00340*	−0.00371**	−0.00322*	−0.00270	−0.00360**	−0.000316	0.000863	0.000382	−0.00212	−0.00217	−0.00177	−0.00395*
	(0.00198)	(0.00184)	(0.00190)	(0.00180)	(0.00169)	(0.00272)	(0.00280)	(0.00218)	(0.00280)	(0.00431)	(0.00347)	(0.00217)
PUST	−0.00246	−0.00231	−0.00398	−0.00246	−0.00158	−0.00362	−0.000733	−0.00205	−0.000711	−0.000959	0.000917	−0.00163
	(0.00291)	(0.00265)	(0.00314)	(0.00253)	(0.00232)	(0.00469)	(0.00462)	(0.00395)	(0.00460)	(0.00620)	(0.00449)	(0.00284)
CAPITAL	0.0304	0.0309**	0.0353*	0.0209	0.0370***	0.0329	0.0968*	0.0400**	0.0490	0.0316	0.0123	0.0353**
	(0.0203)	(0.0146)	(0.0190)	(0.0177)	(0.0124)	(0.0222)	(0.0487)	(0.0161)	(0.0345)	(0.0576)	(0.0316)	(0.0173)
COST-EFF	0.271*	0.286***	0.394***	0.239**	0.282***	0.503**	0.598***	0.422***	0.281**	0.904***	0.529***	0.273***
	(0.141)	(0.0805)	(0.131)	(0.116)	(0.0817)	(0.187)	(0.139)	(0.155)	(0.109)	(0.200)	(0.120)	(0.0715)
BANKDIV	−0.0388**	−0.0377***	−0.0484***	−0.0361***	−0.0334***	−0.0329***	−0.0262**	−0.0290***	−0.0275**	−0.0317***	−0.0319***	−0.0368***
	(0.0148)	(0.00876)	(0.00883)	(0.0126)	(0.00943)	(0.00910)	(0.0109)	(0.00904)	(0.0109)	(0.00944)	(0.00835)	(0.00715)
INFL	0.0344*	0.0256	0.0610***	0.0281	0.0362***	0.0895***	0.0976***	0.0836***	0.0105	0.113***	0.0762**	0.0246
	(0.0183)	(0.0169)	(0.0163)	(0.0190)	(0.0109)	(0.0173)	(0.0284)	(0.0200)	(0.0180)	(0.0301)	(0.0285)	(0.0162)
LNGDPPC	0.171	−0.00563	0.0927	0.107	−0.0311	0.106	0.00979	0.111	−0.219**	0.316*	0.0300	−0.0477
	(0.152)	(0.108)	(0.141)	(0.131)	(0.0953)	(0.153)	(0.171)	(0.205)	(0.105)	(0.168)	(0.176)	(0.108)
RRATE	0.0233**	0.0112	0.0383***	0.0139	0.00935	0.0602**	0.0763***	0.0648***	0.0134	0.0871**	0.0767**	0.0106
	(0.00979)	(0.0108)	(0.0145)	(0.00987)	(0.00674)	(0.0242)	(0.0268)	(0.0233)	(0.0144)	(0.0322)	(0.0314)	(0.0106)
Constant	−0.265	1.809	0.956	0.270	1.744	−0.226	0.364	−0.491	3.675***	−2.362	0.848	2.271**
	(1.641)	(1.139)	(1.688)	(1.508)	(1.134)	(1.557)	(1.862)	(2.216)	(1.267)	(1.762)	(1.690)	(1.128)
Obs	465	465	424	560	473	198	203	203	244	108	195	470
Countries	88	88	89	89	87	40	37	38	44	22	35	88
Instrument	18	63	63	18	63	32	17	32	42	17	32	63
F-stats	179.36***	273.22***	127.98***	155.19***	236.30***	292.62***	42.29***	43.79***	219.43***	118.18***	124.41***	224.27**
AR(1)	−3.45(0.00)	−4.46(0.00)	−3.08(0.00)	−3.69(0.00)	−4.27(0.00)	−2.66(0.01)	−1.85(0.07)	−2.72(0.01)	−2.85(0.00)	−1.67(0.094)	−2.45(0.02)	−4.38(0.00)
AR(2)	−1.54(0.00)	−1.62(0.11)	−1.49(0.14)	−1.50(0.13)	−1.61(0.11)	−0.74(0.46)	−0.74(0.46)	−0.01(0.99)	−1.33(0.18)	−0.06(0.96)	−0.07(0.95)	−1.62(0.11)
Sargan	13.50(0.10)	103.88(0.00)	94.02(0.00)	13.14(0.11)	107.38(0.00)	103.43(0.00)	22.02(0.00)	98.05(0.00)	56.46(0.01)	26.89(0.00)	98.57(0.00)	101.6(0.00)
Hansen	9.15(0.33)	53.07(0.47)	46.58(0.72)	9.76(0.28)	53.13(0.47)	34.21(0.80)	8.86(0.26)	28.44(0.95)	31.45(0.59)	9.05(0.25)	24.18(0.99)	55.44(0.38)

Notes: BIM: bank interest margin; PRST: financial sector transparency led by private sector; PUST: financial sector transparency led by public sector; COST-EFF: cost efficiency; CAPITAL: bank capital adequacy; INFL: inflation; LNGDPPC: gross domestic product per capita; BANKDIV: bank diversification; RRATE: real interest rate. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ – unweighted (U), weighted (W), chief executive officer (CEO), objective (OBJ), policy (POL) and lending limits (LIM)

Table 9.
Effect of financial transparency on cost of financial intermediation – financial regulator institution sample

	(1)	(2)	(3)	(4)	(5)
Quantiles	0.20	0.40	0.60	0.80	0.95
PRST	−0.00186*	−0.00376***	−0.00386***	−0.00357	−0.0133***
	(0.00108)	(0.00128)	(0.00146)	(0.00302)	(0.00482)
PUST	0.00202	0.00363*	−0.00278	0.000472	−0.0102
	(0.00221)	(0.00201)	(0.00249)	(0.00493)	(0.00943)
CAPITAL	0.0809***	0.0535***	0.0704***	0.0870***	0.0928*
	(0.0145)	(0.0165)	(0.0169)	(0.0171)	(0.0475)
COST-EFF	0.643***	0.774***	0.863***	0.947***	0.948***
	(0.0755)	(0.0642)	(0.0750)	(0.0863)	(0.0702)
BANKDIV	−0.0584***	−0.0579***	−0.0617***	−0.0552***	−0.0499***
	(0.00452)	(0.00432)	(0.00523)	(0.00864)	(0.0120)
INFL	0.0412**	0.0690***	0.0830***	0.115***	0.116***
	(0.0170)	(0.0128)	(0.0186)	(0.0185)	(0.0222)
LNGDPPC	−0.249***	−0.139	0.0359	0.0570	0.311
	(0.0906)	(0.105)	(0.100)	(0.149)	(0.253)
RRATE	0.0320**	0.0382**	0.0663***	0.0802***	0.0930***
	(0.0163)	(0.0157)	(0.0128)	(0.0124)	(0.0301)
Constant	4.896***	3.996***	2.241**	1.626	0.533
	(0.919)	(1.138)	(1.102)	(1.594)	(2.545)
Observations	715	715	715	715	715
Pseudo R−Sqaured	0.565	0.607	0.623	0.616	0.568

Table 10. Effect of financial sector transparency on bank interest margins – full sample

Notes: BIM: bank interest margin; PRST: financial sector transparency led by private sector; PUST: financial sector transparency led by public sector; COST-EFF: cost efficiency; CAPITAL: bank capital adequacy; INFL: inflation; LNGDPPC: gross domestic product per capita; BANKDIV: bank diversification; RRATE: real interest rate. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

reported, respectively, while Models 8 and 11 and Models 9 and 12 report results on political institution samples and financial regulator institution samples, respectively. Thus, while Tables 7 and 10 report on the overall overview of how financial sector transparency affect BIM, Models 8 and 11 and Models 9 and 12 report on the detailed view of how financial sector transparency affect BIM.

From the results in Model 1 (Table 7), the study found no significant relationship between private and public sector-led financial sector transparencies on BIM. However, when the full sample is split into economies with strong and weak political institutions (Models 2–3) and financial regulator institutions (4–5), respectively, the desirable and significant derailing effect of private sector-led financial sector-led transparency on BIM is observed. Specifically, it is observed that in strong and weak political institutional economies (Models 2–3), financial sector transparency led by the private sector significantly reduces BIM. Similar results are obtained in economies with strong financial regulator institutions (Model 4). These findings suggest that institutional quality in the form of political and financial regulator institutions are relevant for enforcing transparency in the financial market to propel the dampening effect of BIM. This finding is consistent with prior studies (Kusi *et al.*, 2019; Scott, 2005; Williamson, 1998; Zucker, 1987) the report that improving institutional quality promotes financial and economic outcomes. From this finding, it is clear that the importance of institutional quality frameworks in reinforcing transparency in reducing cost of financial intermediation (BIM).

Table 11.
Effect of financial sector transparency on bank interest margins – political institution sample

	Economies with strong political institutions					Economies with weak political institutions				
Quantiles	0.20	0.40	0.60	0.80	0.95	0.20	0.40	0.60	0.80	0.95
PRST	−0.00318***	−0.00356***	−0.00378***	−0.00576	−0.0102**	0.00655**	0.00218	−0.00230	−0.000956	−0.00678
	(0.00112)	(0.000866)	(0.00120)	(0.00369)	(0.00416)	(0.00276)	(0.00285)	(0.00202)	(0.00372)	(0.00861)
PUST	0.00114	0.00271*	0.00234	−0.00430	−0.0169	0.00300	0.00323	−0.00275	−0.00245	0.0335
	(0.00300)	(0.00162)	(0.00233)	(0.00613)	(0.0113)	(0.00577)	(0.00493)	(0.00498)	(0.0103)	(0.0373)
CAPITAL	0.0848***	0.0882***	0.107***	0.185***	0.198***	0.123***	0.0786***	0.0761***	0.0744***	0.125
	(0.0146)	(0.0162)	(0.0278)	(0.0369)	(0.0351)	(0.0377)	(0.0286)	(0.0190)	(0.0208)	(0.0941)
COST-EFF	0.675***	0.758***	0.795***	0.746***	0.779***	0.657***	0.788***	0.899***	1.009***	0.990***
	(0.0913)	(0.0484)	(0.0779)	(0.109)	(0.134)	(0.0981)	(0.0902)	(0.0604)	(0.0650)	(0.147)
BANKDIV	−0.0402***	−0.0396***	−0.0400***	−0.0296***	−0.0319***	−0.0925***	−0.0961***	−0.0946***	−0.103***	−0.0858***
	(0.00313)	(0.00284)	(0.00511)	(0.00723)	(0.0103)	(0.00840)	(0.00780)	(0.00911)	(0.00701)	(0.0174)
INFL	0.0740***	0.0716***	0.0759***	0.0763**	0.116	0.0367**	0.0597***	0.0978***	0.114***	0.0573
	(0.0136)	(0.0118)	(0.0210)	(0.0381)	(0.0863)	(0.0156)	(0.0201)	(0.0187)	(0.0175)	(0.0402)
LNGDPPC	−0.183	−0.0440	−0.0136	−0.331	0.499	−0.496***	−0.394**	−0.153	−0.0225	−0.492
	(0.123)	(0.101)	(0.186)	(0.348)	(0.398)	(0.173)	(0.171)	(0.128)	(0.163)	(0.355)
RRATE	0.0147	0.0144	0.0252	0.0486*	0.0603	0.0278***	0.0405*	0.0719***	0.0860***	0.0130
	(0.0123)	(0.0137)	(0.0207)	(0.0295)	(0.0655)	(0.00529)	(0.0237)	(0.0146)	(0.0133)	(0.0464)
Constant	3.623***	2.220*	1.862	4.779	−2.519	7.681***	7.189***	4.683***	3.687**	8.475**
	(1.331)	(1.199)	(1.853)	(3.679)	(4.452)	(1.586)	(1.599)	(1.397)	(1.573)	(3.417)
Observations	345	345	345	345	345	370	370	370	370	370

Notes: BIM: bank interest margin; PrST: financial sector transparency led by private sector; PuST: financial sector transparency led by public sector; COST-EFF: cost efficiency; CAPITAL: bank capital adequacy; INFL: inflation; LNGDPPC: gross domestic product per capita; BANKDIV: bank diversification; RRATE: real interest rate. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 12.
Effect of financial sector transparency on bank interest margins – financial regulator institution sample

	Economies with strong financial regulator institution					Economies with weak financial regulator institution				
Quantiles	0.20	0.40	0.60	0.80	0.95	0.20	0.40	0.60	0.80	0.95
PRST	−0.00110	−0.00239	−0.00441**	−0.00552	−0.0123*	−0.00593**	−0.00673***	−0.00743**	−0.00131	−0.00643
	(0.00210)	(0.00175)	(0.00187)	(0.00371)	(0.00674)	(0.00250)	(0.00194)	(0.00366)	(0.00475)	(0.00835)
PUST	0.00697**	0.00519***	−0.00277	−0.00348	−0.00617	−0.0127*	−0.0118***	−0.0103	0.00209	0.0112
	(0.00311)	(0.00180)	(0.00345)	(0.00626)	(0.0192)	(0.00740)	(0.00418)	(0.00642)	(0.0105)	(0.0167)
CAPITAL	0.0711***	0.0532***	0.0701***	0.0903***	0.125	0.0480	0.0533**	0.0420	0.0878	0.0793
	(0.0134)	(0.0190)	(0.0160)	(0.0202)	(0.0805)	(0.0389)	(0.0240)	(0.0354)	(0.0661)	(0.0692)
COST-EFF	0.620***	0.724***	0.846***	0.985***	0.970***	0.799***	0.965***	0.966***	0.952***	0.912***
	(0.127)	(0.0731)	(0.100)	(0.113)	(0.155)	(0.118)	(0.0745)	(0.104)	(0.137)	(0.197)
BANKDIV	−0.0629***	−0.0616***	−0.0642***	−0.0629***	−0.0446**	−0.0564***	−0.0538***	−0.0531***	−0.0500**	−0.0414*
	(0.00656)	(0.00529)	(0.00829)	(0.00938)	(0.0204)	(0.0101)	(0.00552)	(0.0118)	(0.0213)	(0.0222)
INFL	0.0479***	0.0575***	0.0659***	0.0956***	0.0757**	0.0449***	0.0762**	0.122***	0.152***	0.0962
	(0.0185)	(0.0164)	(0.0246)	(0.0236)	(0.0319)	(0.0173)	(0.0297)	(0.0262)	(0.0371)	(0.0832)
LNGDPPC	−0.346**	−0.321***	−0.0203	0.208	0.400*	−0.0151	0.228*	0.320*	0.161	−0.277
	(0.148)	(0.121)	(0.112)	(0.154)	(0.230)	(0.165)	(0.121)	(0.167)	(0.206)	(0.399)
RRATE	0.0267***	0.0230*	0.0518***	0.0635***	0.0474	0.0499	0.0506	0.112***	0.169***	0.0964
	(0.00743)	(0.0135)	(0.0193)	(0.0219)	(0.0297)	(0.0334)	(0.0328)	(0.0209)	(0.0287)	(0.0816)
Constant	6.126***	6.103***	3.127**	0.642	−0.501	2.641	−0.0939	−1.048	−0.266	5.715
	(1.545)	(1.259)	(1.311)	(1.385)	(2.696)	(1.667)	(1.347)	(1.518)	(2.075)	(4.059)
Observations	492	492	492	492	492	223	223	223	223	223

Notes: BIM: bank interest margin; PRST: financial sector transparency led by private sector; PUST: financial sector transparency led by public sector; COST-EFF: cost efficiency; CAPITAL: bank capital adequacy; INFL: inflation; LNGDPPC: gross domestic product per capita; BANKDIV: bank diversification; RRATE: real interest rate. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

In Table 8, the study examines into detail the effect of financial sector transparency on BIM in economies with strong and weak political institutions while considering different measures of political institution quality including corruption control (CC), government efficiency (GE), political stability (PS), regulation quality (RQ), rule of law (RL) and voice and accountability (VA). Interestingly, the results show that under economies with strong corruption control and regulation quality, financial sector transparency led by the private sector significantly reduce BIM while economies with weak rule of law significantly reduce BIM through private sector-led financial transparency. This provides evidence that political institutional quality has implications for enforcing financial sector transparency to reduce BIM.

Also, in Table 9, the study examines into detail the effect of financial sector transparency on BIM in economies with strong and weak financial regulator institution while considering different measures of financial regulator institution variables unweighted (U), weighted (W), chief executive officer (CEO), objective (OBJ), policy (POL) and lending limits (LIM) central bank independence. Remarkably, the results show that under economies with strong unweighted, weighted, CEO and policy central bank independence, financial sector transparency led by the private sector significantly reduce BIM while economies with weak lending limits significantly reduce BIM through private sector-led financial transparency. This result provides evidence that financial regulator institution quality has desirable strong implications for enforcing financial sector transparency to reduce BIM. Notably, the study finds no significant effect of public sector-led financial sector transparency on BIM across the different models estimated in Tables 8 and 9. Furthermore, the study shows that strong institutional quality economies tend to reinforce the effect of financial sector transparency on BIM. The results from the bootstrap quantile regressions in Tables 10–12 show similar trends and additionally reports both significant positive and negative effects of public sector-led financial transparency in strong and weak institutional economies, respectively. This is an indication that while public sector-led financial sector transparency may work well to reduce BIM in economies with weak institutional setups (both political and financial institutions), it may be detrimental in reducing BIM in economies with strong institutional setups. Interestingly, literature (Kusi *et al.*, 2020, 2016a, 2016b; Miller, 2003) suggests that public sector led financial transparency may be less effective compared private sector led financial transparency owing to the setup and implementation of public sector led financial transparency

On the control variables, bank capital adequacy is found to positively influence BIM across the models implying that well-capitalized banks have the financial muscles to take on more banking businesses to increase their BIM. This confirms risk-return hypothesis. Similarly, cost-efficiency is found to be positively related to BIM across the models. This finding confirms the results of prior studies that show that banks pass on the operating cost to their clients through the rates they charge (Maria and Agoraki, 2010; Martinez *et al.*, 2004), hence widening the BIM. On the contrary, bank income diversification is found to reduce BIM as expected. The argument is that bank income diversification looks are other sources of income for banks and this is substitute (Stiroh, 2004) to bank interest margin which is the core source of income for banks, hence the negative effect. Interestingly, inflation and real interest rates are reported to have significant positive effects on BIM. These finding conforms and supports the fisher effect equation. Finally, welfare measured with natural log of gross domestic product is reported to have dominant negative effect on BIM with few models showing a positive effect between welfare and BIM. These findings are largely consistent across the models estimated and with prior studies.

Robustness and diagnostic checks

To ensure the results are consistent, accurate, reliable and efficiency, the study undertakes a number of standard econometric measures. The study screens for outliers using the descriptive statistic values and found no evidence of outliers. However, to ensure unobserved outliers to have impact of the estimated coefficients, the study used the bootstrap quantile models to overcome the challenges of unobserved outliers and to also control for small data problems resulting from the splitting of the sample. Additionally, multicollinearity and normality assumptions are checked and adhered to (Tables 5 and 6). Following the possibility persistence of BIM and endogeneity resulting from the reverse causality between BIM and non-interest income (bank income diversification), the two-step dynamic GMM models are employed to control the endogeneity mentioned and also control for possible autocorrelation and heteroscedasticity. The preferred two-step GMM dynamic models and robustness models (bootstrap quantile models) show similarly trends and patterns indicating consistency across the models. Additionally, other alternative results which are consistent with the main results are reported in the Appendixes 1–3. Hence, to a very large extent, the signs of the variables in tables are consistent across the models indicating reliability of the results and findings. Thus, our models are good and fit for generalization.

Conclusion, policy implications and recommendations

This study attempts to examine the effect of financial sector transparency led by both the public and private sectors on BIM in strong and weak institutional setups. To ensure detailed understanding on how institutional quality shape how transparency in the financial sector affect BIM, institutional quality is measured with both political and financial regulator institutional quality indicators. The study employs data from World Development Indicators and Global Development Finance databases cover ninety-one economies between 2004 and 2016. Employing two-step GMM as the main estimation technique and bootstrap quantile models as robustness models, the study shed insightful lights on how financial sector transparency affect BIM and how institutional quality shapes this relationship.

First, the study found no significant relationship between financial sector transparency led by private and public sectors on BIM. However, when the full sample is split into economies with strong and weak political and financial regulator institutions, a significant desirable negative effect is observed from private sector-led financial sector transparency to BIM in economies strong political, weak political and strong financial regulator institutions. This finding is an indication that the quality both political and financial regulator institutions are imperative in reinforcing transparency in the financial sector to reduce BIM. Second, further focusing on specific political and financial regulator institutional quality, it is evident that economies with strong corruption control and regulation quality under the political institutions are able to reinforce the reducing effect of private sector-led financial transparency on BIM. In the financial regulator sample, economies with strong unweighted, weighted, CEO and policy central bank independence are able reduce BIM through financial sector transparency led by the private sector. However, under the weak political and financial regulator institutions, economies with weak rule of law and lending limits are able to reduce BIM through private sector-led financial transparency respectively. The results from the bootstrap quantile regressions show similar trends and additionally report both significant positive and negative effects of public sector-led financial transparency in strong and weak institutional economies on BIM, respectively. This is an indication that while public sector-led financial sector transparency may work well to reduce BIM in economies

with weak institutional setups (both political and financial institutions), it may be detrimental in reducing BIM in economies with strong institutional setups.

These findings have policy implications and recommendations for policymakers. To begin with, policymakers can rely on improved financial sector transparency to promote reduction in BIM and social cost of financial intermediation. This will mean that promoting measures and mechanisms that enhance transparency in the financial market will be of benefit to the entire financial market players especially borrowers. Also, the formation and establish of financial sector transparency offices should be gear towards ones led by the private sector as they are more effective in dampening BIM. Furthermore, given that political and financial regulator institution quality has proven to reinforce the nexus between financial sector transparency and BIM, it is imperative for policymakers to put up measures the enhance the quality of institutions especially that of financial regulator institutions as financial regulator institutions tend to reinforce the derailing effect of financial sector transparency on BIM the more.

Declaration

This study received no financial support from any institution or person. The study was carried out as a result of collaborative efforts by author without any direct or indirect support from any institution. The author declare that they have no conflicts of interest. The author is lecturer whose interest are to create and propagate sound empirical insights into economic and financial events.

Data availability statement

The data that support the findings of this study are openly available in World Development Indicators, Global Financial Development and World Governance Indicator databases at the following URL respectively:

https://databank.worldbank.org/source/world-development-indicators https://databank.worldbank.org/reports.aspx?source=global-financial-development https://databank.worldbank.org/source/worldwide-governance-indicators

Note

1. Author classifies economies into strong and weak institutional economies by using the mean of the institutional quality variables as splitting points following the work of Kusi *et al.* (2019). Thus, economies that have the mean of their institutional variables above mean of the sample mean are considered as economies with strong institutional quality while economies that have the mean of their institutional variables below the mean of the sample are considered as economies with weak institutional quality.

References

Asongu, S.A. (2017), "The effect of reducing information asymmetry on loan price and quantity in the African banking industry", *Research in International Business and Finance*, Vol. 41, pp. 185-197. [doi: 10.1016/j.ribaf.2017.04.020]

Asongu, S., Le Roux, S., Nwachukwu, J. and Pyke, C. (2019), "Reducing information asymmetry with ICT", *International Journal of Managerial Finance*, Vol. 15 No. 2.

Baltagi, B.H., Song, S.H. and Koh, W. (2003), "Testing panel data regression models with spatial error correlation", *Journal of Econometrics*, Vol. 117 No. 1, pp. 123-150.

Ben Naceur, S. and Goaied, M. (2008), "The determinants of commercial bank interest margin and profitability: evidence from Tunisia", *Frontiers in Finance and Economics*, Vol. 5 No. 1, pp. 106-130.

Brooks, C. (2019), *Introductory Econometrics for Finance*, Cambridge University Press.

Brown, M., Jappelli, T. and Pagano, M. (2009), "Information sharing and credit: firm-level evidence from transition countries", *Journal of Financial Intermediation*, Vol. 18 No. 2, pp. 151-172.

Cade, B.S. and Noon, B.R. (2003), "A gentle introduction to quantile regression for ecologists", *Frontiers in Ecology and the Environment*, Vol. 1 No. 8, pp. 412-420.

Carbó, S., Humphrey, D., Maudos, J. and Molyneux, P. (2009), "Cross-country comparisons of competition and pricing power in European banking", *Journal of International Money and Finance*, Vol. 28 No. 1, pp. 115-134.

Claessens, S., Demirgüç-Kunt, A. and Huizinga, H. (2001), "How does foreign entry affect domestic banking markets?", *Journal of Banking and Finance*, Vol. 25 No. 5, pp. 891-911.

Demirguc-Kunt, A., Laeven, L. and Levine, R. (2003), *Regulations, Market Structure, Institutions, and the Cost of Financial Intermediation (No. w9890)*, National Bureau of Economic Research.

Dierkes, M., Erner, C., Langer, T. and Norden, L. (2013), "Business credit information sharing and default risk of private firms", *Journal of Banking and Finance*, Vol. 37 No. 8, pp. 2867-2878.

Dietrich, A. and Wanzenried, G. (2011), "Determinants of bank profitability before and during the crisis: evidence from Switzerland", *Journal of International Financial Markets, Institutions and Money*, Vol. 21 No. 3, pp. 307-327.

Dunning, J.H. (2006), "Towards a new paradigm of development: implications for the determinants of international business", *Transnational Corporations*, Vol. 15 No. 1, pp. 173-227.

Garriga, A.C. (2016), "Central bank independence in the world: a new data set", *International Interactions*, Vol. 42 No. 5, pp. 849-868.

Gungoraydinoglu, A., Çolak, G. and Öztekin, Ö. (2017), "Political environment, financial intermediation costs, and financing patterns", *Journal of Corporate Finance*, Vol. 44, pp. 167-192.

Gyeke-Dako, A., Agbloyor, E.K., Turkson, F.E. and Baffour, P.T. (2018), "Financial development and the social cost of financial intermediation in Africa", *Journal of African Business*, Vol. 19 No. 4, pp. 455-474.

Hawtrey, K. and Liang, H. (2008), "Bank interest margins in OECD countries", *The North American Journal of Economics and Finance*, Vol. 19 No. 3, pp. 249-260.

Ho, T.S. and Saunders, A. (1981), "The determinants of bank interest margins: theory and empirical evidence", *The Journal of Financial and Quantitative Analysis*, Vol. 16 No. 4, pp. 581-600.

Islam, M.S. and Nishiyama, S.I. (2016), "The determinants of bank net interest margins: a panel evidence from South Asian countries", *Research in International Business and Finance*, Vol. 37, pp. 501-514.

Kasman, A., Tunc, G., Vardar, G. and Okan, B. (2010), "Consolidation and commercial bank net interest margins: evidence from the old and new European Union members and candidate countries", *Economic Modelling*, Vol. 27 No. 3, pp. 648-655.

Kaufmann, D., Kraay, A. and Mastruzzi, M. (2006), "Measuring governance using cross-country perceptions data", *International Handbook on the Economics of Corruption*, Vol. 52.

Kennedy, P. (2008), "A guide to econometrics", *John Wiley and Sons*.

Koenker, R. (2011), "Additive models for quantile regression: Model selection and confidence bandaids", *Brazilian Journal of Probability and Statistics*, Vol. 25 No. 3, pp. 239-262.

Kusi, B.A., Agbloyor, E.K., Ansah-Adu, K. and Gyeke-Dako, A. (2017), "Bank credit risk and credit information sharing in Africa: does credit information sharing institutions and context matter?", *Research in International Business and Finance*, Vol. 42, pp. 1123-1136.

Kusi, B.A., Agbloyor, E.K., Fiador, V.O. and Osei, K.A. (2016a), "Does information sharing promote or detract from bank returns: evidence from Ghana", *African Development Review*, Vol. 28 No. 3, pp. 332-343.

Kusi, B.A., Agbloyor, E.K., Fiador, V.O. and Osei, K.A. (2016b), "Credit referencing bureaus and bank credit risk: evidence from Ghana", *African Finance Journal*, Vol. 18 No. 2, pp. 69-92.

Kusi, B.A., Nortey, O.A. and Dzeha, G.C. (2019), "Central bank independence and economic welfare in Africa: do institutional quality and levels of central bank independence matter?", *Review of Development Finance*, Vol. 9 No. 1, pp. 79-93.

Kusi, B.A., Agbloyor, E.K., Gyeke-Dako, A. and Asongu, S.A. (2020), "Financial sector transparency and net interest margins: should the private or public sector lead financial sector transparency?", *Research in International Business and Finance*, Vol. 54, p. 101260.

Maria, K. and Agoraki, K.M. (2010), "The determinants of net interest margin during transition, department of accounting and finance".

Maudos, J. and De Guevara, J.F. (2004), "Factors explaining the interest margin in the banking sectors of the European Union", *Journal of Banking and Finance*, Vol. 28 No. 9, pp. 2259-2281.

Mensah, S. and Abor, J.Y. (2014), "Agency conflict and bank interest spreads in Ghana", *African Development Review*, Vol. 26 No. 4, pp. 549-560.

Miller, M.J. (Ed.). (2003), *Credit Reporting Systems and the International Economy*, Mit Press.

Mody, A. and Peria, M.S.M. (2004), *How Foreign Participation and Market Concentration Impact Bank Spreads: evidence from Latin America*, Vol. 3210, World Bank Publications.

Naceur, S.B. (2003), "The determinants of the Tunisian banking industry profitability: panel evidence", *Universite Libre de Tunis Working Papers*, Vol. 11 No. 3, pp. 317-319.

Naceur, S.B. and Kandil, M. (2009), "The impact of capital requirements on banks' cost of intermediation and performance: the case of Egypt", *Journal of Economics and Business*, Vol. 61 No. 1, pp. 70-89.

Nguyen, J. (2012), "The relationship between net interest margin and noninterest income using a system estimation approach", *Journal of Banking and Finance*, Vol. 36 No. 9, pp. 2429-2437.

Pasiouras, F. (2018), "Financial consumer protection and the cost of financial intermediation: evidence from advanced and developing economies", *Management Science*, Vol. 64 No. 2, pp. 902-924.

Perry, P. (1992), "Do banks gain or lose from inflation?", *Journal of Retail Banking*, Vol. 14 No. 2, pp. 25-31.

Poghosyan, T. (2013), "Financial intermediation costs in low income countries: the role of regulatory, institutional, and macroeconomic factors", *Economic Systems*, Vol. 37 No. 1, pp. 92-110.

Rahman, M.M., Ashraf, B.N., Zheng, C. and Begum, M. (2017), "Impact of cost efficiency on bank capital and the cost of financial intermediation: evidence from BRICS countries", *International Journal of Financial Studies*, Vol. 5 No. 4, p. 32.

Rasiah, D. (2010), "Theoretical framework of profitability as applied to commercial banks in Malaysia". *European Journal of Economics, Finance and Administrative Sciences*, Vol. 19 No. 19, pp. 75-97.

Saunders, A. and Schumacher, L. (2000), "The determinants of bank interest rate margins: an international study", *Journal of International Money and Finance*, Vol. 19 No. 6, pp. 813-832.

Scott, W.R. (2005), "Institutional theory: contributing to a theoretical research program", *Great Minds in Management: The Process of Theory Development*, Vol. 37 No. 2, pp. 460-484.

Stiroh, K.J. (2004), "Diversification in banking: is noninterest income the answer?", *Journal of Money, Credit, and Banking*, Vol. 36 No. 5, pp. 853-882.

Stiroh, K.J. (2004), "Do community banks benefit from diversification?", *Journal of Financial Services Research*, Vol. 25 Nos 2/3, pp. 135-160.

Tarus, D.K., Chekol, Y.B. and Mutwol, M. (2012), "Determinants of net interest margins of commercial banks in Kenya: a panel study", *Procedia Economics and Finance*, Vol. 2, pp. 199-208.

Wei, Y., Pere, A., Koenker, R. and He, X. (2006), "Quantile regression methods for reference growth charts", *Statistics in Medicine*, Vol. 25 No. 8, pp. 1369-1382.

Williamson, O.E. (1998), "The institutions of governance", *The American Economic Review*, Vol. 88 No. 2, pp. 75-79.

Wong, K.P. (1997), "On the determinants of bank interest margins under credit and interest rate risks", *Journal of Banking and Finance*, Vol. 21 No. 2, pp. 251-271.

Wurgler, J. (2000), "Financial markets and the allocation of capital", *Journal of Financial Economics*, Vol. 58 Nos 1/2, pp. 187-214.

Zucker, L.G. (1987), "Institutional theories of organization", *Annual Review of Sociology*, Vol. 13 No. 1, pp. 443-464.

Further reading

Peria, M.S.M. and Mody, A. (2004), "How foreign participation and market concentration impact bank spreads: evidence from Latin America", *Journal of Money, Credit, and Banking*, Vol. 36 No. 3b, pp. 511-537.

Corresponding author

Baah Aye Kusi can be contacted at: baahkusi@gmail.com

Appendix 1. Effect of financial sector transparency on bank spread (alternative measure for banking interest margins)

Variables	Full sample	Political institution sample		Financial regulatory institution sample	
		Strong	Weak	Strong	Weak
L.SPREAD	0.806***	0.516***	0.679***	0.800***	0.432***
	(0.0109)	(0.117)	(0.0757)	(0.00555)	(0.0180)
PRST	0.00106	−0.00524	0.00552	−0.000260	0.00263
	(0.000844)	(0.00567)	(0.00768)	(0.000410)	(0.00281)
PUST	−0.000117	0.00415	−0.00300	−0.00518***	−0.00631***
	(0.00123)	(0.00893)	(0.0122)	(0.00105)	(0.00211)
CAPITAL	−0.00492	0.000366	−0.0470	−0.0412***	0.0482***
	(0.00729)	(0.0698)	(0.0581)	(0.00297)	(0.0148)
COST-EFF	−0.153***	−0.222**	−0.156***	−0.135***	0.0783***
	(0.0118)	(0.107)	(0.0566)	(0.00794)	(0.00933)
BANKDIV	0.00729***	−0.00755	0.0177	0.00573***	0.0278***
	(0.00169)	(0.0126)	(0.0140)	(0.00135)	(0.00461)
INFL	0.140***	0.274***	0.234***	0.173***	0.222***
	(0.00908)	(0.0832)	(0.0567)	(0.00468)	(0.0231)
LNGDPPC	0.0514	0.0897	−0.128	0.0678***	0.155
	(0.0458)	(0.278)	(0.235)	(0.00752)	(0.114)
RRATE	0.195***	0.333***	0.307***	0.219***	0.316***
	(0.0101)	(0.0895)	(0.0699)	(0.00537)	(0.0270)
Constant	−0.939**	−0.224	0.0291	−0.915***	−2.931**
	(0.468)	(3.070)	(2.156)	(0.0766)	(1.293)
Observations	619	316	303	406	213
Countries	84	50	46	81	38
Instruments	57	27	44	57	32
F-stats	2278.8(0.000)	40.71(0.000)	286.37(0.000)	6506.30(0.000)	3278.45(0.000)
AR(1)	−3.81(0.000)	−2.23(0.026)	−3.09(0.002)	−3.80(0.000)	−2.80(0.005)
AR (2)	−1.22(0.224)	−0.02(0.986)	−0.92(0.360)	−1.17(0.241)	−1.21(0.226)
Sargan	151.37(0.000)	174.56(0.000)	234.66(0.000)	92.72(0.000)	169.46(0.000)
Hansen	54.28(0.217)	20.14(0.267)	38.81(0.262)	52.60(0.266)	27.77(0.183)

Notes: BIM: bank interest margin; PRST: financial sector transparency led by private sector; PuST: financial sector transparency led by public sector; POLINST: political institutional quality; SPOLINST: strong political institutional quality; FRINST: financial regulatory institution quality; SFRINST: strong financial regulatory institution quality COST-EFF: cost efficiency; CAPITAL: bank capital adequacy; INFL: inflation; LNGDPPC: gross domestic product per capita; BANKDIV: bank diversification; RRATE: real interest rate. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Appendix 2. Effect of financial sector transparency and institutional quality variables on net interest margins

Variables	(1) Political institutions	(2) Strong political institutions	(3) Financial regulatory institutions	(4) Strong financial regulatory institutions
L.NIM	0.632***	0.694***	0.512***	0.694***
	(0.111)	(0.0216)	(0.0239)	(0.0210)
PRST	−0.00266	−0.00196*	−0.00211**	−0.00193*
	(0.00167)	(0.000997)	(0.000946)	(0.00102)
PUST	−0.000315	−0.00189*	−0.00201	−0.00193*
	(0.00214)	(0.00110)	(0.00198)	(0.00115)
POLINST	0.176**			
	(0.0800)			
SPOLINST		0.0102		
		(0.0699)		
FRINST			0.518**	
			(0.239)	
SFRINST				0.458
				(0.460)
CAPITAL	0.0339*	0.0216***	0.0307***	0.0215***
	(0.0172)	(0.00596)	(0.00626)	(0.00585)
COST-EFF	0.265***	0.249***	0.351***	0.247***
	(0.0689)	(0.0256)	(0.0372)	(0.0248)
BANKDIV	−0.0354***	−0.0257***	−0.0352***	−0.0255***
	(0.00747)	(0.00259)	(0.00280)	(0.00258)
INFL	0.0460***	0.0396***	0.0327***	0.0392***
	(0.0121)	(0.00523)	(0.00704)	(0.00493)
LNGDPPC	−0.0802	0.0524	−0.129**	0.0519
	(0.107)	(0.0463)	(0.0537)	(0.0459)
RRATE	0.0222**	0.0161***	0.0231***	0.0158***
	(0.00962)	(0.00385)	(0.00751)	(0.00375)
Constant	2.118	0.448	2.723***	
	(1.350)	(0.450)	(0.604)	
Observations	668	668	478	668
Countries	91	91	77	91
Instruments	12	45	45	44
F-stats	280.79(0.000)	1061.38(0.000)	799.88(0.000)	7476.14(0.000)
AR(1)	−4.07(0.000)	−4.87(0.000)	−4.33(0.000)	−4.85(0.000)
AR(2)	−1.53(0.127)	−1.40(0.162)	−1.30(0.192)	−1.40(0.162)
Sargan	0.43(0.513)	74.16(0.000)	71.63(0.000)	72.81(0.000)
Hansen	0.32(0.569)	37.10(0.328)	38.48(0.274)	37.27(0.279)

Notes: BIM: bank interest margin; PRST: financial sector transparency led by private sector; PUST: financial sector transparency led by public sector; POLINST: political institutional quality; SPOLINST: strong political institutional quality; FRINST: financial regulatory institution quality; SFRINST: strong financial regulatory institution quality COST-EFF: cost efficiency; CAPITAL: bank capital adequacy; INFL: inflation; LNGDPPC: gross domestic product per capita; BANKDIV: bank diversification; RRATE: real interest rate. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Appendix 3. Interactive effect of financial sector transparency and institutional quality variables on net interest margins

Variables	Political institution sample (1)	(2)	(3)	(4)	Financial regulatory institution sample (1)	(2)	(3)	(4)
L.NIM	0.628***	0.630***	0.691***	0.664***	0.518***	0.511***	0.705***	0.546***
	(0.112)	(0.112)	(0.0222)	(0.0282)	(0.0239)	(0.0240)	(0.0225)	(0.0208)
PRST	−0.00274	−0.00299	−0.00205**	0.000618	−0.00223**	0.00655**	−0.00185*	−0.000439
	(0.00167)	(0.00193)	(0.000999)	(0.00180)	(0.000970)	(0.00281)	(0.00102)	(0.00138)
PUST	0.000545	-5.61×10^{-5}	−0.00145	−0.00242**	−0.00843	−0.00116	−0.00358*	−0.00108
	(0.00272)	(0.00208)	(0.00247)	(0.00118)	(0.00956)	(0.00198)	(0.00207)	(0.00133)
POLINST	0.201**	0.140						
	(0.0808)	(0.106)						
c.PUSTd#c.POLINST	−0.00367							
	(0.00340)							
1.SPOLINST			0.0199	0.0851				
			(0.0712)	(0.0794)				
1.SPOLINST#c.PUST			−0.000543					
			(0.00284)					
1.SPOLINST#c.PRST				−0.00334				
				(0.00225)				
FRINST					0.387*	1.178***		
					(0.232)	(0.336)		
c.PUST#c.FRINST					0.0150			
					(0.0210)			
c.PRST#c.FRINST						−0.0205***		
						(0.00579)		
1.SFRINST							−0.0384	0.151**
							(0.0452)	(0.0586)
1.SFRINST#c.PUST							0.00216	
							(0.00212)	
1.SFRINST#c.PRST								−0.00255**
								(0.00128)
CAPITAL	0.0349**	0.0344**	0.0218***	0.0266***	0.0282***	0.0329***	0.0203***	0.0450***
	(0.0172)	(0.0172)	(0.00605)	(0.00632)	(0.00594)	(0.00615)	(0.00579)	(0.00648)
COST-EFF	0.267***	0.268***	0.251***	0.253***	0.353***	0.347***	0.244***	0.301***
	(0.0689)	(0.0680)	(0.0258)	(0.0259)	(0.0371)	(0.0373)	(0.0246)	(0.0269)
BANKDIV	−0.0355***	−0.0356***	−0.0251***	−0.0267***	−0.0356***	−0.0351***	−0.0249***	−0.0312***
	(0.00755)	(0.00740)	(0.00266)	(0.00266)	(0.00271)	(0.00281)	(0.00269)	(0.00226)
INFL	0.0451***	0.0453***	0.0406***	0.0432***	0.0328***	0.0324***	0.0390***	0.0395***
	(0.0127)	(0.0124)	(0.00537)	(0.00560)	(0.00713)	(0.00717)	(0.00484)	(0.00379)
LNGDPPC	−0.0924	−0.0747	0.0606	0.0345	−0.120**	−0.142**	0.0577	−0.0809*
	(0.112)	(0.113)	(0.0493)	(0.0493)	(0.0544)	(0.0547)	(0.0461)	(0.0444)
RRATE	0.0219**	0.0220**	0.0169***	0.0188***	0.0230***	0.0224***	0.0157***	0.0199***
	(0.00959)	(0.00999)	(0.00391)	(0.00424)	(0.00753)	(0.00762)	(0.00377)	(0.00393)
Constant	2.243	2.070	0.334	0.659	2.709***	2.560***	0.377	2.049***
	(1.406)	(1.406)	(0.482)	(0.491)	(0.604)	(0.595)	(0.468)	(0.457)
Observations	668	668	668	668	478	478	668	668
Number of ccode	91	91	91	91	77	77	91	91
Instruments	13	13	46	46	46	46	46	52
F-stats	258.35(0.00)	269.01(0.00)	822.04(0.00)	710.33(0.00)	737.41(0.00)	982.32(0.00)	105.1(0.00)	812.60(0.00)
AR(1)	−4.08(0.00)	−4.05(0.00)	−4.88(0.00)	−4.74(0.00)	−4.34(0.00)	−4.34(0.00)	−4.86(0.00)	−4.76(0.00)
AR(2)	−1.52(0.13)	−1.53(0.53)	−1.40(0.16)	−1.42(0.16)	−1.31(0.19)	−1.33(0.18)	−1.39(0.16)	−1.76(0.18)
Sargan	0.38(0.54)	0.47(0.50)	75.17(0.00)	75.13(0.00)	72.27(0.00)	73.19(0.00)	72.79(0.00)	100.02(0.00)
Hansen	0.28(0.60)	0.37(0.55)	36.12(0.28)	37.75(0.22)	39.24(0.25)	37.96(0.29)	37.52(0.23)	41.08(0.34)

Notes: BIM: bank interest margin; PRST: financial sector transparency led by private sector; PUST: financial sector transparency led by public sector; POLINST: political institutional quality; SPOLINST: strong political institutional quality; FRINST: financial regulatory institution quality; SFRINST: strong financial regulatory institution quality COST-EFF: cost efficiency; CAPITAL: bank capital adequacy; INFL: inflation; LNGDPPC: gross domestic product per capita; BANKDIV: bank diversification; RRATE: real interest rate. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$