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The role of board dynamics in explaining payout policy and shareholders' wealth: Evidence from the banking sector in Africa

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ABSTRACT

The paper investigates the role of board dynamics in explaining the effect of payout policy on shareholders' wealth creation at the market and bank levels. The study employs the 2SLS estimation of a panel dataset of 528 banks from 29 African countries from the year 2006 to 2018. The study finds that board dynamics enhance payout policy. The study shows that board dynamics create market and bank-level wealth to shareholders. Further, payout policy reduces shareholders' wealth creation in the market but increases bank-level wealth of shareholders. The study finds that payout policy can be utilized as a substitute control device in the presence of board governance mechanism in order to protect shareholders' wealth. In general, the marginal effect of payout policy on shareholders' wealth creation conditioned on board dynamics is relatively stronger at the market level compared to the bank level.

Introduction

Board dynamics and payout policy are important concepts that have gained the most controversy till now. Policymakers and researchers are very involved in offering extensive modelling and empirical research into how board dynamics matter for the payout policy and shareholders' wealth creation of most banks (Mai & Syarief, 2021). Board dynamics relate to the way individual directors interact with each other in carrying out their functions as directors in order to jointly generate the company's economic value (Dissanayake & Dissabandara, 2021), whereas payout policy shows the financing, investment and dividend decisions that protect shareholders' value (Nazar, 2021). Even though research on payout policy and board dynamics have been extensively studied (Almeida, 2011; Ofori-Sasu et al, 2019; Mubaraq et al, 2021), it is difficult to grasp an understanding of how these two concepts create wealth to shareholders' in the banking sector. For instance, some studies have mentioned that payout policy behaviour of banks, like dividend payout, is determined by the board of directors and top executives (Nazar, 2021; Ghosh & Sirmans, 2006; Borokhovich, Brunarski, Harman, & Kehr, 2005) while other groups of researchers have established that payout policy affect shareholders' wealth (Subramaniam & Susela, 2011; Kyereboah-Coleman, 2007) depending on the dynamics of the board of directors (see Jabbouri, 2016; Kent Baker, Kilincarslan & Arsal, 2018). Even though, these studies have paid attention to the image of board mechanism and payout policy in different context, they ignored the collective role of board directors (i.e., board dynamics) in explaining the relationship between payout policy and shareholders' wealth creation in the banking sector. The current study is novel to the existing literature by examining the impact of board dynamics on payout policy and how these two concepts interact to create wealth for banks' shareholders at the level of the bank and in the market.

First, the present paper argues that board dynamics is important in the determination of payout policy. Payout policy refers to the behaviour in which banks return capital to their owners either in the form of dividends or share repurchase. In this case, a bank decides on the amount of cash to be distributed to shareholders (dividend payout) or to be ploughed back and invested in growth opportunities. Gleaning from the agency theory perspective, managers are more likely to exploit a bank's resources for their own benefits, not to support bank owners (Jensen, 1986). Thus, paying dividends is one of the efficient solutions of board mechanism to mitigate agency conflicts. It is shown that higher dividend levels meet investor demand and protect minority shareholder investments (Michael, 2013). Therefore, we show that board dynamics has an impact on payout policy (i.e., dividend payout). Several studies have examined the effects of corporate governance on corporate dividend policies (Adjaoud and Ben-Amar, 2010; Abor and Fiador, 2013; Weerasinghe, & Jayarathne, 2017; Atanassov & Mandell, 2018; Nazar, 2021). However, these studies show an inconclusive result. For instance,

Abbreviations: SWC, Shareholder's Wealth Creation; PP, Payout Policy; DPP, Dividend Payout Policy; BD, Board Dynamics.

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on the one hand, Nazar (2021) showed that board independence negatively influenced the dividend payout ratio. Sanan (2019) confirmed that firms with better governance system have the tendency to pay lower dividends. On the other hand, Rajput and Jhunjhunwala (2019) demonstrated that corporate governance structures lead to high-dividend payout. This paper fills the gap and contributes to the banking literature by showing how board dynamics affect payout policy in the banking sector. More so, policymakers may be interested in understanding how healthy payout policy can be achieved through a well-tuned board or board dynamics as applied in the banking sector.

Second, the debate on the independent effect of corporate governance on shareholders wealth (Pibri, 2021; Ndum & Oranefo, 2021; Eka Handriani & Robiyanto, 2018; Ofori-Sasu et al, 2017; Ovbiebo, Ukori & Vincent, 2019; Awodiran 2019) is inconsistent because results from these studies have been divergent. For instance, some studies support the negative effect of corporate governance on shareholders' wealth (Ovbiebo, Ukori & Vincent, 2019; Omoye & Eriki, 2014) while others show the positive effect of corporate governance on shareholders' wealth (Awodiran 2019; Odunayo, 2019; Ijeoma & Ezejiofor, 2013). On one hand, these studies have the advantage of adopting different empirical approach. On the other hand, they assume the individual characteristics of corporate governance and how each characteristic in the governance structure affect shareholder wealth only at the company level. This relationship may not be meaningful unless an alternative measure of governance is used to capture the way individual board members interact (or behave) with one another in their oversight responsibilities to achieve success within the company or at the market value. This paper contributes to literature by constructing an index that captures board dynamics (i.e., an aggregate of the individual characteristics of corporate governance), as it applies to the bank, and how this construct affects the wealth of shareholders at the bank level and in the market.

Prior studies have established the significant effect of payout policy on shareholders' wealth in corporate finance literature (Subramaniam & Susela, 2011; Kyereboah-Coleman, 2007; Ayturk *et al*, 2016). Further, studies have shown the direct effect of corporate governance and dividend policy on shareholder value but did not consider the role of corporate governance in explaining the effect of dividend policy on shareholders' wealth creation in the bank and at the market levels. In addition, what is missing in empirical literature, particularly for banks in Africa, is the overall effect of payout policy (example, dividend payout and dividend yield) on the wealth of shareholders in the market and at the bank level, when interacted with board dynamics. A study by Richardson (2006) shows that in the presence of strong corporate governance, dividend policy can act as a substitute or a complement control device (Haye, 2014). Goergen, Renneboog and Correia da Silva (2005) observe that dividend is a substitute control device that can alleviate management problems in the case of weak board governance mechanisms. However, there is a lack of empirical evidence to support whether board dynamics and payout policy are complements and substitutes in the determination of shareholders' wealth in the market and at the bank level. This study fills this gap by testing the complementarity and substitutability of board dynamics and payout policy in yielding a desirable outcome of shareholders' wealth. It further examines the joint effect of board dynamics and payout policy on shareholders wealth at the level of the bank and in the market.

Given the collective role that directors play in making payout decisions, it is therefore important to examine the effect of payment policy (dividend distributions) on shareholder wealth, both in the market and at the bank levels, when interacted with board dynamics. This brings us to our third objective where we argued that payout policy of banks do not directly affect the wealth of shareholders at the bank and market levels but it affects the shareholders' wealth at the bank level and market level when conditioned on board dynamics.

The current study is motivated from the aforementioned discussion that the results from the complex interrelationship between board dynamics, payout policy and shareholders' wealth in prior studies may be mixed due to differences in context, industry and measurements. Moreover, empirical results that test whether board dynamics and payout policy are substitutes or complements in determining shareholders' wealth in the market and at the bank are lacking in the banking literature. The importance of this study therefore lies in its contribution to the literature by offering a perspective of banking governance system in Africa, considering that governance characteristics in the banking sector and institutional frameworks function differently in most countries. Studies that are close to the interrelationship between corporate governance, payout policy and shareholders' wealth were focused on non-African companies (Knyazeva, 2007) and developed countries (Gugler & Yurtoglu, 2003). A recent study by Ofori-Sasu et al (2019) analyzed the mediating effect of the dynamics of the board in determining the relationship between dividend decision and shareholder wealth for listed firms in the Ghanaian context but ignored the banking sector in Africa as a whole. This paper differs from earlier works and makes contributions to shareholders' creation of wealth at the bank and market level in Africa. It provides insight into the complementarity and substitutability between alternative measures of bank governance (i.e. board dynamics) and payout policies in determining shareholder wealth at the market and bank levels in Africa.

The rest of the work is divided into the literature review (section 2), methodology (section 3), empirical results (section 4) and the conclusion and policy implications (section 5).

Literature review: theories, empirics and hypothesis development

In banking governance, the strategic decisions of the board of directors are influenced by theories of corporate finance (Abor, 2007; Ayogu, 2001). These theories have been used in the corporate governance literature to explain board behavior in an effort to maximize shareholder value. This study is motivated from a banking governance and dividend payment perspective (Nazar, 2021). The essence of the agency problem lies mainly in the fact that managers of banks have an incentive to pursue policies to their advantage and to the detriment of shareholder wealth (Kandel, Massa & Simonov, 2011). A higher dividend satisfies the interests of shareholders (Roman, 2013). A bank that has a large free cash flow may have higher funding costs, which further translates into lower shareholder wealth. Hence, the cash flow hypothesis suggests that agency costs and free flows can be reduced when companies pay dividends (Richardson, 2006). Another argument by Myers (2000) posits that managers may even be willing to pay dividends in order to avoid disciplinary action by shareholders. Managers of banks are able to work in the best interests of shareholders, increasing dividends, and thus reducing agency costs. This suggests that paying higher dividends to shareholders will reduce internal cash flows, subject to management's discretion and the decision of the board.

In order to achieve healthy board dynamics in the bank, it is important to see the board not as a group of individual professionals with specialist knowledge and the ability to come together to make their individual contributions, but as a group of collaborative executives from each director, to provide a critical leadership role for the bank. Thus, the dynamism of the board of directors is an individual way for the directors to interact with one another in the performance of their duties as directors in order to collectively generate economic value for the bank (Dissanayake & Dissabandara, 2021; Mi & Syarief, 2021). The collaborative effort of the board ensures that payout policy actions are taken in favour of shareholders. Payout policy reflects the banks' return capital to their owners either in the form of dividends or share repurchase. Based on the free cash flow hypothesis, managers are disciplined to take prudent risk (by identifying growth opportunities) that maximizes shareholders' wealth. Thus, healthy board dynamics strongly impacts payout policy to create wealth for shareholders in the market and firm level (Ofori-Sasu, et al, 2017, 2019). Contrary to the pivotal work by

Modigliani and Miller (1958), dividend irrelevance theorists argued that companies that have higher returns than cost will retain the earnings to finance the project and shareholders will be paid the residual dividends. Thus, managers or board members may pay dividend to shareholders in order to maximize the wealth of shareholders by constructing a well-diversified portfolio.

Empirical studies have shown the influence of a board's characteristics on dividend payouts and the relationship between them has produced interesting results. From the perspective of the emerging market, Alias Yaacob Rahim & Nor (2016) examined the relationship between board structure, free flow and dividends per share based on 361 non-financial companies listed in Malaysia from 2002 to 2007. Their results show that the dividend per share increases when the structure of the board of directors (characterized by a large number of independent directors) increases. Furthermore, studies show that a strong supervisory board structure leads to higher dividend payouts (Adjaoud & Ben-Amar, 2010). Gill and Obradovich (2012) examined 296 US companies listed on the New York Stock Exchange between 2009 and 2011 and found a positive and significant correlation between board size and dividend policy. In addition, Abor and Guarantor (2013) found that board composition and size in Kenya and Ghana had a positive impact on dividend payments, while in the case of Nigeria corporate governance measures had a negative impact on the payment of dividends.

Empirical studies show that the payout policy decision is favourable and has an impact on shareholder wealth (Sarwar, 2013) and market value (Eryomin et al., 2021). For example, Eryomin et al. (2021) examined the influence of dividends on the market value of Russian companies and found that dividends have a positive effect on capitalization. Kyereboah-Coleman, (2007) shows that an optimal dividend policy maximizes a company's share price, which in turn maximizes shareholder wealth, creating a positive nexus between dividend payments and shareholder wealth (Ross & Hudgins, 2008; Amidu, 2007). Second, Ofori-Sasu et al (2017) examined the effects of the dividend decision on shareholder value of listed Ghanaian companies. They found that the dividend per share adds value to shareholders. Aspects of board structure (i.e., CEO duality, board independence, and board size) have been found to drive corporate decisions in the interest of shareholders (Ramirez & Ferrer, 2021).

Recently, Mai and Syarief (2021) explored the impact of corporate governance on dividend policy in the banking sector indexed in Indonesian Stock Exchange from 2009 to 2019. They found that five criteria of corporate governance (institutional ownership, board size, audit committee size) have a positive impact on banks' propensity to pay dividends and dividend pay-out ratio. Moreover, studies show that the relationship between payment policy and shareholder wealth can be influenced by the dynamics of the board of directors. However, there are no empirical studies on this relationship for banks in Africa. It is noteworthy that there are studies that examine the individual effects of corporate governance and dividend policy on shareholders' equity. Interestingly, inferring from the literature on corporate governance, shareholders' wealth can be achieved through board dynamics and payout policy. However, previous studies have not tested this assertion. Mubaraq et al (2021) determined the moderating effect of corporate governance on the relationship between dividend, capital structure and firm value. They found that a positive relationship exists between dividend policy and firm value. Further, they show that corporate governance moderates a significant effect on the relationship between dividend policy and firm value. However, the literature is silent on how board dynamics interact with payout policy to influence shareholder wealth. Further, extant literature tends to say that payout policy is seen as a result of improvement policy to maximize shareholders' capital based on board dynamics. The relationship between board dynamics and shareholder wealth creation is based on the idea that good governance practices motivate decision makers to pursue optimal payout policies that maximize shareholders' wealth. Therefore, this study is interested in determining that the payout policy can serve as 'a substitute' or 'a complement' control mechanisms when the board of directors aligns their interest with shareholders. The present study argues that strong boards of directors can act as a substitute monitoring device and therefore companies can tend to increase their dividends, by forcing them to raise capital in the capital market.

Based on the above discussion, this paper test three different hypotheses as stated below:

H_1: Board dynamics enhance payout policy.
H_2: Payout policy reduces shareholders' wealth at market level but increases shareholders' wealth at bank level.
H_3: Board dynamics moderate the impact of payout policy on shareholders' wealth at both market and bank levels.

Data and methodology

The study employs a panel dataset of 528 banks in 29 African countries from the year 2006 to 2018. The selection of banks, countries and study period were generally based on data availability. We apply the Two-Stage Least Square (2SLS) to estimate the interrelationship between board dynamics, payout policy and shareholders' wealth.

First, we analyse the effect of board dynamics on payout policy of banks, which can be expressed as:

$$Payout\ Policy_{it} = \beta_1 Board\ Dynamics_{it} + \sum_{k=2}^{N} \beta_k X_{it} + \phi_i + \theta_t + \varepsilon_{it} \quad (1)$$

"where, β_1 is the coefficient of board dynamics; $\beta_l : k = 2, \cdots, N$, represent the regression coefficients of control variables to be estimated;

subscript i denotes the cross-sectional dimension (banks in Africa),$i = 1, \ldots, N$; and t denotes the time-series dimension (time period), $t = 1, \ldots, T$;

ε_{it} is idiosyncratic error term which controls for unit-specific residual in the model for the i^{th} *bank* at *period t*; ϕ_i is the bank fixed effect *i*; and θ_t is the time fixed effect*t*; X_{it} is a vector of control variables (bank size, bank concentration, equity to total asset, liquidity, institutions, GDP per capita, exchange rate and inflation rate) in equation 1.".

The dependent variable in equation 1 is Payout policy. Payout policy refers to the ways in which banks return capital to their equity investors, in the form of dividends and share purchases (Allen & Michaely, 2003; Kalay & Lemmon, 2008). Following the works by Abor and Fiador (2013), and Ofori-Sasu et al, (2017), we decompose payout policy into two: (1) dividend payout and (2) dividend yield. These measures were employed for robustness checks. Dividend payout is measured as the ratio of dividend per share to earnings per share. Dividend is the total cash paid to shareholders (Abor & Fiador, 2013). Dividend yield is measured as the ratio of dividend per share to the market price per share (see Ofori-Sasu et al, 2017). Data on dividend payout and dividend yield was collected from the annual reports of the banks in our sample, BankScope database and the fact books of the various stock exchanges like Johannesburg stock exchange, Nigeria stock exchange, Ghana stock exchange and Nairobi stock exchange. From the data, higher values of the payout policy variables indicate boards' policy decision to pay more dividend.

Board dynamics is the variable of interest in equation 1. Consistent with bank governance literature (Laeven & Levine, 2007; Mubaraq et al, 2021; Ramirez & Ferrer, 2021), bank governance indicators at bank-level was obtained from the BankScope. Database and the annual reports of banks from their public website. Following the definitions of individual characteristics of governance by Fosberg (2004) and the computation of governance index by Akbar et al, (2016), we construct an index to capture board dynamics. The index includes seven corporate governance indicators, which is an aggregate measure of bank ownership (a dummy variable taking the value of 1 if the member(s) of the board own share(s), otherwise 0); ownership control (a dummy variable if the shareholder(s) could hold cash flow rights and that the right to

vote sum to 10% or more as indicated by Laeven & Levine (2007); CEO duality, constructed as a dummy equal 1 if CEO duality is absent, 0 otherwise); board structure ("a dummy variable equal 1 if half or more directors are non-executive directors, 0 otherwise"); audit independence (a dummy variable equal 1 if the bank is audited by an independent auditor(s), particularly the top 4 auditing firms); audit committee (a dummy variable equal 1 if audit committee is present, 0 otherwise); and board gender diversity (a dummy variable equal 1 if there is a woman present, 0 otherwise).

Board dynamics as measured by the index capture how individual directors, through the collective characteristics of the board, interact with each other to achieve a desirable outcome. The index is between 0 and 1, with higher values indicating healthy board dynamics. We expect a positive relationship between board dynamics and payout policy. This suggests that strong board dynamics will reduce conflict of interest between shareholders and managers and will result in higher dividend payouts.

Next, we examine the impact of board dynamics and payout policies on shareholder wealth at the market and bank levels. Our empirical model can be expressed as:

$$Shareholders\ Wealth_{it} = \alpha_1 Payout\ Policy_{it} + \alpha_2 Board\ Dynamics_{it} + \lambda_q (Payout\ Policy_{it} * Board\ Dynamics_{it}) + \sum_{k=18}^{N} \beta_k C_{it} + \theta_i + \mu_t + \varepsilon_{it} \quad (2)$$

"where α_1 represents the regression coefficient of dividend payout; α_2 represents the regression coefficients of board dynamics. β_k:$k = 1, \ldots, N$, are regression parameters for vector C to be estimated. The vector C contains a list of control variables.

θ_i is a set of bank-specific effect (dummy variables to capture any unobserved bank-invariant effects not included in the regression); μ_t is time fixed effect; country dummy variables to control for characteristics that are specific to each country and persistent over time; and ε_{it} is the composite error term (white-noise error term).".

In equation 2, the dependent variable is shareholders' wealth. Following Ofori-Sasu et al (2019), shareholders' wealth is decomposed into two, namely, Market Value Added (MVA) and Return on equity (ROE). Market value added is the natural logarithm of the difference between market level of equity and book value of equity or the capital contributed by all investors. It is the amount of wealth that a company can create for its shareholders. Data was obtained from the company's annual report, stock exchanges and the Bankscope database. Higher market value-added suggests higher market wealth creation to shareholders. Return on equity is measured as the ratio of net profit to total equity. Data was obtained from the BankScope database.

Independent and interaction effect

From equation 2, we expect a positive relationship between board dynamic and shareholder wealth at both levels. This supports that strong board dynamics provide managers with an incentive to increase shareholder wealth at both the market and bank levels.

In terms of payout policy, we expect both dividend payout and dividend yield to have either a positive or a negative relationship with shareholder wealth. A positive relationship shows that banks with greater dividend payout and dividend yield have the incentive to increase shareholder wealth. However, agency problems may induce a negative relationship between the payout policy variables (dividend payout and dividend yield) and shareholder wealth.

In equation 3, we examine the interaction effect of board dynamics on the relationship between the payout policy variables and shareholder wealth. We establish the conditional effect of the payout policy variables on shareholders' wealth, by introducing the interaction terms between the board dynamics and the payout policy variables, and then we run it on shareholders' wealth.

Following Compton and Giedeman (2011), we take the interaction coefficient into account as well as the sign attached to the coefficient of the key variables (payout policy). For instance, an interaction of board dynamics with the payout policy variables that gives the same sign with the coefficient of board dynamics suggests that board dynamics is a complement for the payout policy in explaining shareholders' wealth at both level. However, an interaction of board dynamics with the payout policy variables that gives a different sign with the coefficient of board dynamics suggests that board dynamics is a substitute for payout policy in explaining shareholders' wealth at both level.

Further, in interactive regressions, in order to avoid pitfalls as documented by Brambor et al. (2006), we interpret our results by computing the net effects. The impact of payout policy variable is interpreted as a conditional marginal impact. Thus, the impact of payout policy on shareholders' wealth is conditioned on board dynamics.

From equation 2, the net effect is computed as:

$$\text{Net Effect} = \frac{\partial Shareholders\ wealth_{j,t}}{\partial Payout\ Policy} = \alpha_{,} + (\lambda_q)(Board\ dynamics)_{ijt} \quad (3)$$

Table 1
Descriptive Statistics.

Variables	Obs.	Mean	Std. Dev.	Min	Max	SWILK
Market value added	6075	3.33	0.898	1.997	5.529	0.00***
Return on equity	6043	6.188	9.982	−24.75	31.531	0.00***
Board dynamics	6075	0.1232	0.585	−1.07	1.12	0.00***
Dividend Payout	6077	0.135	0.342	−0.0081	1.7931	0.00***
Dividend Yield	6086	0.0047	0.0218	0.00	0.7332	0.00***
Bank size	6070	6.808	2.365	2.177	11.739	0.00***
Bank concentration	6071	3.6757	3.4647	−3.5066	4.5729	0.00***
Equity-asset ratio	6071	0.8289	3.6384	−4.5503	3.9848	0.00***
Liquidity	6051	0.483	0.255	0.00	1.865	0.00***
Government effectiveness	6019	−0.601	0.563	−1.705	0.584	0.00***
GDP per capita	6055	2.709	4.417	−17.473	24.215	0.00***
Exchange rate	6048	6.7419	7.9746	−0.0878	10.2657	0.00***
Inflation rate	6028	8.268	5.578	−1.801	29.488	0.00***

This table shows the summary statistics of the variables. The summary statistics do not show any evidence of outliers and the Shapiro Wilk (SWILK) normality test indicates that the variables are normality distributed around their mean. *Significant Level: p-value < 1% (***):*

Table 2
Pairwise correlations.

Variables	VIF(1.27)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Board Dynamics	1.23	1.000										
(2) Dividend Payout	1.43	0.075***	1.000									
(3) Dividend Yield	1.08	0.057***	0.875	1.000								
(4) Bank Size	1.37	0.357***	0.455***	0.260***	1.000							
(5) Bank Concentration	2.69	−0.203***	−0.164***	0.150***	0.150***	1.000						
(6) Equity to total asset	1.07	0.173***	0.111***	−0.068**	0.380***	0.430***	1.000					
(7) Liquidity	1.67	−0.104***	0.094***	0.053***	−0.216***	0.016***	0.405***	1.000				
(8) Gov. Effectiveness	1.16	0.471***	0.229***	−0.017**	0.299***	0.014***	0.320***	−0.085***	1.000			
(9) GDP per capita	1.21	−0.009	−0.213***	−0.014**	−0.103***	0.040***	0.158***	−0.044***	−0.090***	1.000		
(10) Exchange Rate	1.55	−0.119***	−0.105***	−0.056**	−0.338***	−0.259***	−0.079***	0.089***	−0.320***	0.312***	1.000	
(11) Inflation Rate	1.20	−0.140***	0.022***	−0.001**	−0.137***	−0.384***	−0.393***	−0.150***	−0.190***	0.076***	0.134***	1.00

Payout Policy is measured with dividend payout and dividend yield. Dividend payout is measured as the ratio of dividend per share to earnings per share. Dividend yield is measured as the ratio of dividend per share to market price per share. Board dynamics is an aggregate measure of bank ownership (a dummy variable taking the value of 1 if the member(s) of the board own share(s), otherwise 0); ownership control (a dummy variable if the shareholder(s) could hold cash flow rights and that the right to vote sum to 10% or more as indicated by Laeven & Levine (2007); CEO duality (the combined roles of chairman and chief executive), constructed as a dummy equal 1 if CEO duality is absent, 0 otherwise); board structure (a dummy variable equal 1 if half or more directors are non-executive directors, 0 otherwise); audit independence (a dummy variable equal 1 if the bank is audited by an independent auditor(s), particularly the top 4 auditing firms); audit committee (a dummy variable equal 1 if audit committee is present, 0 otherwise); and board gender diversity (a dummy variable equal 1 if there is a woman present, 0 otherwise); **Bank size** is the natural log of bank total Assets; **Bank concentration** is the ratio of asset of the three largest commercial banks to total commercial banking assets in a country; **Equity to asset ratio** is the ratio of equity to total asset. **Liquidity** is measured as the ratio of cash to current liability; **Government Effectiveness** is an index of the degree of government's independence from political pressures and captures the degree of quality policy formulation and implementation; **GDP per capita** is measured as the natural logarithm of GDP per capita. **Exchange rate** is the exchange rate per year of a country; **Inflation rate** is the Inflation rate per year of a country.
NB. *** represents $p < 0.01$ level of significance.

α, λ, γ are the coefficients of the regression parameters to be estimated. λ_q denotes the coefficients of the interaction terms between the payout policy variables and board dynamics.

Based on the net effect estimations, we expect that board dynamics enhance or alter the impact of payout policy on shareholder wealth at the market and bank levels.

Controls

For the control variables, bank specific information were obtained from the Bankscope Database while country data on macroeconomic indicators were obtained from the World Development Indicator (WDI). We expect some interesting results between the control variables and shareholder wealth (see Appendix (Table I).

Estimation technique and diagnostics

To enhance reliability, efficiency and accuracy of the result, the study employs a number of techniques to test cross-sectional dependence, normality and multicollinearity. One potential problem that can arise from the model given above is the problem of endogeneity. In the case of simultaneity or endogeneity, OLS estimates are inconsistent and biased (Bullock, Green & Ha, 2010). Based on the bicausal relationship that may exist between the explanatory variables (i.e., board dynamics and payout policy) and the dependent variable, the study used the 2SLS estimate to deal with possible endogeneity and cross-correlation between the terms error (see Byrne, 2001; Eighth, 2019). Board dynamics and payout policy variables are considered endogenous variables and their lag and future values are used as instrumental variables, as suggested by Reed (2015). Angrist and Krueger (2001) argued that researchers should rely on fewer instrumental variables because the 2SLS bias is close to zero when the number of instruments equals the number of endogenous factors. It confirms that the instruments are not weak as the minimum eigenvalues were larger than the 2SLS size of the 5%

Table 3
Effect of Board Dynamics on Payout Policy.

VARIABLES	Dividend Payout	Dividend Yield
	Model 1	Model 2
Board Dynamics	**0.838*** **	**0.0207*** **
	(0.290)	**(0.00529)**
Bank Size	0.107***	0.00285***
	(0.0222)	(0.000918)
Bank Concentration	−0.00884***	−0.000169*
	(0.00282)	(9.20e-05)
Equity-asset ratio	0.000316	0.0129***
	(0.000586)	(0.00466)
Liquidity	0.000264	0.0191*
	(0.000161)	(0.0106)
Government Effectiveness	0.491***	0.00552*
	(0.171)	(0.00285)
GDP per capita	−0.0195	8.58e-05
	(0.0141)	(0.000215)
Exchange Rate	−0.000157**	−4.49e-05***
	(7.50e-05)	(1.62e-05)
Inflation Rate	−0.0223	2.63e-05
	(0.0142)	(0.000123)
Bank Fixed Effect	Yes	Yes
Time Fixed Effect	Yes	Yes
Constant	0.221	0.000488
	(0.219)	(0.00664)
Observations	6019	6019
Number of banks	528	528
Wald Chi^2	35.01***	80.68***

This table shows the 2SLS estimation results. Table 3 shows the effect of board dynamics on payout policy. The dependent variable is payout policy variables, which are dividend payout and dividend yield. Changes in future values of board dynamics is used as instrument for this model. Standard errors in parentheses*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4
Effect of Board Dynamics and Payout policy on Shareholders' Wealth at the Market Level.

Variables	Model 3	Model 4	Model 5	Model 6
Dividend Payout	**−0.493*** **			**−0.399** **
	(0.156)			**(0.173)**
Dividend Yield		**−6.586*** **		**−27.10** **
		(0.775)		**(11.75)**
Board Dynamics			**0.222*** **	**0.479*** **
			(0.0829)	**(0.174)**
Bank Size	0.0139	0.934***	−0.0313	0.00404
	(0.0260)	(0.263)	(0.0241)	(0.0288)
Bank Concentration	0.00906***	−0.0188	0.0118***	0.0101***
	(0.00196)	(0.0153)	(0.00210)	(0.00216)
Equity-asset ratio	−20.41**	0.805	−18.76*	−19.14**
	(9.088)	(1.566)	(10.39)	(8.131)
Liquidity	10.52***	−0.126	12.33***	12.46***
	(2.363)	(0.439)	(1.723)	(1.664)
Government Effectiveness	−0.458***	0.256	−0.610***	−0.524***
	(0.121)	(1.179)	(0.131)	(0.134)
GDP per capita	−0.0169	−0.0365	−0.00466	−0.0148
	(0.0176)	(0.0408)	(0.0176)	(0.0177)
Exchange Rate	−0.000295***	−0.0803***	−0.000256***	−0.000274***
	(6.05e-05)	(0.0217)	(6.43e-05)	(6.28e-05)
Inflation Rate	0.0151	0.00264	0.0192	0.0187
	(0.0114)	(0.0111)	(0.0120)	(0.0118)
Bank Fixed Effect	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes
Constant	2.734***	57.29***	2.716***	2.681***
	(0.205)	(5.735)	(0.213)	(0.235)
Observations	6018	6018	6018	6018
Number of banks	528	528	528	528
R-squared	0.518	0.4453	0.485	0.515
Chi^2	126.85***	172.56***	117.23***	128.50***

Table 4 shows the 2SLS estimation results. Dependent Variable is Market Value Added (MVA). Table 4 shows the independent effect of board dynamics and payout policy on shareholders wealth creation in the market. Board dynamics and payout policy variables are considered as endogenous variables and their lagged and future values are utilized as instrumental variables as suggested by Reed (2015). Control variables are defined in the Appendix. Standard errors in parentheses*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

nominal Wald test (Stock & Yogo, 2005). These estimates can further generalize the simultaneous equation model and provide consistent estimates. Robust standard errors of the estimates were used to correct for possible heteroscedasticity and autocorrelation.

Empirical results and discussion

This section presents the descriptive statistics, the Pearson correlation matrix and the regression results. From Table 1, on average, market wealth to shareholders in Africa is 3.33, ranging between 1.997 (lowest value) and 5.529 (highest value). Return on equity to shareholders accounts for a mean (standard deviation) of 6.19 (9.982) percent with minimum and maximum values of –24.75 and 31.53 percent respectively. This suggests that the overall returns to equity holders of the banks has a high variability across the sample as captured by a standard deviation of 9.982 percent. Thus, banks in Africa provide small amount (6.188%) of their net profits to their shareholders. Dividend payout recorded a mean of 0.135, ranging from −0.00805 and 1.7931. This suggests that banks in Africa payout an average of 13.5 percent dividend of shares outstanding. Dividend yield recorded a mean of 0.0047, ranging between 0 and 0.73. This suggests that banks in Africa make an average dividend yield of 0.5 percent. Given a range of 0 (low) and 1 (high), board dynamics recorded an average of 0.1231, indicating that board dynamics in Africa is poor.

Table 2 reports the pairwise correlation matrix. As shown in Table 2, we observe "no multicollinearity problem" among the variables as confirmed by a correlation coefficient <0.7 (Kennedy, 2008) and a "mean Variance Inflation Factor (VIF)" of 1.46, which is less than the threshold of 10. However, dividend payout and dividend yield are highly correlated with correlation coefficient more than 0.7 (see Table 2). Due to the potential multicollinearity, we do not put all the measures of payout policy into one model.

Regression results

The regression results show the interrelationship between board dynamics, payout policy and shareholders' wealth of banks in Africa. First, the study examines the effect of board dynamics on dividend payout (see Table 3).

From Table 3, we found that board dynamics has a positive and significant direct relationship with dividend payout (model 1) and dividend yield (model 2). This suggests that the board dynamic increases the payout policy. It follows that the healthy dynamics of the board tend to protect the interests of shareholders by instilling that more dividends are paid out to shareholders. It is also consistent with the work of Abor and Fiador (2013) who found a positive relationship between board composition and dividend payments for Kenya firms. It also confirms the work of Nazar (2021), who revealed that managerial ownership has a significant positive impact on dividend payout ratio.

Given that board dynamics increases payout policy, managers and shareholders of the banks should align their interest to fight for a common goal that offer an optimal payout policy of the board.

The study do not report on the controls because of space.

Second, we examine the independent effect of board dynamics and payout policy on shareholders' wealth at the bank and market levels (See Table 4).

Impact of board dynamics and payout policy on shareholders wealth at market-level

In model 3, dividend payout negatively affect market value of shareholders. Similarly, in model 4, dividend yield was negatively linked to market value of shareholders. This shows that owners who receive more dividend payments do not invest in growth opportunities that increase market wealth. Our findings disagree with the findings of Eryomin et al (2021), who show that dividends have a positive effect on

Table 5
Effect of Board Dynamics and Payout Policy on Shareholders' Wealth at the Bank Level.

Variables	Model 7	Model 8	Model 9	Model 10
Dividend Payout	**5.784****			**0.841*****
	(2.286)			**(0.305)**
Dividend Yield		**4.443***		**16.63**
		(1.725)		**(11.78)**
Board Dynamics			**22.65*****	**−21.24*****
			(3.459)	**(3.547)**
Bank Size	−0.176	2.363**	1.130***	0.925**
	(0.381)	(1.161)	(0.326)	(0.392)
Bank Concentration	0.0378	−0.158*	−0.0182	−0.0115
	(0.0288)	(0.0873)	(0.0257)	(0.0265)
Equity-asset ratio	1.148	−8.566	0.969	1.099
	(1.504)	(16.89)	(1.406)	(1.447)
Liquidity	0.392	1.837	−0.746	0.476
	(0.507)	(3.075)	(0.549)	(0.563)
Government Effectiveness	−0.484	−5.270	−0.660	−0.957
	(1.784)	(3.268)	(1.546)	(1.584)
GDP per capita	−0.634**	−0.839***	−0.712***	−0.639***
	(0.258)	(0.322)	(0.218)	(0.225)
Exchange Rate	−0.00147*	0.0320	−0.00109	−0.00112
	(0.000889)	(0.0255)	(0.000776)	(0.000773)
Inflation Rate	0.657***	0.101	0.378**	0.384**
	(0.167)	(0.151)	(0.153)	(0.153)
Bank Fixed Effect	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes
Constant	−3.003	−9.901	−2.409	−2.510
	(3.004)	(13.11)	(2.602)	(2.965)
Observations	6018	6018	6018	6018
	528	528	528	528
R-squared	0.269	0.0352	0.445	0.450
Chi^2	43.52***	28.25	91.85***	93.92***

Table 5 shows the 2SLS estimation results of the independent effect of board dynamics and payout policy on shareholders wealth creation at the bank level. Dependent Variable is Return on Equity (ROE). Board dynamics and payout policy are considered as endogenous variables and their lagged values are utilized as instrumental variables as suggested by Reed (2015). Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

capitalization only if the policy is based on the residual principle. However, from theoretical perspective, our findings support the dividend irrelevance theory that holds that the markets perform efficiently so that any dividend payout will lead to a decline in the stock price by the amount of the dividend. Thus, the dividend irrelevance theory induces a negative relationship between payout policy and shareholders' wealth in the market. This implies that payout policy to shareholders does not directly offer any added benefits to investors at the market level. Hence, a negative impact between payout policy and shareholders' wealth in the market.

Board dynamics has a positive effect on shareholders' wealth in the market (Model 5). Thus, healthy board dynamics promote shareholders' wealth in the market. Our findings agree with the stewardship theory where managers seek the interest of shareholders, increase risk-taking and maximize shareholders wealth (returns) in the market. Our results confirm the arguments of Dey, Engel and Liu (2011) and support the efficiency theory that aligning the interest of shareholders with managers may be best suited to shareholders wealth in the market.

Impact of board dynamics and payout policy on shareholders wealth at bank-level

In Table 5, dividend payout and dividend yield have a positive effect on shareholder wealth at the bank level (Model 7 and 8). This shows that dividend distribution to shareholders increases shareholders' wealth at the bank level. This supports the theory that companies pay dividends to reduce agency costs associated with a high cash or low debt capital structure. Our findings agree with Mubaraq et al (2021) who argued that dividend payout positively impact bank value, and this implies that companies that pay dividend attract more investors, leading to greater firm value.

Also, a positive relationship was found between board dynamics and shareholders' wealth at the bank level (see model 9). This is attributed to the fact that strong board dynamics protect the interest of shareholders by increasing their wealth at the bank-level. This is in line with Guluma (2021) and Ramirez and Ferrer (2021), whose findings support the hypothesis that governance creates value for companies and that investments to implement effective governance systems give net positive benefit and should be pursued.

In general, the study deduces that payout policy reduces shareholders' wealth creation in the market while it enhances shareholders' wealth creation at the bank level. The implication is that managers who make policy decision to pay more dividend limits investment opportunities by banks, and therefore lowers wealth creation in the market. This supports the risk-shifting behaviour among managers, where risk is transferred to another party to generate high rewards for equity owners. For this reason, managers may reduce dividend payout, invest more of their retained earnings into the bank by focussing on short term projects that create bank level wealth. This leads to a negative dividend payout-shareholders wealth nexus in the market. This infer that the market is imperfect and that banks do follow specific payout policies to enhance their wealth. Therefore, under imperfect market condition, payout policy may create relatively more wealth for shareholders at the bank level compared to wealth creation at the market level.

Interaction effect of board dynamics and payout policy on shareholders' wealth at market level and bank-level

As explained earlier, payout policy (dividend payout and dividend yield) has a negative unconditional effect on shareholders' wealth in the market. We interact board dynamics with payout policy variables and account for the net effects of payout policy variables when conditioned on board dynamics. This is presented in Table 6.

The net effects are computed from the unconditional payout policy and conditional or marginal (conditional) payout policy impacts which are contingent on the complementary effect or substitutability effects of board dynamics. Prior to interpreting the net effects, we observe whether the payout policy is a substitute or complement for board dynamics in the determination of shareholders' wealth creation at the market and the bank levels (see Compton & Giedeman, 2011). For example, in model 11 (Table 6), the coefficient of dividend payout is negative while the marginal or conditional effect (coefficient of the interaction term) is positively linked to market level wealth when interacted with board dynamics. Similarly, the coefficient of dividend yield is negative while the marginal or conditional effect (coefficient of the interaction term) is positive (see model 12). This implies that payout policy variables (dividend payout and dividend yield) can act as a substitute control device for market level wealth creation in the presence of board governance mechanism, as supported by Yahya and Ghazali (2017).

The earlier findings show a positive payout-wealth nexus at the bank level. However, the impact of payout policy variables (dividend payout and dividend yield) on shareholders' wealth at the bank turned out to be negative in the presence of board dynamics (see model 13). In model 13 and 14, the coefficients of dividend payout and dividend yield were negatively linked to bank level wealth while the respective marginal or conditional effect (coefficient of the interaction terms) were positively linked to bank level wealth in the presence of board dynamics. This implies that payout policy (dividend payout and dividend yield) can act as a substitute control device for bank level wealth creation in the presence of board governance mechanism, as supported by Yahya and Ghazali (2017).

Following Bramber *et al* (2006), we interpret our results based on the net effects of the payout policy variables (dividend payout and dividend yield) on the wealth of shareholders in the market when they interact with the board dynamics. For example, in model 11 (using Table 6), the marginal effect (from the interaction) is 0.486 while the unconditional impact of dividend payout is −5.650. The corresponding net effect of

Table 6
Interaction Effect of Board Dynamics and Payout Policy on Shareholders' Wealth at Market Level and Bank Level.

	Market level Wealth (MVA)		Bank level Wealth (ROE)	
Variable	Model 11	Model 12	Model 13	Model 14
Dividend Payout	**−5.650*** **		**−6.089** **	
	(1.138)		**(3.073)**	
Dividend Yield		**−4.8190***		**−4.372***
		(2.6585)		**(2.627)**
Board Dynamics	**2.825** **	−26.98**	−24.71***	0.432
	(1.418)	(11.76)	(3.508)	(0.528)
Board Dynamics*Dividend Payout	**0.486***		**51.92*** **	
	(0.263)		**(14.14)**	
Board Dynamics*Dividend Yield		**2.460*** **		**27.36***
		(0.241)		**(16.32)**
Bank Size	0.0231	−0.938***	1.239***	0.257**
	(0.0298)	(0.263)	(0.376)	(0.115)
Bank Concentration	0.0115***	−0.0195	−0.00457	−0.0270***
	(0.00223)	(0.0153)	(0.0257)	(0.0100)
Equity-asset ratio	−16.63	0.813	1.240	2.205
	(10.50)	(1.567)	(1.488)	(1.503)
Liquidity	13.40***	−0.115	0.453	0.244
	(1.550)	(0.440)	(0.579)	(0.535)
Government Effectiveness	−0.476***	0.203	0.203	−1.171***
	(0.134)	(1.162)	(1.538)	(0.398)
GDP per capita	−0.0149	−0.0347	−0.678***	0.0837***
	(0.0176)	(0.0400)	(0.219)	(0.0246)
Exchange Rate	−0.000272***	0.0801***	−0.00103	0.000645
	(6.27e-05)	(0.0217)	(0.000755)	(0.00181)
Inflation Rate	0.0285**	0.00243	0.546***	0.000110
	(0.0128)	(0.0111)	(0.156)	(0.0128)
Bank Fixed Effect	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes
Constant	−18.18	57.26***	56.62*	−0.234
	(24.27)	(5.739)	(33.22)	(0.946)
Observations	6018	6018	6018	6018
Number of banks	528	528	528	528
R-squared	0.503	0.4437	0.471	0.4529
Chi^2	147.21***	217.43***	121.67***	213.35***
Net Effect	**−5.5902*** **	**−4.8074**	**0.2972*** **	**−4.2434**

The table shows the interaction effect of board dynamics and payout policy on shareholders wealth in the market and at the bank level. The interaction terms are introduced in the models and rerun.
Robust standard errors in parentheses.
*** p < 0.01, ** p < 0.05, * p < 0.1.

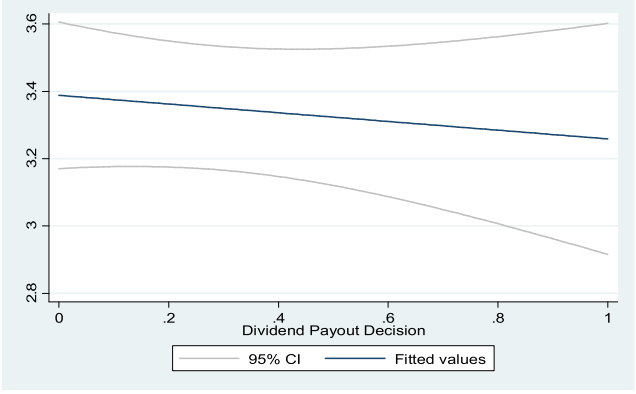

Fig. 1. Marginal plot of the effect of dividend payout on shareholders' wealth in the market when conditioned on board dynamics.

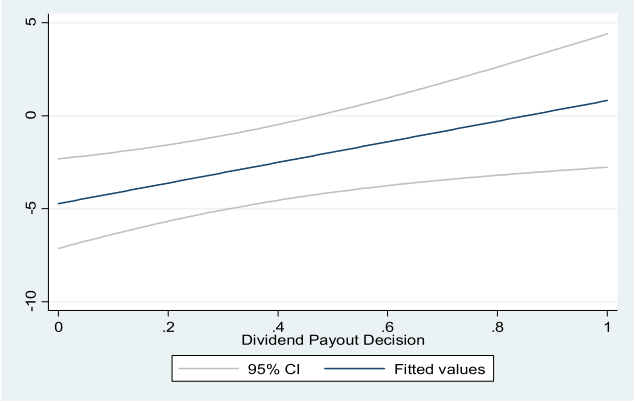

Fig. 2. Marginal plot of the effect of dividend payout on shareholders' wealth at bank level when conditioned on board dynamics.

dividend payout is: −5.5902 [-5.65 + (0.486*average of board dynamics)[1]]. This computation is consistent with contemporary interactive regressions literature by Asongu (2020a, 2020b, Tchamyou and Asongu (2017). The net effect is negative but more negative than the unconditional effect of dividend payout. Similar interpretation can be seen for the net effect of dividend yield in model 12. This implies that payout policy reduces shareholders' wealth in the market when interacted with board dynamics (see Fig. 1). This supports the argument that managers may seek the interest of shareholders by reducing payout while channelling their profits into investment opportunities that yield greater wealth to shareholders in the market. Therefore, the reductive effect of payout policy on shareholders' wealth in the market is enhanced in the presence of strong board dynamics.

[1] Mean of board dynamics is 0.1232.

In Model 13, marginal effect (from the interaction) is 51.92 while the unconditional impact of dividend payout is −6.089. The corresponding net effect of dividend payout is: 0.2972 [-6.089 + (51.92*0.1232)]. The net effect of dividend payout is positive (see model 13) while the net effect of dividend yield is less negative than the unconditional effect (see model 14). This suggests that the dynamics of the board of directors reduces the negative impact of dividend payout on shareholder wealth at the bank level. It can be seen from the marginal plot in Fig. 2 that the impact of payout policy (dividend payout) on shareholders' wealth at the bank level is increased when it interacts with the dynamics of the board of directors. This confirms the conclusion of Mubaraq et al. (2021), who show that the corporate governance variable has a significant dampening effect of dividend policy on bank value. We conclude that healthy board dynamics provide an incentive for managers to protect the interests of shareholders, leading to an increase in the paying of dividends and an increase in shareholders' wealth at the bank level.

We do not report on the control because of space.

Conclusion and policy implication

The study examines the role of board dynamics in explaining the impact of payout policy on shareholder wealth creation at the market and bank levels. The study uses a two-stage least square (2SLS) estimate of 528 banks in 29 African countries during the period 2006–2018. First, the study analyzes the effect of board dynamics on payout policy. Second, it examines the independent effect of board dynamics and payout policy on shareholders' wealth at the market and bank levels. Finally, the effects of the payout policy on shareholders' wealth at the market and bank levels are explained when conditioned on the dynamics of the board of directors. It provides evidence that board dynamics has a positive impact on payout policy. This supports the assertion that managers may seek the interest of shareholders by offering more dividend payout. Thus, healthy board dynamics increases payout policy. The study provides evidence of a positive relationship between board dynamics and shareholder wealth creation in the market and at the bank level. We found a negative and significant relationship between the payout policy (i.e., dividend payout and dividend yield) and shareholders' wealth in the market. However, the payout policy (i.e., dividend payout and dividend yield) was positively and significantly linked to shareholders' wealth at the bank level. This explains why the higher payout ratio creates less shareholder wealth in the market while maximizing shareholder wealth at the bank level.

The study found that payout policy (dividend payout and dividend yield) generally acts as a substitute control device for shareholders' wealth creation in the presence of board governance mechanism. The study found evidence to support that the negative impact of payout policy on shareholders' wealth creation in the market is enhanced when conditioned on board dynamics but the negative impact of payout policy on shareholders' wealth creation at the bank level is reduced when conditioned on board dynamics. In general, board dynamics substitutes payout policy to moderate shareholders wealth in the market and at the bank level. Thus, policymakers and researchers should design a model that allows the board dynamics to complement payout policy in generating a desirable outcome of shareholders' wealth.

The policy implication is that healthy board dynamics is needed to fight for an optimal payout policy-wealth creation framework in the market and at the bank. Specifically, ensuring stronger board dynamics provides the incentive to check the opportunistic behaviour of managers, and make prudent payout policy actions that create wealth for shareholders at the bank level. Therefore, regulatory bodies should ensure that there is a collective board mechanism that fight for optimal payout policy framework in order to maximize shareholders' wealth both in the market and at the bank level.

Limitation and future recommendation

Acquiring this data is very difficult because it is not available publicly as a secondary source. Future research is required to explore this study to other regions in the world to reveal how applicable this model fits the other part of the world. Some other moderators of policy variables should also be tested in this context to ensure their role in aligning payout policy with the interest of shareholders.

Availability of data and materials

The datasets used and/or analysed during the current study are available (with corresponding author) on reasonable request.

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CRediT authorship contribution statement

Daniel Ofori-Sasu: Conceptualization, Methodology, Software, Data curation, Writing – original draft. **Gloria Clarissa Dzeha:** Visualization, Investigation, Project administration. **Christopher Boachie:** Writing – review & editing. **Joshua Yindenaba Abor:** Supervision, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix

Table I.

Table I
Apriori expectation of control variables.

Control Variables	Measurement	Expectations
Bank size	Natural logarithm of bank total asset	+
Bank concentration	Ratio of asset of the three largest commercial banks to total commercial banking assets in a country	–
Equity-asset ratio	Ratio of equity to total asset	+
Liquidity	Current ratio, measured as the ratio of current asset to current liability	+/-
Government Effectiveness	An index of government effectiveness	+/−
Exchange rate	Natural logarithm of a country's currency rate to the dollar	–
GDP per capita	Natural logarithm of gross domestic product (GDP) per capita	–
Inflation rate	Consumer price index.	+

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