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## Article

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# Board characteristics and financial performance of banks listed on frontier stock markets in East Africa. A panel analysis

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## ABSTRACT

This study investigates the impact of board characteristics on the financial performance of 14 listed banks in Kenya, Tanzania, and Uganda. We use 84 firm-year observations of 14 listed banks from three stock markets in East Africa, namely Dar es Salaam Stock Exchange (DSE), Nairobi Security Exchange (NSE), and Uganda Security Exchange (USE) for a six-year period that is 2017–2022. The accounting measure of financial performance was the net interest margin (NIM). This study used a fixed-effects panel analysis model to test the hypotheses. The empirical results reveal that board financial expertise positively and significantly influences financial performance. This implies that an increase in the proportion of board members with financial and accounting backgrounds increases bank performance. On the other hand, the proportion of foreign directors decreased bank performance as the variable exerted a negative and significant effect on bank performance. The results suggest that board structure has an important role to play in the governance of listed banks in East African frontier stock markets.

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## 1. Introduction

The current global financial crisis has necessitated corporate governance in the banking industry to receive greater attention than ever before. This is because bank failures may be associated with poor corporate governance structures, and this might have a disastrous effect on the general public by potentially affecting payment systems, causing liquidity crises, and other macroeconomic problems including contagion risk (Berhe, 2023; Liang et al., 2013; Pathan & Faff, 2013). The banking sector's performance is thought to be a mirror image of the economic status of any country (Magoma et al., 2022; Misra & Aspal, 2013). In this context, the significance of bank performance is widely acknowledged by academicians, practitioners, regulatory bodies, and other key stakeholders in the banking industry (Elgadi & Ghardallou, 2022; Ntim & Soobaroyen, 2013). Thus, a well-performing banking system ensures that shareholders' interests are met, profits are maximized, and shareholders' investments are protected and preserved (Kowoon et al., 2022). From this premise, our study aims to explore the relationship between various board attributes and the financial performance of banks listed in East African (EA) frontier stock markets that is Kenya, Uganda, and Tanzania.

This study aims to address seven (7) research questions (RQ): RQ1. Do board meetings significantly impact bank financial performance? RQ2. Does board size significantly impact bank performance? RQ3. Does gender diversity significantly impact bank performance? RQ4. Does board financial expertise significantly impact bank performance? RQ5. Does board educational diversity significantly impact bank performance? RQ6. Do independent directors significantly impact bank performance? RQ7. Do foreign directors significantly impact bank performance? Thus, from the research questions the following research

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objectives are adopted by this study. 1. To examine the impact of board meetings on bank performance. 2. To examine the impact of board size bank performance. 3. To examine the impact of gender diversity on bank performance. 4. To examine the impact of board financial expertise on bank performance. 5. To examine the impact of board education diversity on bank performance. 6. To examine the impact of independent directors on bank performance. 7. To examine the impact of foreign directors on bank performance.

Consequently, the present study seeks to make the following contributions to the existing literature. First, this study tries to give a more comprehensive representation of the board structure and its effect on the financial performance of banks listed in East Africa's frontier stock markets. Berhe (2023) pointed out very clearly that a successful board is a prerequisite for an effective banking system. Secondly, the present study uses a panel data analysis that allows variations across different banks and study periods. Thirdly, for the issue of endogeneity in panel data analysis the study utilizes the use of a robust estimation technique namely the Two Stage Least Squares (2SLS). This method is commonly used to address the issue of endogeneity in panel data analysis thus ensuring the reliability and validity of the findings. Fourthly, the study uses a multi-theoretical approach by using two different theories namely agency theory (AT) and Resource Dependency theory (RDT).

Fifthly, previous empirical studies aimed at assessing the relationship between corporate governance structures and firm performance in East African frontier stock markets. Most of these studies were conducted on listed and non-listed firms and microfinance institutions (Guney et al., 2020; Mori, 2014; Mwambuli, 2016; Okiro & Aduda, 2015). The latter studies did not examine the influence of corporate governance structures on listed bank financial performance in the EA frontier stock markets in Kenya, Uganda, and Tanzania. Due to limited empirical studies on the relationship between corporate governance structures and the financial performance of listed banks in East Africa, this study intends to fill the literature vacuum that currently exists.

The paper was organized into seven main parts, as follows: The first part presents the Introduction covering the study objectives, questions, and motivations. The second part highlights the background of the study including corporate governance issues in the banking industry, and the need for the study. The third part covers the Theoretical Literature Review where corporate governance theories like Agency Theory (AT) and Resource Dependency Theory (RDT) were used to guide the study. The next part covers the empirical literature review and hypothesis development reviewing past empirical studies on board meetings, the board size, gender diversity, board financial expertise, board education diversity, board independence, and foreign directors and their impact on bank performance. From the reviewed empirical literature hypotheses were developed. The fifth part covers the research design comprising the sample selection, operationalization of the variables, and specification of the model. The sixth part covers the empirical results and discussion covering statistical analysis and findings, robustness checks, and discussions. The last part presents the conclusion, summarizing the study findings, study limitations, and areas for future research.

## 2. Background

Over two decades ago, interdisciplinary research on corporate governance was popular among academicians and regulatory fraternities because of several corporate financial scandals, including those involving Enron, Parmalat, and WorldCom. Researchers across the globe have shown great interest in studying the relationship between corporate governance and firm performance in both developed and developing economies (Bekiaris, 2021; Dhiman & Srivastava, 2021; Mishra et al., 2021). Previous empirical studies have shown the importance of diverse boardrooms in terms of gender, skills, background, and, experience. The latter factors enable the boardrooms to come up with thought-out corporate strategies aiming at mitigating and managing various risks that the entity may face (García-Meca et al., 2015; Song et al., 2020).

Given their significance in the economy, bank boards are of greater importance. Bank business is riskier than other business ventures because loan availability is transparent and agent-principal conflicts are severe for banks due to information asymmetry (Skully et al., 2007). Thus, the board of directors plays a crucial role in the governance of both financial and non-financial institutions as their role extends

beyond shareholders, depositors, and regulators (Pathan & Faff, 2013). Recently, boards have been highly criticized for their failure to prevent firms from experiencing financial distress, which has led to a new analytical perspective on the role played by effective boards in reducing various financial and systemic risks faced by firms (Fernández-Temprano & Tejerina-Gaite, 2020). Additionally, previous empirical studies have linked weak corporate governance structures to firm's inability to meet their financial obligations and in turn record poor financial performance (Díez-Esteban et al., 2022; Ombaba & Kosgei, 2017).

The independence of the board members is viewed as an important aspect needed by the board when executing their supervisory role to the management. Factors such as board size, presence of independent directors, CEO duality roles, and board meetings have been linked to a firm's performance as they tend to increase the board's structural diversity (Fernández-Temprano & Tejerina-Gaite, 2020; Hermalin & Weisbach, 2003). This has led many researchers to increase their attention on different issues related to board diversity such as the age of the board members, education level, gender, presence of foreign directors, and nationality believed to have a massive impact on the board decision-making process (Fernández-Temprano & Tejerina-Gaite, 2020). It is worth noting that both developed and developing countries have put more emphasis on good corporate governance practices as the latter entails the firm's commitment to upholding quality corporate governance mechanisms that are crucial for a firm's long-term survival in a highly competitive business environment (Melón-Izco et al., 2020).

### 3. Theoretical literature review

Many theories explain the relationship between board attributes and bank financial performance. It is argued that a multi-theoretical explanation is important to understand the relationship that exists between board characteristics and bank financial performance (Nguyen et al., 2020). Thus, this current study employs two (2) theories namely agency theory and resource dependency theory in the quest to draw insights from both seminal and recently published papers such as (Lu et al., 2022; Makuya, 2024; Quoc Trung, 2022).

#### 3.1. Agency theory

The foundation of agency theory focuses on the separation of ownership and control of the entity. Thus, according to this theory board of directors serves as an internal monitoring mechanism that is used to regulate the behavior of the management in the quest to protect the interest of the shareholders (Jensen & Meckling, 1976). Agency theorists argue that the motivation behind a manager's behaviors is rooted in self-interest acts and seeking external rewards. In most cases, management strives to maximize their interest above the interest of the shareholders. These acts result in a conflict of interest between the management and shareholders (Fama & Jensen, 1983). Thus, this theory argues that the corporate governance mechanism established by the firms can be used to treat principal-agent conflicts. One of the corporate governance mechanisms is the presence of competent and diverse boards that can be used to minimize agency costs (Brennan & Solomon, 2008; Ronen & Yaari, 2008).

Empirical studies reveal that banks that hire competent managers stand a better chance of recording better financial results and earnings per share (EPS) even though a manager's presence in the banks can catalyze the conflict of interest between principals and agents (Quoc Trung, 2022; Shah, 2014). It is worth noting that the diversity of the boards is an added ingredient that will increase the performance of the team because of the different standpoints brought by diverse teams. These teams have a better chance of making informed choices to ensure a firm's long-term survival. From a theoretical perspective, agency theory supports small and diverse boards to improve company performance (Lückerath-Rovers, 2013; Mori & Towo, 2017). Agency theorists assert that smaller boards are more efficient than larger ones and preferably board size should not exceed eight (8) members (Lipton & Lorsh, 1992).

Proponents of agency theory argue in favor of the presence of women directors as the latter's diverse viewpoint in the board meetings positively influences the performance of the firm. Some empirical studies have argued in favor of small boards and this theory supports the presence of foreigners on board as they bring a different outlook to the board decision-making process (Pathan & Faff, 2013; Rodriguez-Fernandez et al., 2014). Thus, incorporating the agency theory in this study allows the readers

to understand how different board attributes can influence decisions and actions that aim at addressing the conflict of interests between the management and shareholders of the banks. This theory further explains how different board attributes influence the financial performance of banks listed in frontier stock markets in East Africa.

### **3.2. Resource dependence theory**

In 1978, Pfeffer and Salancik came up with resource dependency theory, which is more than 50 years old (Pfeffer & Salancik, 1978). This theory argues that the acquisition of external resources is crucial for a firm's existence and growth. The theory further contends that management plays a vital role in connecting the firm's development strategies and the resources needed to address the firm's goals (Quoc Trung, 2022). It is worth noting that a bank's operations require a variety of resources, none of which can be fully owned by the entity. Therefore, to bridge the gap between the resources needed and those available, it is only natural for top executives to communicate and exchange information with one another due to limited available resources. This is done to help the company grow (Ping & Qihong, 2012; Zhang et al., 2016).

Resource constraints can make it difficult for banks to conduct their day-to-day operations efficiently. These constraints can seriously affect bank's investment activities that highly depend on capital mobilized from the economy. It is worth noting that capital mobilization is an integral factor needed for the survival of banks in the economy. Thus, banks are obligated to adjust their loan-to-deposit ratio by issuing fewer loans and making deposit accounts attractive to customers in the quest to ensure the bank's liquidity position is maintained at an optimum level (Morris, 2007; Quoc Trung, 2022). Furthermore, resource dependency theorists argue that the link between the bank and the outside environment for resource mobilization is effective in the presence of large boards, presence of women directors, skilled board members, and presence of foreign directors (Lückerath-Rovers, 2013; Ujunwa, 2012).

## **4. Empirical literature review and hypothesis development**

The significance of board attributes in connection to bank financial performance has been the subject of numerous empirical studies. Many characteristics of the board, including its size, meetings, gender diversity, financial expertise, diversity in education, independent directors, and foreign directors impact banks' financial performance, as demonstrated by studies such as: (Assenga et al., 2018; García-Meca et al., 2015; Hordofa, 2023; Lu et al., 2022; Mai et al., 2024; Nguyen et al., 2020; Ntim, 2015; Ntim & Soobaroyen, 2013; Quoc Trung, 2022; Temba et al., 2023). Accordingly, the empirical literature review section will discuss the relationship between various board attributes and the financial performance of banks listed in East Africa's frontier stock markets.

### **4.1. Board meetings and bank performance**

Studies argue that when members of the boards meet frequently, firms' performance is more likely to be enhanced as members of the board will focus on addressing various issues that aim at maximizing shareholder value (Arora & Sharma, 2016; Conger et al., 1998). The purpose of board meetings and board performance has been the subject of ongoing discussion in the literature. Agency theorists argue that board meetings enable members to carry out their responsibilities for developing strategies and overseeing management successfully. In light of this, they claim that holding regular board meetings results in good financial outcomes (Vafeas, 1999). The frequency of board meetings delays the time needed to make decisions, as well as increases the financial burden on the business due to travel costs and board member sitting compensation. Thus, it is not the number of board meetings conducted but the quality of such meetings that have an impact on the firm's performance (Oyerinde, 2014; Taghizadeh & Saremi, 2013). Thus, it is maintained that a board meeting is an important tool for settling agency conflicts between principals and agents, which aids banks in developing effective corporate governance frameworks.



A study that was conducted among 20 Indian manufacturing companies from 2001 to 2010 revealed that board meetings exhibited a positive influence on financial performance as measured by Return on Assets (ROA) and Return on Equity (ROE) (Arora & Sharma, 2016). Board meetings have a significant negative influence on bank performance in Africa as measured by ROE suggesting that fewer board meetings are necessary to improve bank performance for a sample of 635 banks spread over 48 African countries (Kyei et al., 2022). A Nigerian study revealed that board meetings exhibited a negative and non-significant impact on a firm's performance as measured by ROA (Mohammed et al., 2023). Another study conducted in Nigeria showed that board meetings exerted a positive and non-significant impact on bank performance as measured by Tobin's Q (Aernan et al., 2023).

H<sub>1</sub>: Board meetings negatively influence banks' performance.

#### **4.2. Board size and bank performance**

Agency theorists favor smaller boards over larger ones because smaller boards are believed to be more efficient in monitoring the management role in running the affairs of the entity (Pillai & Al-Malkawi, 2018). Resource dependency theorists favor large boards as they believe these boards can strengthen ties between an entity and its external surroundings (Lückerath-Rovers, 2013). It is crucial to remember that corporations require diverse boards to add more knowledge, ideas, and experience that will support making decisions vital for the company's long-term survival (Arora, 2022). Boards with a sufficient number of members may perform their duties more effectively, especially in the case of banks where the size of the board is considered important due to the nature and complexity of the institutions (John et al., 2016). In contrast, smaller boards are believed to be more productive in monitoring the behavior of the entity as opposed to larger ones that are characterized by longer time for decision-making and hence less productive (Nawaz & Ohlrogge, 2022).

Previous literature has shown a positive and significant relationship exists between board size and a firm's performance (Al-Matari et al., 2022; Edeti & Garg, 2020; Goel et al., 2022; Gurusamy, 2017; Mohammed et al., 2023). Another study revealed a negative significant relationship exists between board size and the performance of firms listed on the East African frontier stock markets (Guney et al., 2020). Board size exerted a negative and significant impact on a firm's performance using data sourced from 52 insurance firms (Isaac et al., 2021).

H<sub>2</sub>: Board size negatively influences banks' performance.

#### **4.3. Gender diversity and bank performance**

Resource dependence theorists point out that the presence of women directors can reassure the stakeholders about the firm's commitment towards diversity, strengthening the firm's connection to the outside world, and more importantly, boosting the firm's legitimacy in the eyes of the shareholders (Lückerath-Rovers, 2013). Agency theorists argue that having more women on board minimizes agency costs and improves the board's efficiency by offering the unique perspective needed when making complex decisions that are vital for a firm's long-term survival (Coles et al., 2008; Mori, 2014). Women on boards are more likely to be independent as compared to men and they are assumed to offer different perspectives in boardroom meetings (De Anca & Gabaldon, 2014). Previous studies have shown the presence of women directors positively influences firm performance (Benaguid et al., 2023; Brahma et al., 2021; Hosny & Elgharbawy, 2022; Jaya, 2020; Kabara et al., 2022) while other studies showed a negative relationship (Adusei et al., 2017; Pletzer et al., 2015). Other studies showed women directors have a positive non-significant impact on listed firms' performance in Tanzania (Magoma & Ernest, 2023).

H<sub>3</sub>: Gender Diversity negatively impacts banks performance.

#### **4.4. Board financial expertise and bank performance**

Proponents of agency theory argue that the board of directors must be financially literate and have the skills needed to oversee and monitor a firm's overall operations, which will eventually lead to better financial results. Resource dependence theorists argue that relevant financial skills will facilitate external linkages with the outside world that would better help the organization mitigate various risks, gain access to valuable business networks, and foster strategies that will eventually boost a firm's performance (Mlay et al., 2023). Board members with financial, economic, and business education backgrounds are highly needed in guiding the company effectively and efficiently toward financial issues that are crucial to the firm's performance (Arifina & Tazilab, 2016). By possessing financial and accounting knowledge board of directors stands a better chance to understand, scrutinize, and interpret financial reports presented to them by the management (Githaiga & Kosgei, 2022).

Financial experts in the boardroom can better mitigate the manipulation of financial results by management, as they are conversant with financial reporting framework this gives them superior knowledge in issues related to the preparation and interpretation of financial reports prepared by the management (Peter et al., 2023). Previous studies have shown a positive relationship between board financial expertise and a firm's performance (Adams & Jiang, 2020; Jin & Mamatzakis, 2018; Mlay et al., 2023). In contrast, a study in Nigeria utilizing secondary data from 14 listed banks revealed that the financial expertise of the board members exhibits a negative impact on the firm's performance measured by ROA (Abubakar et al., 2018).

H<sub>4</sub>: Board financial expertise positively influences banks performance.

#### **4.5. Board education diversity and bank performance**

Board members with different professional fields are highly needed in the boardroom to -increase the diversity that is needed in the decision-making process (Toumi et al., 2016). Board members have the responsibility of advising the management on various issues needed to improve the performance of the companies they have been tasked to control (Kabara et al., 2022). Similarly, a 2022 study conducted in Nigeria showed that educational diversity positively influences the financial performance of listed firms (Kabara et al., 2022). In Ghana, a study that was conducted in 2022 revealed that the proportion of board members with higher educational levels had a negative and significant impact on listed firms' performance (Andoh et al., 2022).

H<sub>5</sub>: Board educational diversity positively influences banks' performance.

#### **4.6. Board independence and bank performance**

Proponents of agency theory contend that independent directors highly assist in resolving principal-agent conflict of interest, as they are expected to monitor and regulate management's actions towards the usage of a firm's resources, which in turn will minimize agency issues by ensuring that the principals' interests are protected (Al-Matari et al., 2022; Al-Msiedeen et al., 2018; Mura, 2007). Independent directors on boards have superior knowledge, abilities, and expertise because of their experience serving on multiple boards. Consequently, their presence in the boardroom adds a valuable contribution to the decision-making process (Pucheta-Martínez & Gallego-Álvarez, 2019; Puni & Anlesinya, 2020).

Previous empirical studies have reported mixed and contradictory results between independent directors and firm's performance for instance positive relationship (Al-Msiedeen et al., 2018; Pucheta-Martínez & Gallego-Álvarez, 2019; Puni & Anlesinya, 2020; Saravanan et al., 2021). Some reported negative relationships (Arayssi et al., 2020; Mishra, 2020) while others reported no relationship existed (Rashid, 2018).

H<sub>6</sub>: Board independence negatively influences banks' performance.



#### 4.7. Foreign directors and bank performance

Resource dependence theorists argue that the presence of foreigners on board is an added ingredient aimed at increasing the vitality of the board in terms of skills sharing, exchange of experiences, and networking the firms with other nations, which can lead to new perspectives and a different problem-solving approach. Consequently, foreign directors provide expertise, knowledge, and new networks that assist the company, in general, to perform better (Mnzava, 2022; Ujunwa, 2012). The presence of many foreigners on board is highly advocated by agency theorists as they believe that foreigners enhance the monitoring of shareholders' interests and resources (Fama & Jensen, 1983).

Empirical evidence on the impact of foreign directors on and firm's financial performance is inconclusive. Some studies contend that there is no relationship between the presence of foreigners on board and the firm's performance (Assenga et al., 2018; Jhunjhunwala & Mishra, 2012). Other studies revealed that foreign directors' participation in the boardroom exerts a negative influence on firm's performance (Bekiaris, 2021; Rafinda et al., 2018). It was also evident that other studies showed a positive relationship exists between the presence of foreigners in the boardroom and the firm's performance (Andoh et al., 2023).

H<sub>7</sub>: Foreigners on boards negatively influence banks' performance

### 5. Research design

#### 5.1. Sample selection and data

This study adopted an explanatory research design to establish the cause-and-outcome relationship that exists between response and explanatory variables (Magoma et al., 2022; Saunder et al., 2009). A quantitative approach was adopted by sourcing secondary data from audited financial statements and annual reports from listed banks in Kenya, Tanzania, and Uganda for six years from 2017 to 2022. The rationale behind selecting the 2017–2022 timeframe is rooted in data accessibility, economic dynamics, and relevance to contemporary issues in corporate governance studies. The population of listed banks from Kenya, Tanzania, and Uganda was Twenty-three (23).

The sampling method used was purposive sampling. Sampled listed banks were selected based on pre-defined criteria. Pre-defined criteria include banks that were listed in the stock markets of these respective countries, and these banks ought to have disclosed their financial statements and annual reports from 2017 to 2022. Thus, Nine (9) banks were dropped due to missing data or banks being cross-listed. Cross-listed banks were selected from their parent countries. Thus, we obtained data from fourteen (14) listed banks from 2017 to 2022 yielding a balanced panel data of 84 bank-year observations. Table 1 shows the sample selection process.

#### 5.2. Measurements of response and explanatory variables and source of data

The study used Net Interest Margin (NIM) as the response variable, sourced from audited financial statements retrieved from EA-listed banks' official websites. The explanatory variables for the study included board meetings, board size, gender diversity, board education diversity, board independence, and foreign directors. These explanatory variables were also obtained from audited financial statements and annual reports on the EA-listed bank's official website. Bank-specific and industry-specific variables were used as control variables (CV). Bank-specific variables included capital adequacy, bank

**Table 1.** Sample of listed banks from NSE, DSE, and USE.

Population of listed banks from NSE, DSE, and USE	23
Number of listed banks with missing data/cross-listed	(9)
Number of banks with data	14
Period (2017–2022)- 6years	
Bank-year observations	84

**Table 2.** Description of response, explanatory and control variables.

Variable	Code	Measures	Authors	Source
Response variable				
Net Interest Margin	NIM	Net interest income divided by Total Asset	(Amosh & Khatib, 2022; Edeti & Garg, 2020; Hordofa, 2023)	Annual reports
<i>Explanatory variables (Board Structure)</i>				
Board Meetings	BM	Number of board meetings conducted in a year	(Aernan et al., 2023; Mohammed et al., 2023; Nguyen & Huynh, 2023).	Annual reports
Board Size	Bosize	Total number of directors on board	(Benaguid et al., 2023; Mensah & Boachie, 2023; Peter et al., 2023)	Annual reports
Gender Diversity	GD	The percentage of directors who are female	(Ntim, 2015; Orazalin et al., 2024; Quoc Trung, 2022)	Annual Reports
Board Financial Expertise	BFE	The percentage of directors with accounting and finance knowledge	(Ali et al., 2021; Githaiga & Kosgei, 2022; Le & Nguyen, 2023)	Annual reports
Board Education Diversity	BED	The percentage of directors with a minimum of a Bachelor's degree	(Aripin et al., 2016; Kabara et al., 2022).	Annual reports
Board independence	BI	The percentage of directors who are independent	(Arayssi et al., 2020; Khan et al., 2023; Mishra, 2020; Puni & Anlesinya, 2020)	Annual reports
Foreign directors	FD	The percentage of directors who are foreign	(Assenga et al., 2018; Bekiaris, 2021; Mnzava, 2022; Rashid, 2018)	Annual reports
<i>Control variables (Bank-specific characteristics)</i>				
Capital Adequacy	CA	Total Equity divided by Total Assets	(Al Zaidanin, 2020; Athar et al., 2023; Magoma et al., 2022)	Financial Statements
Leverage	LEV	Total Liabilities divided by Total assets	(Le & Nguyen, 2023; Magoma et al., 2022; Magoma & Ernest, 2023)	Financial Statements
Bank age	BAGE	Natural Logarithm (Financial reporting year's establishment year)	(Arora & Sharma, 2016)	Annual reports
Bank size	Bsize	Natural logarithm of Total assets of the banks	(Assenga et al., 2018; Magoma et al., 2022; Nguyen et al., 2020; Quoc Trung, 2022)	Financial statements
<i>Control variables (Industry-specific characteristics)</i>				
Inflation, consumer prices (Annual %)	INFL	Indicates gradual increase in prices of goods and services	(Akindutire, 2021; Magoma et al., 2022; Obeng & Sakyi, 2017; Zandi et al., 2019)	World Bank Development indicators
GDP growth (Annual %)	GDP	Indicates growth rate of annual gross domestic product	(Berhe, 2023; Hordofa, 2023; Magoma et al., 2022)	World Bank Development indicators
Coefficients of the determinants	$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$			
Error term	$\varepsilon_{it}$			

size, and bank age, while industry-specific variables included inflation and Gross Domestic Product, which were sourced from the World Bank's World Development Indicators. Table 2 provides details on the variables used in the study, their measurements, the authors, and the sources from which they were retrieved.

### 5.3. Model estimation

Using NIM as the response variable this study uses panel regression to study the relationship between board characteristics and bank performance. The panel regression model is stated as under;

$$NIM_{it} = \beta_0 + \beta_1 BM_{it} + \beta_2 Bsize_{it} + \beta_3 GD_{it} + \beta_4 BFE_{it} + \beta_5 BED_{it} + \beta_6 BI_{it} + \beta_7 FD_{it} + CV + \varepsilon_{it}$$

**Table 3.** Descriptive statistics.

	NIM (%)	BM (#)	Bosize (#)	GD (%)	BFE (%)	BED (%)	BI (%)	Bsize (#)	FD (%)	CA (%)	LEV (%)	BAGE (#)	INFL (%)	GDP (#)
Obs	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00
Min	3.00	4.00	6.00	6.00	22	62	17.00	11.00	0.00	12.05	74.66	2.00	2.00	0.00
Max	9.00	16.00	26.00	55.00	92.00	100	100.00	16.00	10.00	25.34	92.04	5.00	8.00	8.00
Mean	6.16	6.23	12.3	27.64	48.43	96.03	51.50	13.49	3.00	16.18	83.73	4.00	6.00	4.77
SD	1.42	2.89	4.41	13.07	17.68	9.55	13.49	1.30	2.00	2.66	3.00	.649	1.70	1.69

Key: NIM (Net Interest Margin), BM (Board meetings), Bsize (Board size), ED (Educational Diversity), ID (Independent Directors), FD (Foreign Directors), CA (Capital adequacy), LEV (Leverage), BAGE (Bank age), Bsize (Bank size), INFL (Inflation (annual %)), GDP (Gross Domestic Product (annual %)).

Source: Author (2024).

## 6. Empirical results and discussion

### 6.1. Descriptive statistics

Table 3 shows the descriptive statistics for a sample of 14 listed banks in the EA frontier stock markets from 2017 to 2022 yielding 84 firm-year observations. The study analyzed the influence of board characteristics and bank financial performance as measured by NIM. The descriptive statistics reveal the minimum value, maximum value, mean, and standard deviation of variables such as board meetings (BM), board size (Bsize), gender diversity (GD), board financial expertise (BFE), board education diversity (BED), board independence (BI). Foreign directors (FD), bank age (BAGE), leverage (LEV), capital adequacy (CA), bank size (Bsize), inflation (INFL), and Gross Domestic Product (GDP). These statistics were collected to grasp an understanding of the variation and distribution of variables used in this study.

### 6.2. Correlation matrix and multicollinearity test

Correlation analysis was used to study the nature and magnitude of the relationship between the variables used (Peter et al., 2023). Table 4 presents the correlation matrix results for all variables used in this study. NIM is negatively related to gender diversity, board independence, bank size, capital adequacy, inflation, and GDP. NIM is also positively related to board education diversity, board size, board meetings, leverage, board financial expertise, bank age, and foreigners on the board.

A high degree of multicollinearity between the explanatory variables indicates a biased relationship. This affects the accuracy of the regression results of the study concerned (Khan et al., 2023). When the explanatory variables have a variance inflation factor (VIF) values <10 and tolerance (1/VIF) > 0.1, then the research model is considered to be free from multicollinearity (Chu, 2020; Epaphra, 2020; Magoma et al., 2022). Other empirical studies that used the same approach are (Kimario & Kira, 2023; Kimario & Mwangike, 2023). Thus, all explanatory variables were free from multicollinearity (see Table 4).

Figure 1 provides details of the explanatory variables, bank-specific control variables, industry-specific control variables, and response variable used in this study.

### 6.3. Panel regression results and discussions

Table 5 shows the Hausman test results with a chi-square value of 113.005 and a *p*-value less than 5%. This implies that the null hypothesis is rejected and the alternative hypothesis is accepted, which is the fixed-effect model. The results from the fixed effect model reveal that the adjusted R-square value is 0.834 implying that 83.40% of the variation in NIM is explained by explanatory variables used in this particular study. The probability of F-statistics is 0.00000, less than 5% suggesting that the model is statistically significant.

Test of autocorrelation revealed that the data were free from autocorrelation as the Durbin-Watson value was 2.260 above 1.5 and less than 2.5. Mazengo and Mwaifyusi (2021) argued that autocorrelation is deemed absent if the Durbin-Watson value is greater than 1.5 and less than 2.5. Thus, this study was free of autocorrelation.

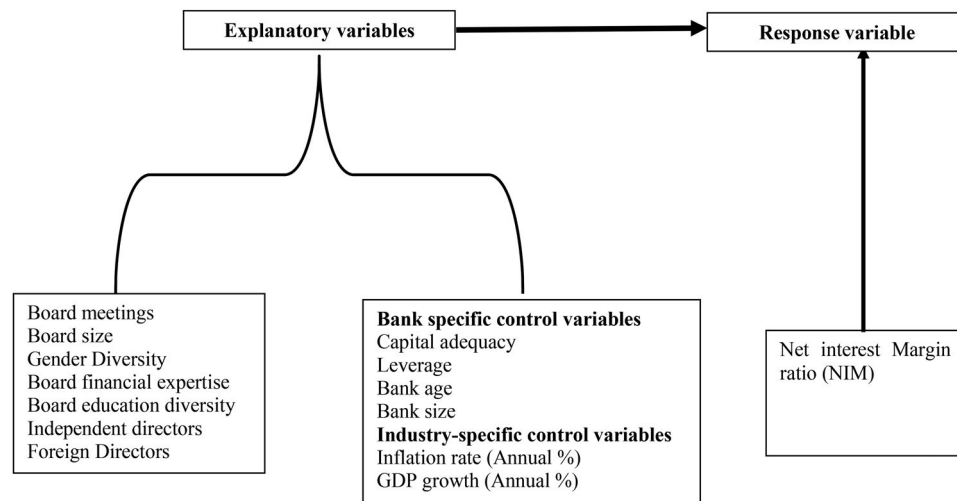
The findings reveal that the coefficient of BFE (0.030) is positive and significant and the coefficient of FD (-0.293) is negative and significant. Other explanatory variables used in this study exerted an

**Table 4.** Correlation matrix and variance inflation factor (VIF).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	VIF
1. NIM	1														
2. GD	-.179	1													2.115
3. BED	.053	.329**	1												2.049
4. BoSize	.169	-.265*	-.547**	1											5.196
5. FD	.343**	-.369**	-.021	.395**	1										3.417
6. BM	.457**	.121	.113	-.094	-.087	1									1.743
7. BI	-.080	.156	.208	-.383**	.251*	-.179	1								3.031
8. BSize	.703**	-.227*	.152	-.105	.319**	.324**	-.023	1							2.221
9. LEV	.043	.214	.148	-.189	-.337**	.292**	.065	.005	1						5.624
10. BFE	.066	-.105	.175	-.489**	-.333**	.364**	-.020	.055	.347**	1					3.236
11. CA	-.068	-.200	.003	.019	.335**	-.311**	.031	.003	-.881**	-.229*	1				5.710
12. BAGE	.007	-.263*	-.154	.096	.027	.089	.203	-.282**	-.034	.400**	.061	1			2.545
13. INFL	-.284**	.176	-.184	.014	-.173	-.057	.023	-.492**	.124	.137	-.149	.190	1		1.537
14. GDP	-.022	.031	-.019	.000	.028	-.057	.016	-.010	.065	.046	-.075	-.054	-.025	1	1.050
	.843	.781	.866	1.000	.797	.606	.884	.927	.560	.676	.498	.626	.822		

\*\*. Correlation is significant at the 0.01 level (2-tailed).

\*. Correlation is significant at the 0.05 level (2-tailed).

**Figure 1.** Board attributes and control variables.

Source: Adopted and modified from (Berhe, 2023).

insignificant impact on NIM with positive and negative coefficients for instance BM (-0.016), BoSize (-0.0007), GD (-0.005), BI (-0.003), and ED (+0.009).

### 6.3.1. Board meeting

Previous empirical studies conducted in India revealed that board meetings exerted a positive and significant impact on a firm's performance (Arora & Sharma, 2016). Another study conducted across 635 African banks revealed a negative and significant impact of board meetings on financial performance (Kyei et al., 2022). The findings reveal that board meetings have a negative and insignificant influence on NIM. Thus, H1 is rejected. The latter findings are similar to a Nigerian study conducted by Mohammed et al. (2023) who found a negative and insignificant impact of board meetings on bank financial

**Table 5.** Regression results.

Variables	NIM		NIM		NIM	
	FE		RE		2SLS	
	Coeff	P-value	Coeff	P-value	Coeff	P-value
BM	−0.016	0.7064	0.1122	0.0002	−0.003	0.4122
BoSize	−0.007	0.9138	0.1149	0.0004	−0.001	0.9737
GD	−0.005	0.6460	0.0050	0.4877	−0.004	0.5887
BFE	0.0304	0.0025	0.0034	0.5884	0.024	0.0012
BED	0.009	0.6470	0.01713	0.0551	0.001	0.3758
BI	−0.0031	0.6505	0.0030	0.5006	−0.006	0.2142
FD	−0.2931	0.0096	0.0198	0.7360	−0.256	0.0049
CA	0.129	0.0969	0.007	0.8967	0.178	0.0065
LEV	−0.046	0.3823	0.0078	0.8763	−0.028	0.5411
BAGE	−2.125	0.0117	0.334	0.0386	−1.770	0.0035
Bsize	0.060	0.8609	0.7943	0.0000	0.2511	0.3918
INFL	0.031	0.5492	0.0579	0.2243	0.072	0.762
GDPg	0.020	0.4981	0.0186	0.5259	0.009	0.6613
Constant	14.077	0.055	−11.3300	0.0345	9.241	0.1251
R <sup>2</sup>	88.60%		66.00%		87.25%	
Adj R <sup>2</sup>	83.40%		59.71%		81.75%	
F-statistics	17.0522		10.463		15.878	
Prob (F-statistics)	0.00000		0.0000		0.0000	
D-W Test	2.26		1.10		1.970	
HT (Chi-sq statistic, Prob)	(113.005, 0.0000)		FE accepted			
Number of observations	84		84		84	

Key: NIM (Net Interest Margin), BM (Board meetings), Bsize (Board size), ED (Educational Diversity), ID (Independent Directors), FD (Foreign Directors), CA (Capital adequacy), LEV (Leverage), BAGE (Bank age), Bsize (Bank size), INFL (Inflation (annual %)), GDP (Gross Domestic Product (annual %)), FE (Fixed effect), RE (Random effect), 2SLS (Two Stage Least Square), HT (Hausman Test), D-W (Durbin-Watson).

Source: Author's computation from E-views, 2024.

performance. This study's results are inconsistent with what is advocated by the agency and resource dependency theory.

### 6.3.2. Board size

Board size has a negative and insignificant relationship with NIM. Thus, H2 is rejected. These results are contrary to other empirical studies conducted by researchers in developed and developing countries, such as (Al-Matari et al., 2022; Edeti & Garg, 2020; Goel et al., 2022; Gurusamy, 2017; Mohammed et al., 2023). The negative sign implies that smaller boards are more efficient than larger ones. Agency theory asserts that small boards are favored and that the board size should not exceed eight members (Lipton & Lorsh, 1992). The descriptive statistics depicted in Table 3 reveal that the mean value of board size is 6. Thus, agency theory is partly supported, although its impact on financial performance is not significant.

### 6.3.3. Gender diversity

Gender diversity, measured in terms of the percentage of women directors on the board, exerted a negative and insignificant impact on NIM. Thus, H3 is rejected. These results are similar to a study conducted in Tanzania (Magoma & Ernest, 2023) and contrary to other empirical studies conducted by other researchers (Benaguid et al., 2023; Brahma et al., 2021; Hosny & Elgharbawy, 2022; Jaya, 2020; Kabara et al., 2022). Agency theorists further argue that the presence of women on corporate boards implies effective monitoring of management behavior, and in turn, maximization of shareholders' interests is guaranteed (Jensen & Meckling, 1976). Resource dependency theorists contend that female directors assure stakeholders of the firm's commitment to boardroom diversity, which enhances the firm's reputation in the public eye (Lückerath-Rovers, 2013). Thus, this study does not support agency theory or resource-dependency theory.

### 6.3.4. Board financial expertise

The financial expertise of the board members positively and significantly influences the listed bank's performance as measured by NIM. Thus, H4 is accepted. These results are inconsistent with an empirical study conducted in Nigeria (Abubakar et al., 2018) and consistent with a study conducted in China, the

United Kingdom, and Tanzania respectively (Adams & Jiang, 2020; Jin & Mamatzakis, 2018; Mlay et al., 2023). This implies that an increase in the proportion of board members with financial and accounting backgrounds increases a bank's financial performance. These results are consistent with what is advocated by agency and resource dependency theorists.

#### **6.3.5. Board education diversity**

Board education diversity exerts a positive and non-significant impact on the financial performance of listed banks in Kenya, Tanzania, and Uganda. Thus, H6 is rejected. The results are contrary to a study conducted in Nigeria (Kabara et al., 2022). Proponents of resource dependence theory contend that the different educational backgrounds of the board members are valuable forms of diversity that will have a positive impact on the performance of the banks. Thus, the results were contrary to resource dependency theory.

#### **6.3.6. Board independence**

Proportion of independent directors who exhibit a negative and insignificant influence on bank performance as measured by NIM. Thus, H6 is rejected. These results are contrary to other empirical studies (Al-Msiedeen et al., 2018; Pucheta-Martínez & Gallego-Álvarez, 2019; Puni & Anlesinya, 2020; Saravanan et al., 2021). Agency theorists contend that the presence of independent directors assists in resolving the agency problems that might arise between the management and shareholders by regulating the management's actions in the quest to ensure that shareholders' interests are fully addressed (Al-Msiedeen et al., 2018).

#### **6.3.7. Foreign directors**

Foreign directors on board exert a negative and significant influence on bank performance. Thus, H7 is accepted. The results are contrary to an empirical study conducted in 2023 (Andoh et al., 2023) and in line with other empirical studies (Bekiaris, 2021; Rafinda et al., 2018). Agency theorists argue in favor of a large number of foreign directors on boards (Fama & Jensen, 1983). These results are contrary to agency theory, as foreign directors negatively impact listed banks' financial performance. Thus, the results imply that the proportion of foreign directors decreased bank performance as the variable exerted a negative and significant effect on bank performance.

### **6.4. Robustness analysis**

Panel data sets can be affected by endogeneity (Assenga et al., 2018). Endogeneity occurs when there is a correlation between explanatory variables and an error term in a statistical model (Assenga et al., 2018; Larcker & Rusticus, 2010; Ntim et al., 2012). To ensure the accuracy and credibility of the results, this study employed the Two Stage Least Square method (2SLS). This method has been used in other empirical studies and has proven effective in addressing endogeneity problems in panel data sets (Assenga et al., 2018; Ntim et al., 2012). Our findings consistently reveal a positive significant influence between board financial expertise and the financial performance of listed banks as measured by NIM when both FE and 2SLS were used. Likewise, the presence of foreigners on board exerted a negative and significant impact on NIM (see Table 5). Exploring various methods or techniques and yielding similar results ensures the reliability and validity of the study findings (Hordofa, 2023).

## **7. Summary and conclusion**

The present research examined the impact of board characteristics on the financial performance of 14 banks that are listed in the frontier stock markets of East Africa, namely Kenya, Tanzania, and Uganda. The findings show that bank financial performance is positively and significantly impacted by board financial expertise. This emphasizes how crucial it is to have board members with expertise in finance and accounting to lead the banks in making strategic financial decisions that improve the listed banks' financial performance. The financial performance of banks is closely linked to the composition of their



board. This study reveals that by selecting board members with financial and accounting expertise and promoting diversity, banks can enhance their financial performance and have a competitive edge in the business space.

Conversely, the performance of the bank was significantly and negatively impacted by the foreigners on board. This suggests that communication and decision-making processes in the boardroom may be hampered by cultural or contextual differences, which could have a detrimental financial impact on the bank. Although board education diversity did not have a statistically significant impact on financial performance, it was still found to be positive. Descriptive statistics revealed that over 96% of the board members held the required academic qualifications, yet their influence on financial performance remained insignificant contrary to a study conducted in Nigeria by Kabara et al. (2022). Additionally, the study found that the proportion of women directors had a negative and insignificant impact on the financial performance of listed banks.

Although 51.50% of the directors on the boards of listed banks in EA frontier stock markets were independent, their presence did not have a statistically significant impact on financial performance. Lastly, the study found that board size had a negative and insignificant impact on financial performance, while board meetings had a negative and insignificant impact on the financial performance of listed banks under the study.

This study has some limitations which can be addressed in future research. The use of secondary data from bank annual reports and audited financial statements may not reflect the true financial performance of banks in developing nations such as Kenya, Tanzania, and Uganda. Thus, future studies should use qualitative research methods such as interviews to gain a deeper understanding of board attributes that influence bank performance. This approach was adopted by a study conducted in Tanzania in 2018 (Assenga et al., 2018).

This study used only one performance metric (NIM). Future studies should use other performance metrics such as ROA, ROE, and Tobin's Q ratio. Additionally, future studies should also explore other variables such as board committees, compensation structures, and shareholder activism to gain a more complete understanding of the factors that influence listed bank performance in Sub-Saharan Africa.

### Author contribution statement

Conceptualization, Anthony. Magoma, Enid Ernest and Ernest Kasheshi; methodology, Enid Ernest; formal analysis, Anthony Magoma; investigation, Ernest Kasheshi; resources, Anthony Magoma, Enid Ernest and Ernest Kasheshi; original draft preparation; Anthony. Magoma, Enid Ernest, and Ernest Kasheshi.; writing, reviewing, and editing the final draft, Anthony. Magoma, Enid Ernest and Ernest Kasheshi.

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## Data availability statement

Data were retrieved from the annual reports and audited financial statements from the official websites of listed banks in Kenya, Tanzania, and Uganda. Data are freely available from these official websites.

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