International Journal of Management and Sustainability
2024 Vol. 13, No. 4, pp. 867-882
ISSN(e): 2306-0662
ISSN(p): 2306-9856
DOI: 10.18488/11.v13i4.3921

The effect of board of directors' characteristics on anti-money laundering: Evidence from banks sector

Ahmed Hesham Moawed Elhefni[1]
Nasareldeen Hamed Ahmed Alnor[2,3+]
Ebrahim Mohammed Al-Matari[2,4]
Omer Alsir Alhassan Mohammed[5]
Alsadig Ahmed[6]

[1]*Finance and Investment Department, College of Business, Jouf University, Saudi Arabia.*
[1]*Email: ahelhefni@ju.edu.sa*
[2]*Accounting Department of Accounting, College of Business, Jouf University, Saudi Arabia.*
[3]*Accounting Department, College of Business Studies, Sudan University of Science and Technology, Sudan.*
[2,3]*Email: nhelnuor@ju.edu.sa*
[4]*Department of Accounting, College of Business, Jouf University, Saudi Arabia and Faculty of Commerce and Economics, Amran University, Amran, Yemen.*
[2,4]*Email: emalmatri@ju.edu.sa*
[5]*Accounting Department, Faculty of Economics and Administrative Sciences, Islamic University of Minnesota, Virginia, USA.*
[5]*Email: d.omersir84@gmail.com*
[6]*Applied Management Program. Applied College, Muhyle Assir, King Khalid University, Kingdom of Saudi Arabia.*
[6]*Email: amamoustafa@kku.edu.sa*

(+ Corresponding author)

Article History
Received: 19 April 2024
Revised: 16 September 2024
Accepted: 26 September 2024
Published: 15 October 2024

Keywords
Anti-money laundering
Board of directors
Board of directors' characteristics
Commitment
Efficiency
Experience
Responsibilities
Stability
Supervision
Training.

ABSTRACT

This study aims to investigate how board composition affects banks' efforts to combat money laundering. It was an applied research study using a descriptive and correlational design. All banks operate in the Arab world. We used screening procedures to select a sample of banks. The findings indicate the inclusion of board members with expertise in compliance, law, or finance has a favorable effect on financial institutions' AML initiatives. Board members who have experience in the financial sector or who have specific knowledge of anti-money laundering laws improve the results of anti-money laundering efforts, thereby avoiding fines for their companies. The Board of Director's knowledge of anti-money laundering legislation, its ability to ensure the bank's adherence to national and international anti-money laundering laws, and its flexibility in responding to regulatory modifications positively impact the commitment to anti-money laundering. The Board of Directors is the controller of the institution and therefore has the main role in combating money laundering. A board of directors committed to combating money laundering keeps the entire organization compliant and avoids the risks of money laundering.

Contribution/Originality: This study contributes to the Board of Directors activating its powers to commit to combating money laundering with the aim of reducing money laundering risks and reputational risks in banks and adhering to the recommendations of the International Financial Action Task Force, the Basel Committee, and other local and global laws.

1. INTRODUCTION

The efficiency of anti-money laundering (AML) initiatives is significantly influenced by the qualities of a bank's board of directors (Çemberci, Başar, & Yurtsever, 2022). The makeup, background, dedication to compliance, and supervision responsibilities of the board of directors are important variables that affect how well a bank can stop and identify money laundering (Sullivan, 2015). Boards play a crucial role in the bank's risk management system (Aebi, Sabato, & Schmid, 2012). Board must assess AML risks and take appropriate action to successfully reduce them (Estey, 2018). Boards need to put in place robust oversight processes, including regular reviews of the effectiveness of AML programs, risk analyses, and policy revisions (Jayasekara, 2021). Boards decide how to allocate both financial and human resources to AML activities (Ahmed, 2017). Sufficient funding is required to deploy state-of-the-art AML technologies, conduct thorough investigations, and provide staff training (Gokul Kandachamy, 2023). Boards ought to push for candid and open communication on AML-related matters between senior management and relevant parties (Nance & Tsingou, 2020). Boards must also establish reporting mechanisms that facilitate the timely and correct reporting of questionable activity and the accomplishment of AML initiatives (Goldby, 2018). In order to effectively respond to evolving legislative requirements and emerging AML concerns, a board must also possess flexibility. This calls for the proactive adjustment of procedures and rules (Shahin & El-Achkar, 2016). Anti-money laundering (AML) programs are therefore crucial for maintaining the integrity of financial systems and preventing illicit activities.

The task of overseeing a company's management and strategic decision-making procedures falls to an elected board of directors. Corporate directors are essential to the company's strategy and play a major role in corporate governance (Al-Matari, Al Swidi, & Fadzil, 2014). A board of directors that is knowledgeable, committed to compliance, effectively manages AML skills, allocates sufficient funds, encourages transparency, and adapts to legislative changes is likely to enhance a bank's overall AML skills (Jackman, 2015). A diverse board with representatives from a range of expertise and backgrounds may offer a range of perspectives on AML discussions, facilitating the more careful detection and management of potential risks (Friedrich & Quick, 2019). Boards can have a significant impact on the entire company by emphasizing a culture of compliance and moral conduct. For AML processes to be effective, a strong commitment to regulatory compliance is necessary (Catalano, 2023) strong ability to oversee risks puts boards in a better position to recognize AML problems, implement risk-mitigation strategies, and make sure AML controls are effective (Tsingou, 2018). For the entire organization to understand and apply AML regulations, effective communication between the board and top management is essential (Naheem, 2016). Boards that proactively oversee anti-money laundering initiatives, review reports, and hold management accountable for adherence can fortify the AML framework as a whole (Miller & Kohr, 2017). The purpose of this study is to provide answers to the following queries about how banks' strategic decisions about AML initiatives are impacted by variations in the industry and financial literacy of board members. What opinions do board members have on AML compliance, and how do these opinions impact the distribution and prioritization of resources for AML initiatives at banks?

Examine board members' understanding of financial regulation, anti-money laundering (AML), and how it relates to the adoption of stringent AML criteria in order to determine how the caliber of a board of directors influences bank AML. We also look at how board members' tenure and prior work in financial institutions impact the effectiveness of AML strategies. Second, we looked at how the board's approach to AML compliance was impacted by regional, national, and global regulatory frameworks. We also look at how boards adjust their governance practices in reaction to evolving AML regulations and enforcement campaigns.

The research's motivation and background are outlined below: First, there is now more stringent regulatory control of the global financial landscape, particularly with regard to anti-money laundering (AML) laws (Shah, 2024). Following high-profile financial crises, international regulatory bodies have focused more on how well bank anti-money laundering processes are working (Zali & Maulidi, 2018). This historical background highlights how crucial it is to look into factors like director caliber that influence how effective AML is. Board governance and financial stability are the second (Lassoued, 2018): One of the most important roles of the Board of Directors in corporate governance is directing risk-management practices in financial institutions and formulate strategic decisions. Given the critical role banks play in maintaining financial stability, protecting the integrity of the financial system needs an understanding of how board characteristics effect anti-money laundering procedures (Mohammadi, Saeidi, & Naghshbandi, 2020). Third, there is a growing risk from financial crimes (Karpoff, 2021). Money laundering poses a severe danger to the integrity of the global financial system and facilitates criminal activities such as drug trafficking, financing of terrorism, and corruption. Because criminal tactics are evolving and becoming more complex, banks need to strengthen their AML systems (Mugarura, 2020). Examining the relationship between board makeup and the effectiveness of AML can provide insights into how to improve financial crime prevention strategies (Shah, 2024). Fourth, there are stakeholder and shareholder expectations (Pinelli & Maiolini, 2017). It is common knowledge that boards of directors are responsible for ensuring legal compliance and upholding strict corporate governance norms on behalf of shareholders and other stakeholders. Effectively managing AML risks not only puts banks at risk of legal difficulties and damage to their brands, but it also erodes investor confidence (Shah, 2024). Examining the impact of board makeup on AML outcomes can facilitate the alignment of board operations with stakeholder expectations (Haffke, 2022). Lastly, future research prospects and the literature gap. Despite the increased focus on AML compliance, little is known about the precise impact of board membership on the effectiveness of AML in banks in the literature. While a number of elements, like legislative frameworks and technological improvements, have been studied in the past to influence AML compliance, further research is necessary to fully understand the role of boards of directors in leading AML efforts. The goal of this study is to bridge this information gap and increase our understanding of the mechanisms impacting AML outcomes in the banking sector.

The following elements may, both in theory and in practice, promote the relationship between board characteristics and internal AML initiatives in banks. First, a variety of theories contribute to the formation of theoretical justifications. One such theory is agency theory, which is based on the notion that managers and shareholders have a principal-agent relationship. Directors oversee and control management operations on behalf of shareholders. A diligent and knowledgeable board can enhance the oversight and monitoring of AML compliance, thereby reducing the agency problem that arises from insufficient AML controls (Bendickson, Muldoon, Liguori, & Davis, 2016). According to the concept of resource reliance, companies depend on resources from outside sources such as suppliers, clients, and government agencies. A board with a range of expertise and connections can help to ease access to critical resources needed for effective AML compliance, such as technical solutions, trained people, and regulatory knowledge (Roundy & Bayer, 2019). According to stakeholder theory, companies should take into account the interests of many parties, not just shareholders, including clients, staff members, authorities, and larger communities. A board that is firmly committed to stakeholder interests can prioritize AML compliance as part of its greater duty to protect the interests of all stakeholders, thereby reducing the risks of financial crime and its adverse repercussions (Freeman, 2017).

Studies have demonstrated that an organization's performance can be influenced by qualities such as diversity, independence, and experience within the board of directors. Previous research indicates that boards with a higher percentage of independent directors, a diverse membership that includes professionals with experience in law, regulation, and finance, and industry knowledge are more effective in governance and risk management, including anti-money laundering compliance (Ben Rejeb, Berraies, & Talbi, 2020). Executive committee empirical research has been conducted on chief executive officer CEO duality and board chair function. Research has shown that having a chair that is not a member of the board of directors can improve the board's performance and oversight.

Without interfering with administrative responsibilities, a separate head can devote more time to governance concerns, such as monitoring of anti-money laundering procedures (Banerjee, Nordqvist, & Hellerstedt, 2020). Research on boards has shown that the establishment of specialized committees inside the structure of the Board of Directors, such as audit or risk management committees, has a positive effect on governance and risk management practices. Empirical evidence suggests that boards with dedicated AML or compliance committees usually have stronger AML control and compliance protocols (Musallam, 2020). Board Monitoring and Incentives Research has examined the role of board monitoring methods, including CEO remuneration schemes linked to risk management and compliance performance criteria. Boards that effectively link CEO compensation to AML performance metrics may incentivize management to give AML compliance a priority (Kolev, Wangrow, Barker Iii, & Schepker, 2019). Empirical research often takes the regulation of the regulatory environment that banks operate into account. Changes to anti-money laundering laws, enforcement procedures, and regulatory monitoring may have an impact on board behavior and regulatory activities related to anti-money laundering compliance. Boards may decide to strengthen their oversight mechanisms against money laundering and enact stricter compliance measures in response to regulatory pressure (Loretsyan, 2020). Essentially, maintaining financial integrity and guarding against illegal activity depend heavily on the board's commitment to anti-money laundering (AML) compliance.

The lines of contribution to the literature for this study include the empirical analysis of board composition, anti-money laundering governance and compliance mechanisms, diversity on the board, board experience and anti-money laundering strategies, board leadership and anti-money laundering oversight, and board oversight and anti-money laundering risk management. The study delves into various aspects such as financial resources, board decisions and regulatory environments, cross-jurisdictional comparisons, stakeholder perspectives, AML governance, and long-term studies on the effectiveness of AML.

Examining the impact of board composition on banks' ability to execute anti-money laundering policies is an important area of research that can help improve financial institutions' governance and compliance procedures (Benzerrouk, Alnor, Al-Matari, Alhebri, & Al-bukhrani, 2023). Our research adds to the corpus of information about preventing money laundering. Furthermore, we analyze the impact of the composition of the board, specifically the ratio of executive to non-executive directors, on a bank's anti-money laundering policies and practices (Haffke, 2022). Furthermore, the board's diversity—which includes expertise in risk management, international finance, and financial regulation—contributes to effective AML supervision (Godspower-Akpomiemie & Ojah, 2019). (Rahman, 2015) assess the board's responsibility to ensure that the bank complies with AML laws and reporting obligations Additionally, it evaluates how well the board responds to regulatory input and modified AML strategies, as necessary (Sumkovski, 2017).

2. THEORETICAL BACKGROUND

In light of the objective of acquiring knowledge and enhancing current research, a study examining "the influence of board characteristics on anti-money laundering measures in banks" would be more relevant in this specific context. Scholars in this domain disseminate their research outcomes through peer-reviewed journals that specifically emphasize compliance, corporate governance, banking, and finance. This ensures that the work undergoes comprehensive evaluation and contributes to the academic debate on the topic.

Money laundering refers to the practice of concealing the origin of illicitly acquired funds, typically facilitated by transactions with foreign financial institutions or esteemed corporations (Benzerrouk et al., 2023; Zali & Maulidi, 2018). Making illegal gains seems genuine as the main objective of money laundering (Korejo, Rajamanickam, & Said, 2021). This process involves a series of complex financial transactions that conceal the true origin of funds, thereby posing difficulties for law enforcement agencies to establish a connection between funds and their illicit origins (Levi & Soudijn, 2020). There are three basic steps involved in money laundering (Rusanov & Pudovochkin, 2021). First, placement: the point at which money gained illegally is brought into the financial system (Brenig & Müller, 2015). This can include breaking up large sums of money into smaller, less dubious amounts and putting those smaller amounts into banks or other financial organizations (Awrey, 2021). Second, layering: By building intricate levels of financial transactions, the objective at this stage is to transfer money away from its source (Schär, 2021). This might entail moving money between accounts or financial institutions, which makes it challenging for law enforcement to monitor funds (Allen et al., 2020). Finally, reintroducing the "cleaned" money into the legal economy is the last step in the integration process (Wronka, 2022). Currently, the money appears to originate from a legitimate source, allowing for its expenditure without triggering any suspicious activity (Sandhu, 2016). Money laundering is commonly associated with many illicit activities such as drug trafficking, fraudulent practices, corruption, and organized criminal activities (Rose-Ackerman & Palifka, 2018). To identify and stop money laundering activities, governments and financial institutions all over the world have put in place safeguards like Know Your Customer (KYC) protocols and anti-money laundering (AML) laws (Arasa, 2015). Financial transactions will become more transparent through these steps, and the appropriate authorities will flag any questionable activity for further examination (Reynolds & Irwin, 2017). Money laundering rules can be broken with serious legal repercussions such as fines and jail times (Solaiman, 2018).

3. THEORETICAL LITERATURE REVIEW

According to Agency Theory, a board of directors' independence, efficacy, moral compass, and regulatory knowledge can all impact how committed and successful a company is in its anti-money laundering initiatives (Jong, 2023). A well-organized and involved board implements and oversees strong AML rules, thereby reducing the likelihood of money laundering within the company (Nafula, 2019). Without a doubt, one theoretical position that may be looked into to understand the relationship between a company's anti-money laundering (AML) policy and the characteristics of its board of directors is the "Agency Theory" (Levi & Soudijn, 2020). Corporate governance studies widely apply agency theory to investigate the relationship between principals, shareholders, agents, managers, and directors, as well as the mechanisms established to align their interests (Bosse & Phillips, 2016). The main oversight body for the company's management and decision-making processes is the board of directors (Al-Matari & Alosaimi, 2022). In the context of AML, especially those concerning AML rules and procedures (Löfgren & Melkersson, 2020).

4. EMPIRICAL LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The results of earlier studies have demonstrated a statistically significant association between the board of directors as a corporate governance system and anti-money laundering across numerous sub-dimensions (Çemberci et al., 2022). Changes in AML regulations are possible, and a specialized board is more likely to stay up to date with these developments (Tsingou, 2018). A business can reduce the risk of non-compliance by being proactive and modifying its AML program to reflect changes in the law (Sumkovski, 2017).

4.1. Board Experience and Anti-Money Laundering

Board members are knowledgeable in financial crime (Al-Matari et al., 2014). AML laws and the unique dangers that banks encounter make it easier to carry out effective monitoring (Sullivan, 2015). Because a diverse board brings a range of perspectives and experiences to the table, it can be useful in addressing the evolving nature of money laundering challenges (Turki et al., 2020). Boards are in charge of making sure top management is knowledgeable on AML regulations and best practices (Miller & Kohr, 2017). This facilitates the ability to strategically prepare for and make educated decisions in response to emerging AML threats (Sekeres et al., 2020). Therefore, in order to deter and stop any violations of AML requirements, the board's active support for the AML compliance function is essential.

The board's experience can greatly impact the effectiveness of an organization's anti-money laundering (AML) efforts (Jong, 2023). The phrase "anti-money laundering" (AML) describes a set of rules, procedures, and standards used to detect and prevent illegal financial behavior, such as money laundering and the funding of terrorism (Jaffery & Mughal, 2020). Boards are in charge of choosing the strategic direction of a corporation (Al-Matari, Mgammal, Alosaimi, Alruwaili, & Al-Bogami, 2022; Smith, 2023). Board members with AML experience can provide sage counsel on how to design and implement effective AML programs (Wilson, Walsh, & Wade, 2020). They can help businesses align AML programs with larger corporate goals (Arana, 2020). AML initiatives necessitate financial and human resources (Ahmed, 2017). Board members with experience in AML can help with resource allocation and prioritization (Bridges, Oakes, Reinhart, Voyard, & O'Donoghue, 2018). This entails setting aside money for hiring staff, providing training, and acquiring technology to enhance the company's AML capabilities (Dobrowolski & Sułkowski, 2019). Employees must get AML education and training in order to identify and report suspicious activity (Viritha, Mariappan, & Venkatachalapathy, 2015). Board members with expertise in training program can ensure proper training of staff members at all levels in AML rules and procedures (Sullivan, 2015).

According to some earlier research, banks with larger workforces and more seasoned employees are more likely to have robust anti-money laundering procedures in place, for example, the studies of Mousavi, Zimon, Salehi, and Stępnicka (2022) and Salehi and Molla Imeny (2019). According to earlier research (Rahman, 2015), effective anti-money laundering measures combined with sound management can help prevent money laundering operations from spreading. Based on the above discussion, the following hypothesis is developed:

H_1: There is a positive relationship between board experience and anti-money laundering.

4.2. Board Commitment and Anti-Money Laundering

The board establishes the organization's tone (Al-Sayani & Al-Matari, 2023; Arena, Bozzolan, & Michelon, 2015). For AML programs to be effective, a culture of compliance must prioritize adherence to AML regulations (Connell, 2022). Boards that place a high priority on moral behavior and responsible banking techniques are more likely to see that the bank's anti-money laundering (AML) procedures are strict and adhered to Jong (2023). For effective AML treatment, a compliance culture is essential. By encouraging moral conduct and dedication to the following rules, board members can impact a company's culture (Catalano, 2023). Skilled board members can establish a strong tone at the top by highlighting the significance of AML and moral corporate conduct (Roboff, 2016).

Board commitment sets the tone for an organization's leadership (Al-Matari, 2022). It is evident to staff and other stakeholders that the board places a high value on ethical behavior and regulatory compliance when it shows a strong commitment to AML compliance (Catalano, 2023). The board has the authority to approve and supervise the creation of AML policies and processes (Jayasekara, 2021). Board commitment guarantees the development and efficient execution of comprehensive AML policies across the entire company (Zafarullah & Haque, 2023). Boards are responsible for monitoring how well AML initiatives work (Miller & Kohr, 2017). To ensure that AML controls operate as intended, routine reporting and reviews are required (Naheem, 2019). Board commitment fosters an accountability culture in which the shortcomings of the AML programme are swiftly remedied (Hayble-Gomes, 2016). In light of the above discussion, the following hypothesis is developed:

H_2: There is a positive relationship between board commitment and anti-money laundering

5. RESEARCH DESIGN

The study variables included the experience and commitment of the board of directors, which were independent variables, and the dependent variable, anti-money laundering. This study systematically investigates the relationship between board characteristics and AML practices in banks, offering important insights to industry stakeholders and academia. We theoretically and practically designed it by administering a questionnaire to corporate board members and those interested in AML.

Members of the bank boards of directors and staff members of compliance departments inside banks comprised the research population. After statistical analysis, the study sample was established using 300 questionnaires, of which 187 were returned and considered legitimate for analysis, representing a 62% response rate.

5.1. Research Method

The inductive approach, which relies on gathering, evaluating, and interpreting data pertaining to the study's primary components to construct a theoretical framework based on previously published research on the topic (Alnor et al., 2024), was employed to meet the goals of the study. The logical strategy is predicated on creating a questionnaire for the actions taken by the Board of Directors to combat money laundering in banks, and the experience and dedication of the Board of Directors to this cause. We used a five-point Likert scale to answer the questionnaire questions and test the hypotheses. No. (3) is neutral, and No. (2) disagree, no. (1) strongly disagree; no. (5) strongly agree, and no. (4) agrees. Employees involved in the preparation and presentation of financial statements provided the primary data. The study population comprised all commercial banks in Algeria (Bennaceur et al., 2023). A sample size formula was used to calculate sample size. In 2023, 187 bank employees in Algeria made up the sample size for this study. Participants were selected from several commercial banks in Algeria. "Ethical approval: This article does not involve any individual or specific organization. This article does not include any studies with human participants by any of the authors."

To ensure the validity and reliability of the instrument, the questionnaire was tested prior to its distribution in its final form. After the respondents received the questionnaire, descriptive statistics, correlation analysis, and regression analysis were used to examine the data. The demographic profiles of the respondents were described using descriptive statistics. The association between AML and the board of directors was investigated using a correlation analysis. Regression analysis tested the study's hypotheses. The statistical analysis tool (Statistical Package for the Social Sciences (SPSS)) can analyze data using percentage, arithmetic mean, correlation, and standard deviation.

5.2. Data Collection

Using the online survey platform Google Forms, data were gathered over a two-month period at the end of 2023 and the beginning of 2024. Board members and committees were notified of the survey link through personal and professional connections. An anonymous poll was voluntary for the respondents to complete. A total of 187 completed responses were collected to obtain the necessary sample size. In the survey, respondents were promised that the data would not be published or used, except for the purpose of this research.

5.3. Data Analysis and Findings

Partial least squares, a structural equation modeling technique, was utilized using SPSS to evaluate the survey data. SPSS was selected based on its capacity to manage intricate models and anomalous data. First, the validity and reliability of the measurement model are assessed. Subsequently, the study framework and postulated linkages were tested by evaluating a structural model. The tables display the results of the data analysis based on the sample responses. The analysis addresses the goals of the study and tests its hypotheses by carefully examining quantitative data.

5.4. Frequencies and Descriptive Analysis

Table 1 presents demographic data on the surveyed participants' Panel A about gender shows that 163 (87.2%) were male and 24 (12.8%) were female. Panel B: Age revels that the group of 30-40 years old: 83 (44.4%) were followed by those from 41 to 50 years old: 52 (27.8%). Panel C: Qualification showed that bachelor's degrees: 93 (49.7%), followed by master's degrees: 38 (20.3%). Panel D: Professional Qualification shows nothing: 92 (49.2%) followed by others: 40 (21.4%). Panel E: Specialization: 61 individuals, constituting 32.6% of the total panel. The last panel is panel G, which represents the number of individuals in different experience brackets, and the group from to 5-10 years: 57 participants, representing 30.5% of the total flowed by–11-15 years: 45 participants, representing 24.1%.

Table 1. Frequencies and percentage.

Panel	Particular	Options	Frequency	Percentage
A	Gender	Male	163	87.2
		Female	24	12.8
		Total	187	100.0
B	Age	Less than 30 years old	17	9.1
		From 30 – 40 years old	83	44.4
		From 41 – 50 years old	52	27.8
		From 51 – 60 years old	26	13.9
		Above 60 years old	9	4.8
		Total	187	100.0
C	Qualification	Diploma	13	7.0
		Bachelor	93	49.7
		Postgraduate diploma	37	19.8
		Master	38	20.3
		PhD	6	3.2
		Total	187	100.0
D	Professional qualification	Arab fellowship	20	10.7
		British fellowship	14	7.5
		American fellowship	21	11.2
		Nothing	92	49.2
		Other	40	21.4
		Total	187	100.0
E	Specialization	Accounting	61	32.6
		Banking sciences	35	18.7
		Information technology	40	21.4
		Business administration	24	12.8
		Other	27	14.4
		Total	187	100.0
G	Experience	Above 20 years	16	8.6
		From 16-20 years	32	17.1
		From 11-15 years	45	24.1
		From 5-10 years	57	30.5
		Less than 5 years	37	19.8
		Total	187	100.0

Three distinct categories of data are displayed in Table 2: Anti-Money Laundering (AML), Board Experience (BE), and Board Commitment (BC). In addition to weighted means and standard deviations, the data also provide means and standard deviations for each indicator within these categories. These statistics provide a summary of the respondents' opinions and experiences in each of the aforementioned categories. A lower weighted average indicates a less pleasant opinion or experience. Weighted means and standard deviations were used for the overall evaluation.

Table 2. Descriptive statistics of the variable's indicators.

Board experience		
Indicators	**Mean**	**Std. deviation**
BE1	4.067	0.958
BE2	4.086	0.928
BE3	3.942	0.943
BE4	4.058	0.930
Weighted mean		3.721
Weighted std. deviation		0.950
Board commitment		
Indicators	Mean	Std. deviation
BC1	3.752	1.004
BC2	4.407	1.002
BC3	4.092	1.063
BC4	4.174	1.178

Board experience		
Indicators	**Mean**	**Std. deviation**
Weighted mean		3.641
Weighted std. deviation		1.148
Anti-money laundering		
Indicators	Mean	Std. deviation
AML1	3.658	1.388
AML2	3.894	1.279
AML3	3.752	1.335
AML4	3.757	1.405
Weighted mean		3.373
Weighted std. deviation		1.358

5.5. Reliability Indicator and Internal Consistency Reliability

We examined internal consistency reliability measures and reliability indices of the constructs created to measure the various variables internal consistency reliability measures and reliability indices. These indicators frequently evaluate the internal consistency of a collection of items or questions intended to measure a specific construct in a reliability analysis. A measure of internal consistency, called Cronbach's alpha, shows how closely connected a collection of objects is to one another. Better internal consistency is typically indicated by higher values (closer to 1) (Trabelsi, Saif, Driller, Vitiello, & Jahrami, 2024). Hotelling's T-Squared, a multivariate statistical test, compares the means of two groups when there are several dependent variables (Romagnuolo, De Rosa, Frosina, & Senatore, 2024). It appears that this is the overall measure taken. The F-statistic is a statistical test used to determine whether there is a significant difference between the variances of two or more groups (Zweifach, 2024). Significance (Sig): p-value linked with the F-statistic. It is improbable that the observed effects are the result of random chance when the p-value is low (usually less than 0.05 (Jackson & Mackevicius, 2024). Table 3 displays a p-value of 0.000, indicating statistical significance of the reported data. This usually means that each construct's pieces have a constant and trustworthy relationship with one another. It is critical to acknowledge that interpretation must take into account both the study's topic and its context.

Table 3. Reliability indicator and internal consistency reliability.

Variables	N of items	Cronbach's alpha	Hotelling's T-squared	F	Sig.
Board experience	4	0.913	56.258	23.894	0.000
Board commitment	4	0.789	91.378	35.756	0.000
Anti-money laundering	4	0.892	62.918	20.202	0.000

5.6. Correlation Coefficient

The three variables—board experience (BE), board commitment (BC), and anti-money laundering (AML)—have association matrices, as shown in Table 4. Table 4 displays the Pearson correlation coefficients and significance levels of these variables. It is crucial to remember that these numbers simply show the strength and direction of the linear correlations between the variables; correlation does not imply causality. Furthermore, the significance levels indicate if there is a probability that the observed connections are true or if they may have happened by accident. The relationship between Board Experience (BE) and Anti-Money Laundering (AML) was strongly favorable (0.911). The relationship between Board Commitment (BC) and Anti-money Laundering (AML) is moderately positive (0.393).

Table 4. Correlation coefficient.

Correlations		BE	BC	AML
Board experience	Pearson correlation	1	0.502	0.911**
	Sig.		0.000	0.000
Board commitment	Pearson correlation		1	0.393**
	Sig.			0.000
Anti-money laundering	Pearson correlation			1
	Sig.			0.000

Note: **. Correlation is significant at the 0.01 level

5.7. Hypotheses Testing Result

H_1: There is a direct relationship between board experience and anti-money laundering.

The first hypothesis examines the relationship between "board experience" and "anti-money laundering." And result β = 0.563 for "Board experience -> anti-money laundering." The coefficient of the independent variable in the regression equation is denoted by beta (β). Assuming that all other variables remain constant, this shows the change in the dependent variable for a one-unit change in the independent variable (Hirsch, 2023). And T = 28.57 for "Board experience -> anti-money laundering" The number of standard deviations separate a coefficient from zero. Higher absolute values indicate greater relevance (Jackson, 2020).

H_2: There is a direct relationship between board commitment and anti-money laundering.

The second hypothesis posits a correlation between "anti-money laundering" and "board commitment." This resulted in Beta (β) = 0.809 for "Board commitment -> anti-money laundering" and T = 30.25 for "Board commitment -> anti-money laundering," as shown in Table 5.

And F = 92.99 for "Board experience -> anti-money laundering." The F-value correlates with the overall significance of the regression model. And in terms of "Board experience -> anti-money laundering" as well as "Board commitment -> anti-money laundering": Significance =.000[b].

Table 5. Hypotheses testing.

Hypothesis	β	STDEV	T	R	R2	F	Sig.
Board experience -> Anti-money laundering	0.563	0.121	28.57	0.793	0.751	92.99	0.000
Board commitment -> Anti-money laundering	0.809	0.062	30.25				

5.8. Regression Results and Discussion

The results show that the presence of board members with experience in finance, law, or compliance benefits financial institutions' anti-money laundering (AML) programs. Board members who possess prior banking industry expertise or specialized knowledge of anti-money laundering legislation enhance anti-money laundering outcomes, thereby preventing fines for their respective firms. The Board of Directors' understanding of anti-money laundering laws, the ability to ensure that banks comply with both domestic and international anti-money laundering regulations, and adaptability to regulatory changes all contribute to the bank's commitment to anti-money laundering.

This study demonstrated a strong positive association between board knowledge, expertise, and AML compliance. Boards with members that have the necessary financial regulation and industry knowledge can better understand and handle AML issues. Boards possess this knowledge, which enables them to provide strategic guidance and practical advice about the implementation of AML policies and processes. Publication of these findings has already taken place (Mousavi et al., 2022).

The effectiveness of AML initiatives is a complicated issue that impacts not just the board of directors but the entire business, including senior management, staff, and the implementation of robust AML rules and procedures.

We must always keep in mind. Regulators often emphasize that effective corporate governance is necessary to attain efficient AML compliance in financial institutions.

6. CONCLUSION OF THE STUDY

Ultimately, the caliber of the board of directors greatly influences the effectiveness of anti-money laundering (AML). Having an active and well-organized board that provides strategic direction, strong governance, and supervision can greatly enhance a bank's ability to combat money laundering. Effective risk management is ensured by a board composition that includes a diverse spectrum of knowledge and experience, as well as complete awareness of AML standards.

Moreover, it is imperative that the board remain committed to fostering a moral and law-abiding culture within the organization. Boards that prioritize AML efforts set a positive example for the entire company and encourage a proactive approach to identifying and lowering the risk of money laundering. The board's monitoring of AML procedures, continuing staff training, and participation in risk assessments all contribute to banks' defenses against illicit financial activity.

Robustness analyses: To evaluate the effect of board features on anti-money laundering (AML) in banks, researchers must operationalize both the independent variables (board characteristics) and dependent variable (AML efficacy). Because it requires the creation of a composite score that evaluates the effectiveness of the bank's anti-money laundering procedures and takes factors like regulatory compliance, audit frequency, and the number of anti-money laundering infractions in banks, the degree of anti-money laundering compliance can be measured by the dependent variable. And the frequency of AML violations, allowing us to gauge how frequently regulatory authorities report AML violations over a specific time frame. We recommend assessing the outcomes of AML investigations conducted by regulatory agencies, specifically the number of cases successfully prosecuted or resolved. Effectiveness of Customer Due Diligence (CDD): Evaluating how well the bank's CDD processes identify and lessen the risk of money laundering is required in order to do this.

Indicators like the Diversity Index or the Herfindahl-Hirschman Index (HHI) are used to measure independent variables (board characteristics) like board diversity in terms of gender, color, age, and professional background. Determining the percentage of independent directors on the board is crucial to ensuring its independence. This is based on criteria such as the board members' lack of financial ties to the bank or any of its subsidiaries. Board of Directors' Experience: In this study, we evaluated the board members' knowledge of relevant subjects like financial, law, compliance, and risk management using surveys and qualifying analysis. In order to accomplish this, the number of board members needs to be calculated and contrasted with industry standards or benchmarks. Duration of Board Membership: To assess continuity and any impacts on anti-money laundering oversight and decision-making, the average tenure of board members must be determined.

Measuring methods: Banks receive quantitative surveys to gather quantitative data on the effectiveness of AML and the caliber of the board, allowing for statistical analysis. Examining written materials: To obtain information on the composition of the board and the efficacy of anti-money laundering procedures, it is required to review publicly accessible data, such as annual reports, regulatory files, and minutes from board meetings. Interviews: Structured or semi-structured interviews with key stakeholders, including board members, compliance officers, and regulatory officials, are required to get insights on AML practices and board dynamics. To understand how board characteristics affect AML outcomes, we must conduct case studies of the banks that have experienced AML-related issues. To do this, it is necessary to adjust for pertinent covariates and use statistical Regression Techniques to assess the association between board characteristics (independent variables) and AML effectiveness (dependent variable). Analysis of comparisons This necessitates comparing board composition and AML results across several banks or jurisdictions to spot trends and best practices.

7. STUDY LIMITATION, IMPLICATIONS OF STUDY AND FUTURE SUGGESTIONS

Limitations: A social desirability bias may be present if the study depends on self-reported data from banks or board members. Instead of representing the actual situation, participants might provide answers that conform to social norms.

Examining how the quality of a bank's board of directors affects anti-money laundering (AML) might reveal important information about how well governance frameworks work to prevent financial crimes.

We advise AML training boards that guarantee that their members receive ongoing education on AML laws, trends, and best practices that will make them better equipped to carry out their supervisory duties.

Funding: This research is supported by the Deanship of Scientific Research at King Khalid University for funding this work through a large-group Research Project (Grant number: RGP.2/134/45).
Institutional Review Board Statement: Not applicable.
Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: Conceptualization, A.H.M and N. H. A.; methodology, N.H.A. and E.M; software, A.H.M; validation, E.M.; formal analysis, E.M. Investigation, A.A.; resources, A.H.M, N.H.A, E.M, O.A and A.A.; data curation, A.H.M and N. H. O.A and A.A; writing—original draft preparation, A.H.M and N.H.A writing—review and editing, A.H.M, N.H.A, E.M, O.A and A.A; visualization, A.H.M, N.H.A., E.M and O.A.M; supervision, N.H.A., E.M.; project administration, N.H.A., E. M.A., Funding acquisition: A.H.M, N.H.A, E.M, O.A and A.A. All authors have read and agreed to the published version of the manuscript.

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