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The role of bank governance in managing the risks associated with banking institutions

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ABSTRACT

This study explores the crucial role of bank governance in maintaining financial system stability by managing risks within banks. It differentiates from prior research by not solely focusing on the 2008 financial crisis. Data from a survey of 220 bank employees were analyzed using structural equation modeling. Key findings include the necessity of well-informed boards and robust governance structures that adhere to regulations for effective risk management. Open communication with stakeholders and stringent control over technological risks are also vital due to the banking sector's increased technology reliance. These insights underscore the complexities of risk management in banking governance, stressing the need for a comprehensive, adaptable strategy. This research contributes new evidence to the importance of strong governance in risk management, with significant implications for bank and corporate governance fields. The study's model demonstrates high predictive accuracy and explanatory power.

1. Introduction

Within the intricate and interdependent framework of today's financial system, banking institutions' stability and integrity are essential for maintaining the health of the world economy. The severe consequences of the global financial crisis of 2008 are a sobering reminder of the possible devastation caused by poorly managed risks in the banking industry (Al-Sayani and Al-Matari, 2023; Tooze, 2018). In this regard, the function of banking governance has become apparent as an essential definition, not only to guarantee adherence to legal frameworks but also as a proactive method to strengthen financial institutions' resilience against a variety of possible threats (Al-Matari et al., 2023; Kayode-Ajala, 2023). In today's dynamic and changing financial climate, this article attempts to explore the many facets of banking governance and its crucial role in managing the complex web of risks that continually threaten the stability and sustainability of banking organizations (Weber and Feltmate, 2016). This study aims to clarify the complex relationship between risk management and banking governance by examining the fundamental ideas, tactics, and best practices in the field. They conclude by highlighting the importance of strong governance frameworks in strengthening the foundations of the global banking system (Van Greuning and Bratanovic, 2020).

By ensuring that banks run sustainably and prudently, effective banking governance reduces the likelihood of systemic risks and financial catastrophes (Al-Matari, 2022). These are some major ideas that emphasize the importance of banking governance in controlling banking risks (Van Greuning and Bratanovic, 2020). First, strong governance guarantees that banks in the highly regulated banking sector follow industry best practices and regulatory standards (John et al. 2016). Adherence to laws serves to preserve the stability and soundness of the financial system,

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safeguarding the interests of all parties involved, such as consumers, investors, and the wider economy. Second, the interests of many stakeholders, such as depositors, stockholders, and creditors, are safeguarded by sound governance methods (Hopt, 2021). Governance processes ensure the financial well-being of stakeholders by applying appropriate risk-management measures. This lowers the possibility of losses and preserves a bank's reputation (Alhammadi et al., 2020). Third, sound banking governance encourages transparency and accountability in the decision-making process (Rose-Ackerman, 2017).

To give investors, regulators, and the general public the ability to make educated decisions regarding a bank's overall performance, risk exposure, and financial health, banks should be encouraged to provide pertinent information to these parties (Van Greuning and Bratanovic, 2020). Fourth, the purpose of banking governance structures is to monitor and control risks related to banking operations (Van Greuning and Bratanovic, 2020). The purpose of banking governance is to recognize, evaluate, and minimize various types of risks, such as credit, market, liquidity, and operational risks. This is achieved by placing strong risk-management frameworks that include efficient oversight, monitoring, and control systems (Hopkin, 2018). Fifth, a strong governance framework is essential for controlling and averting banking crises (Al-Matari et al., 2022; Aikman et al., 2019). Banks can reduce the possibility of systemic risks that could jeopardize the stability of the larger financial system by implementing efficient risk controls, stress testing, and contingency planning. This will help banks better withstand unfavorable economic conditions and financial shocks (Acharya and Ryan, 2016).

Finally, good governance frameworks provide senior management and the board of directors (BODI) with distinct duties and responsibilities, encouraging responsible leadership, moral behavior, and sound decision-making (Scherer and Voegtlin, 2020). A capable and impartial board may oversee and provide strategic direction, ensuring that the bank's operations are in line with its long-term goals and that risks are successfully managed (Tamimi, 2021).

The current research has several contributions, including supporting the literature in the field of banking governance and banking risk management. Second, we examine the ways in which various governance structures—such as the makeup of the board, appointment of independent directors, and function of the audit committee—affect risk management procedures in banking establishments (Musallam, 2020). Third, we examine how regulatory frameworks affect bank governance and risk management (Srivastav and Hagendorff, 2016). Examine the effects of regulatory compliance on banks' risk cultures, risk-mitigation techniques, and decision-making processes (Sheedy and Griffin, 2018). Fourth, we examine how banking firms' governance frameworks and risk cultures interact (Srivastav and Hagendorff, 2016). Examine how an organization's norms, values, and beliefs affect its members' propensity to take risks and how governance procedures can help create and maintain a robust risk culture (Sheedy and Griffin, 2018). Fifth: Look into the relationship between bank executives' pay packages and their propensity for taking risks (Guo et al., 2015). Examine how CEO risk appetite is influenced by compensation incentives and how governance systems can match incentives to the institution's long-term sustainability and stability (Porcuna Enguix, 2021). Sixth: Evaluate how information disclosure and transparency policies affect how well banking organizations' governance controls the flow of risk (Srairi, 2015). Examine the ways in which open risk communication might strengthen the framework for risk management and promote market discipline (Van Greuning and Bratanovic, 2020). Finally, the banking industry's governance and risk management are impacted by the use of new technologies, such as blockchain, big data analytics, and artificial intelligence (Dicuonzo et al., 2019). Analyze the potential problems presented by technology improvements to preserve efficient risk management and governance (Choi et al., 2016).

This article is novel in that it explores a number of new and developing fields, including Behavioral Economics and Governance, Globalization and Cross-Border Governance Challenges, and Environmental, Social, and Governance (ESG) integration. By doing so, it offers a fresh perspective on banking governance and its role in risk management for financial institutions.

2. Literature review

For the banking industry to be sustainable over the long run and maintain financial stability and trust, banking governance plays a crucial role in managing the risks associated with banking institutions (Gangi et al., 2019). Good governance procedures support the financial system's overall integrity and resilience, which instills trust in the public and stakeholders (Hu and Kee, 2023).

Previous studies have concluded a positive relationship between governance and risk management (Mollah et al., 2017; Srivastav and Hagendorff, 2016). According to earlier research, the number of independent board members significantly improves the stability of financial intermediaries. Nevertheless, it was discovered that board size and SBS have no bearing on financial stability (Lassoued, 2018). Some previous studies, such as De Haan and Vlahu (2016), found that there is no relationship between governance and various measures of the banking sector.

2.1. Board of directors

In terms of controlling banking risks, BODI is an essential component of the governance framework of banking organizations (Al-Matari and Alosaimi,

2022; Van Greuning and Bratanovic, 2020). Effective risk management is crucial for the stability and long-term viability of financial institutions because of the intricate and interwoven nature of this industry (Ramakrishna, 2015). In a bank, BODI is usually in charge of supervising the use of several risk-management frameworks and techniques (Van Greuning and Bratanovic, 2020). The board developed and approved internal controls, procedures, and policies for risk management (Hopkin, 2018). All facets of risk management, such as risk assessment, risk-mitigation techniques, and risk monitoring, should be covered by these regulations (Aven, 2016). The Board makes certain that these policies are appropriately shared throughout the company and that they adhere to best practices and legal requirements. In terms of risk management, the board ensures that the bank abides by all applicable laws, rules, and industry standards (Gericke et al., 2018). It monitors regulatory developments and modifies banks' risk-management procedures as necessary (Van Greuning and Bratanovic, 2020). Additionally, the Board promotes a compliance culture across the entire firm by highlighting the significance of moral behavior and conformity to regulations (Ponomareva et al., 2022). The Board is in charge of determining the bank's tolerance for risk, outlining the entire risk management plan, and ensuring that it complies with legal and regulatory standards (Van Greuning and Bratanovic, 2020). This calls for a thorough awareness of many kinds of risks, such as market, credit, liquidity, operational, and compliance issues (Gallati, 2022). By routinely evaluating the risks associated with a bank's operations and activities, the Board keeps an eye on how well the bank's risk management strategy is working (Van Greuning and Bratanovic, 2020). The bank's risk profile is monitored to ensure that it stays within reasonable bounds by reviewing reports on risk exposure, stress tests, and other risk indicators (Guégan and Hassani, 2019). It also supervises the development of risk management frameworks that enable the prompt detection and reporting of risks (Van Greuning and Bratanovic, 2020). The Board emphasizes the value of risk awareness and accountability at all levels, fostering a strong risk management culture within the company (Gatzert and Schmit, 2016). It fosters an atmosphere of open and honest communication, which makes it easier to report risks and problems without worrying about negative consequences (Seeger and Sellnow, 2019). The Board holds management responsible for implementing efficient risk management procedures and accomplishing risk management goals (Hopkin, 2018). The Board supports the use of scenario analysis and stress testing to evaluate a bank's resistance to unfavorable market and economic conditions. The Board can decide on risk mitigation techniques and capital adequacy by assessing the possible effects of different stress scenarios on the bank's financial health (Hassan et al., 2016). Based on the above discussion, researchers can build the following hypotheses can be formulated:

H1: The relationship between the bank's board of directors, which serves as a governance mechanism, and its risk management practices is positive.

2.2. Bolstering and monitoring laws and regulations

Legal and regulatory measures, such as strengthening and monitoring, are essential for managing banking risk and maintaining the stability and integrity of the financial system (Vovchenko et al., 2017). These steps are intended to reduce risk and encourage accountability, openness, and reasonable standards in the banking sector (Callahan and Soileau, 2017). Banks are required to adhere to industry standards and best practices outlined in legal and regulatory frameworks. Additionally, they stress the significance of robust risk oversight systems, internal controls, and governance frameworks in order to foster an environment of ethical and responsible banking operations (Bose et al., 2018). Regulatory bodies focus on systemic risks and proactively address possible dangers to the financial system. These precautions include stress testing, early warning system setup, and crisis management contingency planning (Adrian et al., 2015). To manage the dangers brought on by technology breakthroughs in the banking industry, regulations must be changed (Anagnostopoulos, 2018). They frequently concentrate on data security, cyber security, and the application of cutting-edge technologies, making sure that banks have the appropriate safeguards in place to reduce related risks. Regulations aid in the identification, evaluation, and management of various risks, including operational, market, liquidity, and credit risks (Van Greuning and Bratanovic, 2020). They frequently set minimum capital requirements and risk-management guidelines that banks must follow to maintain the overall stability of the financial system (Acharya and Ryan, 2016). Legal and regulatory frameworks enforce strict anti-money laundering (AML) and counter-terrorism financing (CTF) regulations to stop illegal activities and financial crimes (Naheem, 2021). Banks must put strong AML and CTF rules and processes in place to recognize and report suspicious activities. Regulations frequently contain clauses designed to protect customers' interests and guarantee honest and open banking operations (Zetzsche et al., 2020). These steps could entail laws governing equitable financing, product disclosure, and customer privacy and data protection (Willis, 2015). The following hypothesis can be developed based on the discussion above:

H2: There exists a direct correlation between strengthening and monitoring regulations and laws and the practice of managing risks in the banking sector.

2.3. Internal and external audits, as well as financial reporting

Financial reports, internal audits, and external audits are all very important in banking risk management (Abdullatif and Kawuq, 2015). These procedures are intended to guarantee regulatory compliance, risk identification, and mitigation, as well as the correctness of financial information (Van Greuning and Bratanovic, 2020). These tasks are critical for preserving stability and safeguarding stakeholders' interests in the banking industry, where managing financial resources is of utmost importance (Omarova, 2016). In order to make sure that internal control systems and audit operations efficiently monitor and assess the bank's risk management procedures, the Board is in charge of them (Rahim et al., 2018). This entails guaranteeing the internal audit function's independence and efficacy, as well as the systems of internal control that are sufficient to reduce operational risks and stop fraud (Van Greuning and Bratanovic, 2020). A bank's assets, liabilities, income, and expenses are detailed in financial reports, which offer a thorough picture of the institution's financial health (Acharya and Ryan, 2016). The financial stability and well-being of a bank are evaluated by stakeholders, including shareholders, regulators, and investors, with the aid of these reports, which include balance sheets, income statements, and cash flow statements. They provide an accurate view of banks' solvency, liquidity, and profitability, all of which are critical metrics for risk management (Aebi et al., 2012). An impartial team within the bank performs internal audits to assess and enhance the efficiency of the governance, control, and risk management procedures (Tamimi, 2021). Risks related to credit, markets, operations, and regulatory compliance are just a few of the operational risks that a bank's internal audit department assists in identifying and evaluating (Van Greuning and Bratanovic, 2020). Internal auditors can offer suggestions for enhancing risk management tactics and guaranteeing adherence to policies and procedures by carrying out regular, comprehensive audits (Ashour et al., 2015). Independent audit companies that are not a part of the bank's internal organization conduct external audits (Mat Zain et al., 2015). These audits offer dispassionate evaluations of the dependability and correctness of banks' financial reports. External auditors confirm the compliance of the financial statement with legal and accounting standards. Their assessment strengthens a bank's financial information transparency and reliability for stakeholders, which is essential for preserving faith in the banking system (Al-Khaddash et al., 2013). Based on the previous discussion, scholars have formulated the following hypothesis:

H3: A direct correlation exists between internal and external audits, as well as financial reporting and banking risk management.

2.4. Transparency and disclosure

Disclosure and transparency are essential components of banking risk management (Van Greuning and Bratanovic, 2020). In addition to ensuring the stability of the financial system and fostering improved risk management, the successful application of transparency and disclosure policies helps foster trust among stakeholders. Regulations frequently require the disclosure of relevant information, which encourages transparency and empowers stakeholders to make knowledgeable decisions (Kharel et al., 2019). This openness contributes to the trust of the public, depositors, and investors, which increases market confidence as a whole (Srairi, 2019). Market parties such as investors and regulators can obtain precise and timely information regarding a bank's risk profile through transparency and disclosure (Kim et al., 2020). With this knowledge, they can efficiently implement market discipline and make well-informed judgments, which encourages banks to take responsible risk management measures to preserve their good name and creditworthiness (Scannella, 2018). A complete picture of a bank's risk exposure, encompassing credit, market, operational, and liquidity concerns, is made possible through transparency and disclosure. This makes it easier to evaluate a bank's total risk profile more accurately, allowing stakeholders to identify possible weaknesses and take the necessary action to successfully reduce these risks (Van Greuning and Bratanovic, 2020). Transparent reporting procedures help regulatory bodies to effectively supervise and monitor the banking industry (De Rynck, 2016). Regulators can detect any systemic risks early on and implement the necessary measures to guarantee the stability and resilience of the financial system by having access to pertinent and reliable information (Ellis et al., 2022; Van Greuning and Bratanovic, 2020). Information asymmetry between banks and their stakeholders is lessened by transparency and disclosure, which can be harmful to the stability of the financial system. Transparency aligns the interests of all stakeholders and promotes better decision-making by offering clear and comprehensive information about the bank's risk exposures, financial health, and risk management methods (El Khatib et al., 2022). Investors, depositors, and other stakeholders view banks' financial stability and risk management skills favorably when they are transparent and disclose information (Srairi, 2019). The bank's overall financial stability and resilience may be strengthened as a result of higher investment and better access to finance in favorable terms (Houcine et al., 2023). To preserve their reputation and competitiveness, banks are encouraged to implement best practices in risk management through transparent reporting (Van Greuning and Bratanovic, 2020). To ensure long-term financial stability and sustainable growth, banks are better equipped to establish strong risk management

frameworks, governance structures, and internal controls when fostering a culture of transparency and disclosure (Oyewo, 2022; Park and Kim, 2020). By drawing on earlier conversations, academics can develop a subsequent hypothesis.

H4: Transparency and disclosure are positively correlated with banking risk management.

2.5. Accountability and internal balance

To manage banking risk and maintain the stability and sustainability of financial institutions, accountability and internal balance are essential (Choudhry, 2022). Accountability is essential for preserving openness and guaranteeing adherence to legal requirements in banking risk management (De Mingo and Cerrillo-i-Martínez, 2018). It entails clearly informing stakeholders—stockholders, authorities, and the general public— about risk-related operations (Albasteki, 2021). Creating a culture of accountability within the company makes it possible to recognize possible hazards and guarantees that the right steps are taken to reduce them (Raji et al., 2020). This may entail forming risk committees, delegating tasks, and establishing strong frameworks for risk management. Accountability encourages moral behavior in the banking industry, which is essential for upholding an institution's reputation and sustaining public confidence (O'Brien, 2019). Maintaining moral principles aids in stopping dishonest behavior and immoral actions that can endanger the stability of the financial system (Rhode, 2017).

Sustaining internal equilibrium necessitates an ongoing assessment of the correlation between risk and reward in diverse banking operations (Van Greuning and Bratanovic, 2020). It helps strike a balance between risk exposure and profitability, guaranteeing that the institution's tolerance for risk is consistent with its overarching business goals (Gozman and Willcocks, 2019). The efficient distribution of capital and resources within a banking institution depends on its internal balance (Quesado et al., 2018). This ensures that resources are used as efficiently as possible to support risk management techniques, such as investing in reliable technology and tools for risk assessment (Hopkin, 2018). By encouraging a culture of caution and good risk management techniques, internal balance promotes the stability and resilience of financial organizations (Louisot, 2015). It promotes the use of a variety of risk management strategies to protect institutions from possible financial shocks and market volatility, including hedging tactics, portfolio diversification, and stress testing (Fabozzi, 2015). Based on the above discussion, scholars can formulate the following hypotheses:

H5: Accountability and internal balance have a favorable correlation with banking risk management.

3. Methodology

This study used a survey to collect data from a representative group of individuals to obtain insights and information pertaining to the subject of the study, with the aim of assessing the hypotheses (Benzerrouk et al., 2023). Surveys facilitate the connection between academics and the real world by providing a more straightforward means of evaluating conceptual models using empirical data (Gray, 2021).

3.1. Measure

Several methods have been employed in previous studies. A five-point Likert scale was used to rate the many aspects of bank governance, including BODI, strengthening, accountability, legal and regulatory control, internal balance, financial reporting, internal and external audits, transparency, and disclosure. The goal of the second axis was to strengthen the advantages of banking risk management.

3.2. Procedures for data gathering and sampling design

A total of 220 bank workers sent the samples via official websites. The questionnaire was initially written in Arabic because the participants were Arab. However, because the study was conducted in English, Alnor et al. (2023) recommended that it be translated. A direct random sampling strategy was used to select a sample of respondents from the study's target demographics to generalize the findings. Of the 350 surveys distributed in a random sample, 220 were returned, representing a 63% response rate. These were utilized to process the data once incomplete questionnaires were disposed of. Some bank employees were interviewed and asked about governance practices to support the analysis of the study data, which appeared to be in line with the answers obtained from the questionnaire.

3.3. Research framework

This study examines the research objectives using survey methodology and quantitative research design (Nardi, 2018). Quantitative methods enable statistical examination of quantifiable information regarding the variables of interest. Using this survey method, information from a sample can be gathered and extrapolated to a larger group of banks. Self-administered questionnaires make it easier to obtain information about bank governance traits and how they contribute to cost-effective risk management for banks.

4. Data analysis and findings

The data were analyzed using SPSS version 22, a statistical software designed for social science

research. The analysis included both descriptive and inferential statistics to examine the survey data. Descriptive statistics refer to methods that summarize the basic features of the data, highlighting patterns without making conclusions about the data (Abu-Bader, 2021; Alnor et al., 2023). The quantitative data obtained from participants were coded and processed using the Statistical Package for the Social Sciences (SPSS version 22). This analysis used descriptive statistics to calculate averages, frequencies, and percentages. Inferential statistics were employed for more complex analyses. For example, banks use Pearson's correlation and regression analyses to explore the relationship between bank governance and risk management.

4.1. Frequencies and descriptive statistics

The survey results, which involved 220 participants, are summarized in Table 1. Participants were categorized into seven panels based on demographic factors such as gender, age, experience, educational level, major, job level, and professional qualifications. In Panel A, men constituted 75% of the participants, and women represented 25% of the participants. Panel B illustrates the age distribution, with the majority aged between 25 and 35 years (39.5%), followed by those aged 36 to 45 years (34.5%), 46 to 60 years (12.3%), and the smallest groups being those under 25 (0.8%) and over 60 years (3.2%).

Panel C indicates that among academic degrees, the most common was a PhD or equivalent (31.4%), followed by master's degrees (26.8%), bachelor's degrees (22.7%), postgraduate diplomas (15.9%), and others (3.2%). In Panel D, regarding professional qualifications, the largest group reported having none (51.4%), with the rest holding Algerian Fellowships (25.5%), European Fellowships (16.8%), American Fellowships (4.1%), and Arab Fellowships (2.3%).

Panel E shows that the most prevalent field of expertise was accounting (40.5%), followed by information technology and banking sciences (each 20.5%), business administration (15.9%), and other fields (2.7%). According to Panel F, the job level with the highest representation was 'other' (31.4%), department managers (26.8%), heads of accounts (18.6%), auditors (13.2%), and accountants (10.0%).

Finally, Panel G presents experience levels, with the most participants having over 20 years of experience (28.6%), followed by those with 5-10 years (21.8%) and 11-15 years (20.9%). The groups with less experience, under five years and 16-20 years, represented 18.6% and 10.0%, respectively. Table 1 provides a detailed overview of the demographic characteristics and distribution of these traits among the panels.

Table 2 provides descriptive statistics for bank governance across five dimensions: BODI, legal and regulatory strengthening and monitoring, accountability and internal balance, financial reports and auditing, and transparency and disclosure. The dependent variable in this analysis is risk management.

Table 1: Frequencies and percentage

	Frequency	Percentage
Panel: A		
Gender		
Male	184	86.4
Female	29	13.6
Total	213	100.0
Panel: B		
Age		
Less than 25 years old	2	0.9
From 25 – 35 years old	48	22.5
From 36 – 45 years old	105	49.3
From 46 – 60 years old	54	25.4
Above 60 years old	4	1.9
Total	213	100.0
Panel: C		
Qualification		
Diploma	50	22.7
Bachelor	35	15.9
Postgraduate diploma	59	26.8
Master	69	31.4
PhD	7	3.2
Total	220	100.0
Panel: D		
Professional qualification		
Algerian fellowship	56	25.5
Arab fellowship	5	2.3
European fellowship	37	16.8
American fellowship	9	4.1
Nothing	113	51.4
Total	220	100.0
Panel: E		
Major		
Accounting	89	40.5
Business administration	35	15.9
Banking sciences	45	20.5
Information technology	45	20.5
Other	6	2.7
Total	220	100.0
Panel: F		
Job level		
Department manager	59	26.8
Accountant	22	10.0
Auditor	29	13.2
Head of accountant	41	18.6
Other	69	31.4
Panel: G		
Experience		
Less than 5 years	41	18.6
From 5-10 years	48	21.8
From 11-15 years	46	20.9
From 16-20 years	22	10.0
Above 20 years	63	28.6
Total	220	100.0

For the Board of Directors Integrity, the data showed a weighted mean of 4.4 and a weighted standard deviation of 0.52273, with individual indicator means ranging from 3.5 to 4.8. In the area of legal and regulatory strengthening and monitoring, the weighted mean for the five indicators was 3.76 (ranging from 3.4 to 4.5), and the weighted standard deviation was 1.00548. For internal and external audits, as well as financial reporting, the figures were a weighted mean of 4.12 (with indicators ranging from 3.7 to 4.7) and a weighted standard deviation of 0.68976. Transparency and disclosure showed a weighted mean of 4.14 (ranging from 3.7 to 4.7) and a weighted standard deviation of 0.93185. The

dimension of accountability and internal balance had a weighted mean of 4.24 and a weighted standard deviation of 0.78562, with indicators ranging from 3.3 to 4.7.

For risk management, the indices displayed a weighted mean of 4.08 and a weighted standard deviation of 0.75111, with a range from 3.2 to 4.7. Given that all average indicators exceeded three and the standard deviations were relatively low, these results indicate a strong consensus among participants, reflecting a positive evaluation of bank governance and risk management.

Table 2: Descriptive statistics of the variable's indicators

Indicators	Mean	Std. deviation
Board of directors		
PoD1	4.8	0.40091
PoD2	4.7	0.4593
PoD3	4.6	0.49102
PoD4	3.5	1.28745
PoD5	4.4	1.20274
Weighted mean		4.4
Weighted std. deviation		0.52273
Bolstering and monitoring laws and regulations		
BMLR1	3.7	1.19014
BMLR2	3.7	1.19014
BMLR3	4.5	0.92406
BMLR4	3.4	1.43154
BMLR5	3.5	1.28745
Weighted mean		3.76
Weighted std. deviation		1.00548
Internal and external audits, as well as financial reporting		
IEAFR1	4.7	0.4593
IEAFR2	3.7	1.19014
IEAFR3	4.2	1.40319
IEAFR4	3.9	1.30296
IEAFR5	4.1	1.13837
Weighted mean		4.12
Weighted std. deviation		0.68976
Transparency and disclosure		
TD1	4.3	1.19014
TD2	4.7	0.4593
TD3	3.9	1.51673
TD4	3.7	1.61923
TD5	4.1	1.13837
Weighted mean		4.14
Weighted std. deviation		0.93185
Accountability and internal balance		
AIB1	4.2	1.40319
AIB2	4.4	1.20274
AIB3	4.6	0.49102
AIB4	3.3	1.73889
AIB5	4.7	0.4593
Weighted mean		4.24
Weighted std. deviation		0.78562
Risk management		
RM1	4.6	0.49102
RM2	3.2	1.60365
RM3	4.4	1.20274
RM4	3.5	1.43505
RM5	4.7	0.4593
Weighted mean		4.08
Weighted std. deviation		0.75111

4.2. Reliability indicator and internal consistency reliability

The outcomes of the reliability study indicate that the research instrument used to evaluate the contribution of bank governance to banking risk management can effectively and consistently measure these variables. The factor loadings of many items demonstrate that each is a robust indication of the desired underlying construct, exhibiting high factor loadings and statistically significant f-values. Bank Governance in Banking Risk Management construct demonstrates a notably high level of internal consistency reliability, as seen by Cronbach's alpha. This finding suggests a strong level of agreement among the different components when assessing these constructs. What contributes to the tool's dependability is its high composite reliability.

According to Afulani et al. (2017), if the factor loadings of items are below 0.6, it suggests that these items do not contribute significantly to the assessment of the underlying construct. Therefore, they could be eliminated. Eliminating indicators with low factor loadings can enhance the construct validity of the measuring instrument and the reliability of the factor solution. If the factor loadings of an indicator are below 0.6, it may be reasonable to remove them from the analysis. By implementing this approach, we can guarantee that the remaining indicators assess the fundamental concept with greater accuracy and dependability, thereby improving the overall quality of the measuring instrument. A Cronbach's alpha score of at least 0.7 indicates a satisfactory level of internal consistency dependability, according to commonly accepted reliability threshold standards (Aithal and Aithal, 2020). The investigation revealed that both bank risk management and bank governance have Cronbach's alpha values above the established threshold, with values exceeding 0.6. Composite reliability ratings of 0.9 or greater are generally regarded as a credible predictor of the construct.

Table 3 displays the composite dependability values for the five axes of bank governance and bank risk management at this cut-off. The results are as follows: .797, .884, .603, .798, .692, and .671, respectively. In conclusion, these findings provide compelling evidence supporting the reliability of the instrument used to assess participants' attitudes and beliefs regarding bank risk management and governance. The instrument's effectiveness and dependability in assessing these constructs were evidenced by its strong factor loadings, statistically significant probability values, high composite reliability values, and satisfactory internal consistency reliability.

4.3. Discriminant validity

Collectively, these findings offer compelling evidence supporting the reliability of the instrument used to assess participants' perspectives and beliefs concerning bank governance and banking risk management (Turki et al., 2020). This instrument demonstrates validity and reliability in measuring these constructs, as indicated by its strong factor loadings, statistically significant probability values, robust internal consistency, and high composite reliability values (Shrestha, 2021). Table 4 presents the average variance extracted (AVE) values for the two variables: Enhanced bank governance

contributes to the improvement of bank risk management. AVE, which is a commonly used measure of construct dependability, quantifies the extent to which the indicators employed to measure a construct can explain variance in that construct. According to Asmelash and Kumar (2019), an AVE level of 0.5 or above for a single construct is considered an acceptable threshold value, indicating that the indicators effectively assess the construct.

Table 3: Reliability indicator and internal consistency reliability

	No. of items	Cronbach's alpha	Hoteling's T-squared	F	Sig.
Board of directors	5	.797	319.220	78.712	.000
Bolstering and monitoring laws and regulations	5	.884	165.440	70.742	.000
Internal and external audits, as well as financial reporting	5	.603	292.948	72.234	.000
Transparency and disclosure	5	.798	204.068	50.318	.000
Accountability and internal balance	5	.692	166.831	41.136	.000
Risk management	5	.671	247.277	60.973	.000

Table 4: AVE

Board of directors	0.92789
Bolstering and monitoring laws and regulations	0.67418
Internal and external audits, as well as financial reporting	0.89721
Transparency and disclosure	0.82977
Accountability and internal balance	0.75666
Risk management	0.78814

4.4. Correlation coefficient

Table 5 shows that the correlation coefficient determines both the magnitude and the direction of the linear relationship between the two variables. A correlation coefficient of +1 indicates a flawless positive connection, implying that as one variable grows, the other increases in direct proportion. The correlation coefficient often falls within the range of -1 to +1. A correlation value of -1 indicates a perfect negative connection, where the two variables decrease proportionally as one increases. In addition, a correlation value close to zero indicates a lack or insignificance of a linear relationship between the variables.

It is imperative to consider both the study aims and data context when assessing the correlation coefficients. Although correlation analysis is a useful tool for determining how variables are related to one another, to make relevant inferences, it needs to be combined with other statistical and research techniques.

Table 5: Correlation coefficient

Correlations							
		PoD	BMLR	IEAFR	TD	AIB	RM
Board of Directors	Pearson Correlation	1	.581**	.691**	.800**	.753**	.686**
	Sig.		.000	.000	.000	.000	.000
Bolstering and monitoring laws and regulations	Pearson Correlation		1	.662**	.280**	.129	.712**
	Sig.			.000	.000	.000	.000
Internal and external audits, as well as financial reporting	Pearson Correlation			1	.793**	.555**	.672**
	Sig.				.000	.000	.000
Transparency and disclosure	Pearson Correlation				1	.750**	.357**
	Sig.					.000	.000
Accountability and internal balance	Pearson Correlation					1	.464**
	Sig.						.000
Risk management	Pearson Correlation						1
	Sig.						

**: Correlation is significant at the 0.01 level

4.5. Hypotheses testing result

The results are presented in Table 6. The regression analysis results corroborate the hypothesis of a relationship between BODI and risk management. A beta coefficient (β) of 1.942 indicated a strong positive link between BODI and risk management. The T Statistics of 48.333 and the Sig value of 0.000 indicate a statistically significant correlation between BODI and risk management. However, a standard deviation (STDEV) of 0.058 suggests that the variability in risk management is rather low.

The regression analysis results support the premise that strengthening and monitoring rules and regulations leads to effective risk management. The robust correlation between risk management and the surveillance and enhancement of rules and regulations is illustrated by a beta coefficient (β) of -1.041. The modest variability in risk management was shown by a standard deviation (STDEV) of 0.026. Furthermore, the statistically significant relationship between the strengthening and monitoring laws, regulations, and risk management is demonstrated by the T Statistics of -30.284 and Sig Values of 0.000.

The results of the regression analysis validate the hypothesis that " internal and external audits, along with financial reporting, are associated with risk management." A beta coefficient (β) of 1.954 indicates a significant positive association between risk management and financial reporting, as well as between internal and external audits. The T Statistics of -30.284 and the Sig Values of 0.000 indicate a strong and statistically significant connection between internal and external audits, financial reporting, and risk management. However, a

standard deviation (STDEV) of 0.041 suggests that the variability in risk management is modest.

The regression analysis findings corroborate the notion of a relationship between transparency, disclosure, and risk management. A beta coefficient (β) of -2.268 indicates a strong positive relationship between risk management, transparency, and disclosure. Considerable variability in risk management is shown by a standard deviation (STDEV) of 0.032. Additionally, the statistically significant relationship between transparency and disclosure and risk management is demonstrated by the T Statistics of -56.440 and Sig Values of 0.000.

The findings of the regression analysis support the notion of a relationship between responsibility, internal balance, and risk management. A beta (β) coefficient of -0.247 indicates a robust positive link between internal balance, responsibility, and risk management. The T-statistics of -10.696 and Sig values of 0.000 indicate a statistically significant relationship between accountability, internal balance, and risk management. However, the low standard deviation (STDEV) of 0.022 implies that risk management volatility is modest.

Table 6: Hypotheses testing

Hypothesis	β	Std. deviation	T	R	R2	F	Sig.
Board of directors -> risk management	1.942	.058	48.333				
Bolstering and monitoring laws and regulations -> risk management	-1.041	.026	-30.284				
Internal and external audits, as well as financial reporting -> risk management	1.954	.041	51.913	.989	.978	1904.153	.000
Transparency and disclosure -> risk management	-2.268	.032	-56.440				
Accountability and internal balance -> risk management	-.247	.022	-10.696				

5. Discussion

The primary goal of this study is to examine how bank governance affects banking risk management using banks as a case study. The model developed following the collection of data from banks was examined using the SPSS-22 application. The validity of the five hypotheses was assessed based on statistical findings. The first and second halves of the hypotheses on bank governance's positive and significant impact on bank risk management hold true at a significance level of 0.000 (t = 48.333, -30.284, 51.913, -56.440, and -10.696). Sig. 0.000), which was what happened. This is in line with the results of previous studies.

This study and others have made several contributions worth considering. Among these contributions is the analysis of how bank governance affects banking risk management, which has not received sufficient scholarly attention. This work might be seen as a request for more research on this impact, which has been approved. However, the role of bank governance in bank risk management has received little attention in conceptual and descriptive research. This study is one of the few empirical investigations that particularly discusses the influence of bank governance on banking risk management.

6. Conclusion

In brief, the function of banking governance is essential and complex in handling the risks associated with banking organizations. As the financial industry is dynamic and complicated, strong governance frameworks that promote resilience, transparency, and long-term stability are required. However, these frameworks must go beyond simple compliance. Establishing transparent and accountable processes, implementing good risk management procedures, and developing a strong risk-aware culture inside the company are all essential components of effective banking governance. Board members, CEOs, and other important stakeholders must work closely together to ensure that risk management plans follow regulations and are in line with the institution's overall business goals.

Moreover, exaggerating the significance of technology in contemporary financial governance is impossible. Adopting cutting-edge technology, such as artificial intelligence and data analytics, is essential for proactively detecting, evaluating, and reducing risks as the sector develops. In a rapidly evolving financial world, the integration of these technologies improves the agility and reactivity of banking organizations.

The effectiveness of banking organizations' governance systems is critical to their ability to manage risks. Effective banking governance must include a proactive approach to utilizing technological improvements, dedication to ongoing improvement, and flexibility in the face of new problems. Banking institutions can weather the complexity of the financial landscape and contribute to the general stability and sustainability of the global economy by prioritizing these factors. These results are consistent with those reported by Napitupulu (2023), Pagach and Warr (2015), and Srivastav and Hagendorff (2016).

7. Implication of study

This study emphasizes the importance of strong board supervision in risk management. This suggests that to monitor risk exposure, make well-informed choices, and hold management responsible for risk management procedures, a qualified board with the requisite expertise is necessary. Based on the study's findings, banking institutions can enhance their

resilience to crises by implementing a well-organized governance system. Institutions that have strong risk management and governance procedures are better equipped to weather economic downturns and bounce back from financial shocks faster.

According to this study, improving risk management procedures in financial institutions is largely dependent on banking governance. Strong governance frameworks can facilitate the more effective identification, evaluation, and mitigation of risks, thus enhancing overall financial stability. According to research, stakeholders, including clients, investors, and the general public, benefit from strong banking governance through increased trust and confidence. This confidence is essential to upholding the banking industry's stability, drawing in investments, and preserving its name.

This research indicates that improved compliance with regulatory standards is ensured by a strong banking governance architecture. It is imperative that banking institutions comply with compliance standards and manage an intricate regulatory landscape to minimize the possibility of regulatory interventions and penalties.

8. Limitation of study and future suggestion

As the study concentrated on a particular facet of banking governance in banks, its findings might not apply to other areas of banking organizations in general. The quality and availability of data affect the depth and precision of the analysis. The study's small dataset, which was gathered using a questionnaire, may have an impact on how broadly applicable the findings can be.

Longitudinal research can shed light on the viability and efficacy of governance frameworks by monitoring alterations in banking governance practices and how they affect risk management over time. To find the best practices and variances in methodology, future studies can also examine the governance methods of banking organizations in other nations or areas. This may lead to a more thorough understanding of efficient governance arrangements. Future researchers can examine how cutting-edge technologies, such as blockchain and artificial intelligence, might improve financial governance procedures. Examine how these technologies can be used to enhance risk assessment, identification, and mitigation techniques. We further recommend that in order to gain significant insights into how governance and risk management change over time, future research should undertake a longitudinal study, which entails monitoring and gathering data from the same people or entities over an extended period of time.

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Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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