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Article

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Cogent Business & Management

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Suggested Citation: Abdulla, Hazza; Elshandidy, Tamer (2023) : Do governance factors affect the effectiveness of risk management disclosure in UAE banks?, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 10, Iss. 2, pp. 1-28, <https://doi.org/10.1080/23311975.2023.2238394>

This Version is available at:

<https://hdl.handle.net/10419/294554>

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To cite this article: Hazza Abdulla & Tamer Elshandidy (2023) Do governance factors affect the effectiveness of risk management disclosure in UAE banks?, Cogent Business & Management, 10:2, 2238394, DOI: [10.1080/23311975.2023.2238394](https://doi.org/10.1080/23311975.2023.2238394)

To link to this article: <https://doi.org/10.1080/23311975.2023.2238394>



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Received: 05 June 2023
Accepted: 16 July 2023

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Reviewing editor:
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Southampton, UK

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ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

Do governance factors affect the effectiveness of risk management disclosure in UAE banks?

Hazza Abdulla¹ and Tamer Elshandidy^{1*}

Abstract: This paper examines the impact of governance factors on the effectiveness of credit, market, operational, and aggregate risk disclosures in banks. The study measures the effectiveness of risk management disclosure by assessing the level of compliance with local and international banking regulations in the UAE. By controlling for year-fixed effects and other bank-level factors, the empirical analysis reveals that the influence of governance factors on the effectiveness of risk management disclosure varies depending on the type of risk being addressed (credit, market, operational, and aggregate). Moreover, the paper distinguishes between two prominent banking models, Islamic and Conventional, in line with the UAE's banking landscape. The results indicate that differences in the effectiveness of risk management disclosure are observed mainly in the context of market risk between Islamic and Conventional banks. These findings hold significant practical implications not only within the UAE but also beyond its borders. By understanding the key governance factors that impact risk management disclosures, banks in the UAE can enhance their risk management practices and compliance with regulations. The insights gained from this paper can guide policymakers, regulators, and industry practitioners in implementing measures to improve risk management effectiveness. Furthermore, the results contribute to the broader academic literature on risk management and governance in the banking sector, offering valuable knowledge for researchers and scholars worldwide.

Subjects: Accounting; Risk Management; Corporate Governance;

Keywords: risk management disclosure; compliance; Islamic and conventional banks; governance and bank-level factors

1. Introduction

Risk is an inherent aspect of operations for all banks and financial institutions. Therefore, it is imperative for banking businesses to control, review, and update their risk registers regularly, as various risks, including credit, market, and operational risks, inevitably arise from their operations (Basel Committee on Banking Supervision, BCBS, 1998; Basel Committee on Banking Supervision 2006, 2010, 2013). Risk management plays a critical role in ensuring the stability and soundness of banking institutions, as well as safeguarding the interests of stakeholders. Effective risk

management practices help banks identify, assess, and mitigate risks, thereby enhancing their resilience and ability to navigate through challenging economic conditions.

In the context of the United Arab Emirates (UAE), where banks are strongly associated with the international economy, assessing their compliance with key risk management standards is of paramount importance (A. Elamer et al., 2019; A. A. Elamer et al., 2020, 2021; Elshandidy et al., 2018; Mokhtar & Mellett, 2013). The UAE banking sector has experienced significant growth and transformation in recent years, driven by economic diversification efforts and increased cross-border activities. As a result, the landscape of risks faced by UAE banks has become more complex and interconnected. To ensure the continued stability and sustainability of the banking sector, it is crucial to evaluate the effectiveness of risk management practices and the level of compliance with internationally recognized standards.

This paper aims to investigate the effectiveness of risk management disclosure in all listed UAE banks, encompassing both conventional and Islamic banks. By examining the extent to which these banks comply with risk management standards, including the Basel Committee on Banking Supervision International standards, Financial Reporting Standards (IFRS), Islamic Financial Standards (AAOIFI Bahrain), and risk management standards set by the UAE Central Bank, we seek to shed light on the risk management practices in the UAE banking industry. Additionally, we explore the governance attributes in the UAE that determine risk management disclosures across these banks.

To achieve these objectives, we construct the first index that assesses compliance with risk management standards and regulations in UAE banks. This index serves as a valuable tool for banks, stock market policymakers, and regulatory bodies, providing a quantitative measure of compliance and serving as a benchmark for improving risk management practices. Unlike previous studies that primarily focused on bank compliance and completeness, our research uniquely encompasses four comprehensive dimensions: UAE Central Bank risk management regulations, Basel principles related to risks, International Financial Reporting Standards (IFRS), and Islamic Financial Standards (AAOIFI Bahrain). By incorporating a diverse set of risk principles, standards, regulations, laws, and articles, we aim to provide a comprehensive assessment of compliance and completeness for individual banks.

Importantly, our paper differs from previous studies by developing a unique risk index determination that attentively signals the overall scores of banks, indicating their compliance levels (e.g., A. E. A. Ibrahim et al., 2022; Mbithi et al., 2022). This index provides valuable insights into the effectiveness of risk management practices across different banks, enabling stakeholders to evaluate the robustness of risk management frameworks and identify areas for improvement. Such information is invaluable to banks, stock market policy-makers, and regulatory bodies, as it allows them to establish baselines and devise strategies for enhancing risk management practices.

Consequently, the current paper seeks to make significant contributions to the existing literature. Firstly, our study provides the first index to assess UAE banks' compliance with risk management standards and regulations. This index serves as a crucial tool for banks, stock market policymakers, and regulatory bodies, offering a quantitative measure of compliance and establishing a baseline for improving risk management practices. Secondly, our empirical findings shed light on the governance factors that influence the effectiveness of risk management disclosure, specifically in relation to credit, market, operational, and aggregate risks. By understanding these factors, banks and regulatory bodies can tailor their risk management frameworks to address specific vulnerabilities and enhance risk mitigation strategies. Notably, our research reveals differences in addressing market risk disclosure across Islamic and conventional banks based on the effectiveness of risk management disclosure. This finding underscores the importance of considering the specific characteristics and regulatory frameworks governing different types of banks.

Thirdly, our study contributes to the literature by presenting unique conclusions regarding risk management disclosure, supporting banks, central banks, and financial institutions in the Middle East and North Africa (MENA) region. The MENA region has experienced substantial economic growth and has become increasingly interconnected with the global financial system. Therefore, understanding the effectiveness of risk management practices and compliance levels in this region is vital for ensuring financial stability and promoting sustainable economic development.

Fourthly, our research offers practical implications for the UAE Central Bank, UAE banks, and financial institutions in the MENA area. By employing a well-grounded approach to assess factors influencing compliance levels in both conventional and Islamic banks, our findings can inform these institutions in enhancing their risk management practices. Additionally, we contribute to the literature by providing comprehensive guidelines for measuring compliance with all mandatory standards in UAE banks. These guidelines serve as a valuable resource for banks and regulatory bodies seeking to evaluate their risk management frameworks and align them with international best practices.

Finally, our paper provides essential information for international and local investors concerning the effectiveness of risk management disclosure in the UAE banking industry. Investors place significant importance on the transparency and effectiveness of risk management practices in banking institutions. By evaluating the compliance levels of UAE banks and highlighting the strengths and weaknesses of their risk management frameworks, our study equips investors with valuable insights for making informed investment decisions. Moreover, our research aligns with the UAE government's vision to attract foreign direct investment by showcasing the robust banking systems and regulatory frameworks in the country.

Given the rapid expansion and emerging challenges in the banking industry, both nationally and globally (A. Elamer et al., 2019; A. A. Elamer et al., 2020, 2021; Grassa et al., 2021; Hashmi et al., 2022; Lim et al., 2017), our paper offers significant benefits and adds value to the UAE Central Bank, UAE banks, and UAE financial institutions. By providing an overview of banking effectiveness in risk management disclosure, our study equips these entities with essential insights to address evolving risks and regulatory requirements. Furthermore, our paper presents a comprehensive index that measures compliance levels for all listed banks in the UAE, assisting regulatory bodies in determining the current compliance position concerning national and international regulations and identifying avenues for improvement.

The remainder of this paper is structured as follows: Section 2 provides a background overview of the research, exploring the evolving landscape of risk management in the banking industry. Section 3 introduces the theoretical framework adopted in this study, highlighting the key concepts and theories that underpin our analysis. Section 4 reviews relevant prior literature and develops our research hypotheses, identifying the gaps and weaknesses in existing studies. In Section 5, we present the research design, encompassing sample selection, variable measurement, and the empirical models employed. Subsequently, Section 6 discusses the empirical findings and presents further analyses conducted to validate our hypotheses. Finally, Section 7 concludes the paper, summarizing the key findings, discussing their implications, and suggesting potential avenues for future research.

2. Background

This section aims to provide an in-depth exploration of the regulatory, reform, policy issues, and developments within the research context to establish the appropriateness of conducting this study in the UAE banking industry. By analyzing the specific regulatory framework and contextual factors, we highlight why this research is relevant and timely.

The United Arab Emirates (UAE) has witnessed significant regulatory and policy developments in its banking sector in recent years. These developments have been driven by both global trends and

domestic considerations, which have necessitated a comprehensive examination of risk management practices in UAE banks.

One of the key factors that underscores the significance of this study is the role of the central bank of UAE. As the primary regulatory authority overseeing the banking industry, the central bank plays a crucial role in shaping the risk management landscape. It is responsible for developing and monitoring credit policies, supervising financial institutions, and enhancing compliance with standards and regulations. The central bank's proactive approach to risk management and its commitment to aligning with international best practices have made it a pivotal driver of regulatory reforms in the UAE banking sector. Furthermore, the aftermath of the global financial crisis in 2008 highlighted the importance of effective risk management practices. In response to this crisis, regulators worldwide, including the UAE central bank, have implemented stricter regulations to enhance the stability and resilience of the banking system. The UAE's commitment to aligning its risk management practices with international standards, such as the Basel Committee on Banking Supervision's guidelines, demonstrates its recognition of the need to strengthen risk management frameworks.

Additionally, the UAE banking industry is unique due to the coexistence of both conventional and Islamic banking systems. Islamic financial institutions operate in accordance with Sharia principles, which impose specific requirements and guidelines for risk management. Understanding the nuances of risk management practices in both conventional and Islamic banks is crucial in the UAE context, as it enables a comprehensive assessment of compliance with relevant standards and regulations. Moreover, the UAE's position as a global financial hub and its aspirations to attract international investors further emphasize the need for robust risk management practices. The effectiveness of risk management disclosures in the UAE banking industry not only contributes to the stability and soundness of the domestic financial system but also influences the confidence of international investors. By providing transparency and adherence to internationally recognized risk management standards, UAE banks can attract foreign direct investment and establish themselves as trustworthy financial institutions.

Policy-wise, the UAE government's commitment to economic diversification and sustainable growth has further propelled regulatory reforms and risk management practices in the banking sector. The government's vision encompasses enhancing the effectiveness of risk management frameworks to promote financial stability, attract investment, and support long-term economic development. In light of the aforementioned regulatory, reform, and policy issues and developments, this study gains its significance. By examining the effectiveness of risk management disclosures in UAE banks, we aim to contribute to the understanding of compliance levels, governance attributes, and the impact of regulatory reforms on risk management practices. Furthermore, our study provides insights into the context-specific challenges and opportunities within the UAE banking industry, enabling policymakers, regulators, and industry practitioners to make informed decisions and improvements in risk management frameworks.

To sum up, the UAE banking industry presents a unique context characterized by a robust regulatory framework, ongoing reforms, and policy developments. The central bank's proactive approach, alignment with international standards, and the coexistence of conventional and Islamic banking systems create a favorable setting for studying risk management practices. The UAE's position as a global financial hub, its commitment to economic diversification, and the aftermath of the 2008 financial crisis further emphasize the need to examine risk management disclosures in UAE banks. By exploring these regulatory, reform, policy issues, and developments, this study ensures that the research is conducted in an appropriate context, generating insights that have practical implications for enhancing risk management practices in the UAE banking industry.

3. Theoretical framework

Numerous studies have employed agency theory to analyze the relationship between risk management, disclosures, and compliance levels (Elshandidy & Neri, 2015; Lundqvist, 2015; Taylor et al.,

2010). Agency theory provides insights into the incentive conflicts between agents and principals, particularly in cases where ownership and supervision diverge, and differing levels of risk tolerance exist among stakeholders and managers. The inherent conflicts between agents and shareholders can significantly influence compliance with risk disclosure practices and the implementation of international standards, particularly in the context of Islamic banks, which operate under Shariah-compliant decision-making.

According to agency theory, businesses adopt corporate governance procedures and voluntary disclosure practices as mechanisms to mitigate excessive agency costs. This strategic approach is generally beneficial for businesses, as it helps prevent substantial losses, especially for high-risk (Elshandidy & Zeng, 2022) ¹enterprises (Elshandidy & Neri, 2015). In line with this perspective, Elshandidy et al. (2022) argue that managers can minimize agency costs by sharing risk data, thereby reducing information asymmetry. However, Holm and Laursen (2007) suggest that agency problems can hinder adherence to disclosure requirements related to accountability and transparency within corporate governance frameworks. Moreover, Hermalin and Weisbach (2003) highlight the primary responsibility of board members to exercise dominance, while CEOs are primarily tasked with operational management. Consequently, conflicts may arise as CEOs seek to please the board in order to maintain their position, while board members retain their independence by replacing underperforming CEOs.

Linking agency theory to compliance levels for risk management disclosure provides valuable insights into the dynamics between agents and principals in the context of risk management practices. These insights shed light on the motivations, conflicts, and strategies employed by both management and shareholders in ensuring effective risk management and compliance with disclosure requirements. By understanding the agency dynamics at play, researchers and practitioners can better comprehend the factors that influence the level of risk management compliance within organizations.

In the context of Islamic banks, agency theory becomes even more relevant due to the unique decision-making framework guided by Shariah principles. The inherent conflicts and divergent risk appetites among stakeholders necessitate a closer examination of the relationship between agency theory and compliance with risk disclosure practices in Islamic banks. By considering the specific governance mechanisms and decision-making processes within Islamic banks, researchers can assess the extent to which agency conflicts impact risk management compliance and the effectiveness of disclosure practices in these institutions.

In summary, agency theory provides a theoretical lens to analyze the relationship between risk management disclosures, compliance levels and governance factors. It offers insights into the conflicts, motivations, and strategies employed by agents and principals in the context of risk management practices. By incorporating agency theory, researchers can better understand the dynamics that shape risk management compliance and the implementation of disclosure practices. Additionally, agency theory is particularly relevant in the context of Islamic banks, where Shariah-compliant decision-making introduces unique agency conflicts and challenges.

4. Empirical literature review and hypotheses development

4.1. Main streams in the literature

The literature concerning compliance level of risk reporting demonstrates different results, and most studies obtained questionnaires when measuring the efficiency of risk management in UAE and GCC countries. Therefore, it is essential to investigate and implement a different approach to measure the effectiveness of risk management disclosure, as our paper differs from other research in its empirical measurement outcomes that assess the effectiveness of risk management disclosures in UAE banks. Another essential point is that the majority of extant research focuses on the developing countries, especially non-financial firms, while less research has considered

implementation in the less developed/emerging countries in this area (e.g., Abraham & Cox, 2007; Beretta & Bozzolan, 2004; Deumes & Knechel, 2008; Linsley & Shrives, 2006; Marshall & Weetman, 2007).

According to UAE central bank regulations and standards, the board of directors of a bank has the ultimate power and influence over the business, and as a result, each bank has the option of adopting an organizational framework that is depending on its size, complexity, and other criteria, a bank may select the organizational structure that meets its demands the most.

In the UAE context, banks should apply a comprehensive method to measure a wide range of long-term and short-term risks. Several types of research intended to measure the effect of a board size on a bank's corporate governance and disclosure with inconsistent outcomes. Furthermore, the board is correlated positively to the value of the entity (Beiner et al., 2006; Henry, 2008). Furthermore, as demonstrated by Elshandidy and Neri (2015), board independence, as demonstrated by a non-executive director, does not eliminate agency conflicts between managers and shareholders because of the weak relationship between shareholders and managers (Patelli & Prencipe, 2007).

4.2. Board size

As discussed previously, agency theory suggests that a potential conflict of interest exists between a company's management and its shareholders. To mitigate this conflict, establishing an effective board of directors becomes crucial, as it can monitor and control management's actions on behalf of the shareholders. Effective board governance includes various aspects, such as risk management disclosure, which provides important information about a company's risk management strategies and practices.

Drawing on the theoretical foundations of agency theory, several studies have explored the association between board size and the effectiveness of risk management disclosure. The empirical literature offers insights from both seminal and recently published studies, providing a comprehensive understanding of this relationship.

One aspect that influences board effectiveness and agency conflicts is the size of the board. Brown et al. (2011) suggest that larger boards are more effective in tackling agency conflicts and ensuring adequate monitoring. Additionally, Elshandidy (2022) finds that entities with larger board sizes and a greater number of female members exhibit significantly higher comprehensive quality of information disclosure. However, it is important to consider the potential drawbacks of larger boards, such as higher costs and challenges related to communication and flexibility (Elshandidy & Neri, 2015).

In the specific context of the UAE banking industry, there are notable insights that provide contextual relevance to the relationship between board size and risk management disclosure. Aebi et al. (2012) argue that strengthening the quality of corporate governance and risk management functions is vital for banks to be adequately prepared for financial crises.

Drawing upon these theoretical and empirical insights, as well as the specific research setting of the UAE banking industry, we can formulate the following hypothesis, which posits that larger boards, due to their ability to leverage diverse skill sets and enhance monitoring capabilities, are more likely to facilitate effective risk management disclosure in UAE banks. This hypothesis draws on seminal studies that emphasize the positive role of larger boards in addressing agency conflicts and monitoring management's actions (Brown et al., 2011). It also incorporates recently published studies that highlight the relationship between board size, information disclosure, and corporate governance quality (Aebi et al., 2012; Elshandidy, 2022) in the UAE banking industry context.

H1: There is a significant association between board size and the effectiveness of risk management disclosure for UAE banks.

4.3. Board independence

Agency theory suggests that conflicts of interest may arise between a company's management and its shareholders. Establishing an effective board of directors is one approach to mitigate these conflicts, as the board can monitor and control management's actions on behalf of the shareholders. Within effective board governance, the level of board independence, which refers to the presence of non-executive, non-affiliated directors, plays a crucial role. According to agency theory, independent directors are likely to reduce agency conflicts between managers and shareholders (Patelli & Prencipe, 2007). Boards are considered more independent when they are controlled by outside non-executive directors (A. Ibrahim et al., 2019). An independent board is believed to assist in resolving agency conflicts by promoting greater disclosure (Elzahar & Hussainey, 2012). Furthermore, Grassa et al. (2021) reveal that larger banks with a greater number of foreign board members enhance risk disclosure.

The empirical literature on the association between board independence and risk disclosure presents mixed results. Some studies indicate a positive relationship between board independence and risk disclosure (e.g., Barakat & Hussainey, 2013; Elshandidy & Neri, 2015), while others find no significant association (e.g., Elzahar & Hussainey, 2012). These findings can be explained by agency theory, as independent directors bring greater objectivity and skepticism to their oversight of management's actions, thereby enhancing their ability to effectively control and monitor management. Consequently, boards with higher levels of independence are more likely to ensure compliance with risk management disclosure requirements. On the other hand, boards with lower levels of independence may be more susceptible to conflicts of interest, thereby reducing their effectiveness in enforcing risk management disclosure requirements.

Based on the discussion above, we formulate the following hypothesis which posits that higher levels of board independence are associated with a greater effectiveness of risk management disclosure in UAE banks. The hypothesis draws on agency theory, which suggests that independent directors play a crucial role in mitigating agency conflicts and enhancing the oversight and control of management. The hypothesis is supported by studies that find a positive relationship between board independence and risk disclosure (Barakat & Hussainey, 2013; Elshandidy & Neri, 2015), while also acknowledging the mixed results in the literature (Elzahar & Hussainey, 2012).

H2: There is a significant association between board independence and the effectiveness of risk management disclosure for UAE banks.

5. Research design

5.1. Sample selection and data collection

The sample for this study comprises all listed banks in Dubai (DFM) and Abu Dhabi (ADX) from 2016 to 2020, resulting in 80 bank-year observations. Among these observations, 20 pertain to Islamic banks, while the remaining 60 correspond to Conventional banks. The choice to start the sample in 2016 is driven by the UAE central bank Circular No. 33/2015, which mandates banks to comply with Basel III standards. The sample concludes in 2020, as it represents the latest available data. Appendix 1 provides the sample allocations across years and both types of banks.

To gather the necessary data, this paper utilizes various online and webpage sources, including those of the UAE Central Bank, the International Financial Reporting Standards (IFRS) organization, and the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI). Additionally, the paper manually collects annual reports and governance data. As for other financial secondary data, it is obtained from Refinitive Eikon Datastream.

By utilizing these sources and data collection methods, this study ensures a comprehensive and reliable dataset for analyzing the effectiveness of risk management disclosure in UAE banks. The inclusion of both Islamic and Conventional banks provides a holistic understanding of risk management practices in the UAE banking industry.

5.2. Variables measurements

5.2.1. Measuring the effectiveness (compliance) of risk management disclosures: dependent variable

Our paper developed rigorous risk indexes (credit risk, market risk, operational risk, and aggregate risk disclosure) indicating compliance with UAE Central Bank regulations, principles, and all other related standards (Basel, IFRS, AAOIFI) for each bank. Determining each bank's compliance percentage through critical interpretation and an analysis of 80 annual reports was concluded over five years, Basel guidelines, central bank reports, IFRS standards related to risks, and the full text of AAOIFI Shariah standards by selecting the congruent Islamic financial standards that aligned with the study and its end aims. Additionally, in the same way, corporate governance for each bank was accessed over five years.

Our paper determines detailed principles, standards, and regulations related to the effectiveness of risk management disclosures from the Basel Accords (I, II, III), Financial Reporting Standards (IFRS), Islamic Financial Standards (AAOIFI Bahrain), and risk management standards from UAE Central Bank as shown in Appendix 3 Appendix 4, and Appendix 5. The overall measurement scores rely on the bank's completeness regarding the principles and standards, as shown in Figure 1.

To address the completeness and compliance with the standards mentioned above, the current study employs the "dichotomous" method to indicate compliance with disclosures requirements (Tsalavoutas et al., 2010). Thus, if the compliance to risk element is disclosed, then the scoring procedure scores 1, and if the bank does not disclose it, the procedure scores 0. The compliance disclosure index for each bank is then calculated as the ratio of the total compliance items disclosed to the maximum possible score.

applicable for that bank:

$$Cb = \frac{T = \sum_i^n 1d_i}{M = \sum_i^m 1d_i} \quad (1)$$

5.2.2. Measuring governance factors: independent variables

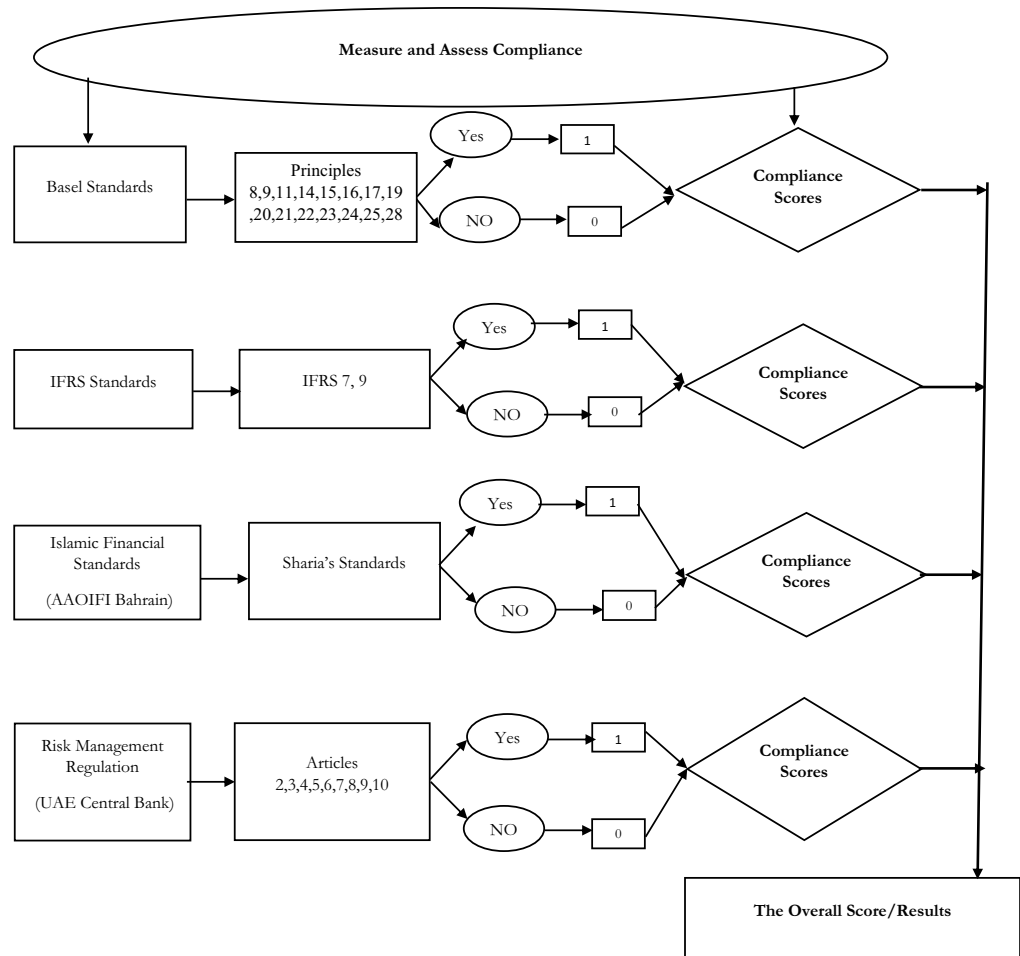
According to Price et al. (2011), countries with strong governance create a favorable environment for organizations to function efficiently because of their clear obedience to regulations. The governance factors are board size, measured by number of board directors (e.g., A. Elamer et al., 2019; A. A. Elamer et al., 2020, Elshandidy & Neri, 2015; Ntim et al., 2013). Board independence measured as a percentage of number of non-executive directors relative to all directors on the board (e.g., Ntim et al., 2013; Vallascas et al., 2017). These two variables are manually collected from banks annual reports.

Additionally, we control for some of the most frequent usable variables, while we observe the association between governance factors and the effectiveness of risk management disclosures. Linsley et al. (2006) indicated that bank size is positively influenced by risk disclosure based on a study of 9 UK and 9 Canadian banks and their annual reports. Moreover, while some research (e.g., Deumes & Knechel, 2008; Marshall & Weetman, 2007; Oliveira et al., 2011) found that the risk disclosure is significantly and positively influencing financial leverage, some others (e.g., Abraham & Cox, 2007; Linsley & Shrivs, 2006) showed that there is no relationship between risk disclosures and leverage. Therefore, we measure the control factors as

Figure 1. The effectiveness of risk management disclosures in UAE banks.

Note: This figure determines detailed principles, standards, and regulations related to the effectiveness of risk management disclosures from the “Basel Accords,

Financial Reporting Standards (IFRS), Islamic Financial Standards (AAOIFI Bahrain), and Risk Management standards from UAE Central Bank”. The overall measurement scores rely on the bank’s completeness regarding the principles and standards. Thus, if the compliance to risk element is disclosed, then the scoring procedure scores 1, and if the bank does not disclose it, the procedure scores 0.



follows: bank size is measured by the natural logarithm of total assets; the bank’s riskiness is measured by beta that reflects the systematic risk between bank and market returns; the leverage is measured by total liabilities divided by total assets; the bank profitability, return on equity (ROE), captured by dividing net income by total equity; the non-performing loans ratio indicates the percentage of uncovered loans by dividing non-performing loans by total loans; and loan to deposit ratio measured by dividing total loans by total deposits (e.g., Acheampong & Elshandidy, 2021). All these variables are collected from the Refinitive Eikon platform, except non-performing loans where it was collected from bank annual reports.

5.3. Empirical model

To test hypotheses H1 and H2, our paper implemented Ordinary Least Squares (OLS) regression (H1 and H2), as per the following that measures the incentives factors, both governance level and the bank-specific variables:

$$\begin{aligned}
 \left(\begin{array}{c} \text{The effectiveness of} \\ \text{risk disclosures} \end{array} \right)_{i,t} = & \beta_0 + \beta'_1 \left(\begin{array}{c} \text{governance variables : Board} \\ \text{size Board independence} \end{array} \right)_{i,t} \\
 & + \beta'_2 \left(\begin{array}{c} \text{control variables : Bank size} \\ \text{Beta Leverage Return on equity} \\ \text{Non – performing loans ratio} \\ \text{Loan to deposit ratio} \end{array} \right)_{i,t} + \epsilon_i \quad (2)
 \end{aligned}$$

The effectiveness of risk management disclosures has four types of risk (Credit risk, Market risk, Operational risk, and Aggregate risk), and each category is scored as 1 if it complies with risk

standards, regulations, and principles and 0 if not. Where, β_0 is the intercept; β_1 represents all governance and β_2 control variables (bank-level) for bank i year t , and ϵ is the error term. In the first stage, our paper applied utilized governance variables: Board size and board independence. The second stage, we introduce the bank-level variables (as a control variables) comprising bank size, beta leverage, return on equity, non-performing loans ratio, and loan to deposit ratio.

6. Empirical results and discussion

6.1. Descriptive statistics

Table 1 presents an overview of the descriptive statistics, encompassing various variables such as dependent variables (credit risk, market risk, operational risk, and aggregate risk), independent variables (bank-governance variables), and control variables (bank size, beta, leverage, ROE, non-performing loans, and loan-to-deposit ratio). Notably, the descriptive statistics reveal that operational risk exhibits the highest average value of 88.69, whereas market risk demonstrates the lowest average value of 77.63.

Among the UAE banks analyzed, the maximum board size is 29, while the minimum board size is 8. Additionally, the median value for board independence is 47.49. This finding provides insight into the corporate governance structure within these banks. Furthermore, the average loan-to-deposit ratio of UAE banks stands at 84.10, as highlighted by Zhang et al. (2020), who emphasized that both total assets and loan-to-deposit ratio tend to decrease with an increase in the orthogonality liquidity gap (OLG). In line with this, it is worth noting that the average bank size (total assets) in the UAE is 10.81, and the median value for non-performing loans is 6.24. Colesnic et al. (2020) stressed the importance of effectively managing non-performing loans (NPLs) for banks to achieve operational efficiency and income growth.

Table 1. Descriptive statistics for dependent, independent, and control variables

Variables	Observations	Mean	Median	Std. dev.	Min	Max
Dependent variables:						
CRR%	80	82.70	83.72	5.96	69.77	93.02
MRR%	80	77.63	77.77	9.23	59.26	96.30
OPR%	80	88.69	90.47	4.69	76.19	100.00
AGR%	80	82.58	83.51	5.52	72.53	94.51
Bank-governance variables:						
BSZ	80	19.69	20.00	6.35	8.00	29.00
BID %	80	48.68	47.49	17.72	20.69	87.50
SIZE	80	10.81	10.67	0.55	0.55	11.96
Bank-control variables:						
BETA	80	0.67	0.71	0.43	-0.76	1.43
LEV	80	0.52	0.45	0.51	0.00	2.36
ROE %	80	5.76	9.29	18.61	-89.57	77.38
NPLR %	80	8.42	6.24	8.65	2.12	58.13
LDR %	80	84.10	85.00	9.81	63.00	102.00

Notes: This table explains the descriptive analysis of dependent variables (credit risk, market risk, operational risk, aggregate risk), independent variables (BSZ and BID), and control variables (bank size, beta, leverage, ROE, non-performing loans, loan to deposit ratio). The description of all variables is described in Appendix 2.

Moreover, the median leverage ratio is 0.45, indicating that the average amount of debt used by banks in the UAE stock market to finance their assets is 0.52. This finding, coupled with a standard deviation of 0.51, sheds light on the financial leverage employed by these banks. Lastly, the results highlight that the maximum return on equity among UAE banks is 77.38, showcasing the profitability potential within the sector.

6.2. Correlation matrix

Table 2 results present a combination of linear Pearson (above the diagonal) coefficients and Spearman coefficients (down the diagonal). Correlation analysis measures the magnitude and direction for this paper's variables. Looking at governance factors indicates that market risk and aggregate risk are associated significantly and positively with board size at a confidence level of 99%. Consequently, an increase in board size is associated with the increase in the compliance level for (the effectiveness of) market risk and aggregate risk. Also, the results confirm that board independence is significantly and negatively associated with credit risk and aggregate risk with a p-value of 0.05.

Additionally, the result reveals that credit risk, market risk, operational risk, and aggregate risk in UAE banks are associated positively with bank size at a p-value of 0.000. Subsequently, the outcome results confirm that ROE and leverage is positively associated with market risk at a confidence level of 99%. In contrast, market risk has a negative direction with a loan to deposit ratio and non-performing loans at a p-value of 0.000.

6.3. Regression analysis

Table 3 results show the regression coefficients and model summary of OLS regressions for the impact of governance variables (board size and board independence), along with control variables (bank size, beta, leverage, ROE, non-performing loans, loan to deposit ratio), on each type of risk disclosure (credit, market, operational, and aggregate). It examines the hypotheses related to H1 and H2. All of Model 1 in Table 3 indicate the influence of governance and control variables (bank-specific) on credit, market, operational, and aggregate risk management disclosures. In addition, Model 2 in Table 3 results indicates the impact of governance and control of bank-specific variables after using the log to transform risk management disclosure scores. The table also shows the number of observations and F-statistics to indicate that all our models are significant and adjusted R-squared to present and adding additional independent variables to a model, whether the regression model improves. Further, the average variance inflation factor (VIF) is provided to test whether the used variables in each model have a multicollinearity issue. Significant coefficients are highlighted in bold *, **, ***Significance levels are noted at 10%, 5%, 1%, respectively.

For credit risk management (CRR), Model 2 of Table 3 results indicate that board size is negatively and significantly associated with credit risk scores, as the coefficient is -0.002 with a p-value of 0.073 at confidence level of 90%. Models 1 and 2 also show that board independence is negatively and significantly associated with credit risk management disclosures, as the coefficient are -0.163 and -0.001 , respectively with p-values of 0.019 and 0.014 at a confidence level of 95%; This result is consistent with the findings of Elshandidy et al. (2013) and Elshandidy and Neri (2015) that more non-executive directors on the boards might have negative impact on incentivizing firms to reveal information about their risks.

For Market risk management (MRR), both Models 1 and 2 show that banks with larger boards are likely to reveal significantly more information about their market risks as coefficients 0.725 and 0.005 with p-values of 0.017 and 0.007, at a confidence level of 95%, and 99%, respectively. These results are consistent with the agency theory and previous studies where it was revealed that a larger number of boards enhance corporate disclosure and effectiveness (e.g., Hussainey & Al-Najjar, 2011). Thus, these findings support H1 and H2, as governance factors influence the effectiveness of risk management disclosures.

Table 2. Correlation matrix

Title	CRR	MRR	OPR	AGR	BSZ	BID	SIZE	ROE	LEV	BETA	LDR	NPL
CRR		0.480***	.670***	0.879***	0.223**	-0.224**	0.447***	0.272**	0.015	-0.078	-0.339***	-0.349***
MRR	0.485***		.412***	0.821***	0.428***	-0.214	0.603***	0.230***	0.344***	0.070	-0.366***	-0.355***
OPR	0.704***	0.483***		0.741***	0.070	-0.024	0.316***	0.120	0.123	-0.077	-0.175	-0.178
AGR	0.886***	0.816***	.762***		0.339***	-0.225**	0.589***	0.276**	0.202	-0.020	-0.389***	-0.389***
BSZ	0.230**	0.310***	.042	0.315***		-0.864***	0.318***	0.232**	0.167	0.183	-0.495***	-0.204*
BID	-0.228**	-0.180	.057	-0.236**	-0.886***		-0.069	-0.098	0.063	-0.063	0.447***	.077
SIZE	0.458***	0.611***	.359***	0.590***	0.381***	-0.196*		0.445***	0.496***	0.500***	-0.278**	-0.453***
ROE	0.211*	0.253**	.157	0.271**	0.200*	-0.196*	0.691***		0.066	0.392***	0.029	-0.729***
LEV	0.121	0.443***	.238**	0.280**	0.128	0.105	0.614***	0.276**		0.293***	0.088	-0.258**
BETA	-0.054	0.082	-0.107	0.000	0.236**	-0.134	0.504***	0.535***	0.325***		0.147	-0.266**
LDR	-0.347***	-0.350***	-0.180	-0.403***	-0.459***	0.495***	-0.255**	-0.030	0.107	0.160		.078
NPLR	-0.422***	-0.296***	-0.237**	-0.389***	-0.152	0.182	-0.641***	-0.674***	-0.328***	-0.358***	0.047	

Notes: Table 2 shows the correlation analysis for all regression variables, measuring the incentives factors (governance and bank control attributes). The numbers in the table above the diagonal are the linear Pearson coefficients; the numbers in the table below the diagonal are the Spearman coefficients; significant coefficients are highlighted in bold. The descriptions of all variables are noted in Appendix 2.

Table 3. Regression analysis for the influence of governance factors on credit risk, market risk, operational risk, and aggregate risk disclosures (H1 and H2)

Independent variables	Dependent variable=							
	CRR		MRR		OPR		AGR	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
BSZ	-0.337 (0.106)	-0.002* (0.073)	0.725** (0.017)	0.005*** (0.007)	-0.125 (0.531)	-0.001 (0.471)	0.027 (0.878)	0.000 (0.911)
BID	-0.163** (0.019)	-0.001** (0.014)	0.120 (0.220)	0.001 (0.142)	-0.041 (0.536)	0.000 (0.495)	-0.051 (0.381)	0.000 (0.362)
SIZE	8.075*** (0.000)	0.043*** (0.000)	10.183*** (0.000)	0.056*** (0.000)	4.279*** (0.006)	0.021*** (0.007)	7.825*** (0.000)	0.041*** (0.000)
BETA	-5.476*** (0.001)	-0.029*** (0.000)	-6.390*** (0.004)	-0.038*** (0.003)	-3.352** (0.024)	-0.016** (0.026)	-5.257*** (0.000)	-0.028*** (0.000)
LEV	-2.413* (0.090)	-0.012 (0.103)	-0.208 (0.918)	-0.003 (0.417)	-0.153 (0.911)	0.000 (0.971)	-1.237 (0.301)	-0.006 (0.320)
ROE	-0.019 (0.694)	-9.123 (0.721)	-0.095*** (0.000)	-0.001 (0.708)	-0.010 (0.835)	-4.463 (0.846)	-0.039 (0.333)	0.000 (0.354)
NPLR	-0.173* (0.072)	-0.001* (0.070)	-0.235* (0.090)	-0.001* (0.079)	-0.048 (0.602)	0.000 (0.611)	-0.162** (0.047)	-0.001** (0.039)
LDR	0.003 (0.965)	8.779 (0.983)	0.013 (0.902)	1.463 (0.982)	0.002 (0.976)	-7.637 (0.983)	0.006 (0.925)	2.764 (0.935)
Intercept	16.171	1.199***	-46.805	0.620***	49.485**	1.084***	5.173	1.470***

(Continued)

	Dependent variable=							
	CRR		MRR		OPR		AGR	
Year-fixed effects	(0.429)	(0.000)	(0.114)	(0.001)	(0.014)	(0.000)	(0.765)	(0.000)
Adj. R-squared	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-statistics	0.399	0.401	0.481	0.482	0.091	0.086	0.498	0.502
Observation	7.549***	7.611***	10.158***	10.206***	1.987*	1.930*	10.806***	10.966***
Average VIF	80	80	80	80	80	80	80	80
	3.167	3.167	3.167	3.167	3.167	3.167	3.167	3.167

Notes: Table 3 shows the regression coefficient and model summary OLS regression for the impact of governance and bank control attributes on each type of risk disclosure. It examines the hypotheses related to H1 and H2. All Model 1 results describe the effect on bank-specific and governance variables before employing log transformation. In addition, Model 2 results indicate the impact after transforming disclosure scores for each type of risk disclosure to the log. The table also shows the number of observations and F-statistics to indicate that all our models are significant and adjusted R-squared present adding additional independent variables to a model to improve explaining the dependent variables. Furthermore, the average variance inflation factor (VIF) tests the multicollinearity problem. Significant coefficients are highlighted in bold *, **, ***Significance levels at 10%, 5%, 1%, respectively. The descriptions of all variables are presented in Appendix 2.

For other types of risk management disclosures including operational risk (OPR) and aggregate risk (AGR), our results do not find significant associations between governance factors of board size and board independence and the compliance levels of these two types of risk disclosures.

Regarding the other control variables, Models 1 and 2 of Table 3 indicate that bank size (log of total asset) is significantly and positively associated with credit risk, market risk, operational risk, and aggregate risk disclosures, and coefficient for these variables are 0.043, 0.056, 0.021, and 0.041, respectively, at a confidence level of 99%. These results are in harmony with the findings of (e.g., Linsley et al., 2006) that bank size affects the compliance level and indicates larger banks have a greater sense of risk disclosure, and they are also consistent with agency theory as large entities are more likely to comply with risk disclosure norms. Furthermore, Models 1 and 2 of Table 3 indicate that banks riskiness (as captured by beta) is negatively and significantly associated with credit, market, operational, and aggregate risk management disclosures at a confidence level, at most, of 99%. The other control variables including leverage, ROE, NPLR, and LDR have different significant effect, depending on the risk disclosure types.

These results have practical implications for UAE central banks and regulators and may assist banks' top management and chief executives with risk assessment, management, and mitigation strategies that can boost the effectiveness of risk management disclosures. They demonstrate that bank size (total assets) is a crucial indicator when examining its influence on the effectiveness of risk management disclosures; therefore, enhancing bank size strategy with better diversification leads to greater compliance with regulations and financial disclosure. In addition, these findings support GCC and MENA region bank regulators when making judgements related to the banking sector as board size and board independence can influence the effectiveness of risk management disclosures. Moreover, the outcomes provide insightful implications for stakeholders and investors when making decisions regarding the banking sector as return on equity has a significant association with actual and ongoing market risk.

To assess the goodness fit of the OLS regression models, firstly, the average VIF for all variables is around 3%, indicating that there is no multicollinearity problem. Secondly, Model 1 of Table 3 for corporate governance and bank-level variables explains 39.90%, 48.10%, 9.10% and 49.80%, (Adjusted R-squared) of the variations in credit risk, market risk, operational risk, and aggregate risk, respectively. It is worth noting that adding corporate governance variables slightly improves model fit, which explains the aggregate risk by 50.20% (Adjusted R-squared) higher than other models. Therefore, the results collectively support the hypothesis H1 and H2 wherein UAE banks have different incentives (governance factors) to manage their risk effectively.

6.4. Further analysis: differences between Islamic and conventional banks

Compliance with the Basel Core Principles (BCPs) has a significant impact on the stability of commercial banks while having less visible influence on the stability of Islamic banks (Aliani et al., 2022; Bitar et al., 2020; Sorwar et al., 2016). The comparison between Islamic banks indices and conventional ones by using several risk metrics and examining the effectiveness of both indices observes that Islamic indexes seem riskier than those of conventional banks and have greater volatility. These findings suggest that both indices have in addition to being influenced by variance fluctuations, that fact that most Islamic indices have a higher level compared to traditional indices, regardless of the subperiods. This result shows that Islamic indices are riskier than conventional indexes (Charles et al., 2015). Previous studies confirm that Islamic banks have lesser credit risk than conventional banks and no differences for bankruptcy between large banks (Abedifar et al., 2013). Given the reviewed literature/regulations, it is expected to observe some differences between these two systems due to the Shariah risk management disclosures.

Table 4 exhibits a comparison between UAE banks (Islamic and Conventional) and the expected deviation between them regarding the effectiveness of risk management disclosures (credit risk, market risk, operational risk, and aggregate risk).

Table 4. Comparison between Islamic and conventional banks

	Conventional		Islamic		Difference test	
	(N = 60)		(N = 20)		(Conventional=Islamic)	
	Mean	Std. dev.	Mean	Std. dev.	Mann-Whitney test	T-test
CRR	82.20%	5.86%	84.18%	6.15%	0.242	0.201
MRR	79.62%	8.69%	71.66%	8.34%	0.000***	0.000***
OPR	88.57%	4.73%	89.04%	4.66%	0.627	0.697
AGR	82.91%	5.59%	81.59%	5.34%	0.462	0.359

Notes: Table 4 shows the differences across Islamic and Conventional banks in the effectiveness of risk management disclosures and bank value deviation between these two types of banks. *, **, ***Significantly levels at 10%, 5%, 1%, respectively. The descriptions of all variables are found in Appendix 2.

While Mann-Whitney and t-test show that credit risk, operational risk and aggregate risk are not significant across Islamic and conventional banks, they reveal that market risk, however, was statistically different across Islamic and conventional banks. Subsequently, this finding suggests that Conventional banks have a greater market risk mean than Conventional banks ($0.796 > 0.716$) and is significantly different at 10%.

7. Summary and conclusion

Based on a comprehensive manual collection of 80 annual reports from all listed Islamic and Conventional banks, this paper constructed 91 risk indicators, encompassing standards from the UAE Central Bank, Basel, IFRS, and AAOIFI, to assess the compliance level of each bank. The findings reveal that governance factors within banks are likely to influence the effectiveness of risk management disclosures, with variations observed across different risk types (credit, market, operational, and aggregate). Notably, the effectiveness of risk management disclosures in relation to market risk exhibits significant deviations between Islamic and Conventional banks, as explained in the previous sections.

These findings carry significant theoretical and practical implications. From a theoretical standpoint, the constructed compliance index can be tailored to suit other countries within the GCC and MENA region, providing a standardized measure for assessing risk management disclosures in the banking sector. On a practical level, the index serves as a baseline for evaluating compliance levels and determining whether improvements are required for individual banks. The paper identifies governance factors associated with the effectiveness of risk management disclosures, controlling for bank-specific factors. Investors can utilize these governance factors as indicative measures to assess a bank's likelihood of complying with risk management disclosure requirements. Additionally, regulators can leverage these findings to promote or mandate greater board independence as a means to enhance risk management practices, transparency, and accountability.

While this paper focuses on examining the effectiveness of risk management disclosures within the UAE banking context, future research could explore compliance levels in the broader GCC and MENA regions. Such investigations may shed light on the differences between Islamic and Conventional banks and provide deeper insights into the underlying reasons for these differences. Furthermore, other research avenues could investigate the impact of cross-listed banks on determining the compliance level of risk management disclosures, adding further dimensions to the understanding of risk management practices in a global context.

Acknowledgments

We are very thankful to the Editor (Prof. Collins Ntim) and two anonymous referees for their useful comments and suggestions.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Citation information

Cite this article as: Do governance factors affect the effectiveness of risk management disclosure in UAE banks?, Hazza Abdulla & Tamer Elshandidy, *Cogent Business & Management* (2023), 10: 2238394.

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Appendix 1: Sample allocation across years and both types of banks

Year	Islamic banks	Conventional banks	Total observations	Missing data
2016	4	12	16	0
2017	4	12	16	0
2018	4	12	16	0
2019	4	12	16	0
2020	4	12	16	0
Total	20	60	80	0

Appendix 2. Variable definitions, measures, and sources

Variable	Measures	Source
Credit risk (CRR)	Compliance with the Basel Accords, Financial Reporting Standards (IFRS), Islamic Financial Standards (AAOIFI Bahrain), and Risk Management standards from UAE Central Bank. Dichotomous method, if the compliance to risk element is disclosed, the scoring procedure scores 1; the bank does not disclose, it scores 0. Compliance disclosure index for each bank is calculated as the ratio of the total compliance items disclosed.	Annual Report, manual calculation
Market risk (MRR)	Compliance with the Basel Accords, Financial Reporting Standards (IFRS), Islamic Financial Standards (AAOIFI Bahrain), and Risk Management standards from UAE Central Bank. Dichotomous method, if the compliance to risk element is disclosed, the scoring procedure scores 1; the bank does not disclose, it scores 0. Compliance disclosure index for each bank is calculated as the ratio of the total compliance items disclosed.	Annual Report, manual calculation
Operational risk (OPR)	Compliance with the Basel Accords, Financial Reporting Standards (IFRS), Islamic Financial Standards (AAOIFI Bahrain), and Risk Management standards from UAE Central Bank. Dichotomous method, if the compliance to risk element is disclosed, the scoring procedure scores 1; the bank does not disclose, it scores 0. Compliance disclosure index for each bank is calculated as the ratio of the total compliance items disclosed.	Annual Report, manual calculation

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Variable	Measures	Source
Aggregate risk (AGR)	Compliance with the Basel Accords, Financial Reporting Standards (IFRS), Islamic Financial Standards (AAOIFI Bahrain), and Risk Management standards from UAE Central Bank. Dichotomous method, if the compliance to risk element is disclosed, the scoring procedure scores 1; the bank does not disclose, it scores 0. Compliance disclosure index for each bank is calculated as the ratio of the total compliance items disclosed.	Annual Report, manual calculation
Board size (BSZ)	The total number of directors	Annual report, Eikon Datastream,
Board independence (BID)	Non-executive member divided by board size	Annual report, Eikon Datastream,
Bank size (SIZE)	The log of bank total assets	Eikon Datastream
BETA	Risk factor that reflects the systematic risk between bank and market returns	Eikon Datastream
Leverage (LEV)	Total liabilities divided by total assets	Eikon Datastream
Return on equity (ROE)	Net income divided by shareholders' equity	Eikon Datastream
Non-Performing loans ratio (NPLR)	Divide non-performing loans by total loans	Eikon Datastream
Loan to deposit ratio (LDR)	Divide total loans by total deposits	Eikon Datastream

Appendix 3. Risk compliance measurement indicators

(1) Compliance with UAE central bank regulations	
Risk type	Risk Index (RI)
Credit	1. Managing credit risk
	2. Proper Method to measure credit risk
	3. Amount of regulatory capital for credit risk
	4. Maximum credit exposure by currency
	5. Information about the credit quality of financial assets
	6. Adequately describes how credit risk management occurs
	7. Credit risk mitigation strategy
	8. Full disclosure
Market	1. Interest rate risk
	2. Market risk management strategy
	3. Currency risk.

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	4. Equity risk.
	5. VAR (value-at-risk).
	6. Commodities risk
	7. Amount of regulatory capital for market risk (pillar 1 capital).
	8. full disclosure
Operational	1. Amount of regulatory capital for operational risk (pillar 1 capital).
	2. Operational risk Measurement approach.
	3. Operational risk transfer/mitigation/hedging techniques.
	4. Legal risks.
	5. Compliance.
	6. Competition/proprietary/copyright.
	7. Internal audit function
	8. Full disclosure

Notes: Risk Disclosure Total 24. The scoring procedure proceeded as follows: 0: Risk item not disclosed by bank. 1: Risk item disclosed by bank.

(2) Compliance with Basel principles related to risks

Principle	Risk index (RI)
Principle 8	1. Supervisory approach
Principle 9	2. Supervisory techniques and tools
Principle 11	3. Corrective and authorizing powers of supervisors
Principle 14	4. Corporate governance
Principle 15	5. Risk management process
Principle 16	6. Capital adequacy
Principle 17	7. Credit risk
Principle 19	8. Concentration risk and large exposure limits
Principle 20	9. Transactions with related parties
Principle 21	10. Country and transfer risks
Principle 22	11. Market risks
Principle 23	12. Interest rate risk in the banking book
Principle 24	13. Liquidity risk
Principle 25	14. Operational risk

Notes: Risk Disclosure Total 14. The scoring procedure occurred as follows: 0: Risk item not disclosed by bank. 1: Risk item disclosed by bank.

(3) Compliance with international financial reporting standards (IFRS)

IFRS	Risk index (RI)
IFRS 7	Financial Instruments: Disclosures
IFRS 9	Financial Instruments

Notes: Risk Disclosure Total 2. The scoring procedure occurred as follows: 0: Risk item not disclosed by bank. 1: Risk item disclosed by bank.

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(4) Compliance with Islamic financial standards (AAOIFI Bahrain)

Islamic financial standards	Risk index (RI)
Sharia's Standard No. (1)	Trading in Currencies
Sharia's Standard No. (5)	Guarantees
Sharia's Standard No. (8)	Murabaha
Sharia's Standard No. (33)	Waqf
Sharia's Standard No. (45)	Protection of Capital and Investments

Notes: Risk Disclosure Total 5. The scoring procedure proceeded as follows: 0: Risk item not disclosed by bank. 1: Risk item disclosed by bank.

Appendix 4. Summary of relevant standards to risk management disclosures

1. Basel principles related to risks

Principle 8	Supervisory Approach	The supervisor must design and maintain a forward-looking appraisal of the risk characteristics of independent banks and groups that are suited to their structural system, and banks must identify, analyze, control, and monitor the total bank risk.
Principle 9	Supervisory Techniques and Tools	Using an appropriate instrument to assess the risk and an adequate variety of methods and instruments to execute the supervisory strategy.
Principle 11	Corrective and Authorizing Powers of Supervisors	Acting at an early stage to detect any risks to the banking system with adequate tools. When a supervisor identifies harmful, illegal behaviors or actions that potentially put banks or the financial system at risk, they have the authority to take appropriate action, including the imposition of sanctions. All necessary supervision techniques are at the supervisor's disposal, allowing for quick corrective actions to be carried out.

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Principle 14	Corporate Governance	To be sure banks have strong corporate governance, the supervisor assures that banks have solid corporate governance procedures and guidelines. These guidelines and procedures cover areas like business strategy, group and management structure, internal control, roles of the bank's Board of Directors and senior executives, and remuneration. These policies and procedures are in line with how risky the bank is and how important the corporate governance is to their entire system.
Principle 15	Risk Management Process	The risk management process should be aligned with the bank's risk profile. The supervisor decides that banks have a complete risk management workflow (which includes and Effectively Board and Executive supervision) to recognize, examine, assess, supervise, disclose, and govern or mitigate all material risks in a timely manner and determine if the capital and liquidity are enough for their risk level and economic and financial conditions. This process includes making and reviewing plans for what to do in case of an emergency, such as solid and trustworthy contingency planning that considers taking the bank's situation into account. The risk management process is in line with how risky the bank is and how important that bank is to the whole system.
Principle 16	Capital Adequacy	The banks represent appropriate capital adequacy requirements that reflect that those risks have been considered. A bank's capital adequacy standards are established by the regulator and should be reasonable and suitable, given the industry and economic circumstances under which the bank operates and the risks it faces. The regulator establishes the kind of capital with loss-absorbing capacity in mind. Capital requirements are not lower than the relevant Basel criteria, at least for those banks with a significant worldwide presence.

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Principle 17	Credit Risk	The banks have acceptable credit risk considering risk appetite, risk profile, and macroeconomic conditions. In addition, each bank is considered to have a proper credit risk management procedure that takes into consideration their risk tolerance, creditworthiness and industry and global situations. This process is comprised of reasonable rules and methods to discover, measure, assess, timely observing, reporting, and management of credit risk (particularly collateral requirements). The whole credit cycle is addressing covering of credit underwriting, credit assessment, and the continual engagement of the bank's credit and stock portfolios.
Principle 19	Concentration Risk and Significant Exposure Limits	The banks should have adequate policies and procedures in place for detecting, assessing, managing, reporting, and controlling or mitigating risk swiftly. Subsequently, the regulator has concluded that the bank has sufficient procedures and guidelines in place to promptly discover, analyze, assess, supervise, monitor, manage, or reduce exposures to risk. Prudential restrictions are those guidelines established by regulators to limit banks' exposure to certain individuals or groups of related counterparties.
Principle 20	Transactions with Related Parties	Enter related parties into any transactions on an arm's length basis. Then, to avoid abuse deriving from operations with parties involved and identify the threat of potential conflicts of interest, the supervisors of the financial institutions are required to enter into operations with associated parties on an agreed fixed basis, supervise these transaction records, take necessary steps to manage or minimize the risks, and write off associated risk related entities in in compliance with standard procedures and guidelines.

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Principle 21	Country and Transfer Risks	As part of their global lending and investment transactions, banks must ensure they have the appropriate procedures in place to identify, evaluate, and manage the risks associated with several other countries. Furthermore, the regulator assesses that banks have suitable guidelines and procedures to promptly detect, quantify, investigate, analyze, disclose, and manage or reduce risk level, and transfer risk in their global financing and investment operations.
Principle 22	Market Risks	Consequently, the market risk management processes of banks are adequate. Moreover, the banks' risk appetite, risk level, industry and economic circumstances, and the danger of a material decline in stock market are all considered as part of the supervisor's determination that the banks' market risk management approach is appropriate. This process comprises responsible policies and procedures to detect, measure, analyze, monitor, report, and manage or reduce potential losses on a reasonable timeframe.
Principle 23	Interest Rate Risk in the Banking Book	A proper technique in banking book to mitigate interest rate risk.
Principle 24	Liquidity Risk	Sets a careful and appropriate liquidity requirements strategy.
Principle 25	Operational Risk	Banks have an acceptable operational risk management framework. Moreover, a bank's functional risk-management system is deemed acceptable by the regulator if it is shown to reflect the institution's risk appetite, risk tolerance, and the state of the marketplace and the entire economy. That's why it's important to have sound rules and procedures in place to promptly detect and analyze risks in operations; then they may be reported on and used to limit or eliminate threats

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Principle 28	Disclosure and Transparency	Banks and banking groups declare the information related to risk management strategies, risk exposures, performance, and financial condition clearly and on a solo basis. The regulator should conclude that the banking institutions and banking groups routinely reveal details that are both widely available and fairly represent their financial position, activity, risk exposures, risk management practices, and governance practices rules and procedures on an aggregated and then relevant, but separate basis.
2. International financial reporting standards (IFRS)		
IFRS 7	Financial Instruments: Disclosures	Requires firms to provide full disclosures on their financial statement nature and the extent of risks arising from those financial instruments, both in qualitative and quantitative terms. Specifies information that must be disclosed to assist the main consumers of financial statements in assessing the materiality, risks, and controls associated with a company's use of financial instruments. Disclose the material accounting rules used to manage financial instruments. It is required that when hedge account is being used, comprehensive details on the methodology, the volume, timeliness, and unpredictability of the future cash flows, and the impacts of hedging instruments on financial standing and performance be reported.
IFRS 9	Financial Instruments.	The necessities for hedging Instruments: Recording, Measuring, Impairment, and derecognition. The provisions pertaining to hedge accounting are voluntary. If the necessary conditions are satisfied, a business may use hedge accounting to record the results of its risk management in the financial statements by offsetting the results of its profits or losses on hedging instruments against those for the risks they are trying to mitigate.
3. Risk management regulations in UAE (central bank)		
Article 2	Risk Governance Framework	The existence of a reliable risk governance model to aid in identifying, evaluating, monitoring, and controlling potential threats. Credit risk, Market risk, Liquidity risk, and Operational risk should be covered as a bare minimum.

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Article 3	Risk Management Function	The Chief risk officer must be of sufficient seniority and stature within the bank to credibly challenge the heads of business lines and functions.
Article 4	Risk Measurement and Use of Models	The implementation of risk measurement tools by a bank must be tailored to the bank's risk profile, business, size, and complexity.
Article 5	Stress Testing of Material Risks	A bank must have a forward-looking stress testing program that addresses credit, market, and operational risk with the bank by considering that its risk profile is likely to require capital in excess of the minimum capital requirements.
Article 6	Information System and Internal Reporting	Depending on the risk profile, nature, size, and complexity of the bank's business and structure, several types of data aggregation and reporting tools will be required by the bank's risk management framework.
Article 7	Strategic and Operational Decisions	All new products, significant modifications to existing products, and strategic or considerable operational initiatives, such as new systems, business models, or acquisitions, require prior approval from the bank.
Article 8	Group Risk Management.	A bank for which the Central Bank is the primary regulator is required to meet the objectives of the Regulation and Standards on a single and group-wide basis.
Article 9	Disclosures	A Bank should fulfill the disclosure needs and have a Board-approved disclosure policy. A bank must describe in its disclosures its risk management objectives and policies.
Article 10	Islamic Banking	The Board offering Islamic financial services safeguards that the comprehensive approach to risk management ensures full compliance with Sharia's provisions.

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4. Islamic financial standards (AAOIFI Bahrain)

Sharia's Standard No. (1)	Trading in Currencies	It is permissible to trade in currencies if done in compliance with Sharia's rules and precepts. To elaborate, before dividing the countervalues, both parties must assume real or constructive ownership of them, and any two items denominated in the same currency must be equivalent in value. Also, future currency contracts are not allowed.
Sharia's Standard No. (5)	Guarantees	The lessee holds the leased property in trust for the lessor, who is responsible for any risks that may be linked with the property.
Sharia's Standard No. (8)	Murabaha	Before a purchase can be made, two categories of risk must be identified and separated.
Sharia's Standard No. (33)	Waqf	It is permissible to invest in Waqf income through acceptable methods, such as Modaraba, Musharakah, Murabahah, Ijarah, Salam, and low-risk investments.
Sharia's Standard No. (45)	Protection of Capital and Investments	With this Standard, which seek to simplify the understanding of the fundamentals of banking and investing with Islamic financial institutions. In addition, it seeks to clarify the Shariah grounds for what is permitted and what is not. In order to protect the investment, the use of equipment and practices that contradict Sharia law is prohibited.