Article

Estimating the Risk of Financial Distress Using a Multi-Layered Governance Criterion: Insights from Middle Eastern and North African Banks

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Abstract: In this study, we explored the association of bank-level governance and state-level governance with the likelihood of banks' financial distress in developing economies. Using a panel data sample of 954 bank-year observations of 106 conventional banks across 14 Middle Eastern and North African (MENA) countries from 2010 to 2018, we found that bank governance arrangements seemed to be negatively attributed to the probability of financial distress. We also found that the relationship of political stability with financial distress prospects is—contrary to our expectation—insignificant, whereas government effectiveness negatively influences the likelihood of financial distress. Our empirical evidence offers practical implications for bank managers, regulators, and credit rating agencies, and suggests several future research avenues that can build on our findings.

1. Introduction

The aftereffects of the 2007–2008 international financial crisis presented an extensive financial distress likelihood (FDL) of non-financial and financial corporations across countries, with massive special effects on whole economies (International Monetary Fund 2012; Forgione and Migliardo 2018). The scrutinising role of governance structures was ruthlessly questioned (Aebi et al. 2012; Lartey et al. 2022). Additionally, this crisis was blamed on macro-foundation factors (Oxelheim 2019; Albitar et al. 2020a). These criticisms indicate that effective corporate governance (CG) implementations are crucial for improving a firm's overall financial performance and hence, reducing its financial distress prospects (Dowell et al. 2011; Mangena et al. 2020). Platt and Platt (2002) define financial distress as a condition under which a firm cannot meet its obligations and responsibilities and it is not easy to deal with total costs. Specifically, FDL refers to a financial decline in the firm, which is likely to be followed by bankruptcy and liquidation (John 2007; Shahwan 2015). In this regard, Handayani et al. (2019) identified four terms linked to FDL: failure, insolvency, bankruptcy, and default. In further detail, it is argued that financial distress is attributed to cash flow trouble, debts, and deficiency in operations (Widhiadnyana and Wirama 2020).

Academics have been attracted to examining the primary determinants of financial distress in various developed and developing settings (Forgione and Migliardo 2018; Manzaneque et al. 2016; Veganzones et al. 2021; Miller et al. 2015), including CG mechanisms (Mangena et al. 2020; Tabasum et al. 2018). For instance, Platt and Platt (2012) suggest that CG structures negatively influence FDL in the USA. That is to say, it has previously

been observed that weak CG makes it possible for managers to act for their own interests, which, in turn, increases the likelihood of financial distress (Baklouti et al. 2016; Liang et al. 2020). In contrast, compliance with good CG practices can motivate managers to provide higher-quality financial information that is expected to eliminate agency conflicts and information asymmetry (Gerged et al. 2021a, 2021b, 2021c, 2021d; Perego and Verbeeten 2015) and help managers avoid the likelihood of the occurrence of financial distress (Adams and Mehran 2012).

However, prior studies assessing the influence of CG structures on FDL have been indecisive (e.g., Donker et al. 2009; Fich and Slezak 2008). A weakness of extant research is that it devotes less attention to the CG–FDL nexus in financial institutions (Elnahass et al. 2022; John and Ogechukwu 2018) than to their non-financial counterparts (Shahwan 2015; Shahwan and Habib 2020; Manzaneque et al. 2016; Younas et al. 2021, among others).

Well-functioning banking institutions play a critical role in promoting the growth of a given economy and the financial system's stability at large (Wanke et al. 2015). Regulatory agencies and national governmental bodies worldwide have demonstrated concerns about the banking sector's stability and called for the proper regulation of the industry (John and Ogechukwu 2018). Despite this regulatory role of governments, financial institutions have been consistently categorised by financial distress, leading to losses of shareholders' capital and erosion of public trust in the banking system (Lang and Schmidt 2016). Thus, initial warning signs have been recognised as crucial to minimising the possible adverse effects of financial distress on the economy as a whole (Habib et al. 2020; Li et al. 2014).

Considering the arguments mentioned above and in response to recent calls (e.g., Mangena et al. 2020), the current study has been motivated to investigate the role of micro-level governance in lowering the prospects of banks' financial distress. To address this gap, we pose our first critical question for this study: *Does compliance with good corporate governance practices reduce the financial distress prospects of the banking institutions in emerging economies?*

Grounding the examination of FDL in a multi-theoretical framework, including agency theory and institutional theory, and focusing on a set of 14 Middle Eastern and North African (MENA) countries that share numerous cultural, legal, and religious characteristics at various degrees, allows us to explore whether country-level governance (CLG) stimulates or hinders FDL. CLG factors comprise the processes and structures that offer context for employing resources and capabilities within a given country (Gerged et al. 2021a). CLG started to gain momentum in academic literature in the 1990s (Gerged and Elheddad 2020; Ngobo and Fouda 2012; Svendsen and Haugland 2011). Specifically, the World Governance Index (WGI) was developed by the World Bank to measure national-level governance indicators of countries (Kaufmann et al. 2009, 2011). Although researchers have previously used CLG factors to predict risk disclosure (Barakat and Hussainey 2013), market value (Enikolopov et al. 2014), environmental disclosure (Gerged et al. 2021a), and bank efficiency (Lensink et al. 2008), a study that examines the potential impact of CLG on FDL is virtually non-existent. To tackle this existing gap, we pose our second critical question for this study: *Does the quality of macro-level (national) governance affect the likelihood of financial distress of the banking institutions in emerging economies?*

To answer the above questions, we locate our study in the Middle East and North Africa (MENA) region. The MENA region typically comprises the area from Morocco in northwest Africa to Iran in southwest Asia and Sudan in Africa. With a speedily rising population approximating 400 million inhabitants, it is an economically diverse region consisting of oil-rich economies (e.g., Saudi Arabia, Qatar, and Kuwait) and those with resource-scarce economies, such as Morocco, Egypt, and Jordan (World Bank 2015). MENA nations share many cultural, religious, and economic characteristics, being Arab, Muslim-majority countries, and emerging economies (Hussain and Mallin 2002; Hofstede et al. 2015).

Using panel data from 106 conventional banks across 14 MENA countries from 2010 to 2018, resulting in 954 bank-year observations, our empirical evidence indicates that bank

managers can use CG arrangements to reduce the likelihood of financial distress. Additionally, we argue that cross-national governance factors, such as government effectiveness, are aligned with minimising the FDL of banks in the MENA region. In brief, CG and CLG are negatively associated with FDL in the MENA region.

Our paper contributes to the extant literature as follows. First, our study adds to the current debate by examining the influence of a multi-layered governance system (i.e., bank-level governance and country-level governance) on banks' propensity for financial distress. Second, to the best of our knowledge, this study provides the first investigation of the multi-level governance–FDL nexus.

The rest of the article is organised as follows. The following section provides further background and theoretical perspective and reviews previous studies that have examined the relationship between governance mechanisms and financial destress and hypotheses' development. Section 3 outlines the research method, and Section 4 presents the findings. Section 5 provides a discussion and conclusions, discusses limitations, and offers ideas for future research.

2. The Institutional Context of the Study

MENA nations can be generally divided into two groups. The first primarily consists of countries with an oil-rich gulf cooperation council (GCC) (Gerged 2018). The other group comprises non-GCC nations or non-oil economies that depend more on tourism, trade, and capital flows (Gerged et al. 2018; World Bank 2014). Within this general structure, the financial institutions are mostly bank-based (Salem et al. 2020), with an average private credit-to-GDP ratio of 65%, higher for the GCC economies than their non-GCC counterparts. Similarly, the mean value of the deposit-to-GDP rate is 90% for the oil exporters compared to 80% for oil importers, indicating capital flow and workers' remittances (Ghosh 2017).

The banking industry in the MENA region is quite diverse, mainly domestic players. Foreign banks' shares remain low, averaging 13% in 2012 (Claessens and Van Horen 2014; Gerged 2021a). Additionally, many countries allow for a dual banking system in which Islamic banks cooperate with traditional ones, though their existence is unbalanced across MENA countries (Ghosh 2017; Salem et al. 2020). For instance, in the GCC states, the representation of Islamic banks was around 30% of the banking industry in 2012, with a maximum of 50% in Saudi Arabia and a minimum of 6% in Oman (Islamic Financial Services Board 2016). This percentage, however, is much lower in non-GCC economies, with an average of 5%.

Concerning the ownership structure, the banking firms are mostly owned domestically, mirroring obstacles to entry or licensing constraints on foreign banks (Al-Haddad et al. 2019, 2021, 2022; Al-Hassan et al. 2010). Banks' existence beyond borders is mainly in branch form, regularly of a unitary nature. Governmental ownership of banks across MENA countries, including local royal families, government, and quasi-government, is higher in some GCC countries, such as Saudi Arabia, the United Arab Emirates, and Oman, than in others, such as Tunisia, Kuwait, and Morocco (Al-Hassan et al. 2010). In line with the growth of banking industries, MENA countries have undertaken some steps to enhance banks' CG practices. For example, Kolderstova (2010) categorises two waves of CG reforms across MENA countries. The first was initiated in the early 2000s when several MENA states formed their CG codes. The period from 2005 to 2009 was characterised by the introduction of specific CG codes for family- and state-owned banks across a number of MENA countries, such as Qatar, Saudi Arabia, and Oman. However, on other occasions, the private sector played a crucial role in developing CG guidelines, such as the Transparency Association of Lebanon and the Corporate Governance Taskforce in Jordan. Additionally, Kolderstova (2010) states that these CG frameworks are voluntarily implemented based on existing best CG practices and a comply-or-explain basis.

The following uprisings, the so-called 'Arab Spring', first in Tunisia and then in other countries in the region, including Egypt, Libya, Syria, and Yemen, reiterated the significance of CG implementations (Gerged and Almontaser 2021; Ghosh 2016). Crucially,

this political turmoil emphasised the need for corporate compliance with good governance practices to satisfy stakeholders' disclosure requirements and transparency engagements. Given the importance of banks in MENA economies, several CG pieces of legislation focused exclusively on banks. This contributed to the second wave of CG reforms in MENA economies (Gerged et al. 2020a, 2020b; Masli et al. 2021; Kolderstova 2010), which is primarily characterised by a focus on integrating banks' management with the region's cultural ethos. Along with these advances, regulators in the area have either undertaken steps to update their former CG codes, including the United Arab Emirates and Egypt, or reformed specific CG codes for banks, alternately, such as Tunisia and Kuwait.

National governance may include the processes and structures that create the context within which resources' use is managed. Prior research stated that CLG could significantly influence firms' performance, such as corporate risk disclosure (Barakat and Hussainey 2013), firm market value (Enikolopov et al. 2014; Van Essen et al. 2013), and bank efficiency (Lensink et al. 2008). Scholarship that uses the concept of CLG employs the World Governance Index (WGI), launched in 1996. Including more than 200 nations worldwide, the WGI calculates CLG by using six factors: voice and accountability, political stability, government effectiveness, regulatory quality, the rule of law, and control of corruption (Kaufmann et al. 2009). These indicators are measured, drawing upon many variables gathered from large databases. The total data reflects the opinions on international governance by various participants, including experts, the private and public sectors, international bodies, and not-for-profit organisations (Kaufmann et al. 2011).

CLG indicators provide comprehensive details, yet they might exhibit substantial correlations. This paper used two CLG factors in estimating the regression models to avoid multicollinearity statistical problems. In line with earlier literature (e.g., Schiehll and Martins 2016; Enikolopov et al. 2014; Lensink et al. 2008), the selected CLG variables in this study were chosen based on factor analysis. This process resulted in selecting political stability (PS) and government effectiveness (GE) for the current study's purpose. In accordance with Kaufmann et al. (2011, p. 223), these two CLG variables are defined as follows:

- Political stability (PS): "measures perceptions of the possibility of political instability and/or politically-driven violence, such as terrorism".
- Government effectiveness (GE): "relates to public services' quality, civil service quality and the extent of its independence from political influences, the quality of policy implementation and formulation, and the integrity of the government's compliance with such policies".

3. Literature Review and Hypothesis Development

3.1. Previous Studies

The banking crisis of 2007–2008 stressed the importance of the link between bank governance and financial distress; however, only internal monitoring mechanisms could prevent excessive risk-taking (Baklouti et al. 2016). Lu and Chang (2009) stated that financial variables and corporate governance better predict financial difficulties compared to macroeconomic variables. Indeed, strong CG practices effectively prevent corporations from being too exposed to financial distress and bankruptcy (Zhou 2019). Abdullah (2006) contends that adequate corporate governance mechanisms strengthen companies' performance (Gerged et al. 2022b, 2022c) and protect them against the risk of financial distress. Crucially, suitable corporate governance mechanisms can help management to maintain better financial information quality to protect firms from potential financial distress.

Nevertheless, previous studies examining the board and ownership structures' expected effect on financial distress have been inconclusive (Mangena et al. 2020). For example, Tabasum et al. (2018) established a negative relationship between managerial ownership and the tendency toward financial distress. Similarly, Fich and Slezak (2008) concluded a negative correlation between managerial ownership and the possibility of business bankruptcy; however, they found a positive relationship between board size and

the probability of financial distress and no relationship between institutional ownership and financial distress. Ananto et al. (2017b) supported these mixed results, indicating no relationship between institutional ownership and financial distress. Ananto et al. (2017a) also reported no association between board size and firms' financial distress probability. In contrast, Manzaneque et al. (2016) mentioned the positive role of board size in reducing financial distress occurrence. Consequently, these diverse results emphasise the need for further studies to establish an association between CG and FDL, specifically in developing settings.

The vast majority of previous research has been devoted to developed economies. Crucially, previous studies suggest that CG structures are possibly effective mechanisms by which firms can reduce FDL in developed economies, including Australia (Miglani et al. 2015), the USA (Lajili and Zéghal 2010), Canada (Elloumi and Gueyié 2001), the UK (Gerged et al. 2022c), Spain (Manzaneque et al. 2016), Holland (Santen and Soppe 2009; Donker et al. 2009), and the EU (Baklouti et al. 2016). Similarly, in the Chinese context, several previous studies provided evidence of the effectiveness of CG mechanisms in lowering the FDL (e.g., Widhiadnyana and Wirama 2020; Zhou 2019). However, fewer studies have examined the CG–FDL nexus in developing economies compared to in their developed counterparts.

Specifically, in less developed and developing economies, researchers find empirical evidence of the prominence of CG as an antecedent of FDL, such as in Indonesia (Widhiadnyana and Ratnadi 2019), Taiwan (Chen et al. 2020), Kenya (Manduku et al. 2020), and Pakistan (Udin et al. 2017). More relatedly, in MENA countries, Shahwan (2015) and Shahwan and Habib (2020) examined the impact of CG arrangements on FDL among a sample of non-financial listed firms in Egypt. These studies found a negative relationship between corporate governance and the possibility of financial distress. Likewise, Al-Tamimi (2012) found a positive association between CG mechanisms and financial distress in a study applied to the UAE's conventional banks. Most recently, Marie et al. (2021) examined whether internal CG mechanisms are attributed to the financial stability of Egyptian banks. The results of this study indicate that banks' financial strength is positively related to board size, meetings, and gender diversity, whereas board education and managerial ownership negatively influence the financial stability of banks in Egypt. Although there has been a focus on company-level governance's impact on FDL, the current literature lacks any empirical investigation of the expected effect of national governance on FDL.

In brief, extant studies have several limitations. First, so far, studies of FDL in MENA countries, typically within single settings, have mainly concentrated on the impact of corporate-level governance on FDL, mostly in the context of non-financial institutions (Al-Tamimi 2012; Shahwan 2015; Shahwan and Habib 2020). Second, there is a notable gap in the existing body of research that explores the impact of CLG variables on FDL, which cross-country research makes feasible. Appeals to factors such as macroeconomic indicators, industrial information, and country-level governance, considering the homogeneities between MENA economies, thus offer a unique setting for a cross-country study into FDL, as Khoja et al. (2019), Elamer et al. (2020), and Gerged et al. (2021b) have called for. Our study, therefore, addresses the current shortage of existing literature. First, we add to the extant debate by exclusively examining the effects of firm-level and national-level governance structures on banking firms' FDL after the 2007–2008 financial turmoil. Second, using data collected from 106 commercial banks across 14 MENA countries, we address conspicuous gaps in the literature on CG, CLG, and FDL nexuses in emerging economies.

3.2. Hypotheses' Development

In this section, we develop two main sets of hypotheses: (i) in Section 3.2.1, we develop hypotheses regarding the association between firm-level governance (CG) and financial distress, while (ii) in Section 3.2.2, we develop another set of hypotheses about the influence of country-level governance (CLG) factors on FDL.

3.2.1. Corporate Governance and Financial Distress

In the following sections, we discuss the impact of various board characteristics, including board size, independence, board meetings, CED duality, audit committee size, and independence, on the FDL (Section Board Characteristics and Financial Distress). Besides, we discuss and theorize the link between several ownership structures and financial distress, such as managerial ownership and institutional ownership, in Section Ownership Structures and Financial Distress.

Board Characteristics and Financial Distress

The mainstream literature suggests an influential role of board characteristics in reducing the probability of financial distress. For example, a negative correlation between board size and the possibility of financial distress has been found in the USA (Aebi et al. 2012), Spain (Manzaneque et al. 2016), the UK (McNulty et al. 2013), and in an international context (De Andres and Vallelado 2008). Theoretically, board size is associated with its members' ability to monitor the performance of management. Thus, larger boards are expected to be more effective in improving firms' performance and avoiding any potentially risky decisions, preserving the low FDL (Adams and Mehran 2012).

Independence is another board characteristic that also makes firms' boards more knowledgeable and capable of understanding financial transactions' complexity (Gerged and Agwili 2020) and the linked risks that enable boards to avoid making any risky decisions that are expected to pay off for improving firms' financial stability in the future (Garcia-Meca and Sanchez-Ballesta 2010). A stream of previous literature (e.g., Samaha et al. 2012; Dong et al. 2017; Elloumi and Gueyié 2001) indicated a negative relationship between board independence and the probability of banks' financial distress. From an agency theory perspective, independent non-executive directors on banks' boards are expected to effectively monitor managers' behaviour and reduce the asymmetric gap of information between managers and shareholders, decreasing banks' financial distress probability (Akbar et al. 2017).

Board meetings are also used to assess the efficiency and effectiveness of their members (Nuskiya et al. 2021; Adams and Mehran 2012). These frequent meetings would allow directors to debate and exchange their expertise on how to scrutinize managers' strategy; hence, the more regular the meetings, the more robust the control over managers' behaviour, which leads to a negative influence on the possibility of banks' financial distress (De Andres and Vallelado 2008). In this context, agency theory posits a positive link between board meetings and the effectiveness of internal control and supervision, which lowers the banks' prospects of financial distress (Conyon et al. 2011).

The duality of the Chief Executive Officer (CEO) is present in a board when a person occupies the two positions of Chairman and CEO (Prado-Lorenzo and Garcia-Sanchez 2010). From an agency's point of view, holding these powers may raise the risk that the CEO may carry out strategies that focus on his/her benefits, to the organisation's detriment (Jensen and Meckling 1976). Prior studies offer mixed results about the effect of CEO duality on FDL. For example, Dong et al. (2017) and Akbar et al. (2017) found a positive relationship between CEO duality and the FDL of banks. They argue that growing the power of the CEO within the board might result in boards' weak governance and control duties, increasing the cost of applying CG instruments and leading to higher risks of financial distress (Dey et al. 2011). In contrast, Pathan (2009) found a negative relationship between CEO duality and USA banks' financial distress probabilities. Theoretically, CEO duality decreases the cost of exchanging information and lowers the conflicts of interests between the Chairperson and the CEO, establishing direct lines of authority and improving the decision-making process, which, in turn, maintains firms' financial stability (Samaha et al. 2015).

Audit committee characteristics are another board structure that can improve banks' financial stability. For instance, audit committee size and diligence (meetings) might be linked to better financial performance and financial stability in banks (Salloum et al. 2015). Specifically, larger audit committees are associated with more members who have

independent authority, allowing these members to maintain better control over the financial reporting process (Choi et al. 2004), which is also expected to reduce the audit fees paid to external auditors; thus, minimising the FDL of banks (Baxter and Cotter 2009). Theoretically, audit committee size and diligence are believed to reduce the asymmetric information gap and increase firms' market value simultaneously, which in turn decreases the FDL (Samaha et al. 2015; Jiang et al. 2011; Hassan et al. 2017; Carcello et al. 2011).

Based on the arguments above, we posit that board characteristics are crucial determinants of banks' financial distress in emerging economies. We state the first hypothesis as follows:

H1. *There is a negative relationship between board characteristics and commercial banks' financial distress in emerging economies.*

Ownership Structures and Financial Distress

Managerial ownership seems to be positively related to profitability, both reducing banks' risk and decreasing banks' FDL (Calomiris and Carlson 2016). This argument is reinforced by Gerged et al. (2022c), who state that managerial ownership can improve firms' financial performance and lower the likelihood of firms falling into financial distress. From a theoretical point of view, Ashraf et al. (2016) stressed that managerial ownership is a mechanism by which banks seek to tackle agency conflicts and then not make decisions affecting banks' FDL. Ashraf et al. (2016) provided empirical credibility to this notion, suggesting that banks with a higher level of administrative ownership tend to avoid risks and preserve more financial sustainability than those owned by various shareholders.

Likewise, a body of prior studies demonstrates a negative correlation between institutional ownership and FDL (e.g., Widhiadnyana and Wirama 2020; Tabasum et al. 2018). Crucially, institutional ownership seemed to influence how a firm uses its assets so that the possibility of financial distress could be decreased. Theoretically, Dong et al. (2014) argue that institutions have immense expertise that makes them capable of: (i) effectively monitoring the work of the management, (ii) assessing any nonconformities within banks, (iii) preventing the implementation of risky decisions that might influence the FDL of firms, and (iv) most importantly, financially supporting firms during a financial crisis outbreak.

Consequently, we posit that ownership structures are effective mechanisms through which banks can reduce the possibility of financial distress in the future. Hence, we state the following hypothesis:

H2. *There is a negative relationship between ownership structures and commercial banks' financial distress possibility in emerging economies.*

3.2.2. National Governance and Financial Distress

Having described how national governance variables can be operationally defined and how they have been utilised in earlier literature, we can establish our hypotheses' development discussion. Consistent with the perceptions of institutional theory, national governance factors comprise formal restrictions, such as political and economic procedures, laws and regulations, and other constraints on corporate behaviour, and informal rules, including codes of ethics, unwritten social norms, conventions, and values (Schiehll and Martins 2016). National governance indicators may create a setting that justifies—whether for normative, coercive, or mimetic reasons—for corporations to avoid engaging in risky decisions (Elamer et al. 2020). Related to this, Barakat and Hussainey (2013) report that corporations categorised by superior national governance structures in EU countries have a tendency to offer a high-quality risk disclosure. Government effectiveness (GE), as mirrored, for instance, in the quality and enforcement of regulations, tends to have effects on various aspects of a firm's activities in a particular country (Campbell 2007), including corporate risk disclosure (Barakat and Hussainey 2013), firm market value (Enikolopov et al. 2014; Van Essen et al. 2013), banks' risk disclosure (Elamer et al. 2020), and bank efficiency

(Lensink et al. 2008). Thus, this study proposes that national governance indicators are expected to negatively influence financial distress. This hypothesis is tested as follows:

H3. *There is a negative relationship between macro-level governance and the possibility of commercial banks' financial distress in emerging economies.*

4. Research Design

4.1. Data and Sample

Our study population focuses on all banks (i.e., listed and unlisted banks) in MENA stock markets, with full data for the period 2010–2018. We have excluded non-financial institutions for the following reasons. First, the banking industry has heavier financial and governance regulations than other non-financial sectors, which might be differently attributed to their financial distress possibility (Akbar et al. 2017; Shahwan and Habib 2020). Second, in contrast to most studies focusing on non-financial companies, we examined the CG–CLG–FDL nexuses in the banking sector to address an existing empirical gap in the current literature (e.g., Tinoco and Wilson 2013; Mangena et al. 2020; Pindado et al. 2008). Applying these criteria has produced a final sample of 106 banks across 14 MENA economies between 2010 and 2018, leading to a total of 954 bank-year observations. Table 1 shows the sampling procedure used for this research study.

Table 1. Sample distribution by countries.

No.	Country	Number of Banks	Observations	Relative %
1.	Bahrain	11	99	10.38%
2.	Egypt	22	198	20.75%
3.	Israel	8	72	7.55%
4.	Jordan	8	72	7.55%
5.	Kuwait	6	54	5.66%
6.	Lebanon	6	54	5.66%
7.	Oman	6	54	5.66%
8.	Palestine	2	18	1.89%
9.	Qatar	6	54	5.66%
10.	Saudi Arabia	8	72	7.55%
11.	Syria	6	54	5.66%
12.	Tunisia	4	36	3.77%
13.	UAE	12	108	11.32%
14.	Yemen	1	9	0.94%
15.	Total	106	954	100%

The final sample comprises 106 conventional commercial banks (954 observations) in 14 countries for the period from 2010 to 2018.

4.2. Variables

Table 2 shows the measurement of variables in the present study. In testing the research hypotheses, we measured our variables as follows. First, FDL was measured as a dummy variable, taking 1 for financially distressed banks and 0 for non-distressed banks. Specifically, we employed a measure of FDL based on Altman's (1968) Z-Score model, an approach used in several prior studies (Mangena et al. 2020; Tinoco and Wilson 2013). The Z-score is the distance to default, which is calculated as a sum of the return on assets (ROA) plus the Capital Assets Ratio (CAR) scaled by the standard deviation of ROA. A bank is assigned 1 if its Z-score is less than 2.9 and otherwise assigned 0. Second, bank-level governance mechanisms, including the board of directors' characteristics (size, independence, meetings, CEO duality), ownership structures (institutional and administrative ownerships), and audit committee function (size and diligence), were measured by Bloomberg data. Third, country-level governance (CLG) indicators were collected using the World Governance Index (WGI) (Kaufmann et al. 2009, 2011). In this study, two CLG variables were used to run the logistic regression estimation to avoid multicollinearity concerns (Lensink et al.

2008). These indicators are political stability (PS) and government effectiveness (GE) (See Section 2 for further details).

Table 2. The operational definition of research variables.

Variables	Abbreviations	Definitions
Financial Distress Likelihood	FDL	We measured the financial distress likelihood as a dummy variable taking the value of 1 for financially distressed banks and 0 for the non-distressed banks. Specifically, we employed a measure of FDL based on Altman's Z-Score model, an approach used in several prior studies (see Tinoco and Wilson 2013; Mangena et al. 2020). The Z-score is the distance to default, which is calculated as a sum of the return on assets (ROA) plus the Capital Assets Ratio (CAR) scaled by the standard deviation of ROA. A bank with a Z-score less than 2.9 is assigned 1, and 0 otherwise.
Board of Directors Size	BZ	Natural logarithm of the total number of board of directors' members.
Board Meeting	BM	Measured by the number of board of directors' meetings within the year
Board Independence	BIND	Percentage of independent non-executive directors on the board of directors.
CEO Duality	CEOD	Dummy variable, 1 if the CEO is also the Chairman of the board of directors; otherwise, 0.
Institutional Ownership	IOWN	The total number of shares owned by institutions divided by the total number of shares owned by banks
Managerial Ownership	MOWN	A dummy variable which takes "1" if a shareholder with a 5% or more ownership stake has representation on the board of directors, or "0" otherwise.
Audit Committee Size	ACZ	The audit committee size for each bank year is calculated based on the number of people in the audit committee.
Audit Committee Meetings	ACM	The number of audit committee meetings in a year.
Banking Firm Size	FZ (LogTA)	Natural logarithm of total assets of a bank at the end of the year.
Capital adequacy ratio	CAR	Capital adequacy, which is the amount of a bank's core capital, is expressed as a percentage of its risk-weighted assets.
Net Loans/Total Assets	NLoansTA	This ratio indicates what percentage of the assets of the bank are tied up in loans. The higher this ratio, the less liquid the bank will be.
Listed Bank	List	Dummy variable: 1 if the bank is listed in a stock market, 0 otherwise.
Political stability	PS	Political stability and absence of violence/terrorism measures perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism. Its values range between −2.5 (weak) to +2.5 (strong) for governance performance.
GDP Growth Rate	GDP	Annual gross domestic product (GDP) growth rate.
Inflation Rate	Inflation	Inflation rate within countries.
High-Income Countries	HIC	Dummy variable, 1 if a bank is based in a country classified as a high-income nation, 0 otherwise.
Government Effectiveness	GE	Reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
Credit Risk	LLRGR	The ratio of loan loss reserves to gross loans. The higher the ratio, the higher the credit risk.

Additionally, to overcome endogeneity problems associated with variables' omission, we employed several firm-specific characteristics to control for the stated links (Wooldridge 2010), which are consistently chosen with previous studies (e.g., Mangena et al. 2020; Chung et al. 2015; Chen et al. 2020). These controls are operationally defined in Table 2.

4.3. Model Specification

Following previous studies (e.g., Pindado et al. 2008; Tinoco and Wilson 2013; Shahwan 2015; Chung et al. 2015; Chen et al. 2020; Uyar et al. 2022; Mangena et al. 2020), we used the logistic regression to examine the effect of firm-level and country-level governance

structures on financial distress in a developing context, namely the MENA region. A Binary logistic model allowed us to generate the financial distress likelihood (FDL) for each bank to examine the accuracy of this prediction (Mangena et al. 2020; Chung et al. 2015). We estimated a logistic regression model using the maximum likelihood method (MLE), in line with prior work (e.g., Tinoco and Wilson 2013; Chen et al. 2020). We followed Mangena et al. (2020) by using two-year lags of the independent variables in running our logistic models to address the potential existence of endogeneity problems. The specifications of the Logit model are stated as follows:

$$
\begin{aligned}
FD_{it} = \beta_0 + \beta_1 BZ_{it-2} + \beta_2 BIND_{it-2} + \beta_3 BM_{it-2} + \beta_4 CEOD_{it-2} + \beta_5 IOWN_{it-2} + \beta_6 MOWN_{it-2} + \\
\beta_7 ACZ_{it-2} + \beta_8 ACM_{it-2} + \beta_9 PS_{it-2} + \beta_{10} GE_{it-2} + \beta_{11} CONTROL_{it-2} + \varepsilon_{it}
\end{aligned}
\tag{1}
$$

where FDL is financial distress, BZ is board size, BIND is board independence, BM is board meetings, CEOD is chief executive officer duality, IOWN is the institutional ownership, MOWN is the managerial ownership, ACZ is the audit committee size, ACM is audit committee meetings, PS is political stability and no violence, and GE is government effectiveness. Controls are the control variables, and they are as follows. The list is the listing status of a bank, BZ is bank size, NLoanTA is the national loan to total assets ratio, HIC is high-income countries, inflation is the level of inflation in a country, GDP is the gross domestic product, CAR is the capital adequacy ratio, and LLR/GR is the credit risk of a bank.

5. Empirical Analysis

5.1. Univariate Analysis

Table 3 illustrates descriptive statistics for the selected sample. The full sample shows comparable statistics to prior studies concerning bank risk indicators (Mollah and Zaman 2015). As Table 3 shows, the mean of the FDL is 0.236, which is substantially lower than that reported in developed and developing countries around the world. For example, using a similar proxy for FDL to our study, Mangena et al. (2020) reported a mean value of 0.75 for a sample of Spanish companies' financial distress. Likewise, Baklouti et al. (2016) reported a comparable mean value for commercial banks' FDL in the EU. This implies that banks in MENA economies are financially more stable than their European counterparts.

Table 3. Descriptive statistics for variables in the main tests.

Variable	Observations	Mean	SD	Min	Max
FD	954	0.236	0.425	0	1
BZ	954	9	0.095	5	15
BIND	954	0.625	0.206	0.083	1
BM	954	7	0.15	3	16
CEOD	954	0.112	0.316	0	1
IOWN	954	0.794	0.201	0.252	1
MOWN	954	0.301	0.459	0	1
ACZ	954	4	0.094	2	6
ACM	954	5	0.137	2	11
PS	954	−0.676	1.007	−3.002	1.224
GE	954	0.094	0.797	−2.244	1.51
List	954	0.651	0.477	0	1
FZ	954	5.479	0.284	5.001	6.376
NLoansTA	954	49.904	18.98	0	84.44
HIC	954	0.537	0.499	0	1
GDP	954	0.035	0.016	−0.002	0.076
Inflation	954	0.03	0.079	−0.134	0.214
CAR	954	0.174	0.041	0.085	0.284
LLRGR	954	6.698	8.657	0.211	100

Note: Table 3 presents descriptive statistics of all variables used in the regression models of the study. The sample period is between 2010 and 2018. The SD is the standard deviation. Min and Max are the minimum and maximum values of each variable, respectively. The N is the number of bank-year observations. See Table 2 for the variables' operational definitions.

Table 3 shows that the average size of the board of directors (BZ) is approximately nine members. This finding is in line with CG provisions adopted in Egypt since 2011, which dictates that the minimum number of members on the board should be at least five, which is applied by all banks in the MENA region. Table 3 likewise reports that the mean value of independent directors (BIDP) is 62%, indicating that two-thirds of the board members are independent non-executive directors, meaning that institutions mainly finance most banks, so they appoint non-executive members to monitor managers' behaviour and support those decisions that can maximize the wealth of the owners and maintain the financial stability of the banks. Furthermore, Table 3 indicates that the directors' average meetings (BM) are held roughly seven times. Crucially, six annual meetings are held for the board of directors to address problems as they happen to prevent financial troubles and maintain the financial stability of these banks.

Furthermore, it was noted that the average value of institutional ownership (IOWN) is 79% of the overall ownership structure of the sampled banking institutions. This shows a reliance on public and private institutions in financing banks in the MENA context. In other words, this result reflects MENA banks' great reliance on institutional investors in setting up their ownership structure. Besides, we found that managerial ownership (MOWN) on average accounts for 30% of the ownership structure of banks in the MENA region. Notably, the mean size of audit committees (ACZ) among MENA banks is four members. This result is aligned with the governance rules in banks that state that the audit committee's composition should be not less than three members. Moreover, the mean number of annual meetings for the audit committee members (ACM) is five yearly meetings.

For control variables, the mean value of bank size (LogTA) is 5.48, while the average CAR ratio in the sampled banks is about 16.6%. Specifically, the CAR level varies between 8.5% and 28.6%, which means that banks in the MENA regions have a strong CAR ratio. This average is equal to that reported in Basel I, II, and III, 1988, 2004, and 2010, which are 8%, 8%, and 10.50%, respectively. The low value of standard deviation (SD) of our variables indicates a high level of stability among these variables during the time horizon of the study (2010–2018).

5.2. Bivariate Analysis

Table 4 shows the correlations matrix for the main variables to test the assumption of multicollinearity. It reports the coefficients of correlation. The nature of the coefficients indicates that any residual non-normal distribution in the variables of this study may be mild, and they are similar to those reported in prior studies (e.g., Fernandes et al. 2019; Giannarakis et al. 2020). Besides, VIF has been tested separately. The finding suggests that multicollinearity is not a major concern that can affect the rigour of the current study results.

Table 4 presents the Pearson correlation coefficients of all dependent and independent variables for the full sample. The correlation matrix shows the correlation between the Z-score, its explanatory variables, and the correlations, among other variables. All correlations are in line with expectations, and the matrix of the correlation coefficients affirms that multicollinearity does not appear to be a severe statistical problem. On top of this, VIF has been conducted separately, and the result indicates that multicollinearity does not appear to be a serious statistical concern that can affect the robustness of our results. The correlation matrix shows no multicollinearity between independent variables, with no correlation greater than 0.8 (Gujarati 2003).

Table 4. Pearson pairwise correlation matrix: full sample.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) FD																			
(2) BZ	0.178 *																		
(3) BIND	−0.132 *	−0.142 *																	
(4) BM	−0.167 *	0.248 *	0.076 *																
(5) CEOD	−0.014 *	−0.033 *	0.022 *	−0.112 *															
(6) IOWN	0.049 *	−0.140 *	−0.152 *	−0.242 *	0.0114 *														
(7) MOWN	−0.054 *	0.144 *	−0.026 *	−0.104 *	−0.359 *	−0.357 *													
(8) ACZ	−0.214 *	0.314 *	−0.085 *	0.232 *	0.077 *	−0.011 *	−0.010 *												
(9) ACM	−0.226 *	0.247 *	−0.038 *	0.524 *	−0.049 *	−0.175 *	0.191 *	0.191 *											
(10) PS.	−0.153 *	−0.042 *	0.070 *	0.0468	−0.047 *	−0.037 *	0.083 *	0.200 *	0.1997 *										
(11) GE	0.299 *	0.120 *	−0.022 *	0.203 *	0.064 *	−0.129 *	0.222 *	0.440 *	0.719 *	0.719 *									
(12) List	0.193 *	0.288 *	−0.099 *	0.003 *	−0.160 *	0.260 *	0.201 *	0.016 *	0.212 *	0.033 *	0.034 *								
(13) FZ.	−0.093 *	0.121 *	−0.0368	0.031 *	−0.021 *	−0.0768	0.175 *	0.016 *	0.040 *	0.058 *	0.051 *	0.0538 *							
(14) NLoansTA	0.269 *	0.230 *	−0.044 *	0.193 *	−0.025 *	−0.0338	0.254 *	0.398 *	0.619 *	0.557 *	0.206 *	0.068 *	0.068 *						
(15) HIC	0.286 *	−0.054 *	0.089 *	0.159 *	−0.032 *	−0.133 *	0.167 *	0.361 *	0.673 *	0.765 *	0.074 *	0.063 *	0.503 *	0.505 *					
(16) GDP	−0.030 *	−0.093 *	0.133 *	0.106 *	−0.022 *	−0.080 *	0.018 *	0.041 *	0.203 *	0.144 *	−0.034 *	0.054 *	0.105 *	0.224 *	0.2252 *				
(17) Inflation	−0.287 *	−0.034 *	0.023 *	−0.016 *	−0.016 *	0.040 *	−0.079 *	−0.160 *	−0.327 *	−0.415 *	−0.091 *	0.007 *	−0.256 *	−0.461 *	0.059 *	0.059 *			
(18) CAR	−0.109 *	−0.267 *	0.075 *	−0.221 *	−0.005 *	0.160 *	−0.039 *	−0.185 *	0.120 *	0.032 *	−0.058 *	0.031 *	−0.108 *	0.159 *	0.044 *	0.001 *	0.0015 *		
(19) LLRGR	−0.144 *	−0.227 *	−0.032 *	−0.096 *	−0.1088	0.185 *	−0.215 *	−0.211 *	−0.392 *	−0.419 *	−0.064 *	−0.009 *	−0.459 *	−0.256 *	−0.071 *	0.138 *	0.254 *	0.254 *	

Notes: Table 4 presents the pairwise correlation between all variables used in all the regression models for the full sample. The table reveals the absence of a high correlation between the key variables. The variance inflation factors (VIFs) also show no multicollinearity problems among the regressors. There is no coefficient value higher than 80% between the explanatory variables, as the pairwise test shows. Additionally, there is no VIF value for each variable that has a high value. * Significance at the 0.05 level. See Table 2 for variable definitions.

5.3. Logistic Regression Analysis

5.3.1. CG and CLG Structures and FDL

Table 5 presents the results of estimating three models to examine the CG–CLG–FDL link in the context of MENA banks. Table 5, Model 1 shows the results of running the main model in our study, which was the logistic regression model, while Model 2 presents the findings of conducting a Probit model as an additional check. Additionally, Table 5, Model 3 displays the results of a two-stage Heckman regression as an endogeneity check.

Model 1 indicates that BZ is negatively and significantly associated with the likelihood of financial distress at a 1% significance level. This finding agrees with the findings of some prior CG-to-FDL studies (e.g., Adams and Mehran 2012; Berger et al. 2016) that argue that a large board can lead to reducing the FDL. For example, a negative nexus has been reported between BZ and FDL in Spain (Manzaneque et al. 2016) and in the UK (McNulty et al. 2013). Arguably, BZ plays an important role in improving banks' transparency, which is expected to reduce information asymmetry and lower the FDL of MENA banks.

Table 5. The impact of multi-level governance on financial distress predictions in the context of MENA banks.

	(1) Logistic Model	(2) Probit Model	(3) Two-Stage Heckman Model	
	Model 1	Model 2	Stage One Model 3	Stage Two Model 4
CGC	-	-	-	−2.531 **
				(1.37)
BZ	−2.091 ***	−4.847 ***	−3.872 ***	−0.415 **
	(1.07)	(0.639)	(0.397)	(0.202)
BIND	−2.277 ***	−1.369 ***	−0.665 ***	−0.265 ***
	(0.564)	(0.312)	(0.241)	(0.073)
BM	−1.531 **	−0.92 *	−1.825 ***	−0.317 ***
	(0.937)	(0.515)	(0.431)	(0.022)
CEOD	−1.206 ***	−0.732 ***	−1.035 ***	−0.217 ***
	(0.369)	(0.215)	(0.172)	(0.051)
IOWN	−.352	−0.228	−0.896 **	−0.091
	(0.597)	(0.334)	(0.365)	(0.085)
MOWN	−0.96 ***	−0.502 ***	−0.526 **	−0.127 ***
	(0.305)	(0.168)	(0.22)	(0.038)
ACZ	−2.964 **	−1.422 *	−0.294	−1.436 *
	(1.439)	(0.776)	(1.079)	(0.778)
ACM	0.375	0.075	−1.761 ***	−0.189
	(1.093)	(0.593)	(0.513)	(0.141)
PS	−0.047	−0.017	−0.203 ***	−0.056 **
	(0.207)	(0.116)	(0.051)	(0.026)
GE	−0.157 **	−2.291 ***	0.14	−2.291 ***
	(0.065)	(0.052)	(0.138)	(0.552)
List	−0.639 ***	−0.387 ***	0.363 **	−0.129 ***
	(0.241)	(0.14)	(0.174)	(0.035)
FZ	0.925 **	0.534 ***	−0.615 ***	0.539 ***
	(0.368)	(0.205)	(0.155)	(0.251)
NLoansTA	−0.007	−0.004	0.006 *	−0.002 **
	(0.008)	(0.004)	(0.003)	(0.001)
HIC	−1.171 ***	−0.66 ***	1.053 ***	−0.129 **
	(0.403)	(0.225)	(0.17)	(0.056)
GDP	5.862	3.487	−1.241	−0.895
	(6.321)	(3.656)	(0.943)	(0.914)
Inflation	3.393 **	1.981 **	−0.429	0.568 ***
	(1.632)	(0.898)	(0.333)	(0.22)
CAR	−8.53 ***	−4.632 ***	−1.276	−4.613 ***
	(2.707)	(1.567)	(1.39)	(1.392)
LLRGR	−0.026	−0.014	0.013 ***	−0.001
	(0.016)	(0.009)	(0.002)	(0.002)
_cons	−5.898 **	−3.344 **	0.568 ***	−3.191 **
	(2.531)	(1.422)	(0.007)	(0.347)
Lambda	-	-	-	0.157 **
				(0.065)
Observations	739	739	674	954
Pseudo R²	0.214	0.212	-	-

Note: Table 2 presents the operational definitions of the research variables. In running the logistic and the Probit models, we used two-year lagged versions of all research variables to reduce the possibility of endogeneity problems. Standard errors are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Likewise, our findings suggest that board independence (BIND) negatively correlates with FDL at a 1% significance level (see Model 1 of Table 5). This finding also aligns with some prior studies (e.g., Shahwan and Habib 2020; Samaha et al. 2012; Dong et al. 2017; Akbar et al. 2017). Theoretically, independent directors on a bank's board are expected to effectively monitor the behaviour of management and aim at reducing the FDL to protect shareholders' funds. Additionally, they perform effective scrutiny because their value in the market is highly reliant upon their performance as monitors (Fama and Jensen 1983).

Our results suggest a negative association between board meetings (BM) and FDL, although at a 5% significance level. This finding is again in line with some previous studies (e.g., De Andres and Vallelado 2008; Conyon et al. 2011; Liang et al. 2013; Dong et al. 2017). Agency theory suggests that board meetings indicate board effectiveness, reducing the FDL (Conyon et al. 2011; Liang et al. 2013).

Besides, our findings indicate a negative association between CEO duality and the FDL in MENA banks at a 1% significance level (refer to Table 5, Model 1). Our study shows that more powerful CEOs seemed to engage in less risky investments to decrease their banks' probability of being financially distressed in an effort to be seen as successful and increase their pay prospects or tenure. This result agrees with a shred of earlier evidence that found that CEO duality might reduce the information exchange costs, which ultimately lowers the conflicts of interest between the Chairperson and the CEO, improving the decision-making function and leading to reducing the likelihood of financial distress of financial firms (Pathan 2009; Samaha et al. 2015).

Concerning the audit committee function, our results are two-fold. First, ACZ is negatively linked with FDL. Our empirical evidence is consistent with prior studies (e.g., Choi et al. 2004; Baxter and Cotter 2009; Jiang et al. 2011; Salloum et al. 2015; Samaha et al. 2015) that indicate that large audit committees effectively monitor managerial opportunistic behaviour, reducing agency-related conflicts and hence lowering the FDL of banks. Second, ACM has an insignificant relationship with FDL in MENA banks (see Model 1 of Table 5). Our evidence opposes earlier work (e.g., Hassan et al. 2017; Carcello et al. 2011) that indicates that frequent ACMs help maintain the control function and decrease the FDL of these financial institutions.

In contrast, the noted insignificant association between ACM and the FDL in our results raises doubts that the ACM mechanism does not reduce the prospects of financial distress for MENA banks. We argue that the characteristic of meeting frequency, which the policymakers in the MENA region believe would enhance the effectiveness of audit committees in undertaking their financial oversight duties, does not appear to yield an intended outcome. A body of empirical CG research in developing economies gives credibility to our results, such as Rahmat et al. (2009).

All the findings mentioned above indicate that H1 has been statistically accepted. Specifically, our results show that board characteristics are effective mechanisms by which banks in emerging economies can reduce the FDL.

Regarding the ownership structure–FDL nexus, our findings are heterogeneous. First, IOWN is insignificantly linked with FDL. At the same time, our results approve the expected negative association between managerial ownership (MOWN) and FDL in MENA banks at a 1% significance level. Our evidence on the IOWN–FDL nexus is, on this occasion, not consistent with earlier studies, such as Ashraf et al. (2016) and Dong et al. (2014). Second, we found a negative relationship between managerial ownership (MOWN) and FDL, though at a 5% significance level (see Model 1 of Table 5). Our results are in line with previous studies that suggest that managerial ownership can be used as a tool to alleviate agency-related conflicts within banks, which reduces the conflict between shareholders and managers and ultimately lowers the FDL of banks (Aebi et al. 2012; Samaha et al. 2012; Calomiris and Carlson 2016; Ashraf et al. 2016). This gives partial statistical approval to H2. Specifically, although managerial ownership is negatively attributed to the FDL of banks in MENA economies, institutional ownership is not.

When it comes to examining the role of institutional factors in reducing the prospects of financial distress, our study adds to this continuing controversy by examining the effects of national-level governance indicators on the FDL in the context of MENA banks, mainly political stability (PS) and government effectiveness (GE). First, we examined the PS–FDL nexus. Model 1 of Table 5 shows that PS cannot predict the FDL. We argue that the low qualities of national governance structures across MENA countries might have served as a disincentive actor for banks to be committed to regulations, which, in turn, is expected to negatively affect banks' accountability and lead to either increasing or not affecting the FDL (Elamer et al. 2020). Second, our evidence suggests that government effectiveness (GE) is negatively attributed to the FDL in the MENA banking context. This result is tied to earlier work highlighting the importance of governmental regulations and pressures on corporations to enhance their accountability (e.g., Ioannou and Serafeim 2012), which, we believe, can reduce the probability of financial distress. These findings align with the institutional theory that the institutional structures supporting CG have important implications for FDL (see Mangena et al. 2012; Mangena et al. 2020). Crucially, regulative forces, such as a robust regulatory and governmental system, are believed to enhance financial performance (Gerged et al. 2022a), which contrarily affects FDL (Chanda et al. 2017). Corresponding to this view, weak governmental effectiveness and a politically unstable environment can reversely influence FDL in developing economies (Mangena et al. 2012), which is evident in our study.

This evidence indicates an impact of macro-governance on the FDL of banks in MENA countries, which gives partial empirical approval to H3.

Although not the primary concern of our study, Model 1 of Table 5 presents that some control variables also have negative associations with the FDL. For example, MENA-listed banks are more financially secure than the unlisted ones. Similarly, high-income countries' (HIC) banks are unlikely to be financially distressed. Likewise, the capital adequacy ratio (CAR) is negatively associated with the FDL at a 1% level among the sampled MENA banks.

5.3.2. Additional Checks

The findings in Model 1 of Table 5 align with the notion that bank-level and national-level governance indicators are, to an extent, effectively reducing the likelihood of financial distress in MENA banks. Though, it is probable that there is an alternative understanding of these findings. In this section, we check the robustness of our findings. First, to check the sensitivity of using a logistic model, we strengthened our results by conducting a Probit model, an analysis also used in prior studies (see Pindado et al. 2008; Tinoco and Wilson 2013). The findings of running a Probit model are reported in Table 5, Model 2. Reassuringly, the results of Model 2 are considerably comparable with those obtained using the logistic model in Model 1 of Table 5.

Second, we have used two-year lagged versions of our independent variables (i.e., bank-level and national-level governance indicators) to address the possible occurrence of endogeneity concerns. However, some may argue that lagging independent variables might not be a sufficient and effective procedure. Therefore, following prior studies, we addressed this problem by carrying out a two-stage Heckman mode (Heckman 1979; Mangena et al. 2020; Chung et al. 2015). The first stage of conducting the two-stage Heckman model is a Probit model that employs three-year lagged values of CG characteristics as instruments to estimate the self-selection bias effect on the potential of financial distress. The dependent variable in the first stage is a newly created dummy variable that represents the banks' corporate governance compliance (CGC), which equals one if the bank fully adheres to CG provisions of its country and equals zero otherwise. The inverse-Mills ratio (Lambda) is computed from the first stage to measure the self-selection bias effect. See Equation (2) below:

$$CGC_{it} = \beta_0 + \beta_1 BZ_{it-3} + \beta_2 BIND_{it-3} + \beta_3 BM_{it-3} + \beta_4 CEOD_{it-3} + \beta_5 IOWN_{it-3} + \\ \beta_6 MOWN_{it-3} + \beta_7 ACZ_{it-3} + \beta_8 ACM_{it-3} + \beta_9 PS_{it} + \beta_{10} GE_{it} + \beta CONTROL_{it} + \varepsilon_{it} \tag{2}$$

In the second stage, we utilised the fitted value of CGC from the first stage to estimate the effect on financial distress. In the second stage, financial distress (FD) is the dependent variable. See Equation (3) as follows:

$$FD_{it} = \beta_0 + \beta_1 CGC_{it} + \beta_2 BZ_{it} + \beta_3 BIND_{it} + \beta_4 BM_{it} + \beta_5 CEOD_{it} + \beta_6 IOWN_{it} + \\ \beta_7 MOWN_{it} + \beta_8 ACZ_{it} + \beta_9 ACM_{it} + \beta_{10} PS_{it} + \beta_{11} GE_{it} + \beta CONTROL_{it} + \varepsilon_{it} \tag{3}$$

Variables are operationally defined in Table 2. The findings of the two stages of estimating the two-stage Heckman regression model are presented in Table 5: stage one in Model 3 and stage two in Model 4. These results are broadly comparable with those of Model 1 in Table 5.

In brief, our findings were statistically consistent across all these robustness tests; hence, we are reasonably confident that our results in the main model are robust.

6. Conclusions

After the 2007–2008 global financial crisis, the increasing possibility of firms falling into financial distress has been growing, subject to empirical research. Although it has become evident that CG mechanisms, such as board structures and ownership structures, are important determinants of the FDL, the variances across countries indicate that CLG indicators are similarly imperative—a view that neo-institutional theory, with its assumptions of isomorphic forces, would emphasize. Some critics consider variations between countries regarding the legal system, culture, or religion. However, there is a propensity for these factors to play the role of ad hoc explanations. Considering their shared cultural, legal, and religious features, MENA countries offer a perfect setting for a more robust investigation of the role of country-level governance indicators in stimulating or inhibiting banks' financial distress. Specifically, we used the country-level governance of the World Governance Index (WGI) and the traditional CG mechanisms as antecedents for the FDL of banks in MENA economies.

Our results broadly confirmed that CG's internal mechanisms reduce the FDL among a sample of banking firms in the MENA region. Our findings also suggest that government effectiveness (GE) possesses explanatory power regarding the FDL of banks across 14 MENA countries. However, political stability cannot predict the likelihood of financial distress in the region. Further studies may be required to understand why the association of CLG indicators with FDL is not consistently significant across various variables. Still, we propose that, while coercive forces are likely to be associated with GE, other factors may not be consistent but incite a mimetic counter-response from the banking industry.

Our paper extends the ongoing debate as follows. First, we presented new insights regarding the effect of CG on the FDL of banks from emerging economies. Second, our study contributes to the current literature about the country-level determinants of FDL by exploring the possible relationship between CLG factors and FDL. Third, we used a multi-theoretical framework to interpret and explain the CG–CLG–FDL nexus in emerging countries.

Moreover, our findings provide practical implications for policymakers and regulators. Specifically, our empirical evidence implied that bank-level and national-level governance mechanisms can effectively predict the FDL in the context of banking institutions in emerging economies. Thus, we reiterate the necessity of developing more effective CG compliance regimes for banks across MENA countries to achieve regional financial stability. Additionally, we encourage policymakers to pay sufficient attention to developing higher-quality macro-governance indicators, such as governance effectiveness through effective laws and regulations, to lower the FDL of banks in the region.

Although our study has been thoroughly conducted, a few limitations should be acknowledged. Our study was confined to banking institutions across MENA countries. Future studies are therefore recommended to extend our evidence by bringing up new insights into the association of multi-level governance structures with FDL among non-financial institutions across other developed and developing economies. Additionally,

as our investigation was completely reliant upon archival data, future research might look beyond archival analysis methods to explore FDL's determinants and consequences based on behavioural and sociological approaches, such as case studies, interviews, and questionnaires (Abualigah et al. 2022; Zahoor and Gerged 2021). Additionally, in line with recent literature (e.g., Albitar et al. 2020b; Gerged 2021b; Saeudy et al. 2022), we recommend further exploration of the determinants and consequences of FDL during and beyond the COVID-19 conditions. We hope our analysis process provides an insightful precedent when such studies are undertaken.

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