

THE IMPACT OF CORPORATE GOVERNANCE MECHANISMS ON RISK DISCLOSURE

Aws AlHares^{*}, Osama M. Al-Hares^{**}

^{*} Corresponding author, School of Business Management and Information Technology, College of the North Atlantic in Qatar, Qatar; and Department of Accountancy and Finance, Business School, University of Huddersfield, the UK
Contact details: Department of Accountancy and Finance, Business School, University of Huddersfield, Queensgate Campus, Queensgate, Huddersfield, HD1 3DH, the UK

^{**} University of Wollongong in Dubai, the UAE



Abstract

How to cite this paper: AlHares, A., & Al-Hares, O. M. (2020). The impact of corporate governance mechanisms on risk disclosure [Special issue]. *Corporate Ownership & Control*, 17(4), 292-307. <http://doi.org/10.22495/cocv17i4siart7>

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ISSN Online: 1810-3057

ISSN Print: 1727-9232

Received: 22.06.2020

Accepted: 05.08.2020

JEL Classification: G34, G38, G30, G32, M41, M48, M40, O32, D81

DOI: 10.22495/cocv17i4siart7

The current study evaluated the influence of corporate governance mechanisms (CGM) from 130 banks from 13 Middle East and North Africa (MENA) countries. The goal was to analyze their risk disclosure practices from 2012-2019 and understand the impact of corporate governance (CG) on the level of bank risk disclosure. The current findings reveal a positive association between the level of bank-risk disclosure and 1) the presence of Sharia supervisory board; 2) the ownership of structure at the bank level; and 3) control of corruption at the country-level. The study has implications for developing, implementing, and enforcing governance standards at the corporate and national levels that are relevant to corporate boards, investors, governments, and regulatory authorities.

Keywords: Corporate Governance, Risk Disclosure, Banks, MENA Countries

Authors' individual contribution: Conceptualization - A.A.; Methodology - A.A. and O.M.A.; Writing - A.A. and O.M.A.; Visualization - A.A.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

1. INTRODUCTION

In the global banking sector, risk management, risk disclosure, and good governance structures gained much importance following the 2007/2008 financial crisis (AlHares, Ntim, Al-Hares, & Al Abed, 2018). Nur Probahudono, Tower, and Rusmin (2013) reported that the 2007/2008 crisis was characterized by low levels of risk disclosure. In general, when risk disclosure is at a low level there is limited information available. The limited information compromises the economic decision making of external users and their judgments (Cabedo & Tirado, 2004). External users deserve accurate information regarding the risks a firm assumes to generate its value. However, very few studies have focused on how risk disclosure affected the firm-level governance structures (Elshandidy & Neri, 2015).

Risk disclosures in financial statements became

even more relevant after the financial crisis occurred in 2007/2008. During that period, accounting irregularities of many different companies (e.g., Parmalat and Enron) became evident. Consequently, stakeholders began to distrust on the financial statements of companies (Atan & Maruhun, 2009; Hill & Short, 2009). To avoid the development of public distrust, firms need to improve their communication and regulators.

Many factors affect the bank's disclosure practices, such as religion (Chan-Serafin, Brief, & George, 2013), culture, and national governance, and, therefore, become influential in business operations and decisions (Ullah, Jamali, & Harwood, 2014). This phenomenon is particularly relevant for the financial sector in Middle East and North Africa (MENA) countries where many financial institutions follow the cultural and religious contexts, such as the Islamic banks, where Shariah boards influence the bank risk disclosure. Previous studies highlighted that Shariah boards could influence the

quality of bank risk disclosure (Safieddine, 2009) and add another governance layer. Ultimately, these macro-social factors can improve performance and so attract external resources to the banks. However, previous studies focused mainly on non-financial corporations and, despite the critical role played by the Islamic cultural values, studies on the banking sector in MENA countries remain rare. To fill this research gap we research how Sharia board impacts the risk disclosure practices in MENA countries. This is especially concerning since the 2007/2008 financial crisis had an impact on stock markets.

Despite some studies previously recognized that corporate governance mechanisms (CGM) impact bank risk disclosures (Giner, Allini, & Zampella, 2020), the field remains largely unexplored for the impact of Islamic culture. Islamic governance consists of the corporate governance mechanisms that follow the cultural and religious principles of Islam. Sharia supervisory board (SSB) is a form of Islamic governance and an essential internal CG mechanism that is rooted in Sharia principles and rules. Recognising the international standards for financial reporting as stipulated in Basel Accords for transparency in risk management, this study examines the risk disclosure practices in the 13 MENA countries.

Based on the theory, the expectations are that governance structures at both levels of firm and country would interfere in bank risk disclosure. First, according to resource dependence theory (RDT), in order to increase finance and business contracts, boards, important resources, and shareholders of banks will increase the level of risk disclosure (AlHares, Ntim, & King, 2018; Pfeffer & Salancik, 1978). Islamic banks, through their SSB, may obtain more resources legitimisation of their operations and performance (Abedifar, Giudici, & Hashem, 2017; Drees & Heugens, 2013). Besides, banks can attain a risk of higher internal organisational efficiency through better management and risk disclosure. By continually improving risk management and disclosure, banks could improve their performance. Finally, high levels of risk disclosure also suggest better risk management and compliance with IFRS regulations and Basel Accords and improve the banks' reputation.

This study of MENA countries is important because of their uniqueness. First, these countries similar to other emerging markets in that they have concentrated power in CEO, limited independence of the board, and disclosure practices (Hassan, Romilly, Giorgioni, & Power, 2009). Second, the governments and regulatory authorities of many MENA countries reformed their measures and require that banks start to report their practices in risk management. Third, there are Islamic banks (IBs) and dual banks (DBs) with distinct accounting practices (Mollaha & Zaman, 2015). Despite the improvements, several challenges still persist in agency, governance and management, due to the fact that these banks also have to face two distinct internal CG structures, with one made up of a traditional board of directors and the other with an Islamic governance committee, ensuring agreement with the Sharia (Mollaha & Zaman, 2015; Safieddine, 2009). Only a few researchers studied how SSB impact bank risk disclosures. Finally, MENA banks attracted much

attention and foreign investment (Neaime, 2016), while banking sector in MENA countries has distinctly concentrated ownership structures, based primarily on family and/or government (Neaime, 2016). This, therefore, makes this an exciting environment in which to study how risk disclosure relates to the ownership structure.

The current study, therefore, aims to contribute to increasing the available knowledge on how concentrated ownership type affects risk disclosures. Based on this uniqueness of MENA countries, this study focused on the effect of SSB, ownership, at the firm-level and the country-level on bank risk disclosure. First, using RDT, this study evaluated how the level of bank risk disclosure responds to the presence of SSB and how Shariah boards influence the quality of bank risk disclosure (Safieddine, 2009). Moreover, it also provides evidence that Shariah boards can add another governance layer, thereby improving performance and so attract external resources to the banks. Second, the study shows the importance of ownership structures in including the level of risk disclosure. Third, the study also shows how country-level factors can influence the level of risk disclosure, thereby helping investors and regulators to have a better grasp of how country governance can affect disclosure level.

The current paper is organized as follows: Section 2 shows the literature review and hypotheses. Section 3 presents the research methodology. Section 4 demonstrates the research results. Section 5 presents the discussion of results. The study conclusion is provided in Section 6.

2. LITERATURE REVIEW AND HYPOTHESES

Worldwide, the financial crisis in 2007/2008 made evident the weaknesses in disclosure practices and operational risk management. Moreover, the structures of corporate governance (CG) within the banking sector also showed deficiencies in managing operational. However, operational risk management and disclosure practices also dependent on the social context, as is the case of Islamic banks in MENA countries. Islamic banks in MENA face unique challenges not only because of their political turbulence. Islamic banks are subjected to Islamic compliance and, therefore, should follow Islamic rules and regulations (Abedifar, Molyneux, & Tarazi, 2013; Izhar & Asutay, 2010; Mokni, Echchabi, Azouzi, & Rachdi, 2014). This distinct characteristic poses stronger challenges to operational risk management challenges compared to their conventional banks (Abedifar et al., 2013; Mokni et al., 2014; Mollah & Zaman, 2015). Such differences create a dual banking paradigm for MENA countries and likely influence their operational risk management and disclosure practices. These differences could explain the resilience showed by Islamic banking to financial crises. Previous studies showed that Islamic banks experienced fewer deposit withdrawals, higher capitalisation, and better stock market performance than in other banking systems (Farooq & Zaheer, 2015).

Therefore, the 2007/2008 financial crisis revealed the crucial role played by risk management and disclosure in the world's financial sector, considering various large global bank failures

(Ozturk, 2014). One approach is in terms of the adverse effects of risk, e.g., potential losses and threats (Bessis, 2002). Another approach combines different forms of risk (favourable and unfavourable) (IRM 2002, COSO 2004, ISO 2009, IAS 32 and 39, IFRS 7), which is much more comprehensive. The current study uses the more comprehensive approach, and defined risk in terms of volatility, uncertainty, and exposure, changing the expected outcome, and leading to potential gains or losses is more characteristic of the banking environment, with its provision of financial services.

Within the MENA region, the Arab countries present many differences in their legal system, income per capita, legal systems, reforms, and levels of economic development. As emerging market economies, they face similar challenges such as weak CG practices, poor transparency, concentrated ownership structures, limited board independence, and disclosure practices. Besides, banks are required legally, ethically, and morally obligations to control their risks to secure their stakeholders' investments. Consequently, using sound CG practices helps in increasing transparency and legitimising their activities.

Over the years, MENA countries improved their CG practices to attract international investors, through introducing codes of CG. With its strategic location on four important and international trade routes (Bitar, Saad, & Benlemlih, 2016), these countries experience social, economic, and political instability. Consequently, studies on the CG mechanisms become crucial to understand how those countries are tackling their current challenges and identify their approaches. Therefore, the current study will throw light on whether CGM is less or more important in these countries, such as Algeria, Kuwait, and Morocco, with social, political, and economic difficulties and the implications.

Resource dependence theory deals with how firms and/or organisations, supported and constrained by external resources (Oliver, 1991), reduce uncertainty and external interdependence (Pfeffer & Salancik, 1978), by obtaining essential resources. RDT is based on organisations being open systems, acquiring and securing critical external resources (Durand & Jourdan, 2012; Pfeffer & Salancik, 1978). Resource dependence theory suggests that SSB enhance operational risk disclosure by allowing Islamic banks to obtain essential resources (Pfeffer & Salancik, 2003). Banks must, therefore, manage their risks by obtaining a steady flow of financial capital, deposits, and legitimacy, resources critical to support long-term growth (Pfeffer & Salancik, 1978).

Corporate governance mechanisms impact risk disclosure. Results of Elamer, AlHares, Ntim, and Benyazid (2018) showed that social factors, such as religion, determine the quality of disclosure, which have important implications for risk management in financial markets. In MENA countries, it creates a dual banking paradigm. Islamic banks' operations follow the principles in the Islamic religion and laws that originated from the Shariah, such as the prohibition of interest ("*usury*" or "*riba*"). Consequently, Islamic governance meets the expectations of the society, shareholders, and stakeholders (Abu-Tapanjeh, 2009; Elghuweel, Ntim, Opong, & Avison, 2017). Thus, Islamic governance

likely influences decision making and risk disclosure practices.

Adoption of IFRS and Basel Accords as disclosure practices to reduce risk management helps to increase the banks' operational efficiencies and performance, and reduce the severity of future financial crises, thereby providing a competitive advantage. The Basel Accords consider three types of risks: 1) credit, 2) market, and 3) operational. To reduce these risks, banks should reserve adequate capital resources to handle any unexpected losses. IFRS also classify risks and provide a framework for disclosure, especially financial risks. Therefore, adoption can reduce costly mandates, can promote scrutiny of internal operations, and the employees become more involved in the issues of risk management, thereby promoting strategic objectives. RDT also deals with risk disclosure as an indication of how the compliance to Basel Accords and IFRS regulations improved risk management, which ultimately increases the bank's reputation.

Banks may increase risk disclosure, and boards and shareholders may increase the quality of risk disclosure through external resources (Pfeffer, 1987; Pfeffer & Salancik, 1978). For the Islamic banks, SSBs promote greater confidence in risk disclosure (Drees & Heugens, 2013), and reports of risk management and disclosure activities can promote greater organisational efficiency. The resource dependence theory assumes that boards play a primary role in providing internally lacking resources, thus adapting their attitudes to organize contingencies (Hillman & Dalziel, 2003). However, the SSB act according to the Islamic principles, which can interfere in the board behaviour in organizing contingencies. Risk management and disclosure improvement can promote greater performance for these banks. RDT theoretical perspective shows bank management as using risk disclosure to support their legitimacy and reputation and attract critical resources that support their growth and survival (Oliveira, Rodrigues, & Craig, 2011).

Based on that, the current study developed hypotheses to study how the differences in governance structure related to risk disclosure in MENA banks.

Many studies already investigated the impact of organisation characteristics, such as level of risk disclosure and size (AlHares & Ntim, 2017, Mokhtar & Mellett, 2013). However, only few studies took into account the role of CGM on risk disclosure (Elshandidy & Neri, 2015). To fill this gap, the current study explored the impact of the bank- and country-level governance mechanisms, namely, Islamic governance characteristics, family and governmental ownership, and the country-level governance, namely, lack of violence, political strength, and control of corruption.

2.1. Risk disclosure and Islamic governance

Islamic governance focuses on compliance with Sharia principles, especially in terms of *riba* and uncertain behaviour (Kamla & Alsoufi, 2015; Riaz, Burton, & Monk, 2017). Islamic financial institutions face unique problems like "*Mudarabah*", and this can increase moral hazard problems and adverse selection, which, ultimately, worsen agency

problems via the increasing risk of bank resources expropriation by managers (Safiedd, 2009). Theoretically and based on RDT, SSB may provide better access to the external environment and promote opportunities for protecting essential resources, namely, finance and business contracts (Pfeffer & Salancik, 1978). Based on RDT, SSB can acquire crucial resources, such as knowledge, contacts, and networks, to promote bank survival (Pfeffer, 1972). This contrasts with the principal-agent situation (Fama & Jensen, 1983). RDT shows SSBs connecting banks to the external environment to obtain essential resources (Pfeffer & Salancik, 1978), with the knowledge and expertise of SSB members helping in making important decisions and promoting transparent risk disclosures (Farook, Kabir Hassan, & Lanis, 2011).

Empirically, SSB can be a key governance mechanism to promote the quality and performance of disclosure (Farook et al., 2011). However, this research field remains largely underexplored. According to Farook et al. (2011), there is a significant positive influence of SSB on the level of corporate social responsibility disclosure. Mollaha and Zaman (2015) found a Sharia board supervision produces a positive influence on bank performance. However, Safieddine (2009) found the opposite, showing that banks surveyed presented deficiencies in Sharia governance practices with limited financial reporting that could promote agency problems. While some studies focus on voluntary disclosure and Islamic governance characteristics, none were found on SSB characteristics and voluntary disclosure. The expectation is, therefore, for a positive relationship between banks and external resources and the effect on risk management and disclosure. Altogether, the current study's first hypothesis is:

H1: Islamic governance is positively related to risk disclosures.

2.2. Ownership structure

Theoretically, ownership structure influences governance and risk disclosure as directors and insiders could influence risk disclosure. One explanation is that banks, relying heavily on family and/or government funding, adopt conformity and maintain high levels in financial reporting.

According to Mohd Ghazali (2007) and Alhazaimah, Palaniappan, and Almsafir (2014), government ownership is positively associated with risk disclosure. On the other hand, Naser, Al-Khatib, and Karbhari (2002) reported no significant relationship, and Dam and Scholtens (2012) even reported a negative correlation between those two variables. Other independent studies also reported a similar negative relationship (Chau & Gray, 2010; Haniffa & Cooke, 2002) between family shareholding and disclosure, but the results remain inconclusive because later Cascino, Pugliese, Mussolino, and Sansone (2010) reported a positive relationship. Consequently, the association between ownership structure and risk disclosure remains an open problem. Therefore, to shed light in that association the current study included a second hypothesis:

H2: Ownership structure is positively associated with risk disclosures.

2.3. Country-level governance

Theoretically, several reasons exist why the country-level governance mechanisms may influence the risk disclosure level (Beltratti & Stulz, 2012; Kaufmann, Kraay, & Mastruzzi, 2011). First, bank incentives for disclosing risk information are influenced by a country's governance arrangements (Burgstahler, Hail, & Leuz, 2006). Second, bank managers use flexibility in applying CG codes and accounting standards, via effective the country-level governance, to disclose risk information, and to gain external resources (Beyer, Cohen, Lys, & Walther, 2010). Moreover, banks depend heavily on the institutional pressures at the country-level and outside flow of resources. Therefore, following country-level mechanisms are important in attracting resources (Pfeffer & Salancik, 1978).

Following the legal rules of their countries is important for banks to attract investors, enhance investors' protection, and develop financial markets (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000). Investors seek to invest in countries where there is protection, as managers are not likely to seek self-benefit at the expense of banks. Moreover, structures of governance at the country-level limit the managers' capability to obtain self-benefits of control thus reducing their motivations for non-transparent disclosure, thus providing substantial protection to investors. Past research shows that banks may increase disclosure to show their superiority of performance by stressing the quality of the country-level governance in offering protection to investors, level legal enforcement, and the characteristics of capital market which distinct the disclosure practices among countries (Cumming, Hou, & Wu, 2017).

Research studies already showed that the country-level governance is positively related to performance and/or disclosure (Cumming et al., 2017; Van Essen, Engelen, & Carney, 2013). For example, Cumming et al. (2017) studying companies from 48 countries between 1996 and 2008, report that the valuation of those companies presented a strong relationship with the governance within each country. Similarly, Shi, Magnan, and Kim (2012) reported a positive association between country governance and the disclosure level of 1,005 foreign companies in the US from 1996 to 2005. Given the importance of the country-level governance the current study considered the following hypothesis:

H3: Country governance indicators are positively associated with risk disclosures.

3. RESEARCH METHODOLOGY

The sampling design, consisting of 130 banks selected from listed commercial and Islamic banks, from 13 MENA countries. Together, these countries represented over 96% of the total market capitalisation for the banks in the region. The period between 2012 and 2019 was chosen for several reasons. First, the sample covers the period after the 2007/2008 banking crisis; second, Basel Accords began to be applied within MENA countries; third, Iraq, Libya, Mauritania, Syria, Palestine, and Yemen were excluded for lack of data availability. Annual reports from the sample banks were obtained by

combining the different databases: bank websites, the Perfect Information database, and the Bankscope database. To obtain the governance and country-level macro-economic variables, the current

study used the World Bank's databases and IMF world outlook, respectively. In the final sample, there were 921 bank-year observations. Table 1 summarises the sample construction.

Table 1. Sample construction

Country	Total banks	Selected banks	Islamic banks	Conventional banks	Dual banks	Full sample	Percentage
Algeria	23	17	8	40	48	96	10.42%
Bahrain	11	11	42	18	26	86	9.34%
Egypt	11	11	15	42	17	74	8.03%
Iran	31	16	98	0	0	98	10.64%
Jordan	12	12	12	76	4	92	9.99%
Kuwait	12	10	34	37	5	76	8.25%
Lebanon	6	6	0	30	16	46	4.99%
Morocco	4	1	0	0	8	8	0.87%
Oman	6	5	0	36	4	40	4.34%
Qatar	8	8	22	13	28	63	6.84%
Saudi Arabia	12	11	23	0	63	86	9.34%
Tunisia	10	4	0	12	0	12	1.30%
UAE	19	18	34	40	70	144	15.64%
Total	165	130	222	410	289	921	100%

The variables are classified into six main categories (Table 2). First, the dependent variable is the risk disclosure level (RDI). Risk disclosure will be measured as follows. First, risk disclosure measures and scoring approaches used were based on empirical work carried out by many past studies (Mokhtar & Mellett, 2013). Second, some items were identified from Basel Accords (I, II, and III) and international standards and regulations for banks (i.e., IAS 32, IFRS 7, IFRS 9). Based on that provisions, the study followed with the first reading of each country's annual reports to identify the 'typical' risk disclosures, then using items from these three primary sources to form the overall index of risk disclosure, which contained both mandatory and voluntary disclosures. This index consists of a comprehensive RDI measure, namely, financial risks, which include credit, liquidity, market, and capital risks; operational risks; and strategic risks, which together make up a total of 96 items, as shown in the Appendix.

The current study selected the index approach based on the study by Mokhtar and Mellett (2013). This approach captures a quite reasonably the relative weights of the different risk categories. However, there is a criticism against the index approach, that considers this approach subjective. To reduce subjectivity, the current study adopted the following steps. First, two researchers

independently coded a subsample of 25 annual reports and then compared their outcomes. Results showed no significant difference and a high coefficient of agreement (92.1%), thus showing reliability greater than 0.70 (critical threshold), values that are acceptable in the social sciences (Beattie, McInnes, & Fearnley, 2004). After that, a single researcher completed the coding of the remainder. After finishing, the same researcher (main coder) selected a random subset of samples to re-code (fifteen annual reports) to compare these new evaluations with the earlier original coding. There was a high coefficient of agreement (96.4%). The last step consisted of evaluating the Cronbach's alpha to check for the internal consistency, which yielded a score of 89% that also corresponded to an acceptable value (threshold level for Cronbach's alpha > 60%).

Beyond that, to directly measure the risk disclosure quality an alternative measure was developed: the weighted index. For each of the 96 items, the results yielded a score between 0 to 2, where 0 is for an item not disclosed by a bank and revealing qualitative information; 2 for item disclosed and revealing past, present and future good, bad and/or revealing quantitative information. This procedure of weighted scoring resulted in a potential score of 192 that could then be scaled to a percentage score (see Appendix).

Table 2. Summary of variables and measures

Panel A: Dependent variables (risk disclosure)	
RDI	The score of risk disclosure based on the unweighted risk disclosure index (96 subitems). Each item in the unweighted index has a score ranging from 0 to 1 (0 - if not disclosed; 1 - if disclosed). For the weighted risk disclosure index, each item has a score ranging from 0 to 2 (0 - if not disclosed; 1 - if disclosed with qualitative information; 2 - if disclosed with qualitative and/or quantitative information).
Panel B: Sharia supervisory board (SSB)	
SSB	The score of the SSB based on an unweighted SSB index (7 provisions). Each provision in the unweighted index has a score ranging from 0 to 1 (1 - if disclosed; 0 - otherwise). The seven provisions are: SSB existence, SSB report, number of members, meetings, years of experience for board members, independent members, disclosure of total fees.
Panel C: Corporate governance (CG) ownership characteristics	
GOWN	The ratio of governmental ownership with at least 5%, to a total number of ordinary shares.
FOWN	The ratio of family ownership with at least 5%, to a total number of ordinary shares.
Panel D: Corporate governance (CG) board characteristics	
BS	The total number of directors on the board at the end of the financial year.
DUAL	A binary number of 1 if CEO and chairperson positions are held by the same person, 0 otherwise.
NEDs	The ratio of independent directors on the board.
Panel E: Country-level governance	
PS	Political strength measured the probability of government threatened by violence. Higher means better political strength and absence of violence/ terrorism (Kaufmann et al., 2011).
CC	The level to which abuse of bestowed public power to acquire a private benefit. Higher means better control of corruption (Kaufmann et al., 2011).
Panel F: Control variables	
LNTA	Natural logarithm of the book value of total assets.
ROA	Percentage of net income to total asset.
LIQ	Percentage of net loans to total asset.
CAR	Capital adequacy ratio.
LENG	Number of annual report pages.
CRIS	Financial crisis period.
INF	The rate at which the general level of prices for goods and services is rising.
GDPC	Gross domestic product (GDP) divided by the number of people in the country.

In examining *H1* to *H3*, data was obtained on CGM, using the presence of an SSB as a proxy for Islamic governance, with seven dimensions of SSB's best practices, which are covered in Table 2 and which measures principles willingly covered and disclosed in annual reports (Elghuweel et al., 2017; Farook et al., 2011). The appropriate SSB provisions considered the Accounting and Auditing Organisation for Islamic Financial Institutions (AAOIFI) standard on the independence of the Shariah supervisory board were used. SSB variables mentioned in an earlier survey of the sampled banks' annual reports were also included.

The variables of ownership structure variables were family ownership (*FOWN*) and government ownership (*GOWN*). The variables that defined the country-level governance were control of corruption (*CC*), lack of violence, and political strength (*PS*). The firm-level controls were defined as the following board structure variables: CEO duality (*DUAL*), board size (*BS*), and percentage of non-executive directors (*NEDs*). Bank-level controls were also included as other non-governance variables: bank size (*LNTA*), liquidity (*LIQ*), performance (*ROA*), capital adequacy (*CAR*), operations efficiency (*COST*), and the length of the annual report (*LENG*). Variables for defining the country-level controls were GDP per capita (*GDPC*) and inflation (*INFL*).

A fixed-effects regression model was used to

investigate the influence of CGM on the level of risk disclosure (Elshandidy & Neri, 2015), as this model was more appropriate than the random-effects regression model, based on the Hausman test results. The main regression model is the following:

$$RDI_{it} = \alpha_0 + \beta_i \sum_{i=1}^8 MLG_{it} + \sum_{i=1}^9 B_i CONTROL_{it} + \delta_{it} + \varepsilon_{it} \quad (1)$$

4. RESEARCH RESULTS

Table 3 shows the descriptive statistics of the unweighted and weighted risk disclosure indices for RDI and W-RDI, respectively, for SSB, during each one of the eight-year period. The banks showed high variability in risk disclosures, with RDI ranging from 8.33% to 93.75% with a standard deviation of 17.03. These findings indicated that banks use discretion in reporting risks and provide more disclosures about capital risks (89.90%). Reporting on credit risks was 70.05%, and strategic risks were 56.37%. Market risks corresponded to the least disclosed with a score of 43.30%. Kuwaiti banks 67.97%, Qatari banks 72.33%, and Oman banks 72.43% are the most disclosed, reflecting their compliance with the regulation and requirements of IFRS and Basel Accords (Farook et al., 2011). Irani banks presented the lowest level of risk disclosure.

Table 3. Summary descriptive statistics of RDI and SSB indices for all sampled firms

	All	2012	2013	2014	2015	2016	2017	2018	2019
The unweighted risk disclosure index (RDI) (%)									
Mean	58.07	60.84	64.80	65.12	66.12	67.26	68.27	69.35	70.88
Median	63.60	64.55	66.64	66.64	67.68	68.72	69.76	69.66	71.12
STD	18.05	17.04	11.89	12.03	12.15	11.06	11.54	12.22	12.35
Min	8.33	8.33	27.08	25.00	20.80	20.80	23.90	27.08	27.80
Max	93.75	83.33	83.33	81.25	88.54	88.54	89.58	89.58	93.75
The weighted risk disclosure index (W-RDI) (%)									
Mean	42.65	43.75	46.90	47.16	48.14	48.75	49.77	49.79	50.22
Median	45.80	46.58	47.62	48.93	49.45	49.45	50.45	50.66	51.02
STD	13.59	13.85	8.92	8.82	8.82	9.08	9.24	9.54	9.89
Min	8.33	4.66	4.66	15.59	15.07	10.11	15.88	16.87	17.12
Max	75.12	68.72	66.64	62.47	71.32	71.32	74.21	74.66	75.12
SSB index									
Mean	2.44	2.52	2.52	2.52	2.46	2.52	2.68	2.75	2.88
Median	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
STD	2.88	2.95	2.97	2.95	3.02	3.13	3.27	3.29	3.38
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

In Table 3, the banks revealed more risk disclosures. For example, the average bank disclosure was 60.84%, 64.80%, 65.12%, 66.12%, 67.26%, 68.27%, 69.35% and 70.88% in 2012 to 2019,

respectively. These results reveal how important risk disclosure is for management and stakeholders with its compulsory compliance of banks, especially after Basel II.

Table 4. Summary descriptive statistics of the independent and control variables for all sampled firms

Variables	Mean	Median	STD	Minimum	Maximum
Panel A: Independent (corporate governance- ownership characteristics) variables					
GOWN (%)	16.52	7.26	21.86	0.00	90.07
FOWN (%)	9.75	0.00	15.24	0.00	88.00
Panel B: Independent (country-level-governance) variables					
PS	-1.14	-1.14	0.97	-3.84	2.23
CC	1.24	1.25	0.75	-2.59	2.73
Panel C: Control variables					
BS	10.45	10.00	2.91	5.00	16.00
DUAL	0.10	0.00	0.20	0.00	1.00
NEDs (%)	92.11	91.91	19.43	0.00	100.00
LNTA	16.64	16.66	2.61	1.31	22.10
ROA	0.03	0.03	0.05	-0.53	0.25
LIQ (%)	52.61	55.77	17.58	0.00	86.38
COST (%)	43.37	40.40	31.52	-366.64	285.00
CAR (%)	21.26	18.25	15.40	10.27	205.42
LENG	100.23	92.60	49.63	9.00	325.00
INFL	6.40	5.00	5.94	-11.11	54.30
GDPC	23427.35	19251.91	23200.93	6.00	93715.11

Note: GOWN: government ownership, FOWN: family ownership, BS: board size, DUAL: CEO duality, NEDs: percentage of non-executive directors, PS: political strength, CC: corruption control, LNTA: bank size, ROA: return of assets, LIQ: liquidity, COST: operations efficiency, CAP: capital adequacy, LENG: annual reports length, INFL: inflation and GDPC: GDP per capita.

Table 4 summarises all other control and independent variables and reveals a widespread in the distribution of all variables. This table also shows that GOWN and FOWN ownership structure of MENA banks continues to be highly concentrated, despite the recommendations of OECD and World Bank that greater dispersion of ownership is needed

for better performance. However, 90% of banks have separate CEO and chairman, 92% of boards consist of non-executive directors, as recommended by CG codes in MENA countries, with board size ranging between 5-16 members (average of 10 members). Wide variability in the values of CGM and control variables show little bias in sample selection.

Table 5. Pearson's and Spearman's correlation matrices of the variables associated with risk management of MENA banks

Variable	RDI	LNTA	ROA	LIQ	COST	CAR	LENG	GOWN	FOWN	BS	DUAL	NEDs	SSB	PS	CC	INF	GDP
RDI		0.50**	-0.08	0.38**	-0.13**	-0.14**	0.48**	0.28**	0.07	-0.17**	-0.17**	0.26**	0.12**	0.25**	0.31**	-0.37**	0.17**
LNTA	0.56**		0.26**	-0.19**	-0.12**	0.32**	0.34**	-0.02	0.11**	0.11**	-0.01	0.14**	0.18**	0.25**	0.20**	-0.22**	0.22**
ROA	-0.04	0.06		0.09	-0.24**	0.09*	-0.11**	0.05	0.04	0.04	-0.03	-0.05	-0.13**	0.12**	0.09*	0.04	0.12**
LIQ	0.34**	0.29**	0.21**		-0.18**	-0.20**	-0.0	0.32	-0.02	-0.14**	-0.28**	0.25**	0.05	0.65**	0.61**	-0.15**	0.33**
COST	-0.24**	-0.42**	-0.46**	-0.35**		0.17**	0.05	-0.14**	-0.03	-0.03	0.09*	-0.09*	0.04	-0.21**	-0.15**	0.05	-0.24*
CAR	-0.07	-0.07	0.14**	0.02	-0.13**		-0.18**	0.03	-0.10*	-0.18**	0.03	-0.13**	0.11**	0.02	0.03	-0.09*	0.01
LENG	0.54**	0.34**	-0.20**	-0.04	0.11**	-0.22**		0.03	0.05	0.29**	0.14**	0.15**	0.13**	-0.22**	-0.14**	-0.22**	-0.20**
GOWN	0.31**	0.36**	0.15**	0.40**	-0.25**	0.14**	0.04		-0.20**	0.02	-0.18**	0.12**	0.10*	0.29**	0.33**	-0.15**	0.14**
FOWN	0.13**	0.03	0.06	0.02	0.06	-0.09*	0.15**	-0.14**		-0.02	-0.13**	0.00	-0.09*	-0.09*	-0.09*	0.02	-0.15**
BS	0.08	0.10*	-0.03	-0.15**	0.06	-0.20**	0.30**	0.05	0.10*		0.14**	0.03	-0.07	-0.23**	-0.19**	0.02	-0.22**
DUAL	-0.17**	-0.05	-0.10*	-0.29**	0.10*	-0.05	0.09*	-0.19**	-0.12**	0.15**		-0.46**	-0.20**	-0.21**	-0.22**	0.13**	0.03
NEDs	0.15**	0.05	0.03	0.33**	-0.08	-0.04	0.10*	0.16**	-0.04	-0.06	-0.47**		0.13**	0.21**	0.19**	-0.17**	0.05
SSB	0.14**	0.36**	-0.10*	-0.11**	-0.10*	0.08	0.16**	0.13**	-0.13**	-0.06	-0.22**	0.08*		0.05	0.13**	-0.22**	0.16**
PS	0.19**	0.26**	0.25**	0.63**	-0.41**	0.13**	-0.16**	0.32**	-0.13**	-0.26**	-0.20**	0.32**	0.12**		0.78**	-0.18**	0.58**
CC	0.21**	0.16**	0.23**	0.55**	-0.37**	0.18**	-0.09*	0.32**	-0.14**	-0.22**	-0.20**	0.27**	0.16**	0.75**		-0.24**	0.53**
INF	-0.35**	-0.21**	0.02	-0.21**	0.08	-0.26**	-0.24**	-0.20**	-0.05	0.05	0.19**	-0.20**	-0.26**	-0.23**	-0.28**		0.03
GDP	0.24**	0.34**	0.23**	0.38**	-0.35**	0.03	-0.09*	0.19**	-0.19**	-0.21**	-0.09*	0.19**	0.31**	0.53**	0.46**	-0.04	

Notes: the upper right half of the table shows Pearson's parametric correlation coefficients, whereas the bottom left half of the table contains Spearman's non-parametric correlation coefficients. **, and * denote correlation is significant at the 1%, and 5% level, respectively (two-tailed tests). Variables are defined as follows: RDI: risk disclosure quality score, GOWN: government ownership, FOWN: family ownership, BS: board size, DUAL: CEO duality, NEDs: percentage of non-executive directors, PS: political strength, CC: corruption control, LNTA: bank size, ROA: return of assets, LIQ: liquidity, COST: operations efficiency, CAP: capital adequacy, LENG: annual reports length, INF: inflation and GDPC: GDP per capita.

Table 5 shows the results of the multicollinearity analysis. The correlation matrix (Pearson's parametric and Spearman's non-parametric coefficients) highlights the robustness of the results by showing that coefficients similarities in both magnitude and direction. Therefore, the results had no serious non-normality problems. RDI quality scores are correlated both positively and significantly with the following control variables: LENG, LIQ, LNTA, FOWN, GOWN, SSB, NEDs, PS, GDP, and CC. However, RDI showed a negative and significant correlation with COST, DUAL, and INF. These results provided evidence to support the hypotheses H1-H3.

Table 6 shows the impact of CGM on the level of bank risk disclosures based on the analysis of the fixed-effects regression with the variable of SSB, bank-level governance (ownership structures), and the country-level governance in the form of absence of violence and control of corruption in all the seven different models tested. All the seven different models showed statistically significant effects and explained 36% (full sample), 50% (IBs), 20% (commercial banks (CBs)), 38% (DBs), 27% (generalized method of moments (GMM)), 51% (3LS), and 45% (G2SLS) of the variability in the score of bank risk disclosures.

Table 6. The effect of corporate governance mechanisms on bank risk disclosure (RDI) (Part 1)

Dependent variable: Unweighted risk disclosure (RDI)							
Variables	Full sample	IBs	CBs	DBs	GMM	3SLS	G2SLS
Panel A: Independent: Governance variables							
Lagged RDI					17.3*** (0.001)		
SSB	2.99*** (0.001)	3.69*** (0.000)		4.6*** (0.001)	6.66*** (0.000)	3.02*** (0.001)	3.01*** (0.003)
GOWN	2.53** (0.012)	-0.61 (0.620)	0.09 (0.882)	2.1** (0.032)	3.36*** (0.002)	3.02*** (0.001)	1.86* (0.066)
FOWN	2.21** (0.022)	2.56** (0.018)	2.31** (0.018)	-1.44 (0.056)	0.59 (0.534)	3.46*** (0.000)	2.99** (0.001)
PS	-1.65 (0.092)	0.53 (0.652)	-1.66* (0.078)	-1.89* (0.054)	-2.76*** (0.003)	4.05*** (0.002)	-2.02* (0.037)
CC	3.27*** (0.000)	2.48** (0.014)	0.89 (0.459)	0.12 (0.52)	4.42*** (0.002)	2.13** (0.036)	4.34*** (0.003)

Notes: coefficients are in front of parenthesis. ***, ** and * denote p-value is significant at the 1%, 5% and 10% level, respectively. Variables are defined as follows: RDI: risk disclosure quality score, GOWN: government ownership, FOWN: family ownership, BS: board size, DUAL: CEO duality, NEDs: percentage of non-executive directors, PS: political strength, CC: corruption control, LNTA: bank size, ROA: return of assets, LIQ: liquidity, COST: operations efficiency, CAP: capital adequacy, LENG: annual reports length, INF: inflation, and GDPC: GDP per capita.

Table 6. The effect of corporate governance mechanisms on bank risk disclosure (RDI) (Part 2)

<i>Dependent variable: Unweighted risk disclosure (RDI)</i>							
<i>Variables</i>	<i>Full sample</i>	<i>IBs</i>	<i>CBs</i>	<i>DBs</i>	<i>GMM</i>	<i>3SLS</i>	<i>G2SLS</i>
Panel B: Independent: Control variables							
<i>Intercept</i>	-0.01 (0.845)	0.28 (0.692)	-2.08* (0.036)	-3.52*** (0.001)	-3.47*** (0.000)	-1.12 (0.236)	1.01 (0.304)
<i>BS</i>	1.94*** (0.042)	0.72 (0.390)	1.89* (0.059)	3.26*** (0.002)	1.65* (0.094)	2.54*** (0.004)	1.01 (0.25)
<i>DUAL</i>	1.75* (0.079)	-1.58 (0.101)	-0.08 (0.786)	-0.04 (0.905)	-2.07** (0.038)	-3.64*** (0.002)	-0.10 (0.829)
<i>NEDS</i>	2.93*** (0.001)	2.50** (0.014)	0.14 (0.842)	2.37** (0.077)	2.49*** (0.011)	1.28 (0.184)	2.48** (0.015)
<i>LNTA</i>	5.08*** (0.001)	-0.15 (0.853)	3.09*** (0.001)	5.10*** (0.001)	1.95* (0.062)	4.87*** (0.001)	2.29** (0.014)
<i>ROA</i>	-0.43 (0.628)	-0.73 (0.432)	0.67 (0.462)	4.22*** (0.002)	3.49 (0.002)	0.28 (0.740)	0.07 (0.886)
<i>LIQ</i>	1.74* (0.072)	0.51 (0.621)	0.48 (0.677)	1.69* (0.061)	5.02*** (0.001)	5.21*** (0.002)	3.01*** (0.001)
<i>COST</i>	-1.43 (0.248)	-2.41** (0.013)	0.01 (0.797)	-1.29 (0.171)	-2.42 (0.011)	-3.08 (0.001)	-1.72* (0.071)
<i>CAR</i>	1.84* (0.057)	0.31 (0.846)	-1.84* (0.074)	-0.90 (0.232)	-1.90* (0.059)	-0.35 (0.686)	-1.21 (0.203)
<i>LENG</i>	8.94*** (0.002)	6.47*** (0.001)	3.03*** (0.001)	4.55*** (0.002)	4.79*** (0.002)	9.14*** (0.001)	9.07*** (0.002)
<i>INFL</i>	2.29** (0.015)	0.51 (0.591)	1.25 (0.145)	2.05** (0.039)	7.75*** (0.003)	2.81*** (0.001)	1.30 (0.127)
<i>GDP</i>	-0.54 (0.481)	-1.15 (0.182)	-0.25 (0.716)	-1.24 (0.333)	-1.90* (0.058)	-4.43*** (0.000)	-0.24 (0.754)
<i>CRIS</i>	5.22*** (0.002)	4.66*** (0.001)	3.63*** (0.001)	6.53*** (0.006)	6.46*** (0.002)	4.26*** (0.000)	5.44*** (0.001)
<i>Fixed effect</i>	Bank	Bank	Bank	Bank	Bank	Bank	Bank
<i>F-value (χ^2)</i>	68.83***	29.83***	20.27***	37.40***	906.46***	866.85***	1125.14***
<i>Overall R2</i>	0.3626	0.5006	0.2026	0.3772	0.2661	0.5097	0.4549

Notes: coefficients are in front of parenthesis. ***, ** and * denote p-value is significant at the 1%, 5% and 10% level, respectively. Variables are defined as follows: RDI: risk disclosure quality score, GOWN: government ownership, FOWN: family ownership, BS: board size, DUAL: CEO duality, NEDS: percentage of non-executive directors, PS: political strength, CC: corruption control, LNTA: bank size, ROA: return of assets, LIQ: liquidity, COST: operations efficiency, CAP: capital adequacy, LENG: annual reports length, INFL: inflation, and GDPC: GDP per capita.

5. DISCUSSION OF THE RESULTS

The current analysis showed evidences that CGM explain the differences in the quality of risk disclosure. Interestingly, the significant and positive influence of SSB on RDI confirmed *H1*. This result suggests that banks with an SSB in increased levels of risk disclosures, likely indicating pressure on bank management higher than in conventional banks, indicating more power and effectiveness in monitoring due to the need for Sharia compliance and confirming the religious influence on bank risk management.

The results support the RDT framework, indicating good compliance through greater risk disclosure and legitimacy of banks (Mollaha & Zaman, 2015) and opportunities to obtain important resources (Pfeffer & Salancik, 1978). SSB positively affects both disclosure and performance (Farook et al., 2011). Previous studies reported a significant role of Sharia boards in the quality of the bank's financial reporting (Safieddine, 2009). The current study expanded this research by demonstrating that SSB monitor and scrutinise managerial decisions, including those relating to disclosures. Besides, within MENA countries, SSB maximizes the role of monitoring, performance, and value.

The analysis of the bank-level variables revealed that ownership structures (Model 1 of Table 6) induced a positive effect on RDI, thus supporting the RDT framework (Alhazaimah et al., 2014; Cascino et al., 2010). Powerful shareholders (i.e., government and family) are shown to have power, and the incentives to monitor insider performance to safeguard minority rights and bank

reputation (Cascino et al., 2010). Consequently, ownership structures represent corporate governance and influence the level of risk disclosure. Ownership helps in the identification of motivations (access to essential resources) and mechanisms that corporate governance uses to influence the levels of risk disclosure.

At the country-level, the analysis showed how the country-level governance mechanisms impacted RDI. The results show that control of corruption (CC) significantly increased on RDI (Model 1, Table 6). In contrast, the absence of violence (PS) and political stability showed no significant effect on the level of bank risk disclosures. This is in keeping with RDT, with better country-governance having more risk disclosures and better protection of investors, improving governance effectiveness, and thereby impacting positively on RDI (Cumming et al., 2017; Van Essen et al., 2013). Lastly, for the control variables, the model analyses showed positive effects of *LNTA*, *LIQ*, and *LENG* on risk disclosure. These results imply that MENA banks with high *LNTA*, *LIQ*, and *LENG* will present more relevant risk disclosures. The current results support the previous findings from Oliveira et al. (2011). On the contrary, there was a negative but non-significant relation between *ROA*, *COST*, and *GDPC* and risk disclosure.

To determine the robustness of the current findings, additional tests were performed. First, to ascertain how CGM operate, sample banks were separated into IBs, CBs, and DBs. The analysis for the Models 2, 3, and 4 (RDI) are presented in Table 6, and Table 7 reported the analysis for Models 2, 3, and 4 (W-RDI). The analysis revealed slight

differences in significance and magnitudes of coefficients, but a negative and non-significant impact of *GOWN* on risk disclosure, although this relationship was not statistically significant in IBs, with the stronger impact of *FOWN* and *CC* on IBs

compared with CBs and DBs. Finally, a stronger impact of BS on DBs compared with CBs and IBs. Maybe dual banks are larger, have more lines of business and activities, and have larger boards with more expertise.

Table 7. The effect of corporate governance mechanisms on bank risk disclosure (W-RDI)

Dependent Variable: Weighted risk disclosure (W-RDI)							
Variables	Full sample	IBs	CBs	DBs	GMM	3SLS	G2SLS
Panel A: Independent: Governance variables							
Lagged W-RDI					22.59*** (0.000)		
SSB	4.49*** (0.002)	3.56*** (0.008)		5.43*** (0.000)	4.91*** (0.000)	2.79*** (0.000)	2.69*** (0.006)
GOWN	0.02 (0.874)	-0.70 (0.446)	0.12 (0.761)	0.85 (0.317)	4.08*** (0.000)	3.31*** (0.000)	1.54 (0.117)
FOWN	1.64 (0.085)	1.45 (0.136)	1.70 (0.088)	-1.43 (0.135)	1.71 (0.645)	2.94*** (0.000)	2.36** (0.016)
PS	-2.16** (0.021)	0.11 (0.761)	-1.63* (0.064)	-3.01*** (0.004)	-0.63 (0.009)	-4.24*** (0.004)	-2.36** (0.019)
CC	3.24*** (0.000)	1.17 (0.213)	1.45 (0.125)	-0.45 (0.57)	2.74*** (0.001)	2.23** (0.022)	4.69*** (0.000)
Panel B: Independent: Control variables							
Intercept	-0.54 (0.734)	0.11 (0.762)	-1.33 (0.272)	-4.29*** (0.005)	6.06*** (0.006)	-1.66* (0.074)	-1.79* (0.061)
BS	1.81** (0.031)	0.61 (0.507)	2.02** (0.038)	3.42*** (0.000)	1.37 (0.271)	2.71*** (0.001)	4.04*** (0.007)
DUAL	-2.34** (0.018)	-1.59 (0.106)	-0.92 (0.446)	-0.49 (0.584)	-2.00** (0.041)	-2.75*** (0.000)	-0.74 (0.427)
NEDS	2.90*** (0.001)	2.16** (0.022)	1.08 (0.383)	0.20 (0.815)	4.27*** (0.001)	1.35 (0.157)	2.55** (0.004)
LNTA	4.64*** (0.000)	-0.18 (0.769)	1.69* (0.075)	5.44*** (0.003)	2.17** (0.032)	4.28*** (0.003)	2.33** (0.012)
ROA	-0.46 (0.517)	-0.96 (0.264)	0.39 (0.773)	4.40*** (0.003)	-2.17** (0.034)	-0.49 (0.586)	-0.12 (0.888)
LIQ	1.72* (0.062)	0.61 (0.262)	0.25 (0.775)	1.86* (0.059)	5.36*** (0.008)	4.69*** (0.003)	3.02*** (0.009)
COST	-1.78* (0.087)	-2.50** (0.012)	-0.15 (0.852)	1.35 (0.112)	-0.62 (0.514)	-3.24*** (0.004)	-1.85* (0.053)
CAR	-1.86* (0.058)	0.14 (0.845)	-2.59*** (0.004)	-0.63 (0.487)	-1.61 (0.222)	-0.17 (0.733)	-1.11 (0.311)
LENG	4.12*** (0.001)	5.57*** (0.003)	2.47** (0.024)	2.77*** (0.003)	4.31*** (0.004)	6.71*** (0.003)	7.01*** (0.006)
INFL	4.12*** (0.004)	1.47 (0.182)	2.22** (0.034)	2.89*** (0.000)	8.06*** (0.001)	2.05** (0.041)	2.91*** (0.001)
GDP	-1.76* (0.068)	-1.62* (0.86)	-0.25 (0.783)	-2.00** (0.036)	-0.23 (0.741)	-4.58*** (0.001)	-0.19 (0.772)
CRIS	7.57*** (0.003)	5.91*** (0.002)	8.11*** (0.003)	4.85*** (0.002)	7.27*** (0.004)	4.31*** (0.002)	7.81*** (0.002)
Fixed effect	Bank	Bank	Bank	Bank	Bank	Bank	Bank
F-value (χ^2)	70.01***	26.70***	20.39***	38.71***	602.88***	786.66***	1121.65***
Overall R2	0.2962	0.4612	0.2078	0.2321	0.1421	0.5366	0.4554

Notes: coefficients are in front of parenthesis. ***, ** and * denote p-value is significant at the 1%, 5% and 10% level, respectively. Variables are defined as follows: RDI: risk disclosure quality score, GOWN: government ownership, FOWN: family ownership, BS: board size, DUAL: CEO duality, NEDs: percentage of non-executive directors, PS: political strength, CC: corruption control, LNTA: bank size, ROA: return of assets, LIQ: liquidity, COST: operations efficiency, CAP: capital adequacy, LENG: annual reports length, INFL: inflation, and GDPC: GDP per capita.

The sampling scheme covered a period from 2012 to 2019, and a dummy variable *CRIS* was used to determine the impact after the financial crisis. The results showed a positive coefficient for *CRIS* (Table 6), suggesting that the financial crisis produced a positive impact on the level of risk disclosures in the banks from MENA countries. Also, the similarity of the results found in Table 7 in comparison with Table 6 confirmed the robustness of the current analysis regardless of RDI is considered as an unweighted or weighted index. Moreover, to check for potential endogeneity problems, three-stage least squares (3SLS) estimations were carried out (Elshandidy & Neri, 2015). CGM instruments are created by, in a first stage, by using the predicted parts combined with the estimation of the covariance matrices based on the residuals. Finally, through generalised least square regression conducted through the covariance matrices estimated in the second stage (Olson &

Zoubi, 2014; Mollaha & Zaman, 2015). Therefore, 3SLS model is identified as follows:

$$RDI_{it} = \alpha_0 + \beta_i \sum_{i=1}^8 MLG_{it} + \sum_{i=1}^9 B_i CONTROLS_{it} + \delta_{it} + \varepsilon_{it} \quad (2)$$

The results are reported in the 3SLS model (Table 6) showed to be similar to the results presented in Model 1 (full sample) (Table 6). These results, therefore, confirmed the analysis robustness to possible endogeneity problems. Beyond that, the results were also re-estimated using G2SLS (generalised two-stage-least-squares fixed-effects within estimator) (Baltagi & Deng, 2015). This analysis (Model 7, Table 6) also showed similar results than the findings presented in Model 1 on both Tables 6 and Table 7. This strongly supports the view that endogeneity problems pose no threat to the current findings.

A dynamic panel GMM estimator (Wintoki, Linck, & Netter, 2012) was adopted to control for potential unobserved heterogeneity between RDI and independent variables and deals with the endogeneity problem. The GMM estimator removes or reduces endogeneity problems between risk disclosure index and many bank characteristics not observed. Also, GMM estimator deals with changes over time in RDI indices (Schultz, Tan, & Walsh, 2010; Wintoki et al., 2012). Additionally, the GMM estimator approach shows to be capable to deal with heteroscedasticity and autocorrelation between present and historical values (Schultz et al., 2010; Wintoki et al., 2012). The GMM model is shown below.

$$RDI_{it} = \alpha_1 + k_1 RDI_{it-1} + \beta X_{it} + \gamma Z_{it} + \delta_{it} + \varepsilon_{it} \quad (3)$$

RDI informs the risk disclosure level for the bank i during the year t . The variable X corresponds to the set of explanatory variables CGM that include SSB, CEO duality (*DUAL*), board size (*BS*), percentage of non-executive directors (*NEDs*), family ownership (*FOWN*), government ownership (*GOWN*), control of corruption (*CC*), and political strength (*PS*). The Model 5 of Table 6 and Model 5 of Table 7 reported the results from the GMM system estimator regression. The statistical tests (AR1, AR2, Hansen/Sargan tests) confirmed the model validity and, by comparing this model outcome with Model 1 of Table 6, once again there is a high similarity of the findings. Altogether, there are no relevant endogeneity problems, bank-specific factors, sub-samples, and other risk disclosure measures that could compromise the current analysis.

6. CONCLUSION

Previous studies focused largely on non-financial corporations, presented mainly descriptive results without theoretical explanations, often looked only at how the firm-level characteristics affect risk disclosures. Only few studies examined the effects of governance, but even those only looked at individual governance measures at the firm-level and with single countries and rarely investigated governance mechanisms at the country-level. Moreover, the majority of studies focus on developed countries (American and European), thereby not adding understanding related to MENA countries and emerging economies. The current study expanded the knowledge in the field of risk disclosure and contributed to fill many gaps in this research field. By investigating 130 banks from MENA region, the current study was able to how the dual banking paradigm influenced the operational risk management and disclosure practices.

In this context, this study endeavours to extend the current knowledge on the risk disclosure for MENA countries. First, the results from the multivariate analysis confirmed that CGM explains the differences in the levels of risk disclosure at the bank- and country-level. The current results also provided evidence to support that SSB is positively associated with risk disclosure. Therefore, the current study provided evidence that culture and religion influence business decisions and operation. At the bank-level, ownership structure (both family and governmental ownership) produce a positive impact on the banks' level of risk disclosures. At the country-level, bank risk disclosure showed a positive

relationship with the control of corruption, whereas political stability and the absence of violence showed to play a negative influence but not statistically significant. Both bank-level and country-level factors support the resource dependence theory perspective, which holds that CGM secure critical resources and encourage banks to engage in risk disclosure, decreasing market uncertainty, and dependence (Pfeffer & Salancik, 1978). The study departs from the extant literature, which focuses on bank-level internal governance arrangements by extending to the country-level governance and including the influence of religious factors.

The current study shows how CGM can enhance financial reporting with risk disclosure. First, from RDT perspective, the research expands on the literature showing that SSB positively influenced risk disclosure, as well as an additional layer of monitoring and scrutinising managerial decisions, an expansion on previous research which suggests Sharia boards monitor the quality of bank financial reporting (Farook et al., 2011; Safieddine, 2009). This finding helps various decision-makers and stakeholders of banks in MENA countries. Second, the findings show also show how governance mechanisms can be used through CG to gain critical resources through risk disclosure. To the best of our knowledge, this study provided new evidence on how country-level factors influence the risk disclosure levels. Consequently, understand how social factors and the country-level governance influence the level of disclosure help investors and regulators. Besides, this paper expands on literature that calls for examining motives and drivers for risk disclosure among countries (Dobler, 2008). Previous cross-national studies (Elshandidy & Neri, 2015; Gordon et al., 2013) highlighted the importance of accounting for different practices as a result of the social context. Finally, the study extends the literature by examining whether bank ownership concentration type drives the effect of the governance mechanisms on risk disclosure in MENA countries.

Implications of the current study are for policymakers, regulators, practitioners, investors, and for IBs, CBs and DBs, especially in other emerging markets. Findings show recent regulatory pressures on banks have worked to enhance disclosure, transparency, disclosure, and governance is useful and important in enhancing risk disclosure in MENA banks, for example, through using more independent members as advisors, thus increasing board size, to allow better monitoring of risk disclosure. Results show that SSB with additional governance in boards of directors is important for IBs and DBs, in promoting risk disclosure. The country-level governance is also seen as important in supporting governance institutions and promoting comprehensive risk disclosure.

Future research on risk disclosure could look at the perspective of debt and equity investors' to identify how they can interfere with performance and value. Moreover, bank managers, directors, and owners of Islamic banks should also be interviewed to get a better view of the process. Future studies could also increase sample size, and investigate the impact of audit committees. Risk committees could also be a focus of future research that could also consider the independence of non-board members on the quality of risk disclosure.

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APPENDIX

Table A.1. Risk Disclosure Index (RDI) (Part 1)

<i>Risk type</i>	<i>Financial risk disclosure</i>
(A) Credit	<ol style="list-style-type: none"> 1. Exposition to credit risk 2. Criteria to evaluate credit risk 3. Explanation of how credit risk happens 4. Clear policies and procedures for mitigating credit risk 5. Amount of regulatory capital for credit risk 6. Availability of quantitative data of exposition of credit risk 7. Development of credit risk exposition, policies, and procedures from the previous period 8. Availability of credit quality of financial assets data 9. Renegotiated financial assets 10. Aging information for past due amount 11. Failure methods disclosed 12. Ceiling of credit exposition by currency 13. Ceiling of credit exposition by geography 14. Ceiling of credit exposition by activities 15. Breakdown credit risk exposition 16. Renegotiated loans for troubled borrowers 17. Risk of counterparty 18. Credit risk intensity 19. Disclosures of off-balance sheet and joint venture structures 20. Disclosures of how to mitigate credit risk 21. Disclosures of derivatives 22. Collateral 23. Helping users to deal with credit risk
(B) Liquidity	<ol style="list-style-type: none"> 24. Clear policies and procedures for mitigating liquidity risk 25. Criteria to evaluate liquidity risk 26. Exposition to liquidity risk 27. Development of liquidity risk exposition, policies, and procedures from the previous period 28. Analysis of the non-derivative liabilities maturity 29. Analysis of derivative liabilities maturity 30. Contractual undiscounted cash flow 31. Analysis of off-balance sheet commitments maturity 32. Analysis of financial asset maturity 33. Analysis of expected maturity 34. Disclosures of derivative treatment 35. Disclosures of how to mitigate liquidity risk 36. Disclosures of liquidity buffers sources 37. Analysis of sensitivity 38. Financing facilities 39. Counterparty concentration profile 40. Helping users to deal with liquidity risk
(C) Market	<ol style="list-style-type: none"> 41. Exposition to market risk management 42. Types of traded instruments 43. Risk of Interest rate 44. Structure of market risk management function 45. Risk of commodities 46. Risk of equity 47. Risk of currency 48. Amount of regulatory capital for market risk 49. Disclosures of how to mitigate market risk 50. Linkage with credit risk 51. Disclosures of value at risk (VAR) 52. Limitations of value at risk (VAR) 53. Stress testing 54. Stress value at risk (VAR) 55. Backtesting 56. Helping users to deal with market risk
(D) Capital	<ol style="list-style-type: none"> 57. Management of capital 58. Measurement of capital 59. Tier 1 60. Tier 2 61. Risk-weighted assets

Table A.1. Risk Disclosure Index (RDI) (Part 2)

<i>Risk type</i>	<i>Non-financial risk disclosure</i>
(E) Operational	62. Amount of regulatory capital for operational risk 63. Strategies of operational risk management 64. Structure of operational risk management function 65. Disclosures of operational risk reporting system 66. Regulatory capital for operational risk measurement 67. Disclosures of how to mitigate operational risk 68. Disclosures of operational value at risk (VAR) 69. Disclosures of internal audit control systems 70. Disclosures of key risk indicators (KRIs) 71. Scorecard models 72. Databases for operational risk 73. Legal risks 74. Self-assessment techniques 75. Availability of risk exposition 76. Information technology 77. Compliance 78. Customer satisfaction 79. Copyright 80. HR (cost of losing existing employees or hiring new) 81. Corruption (business ethics) 82. Employee fraud (integrity) 83. Helping users to deal with operational risk
(F) Strategic	84. Politics 85. KPIs measurement 86. Taxation 87. Macroeconomic trends 88. Natural disaster 89. Regulations 90. Market demand 91. Intellectual property rights 92. Mergers, acquisitions or joint venture 93. Growth management 94. Intangible assets 95. Strategy 96. Helping users to deal with strategic risk