EMPIRICAL ESSAYS ON RISK DISCLOSURES, MULTI-LEVEL GOVERNANCE, CREDIT RATINGS, AND BANK VALUE: EVIDENCE FROM MENA BANKS

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A thesis submitted to the University of Huddersfield
in partial fulfilment of the requirements for the degree of
Doctor of Philosophy in Accountancy

January 2017

Copyright statement

Abstract

This thesis contains four essays that examine the relationships among risk disclosures, multi-level governance, credit ratings, and bank value in the Middle East and North Africa (MENA) banks. These essays concentrate on four closely linked risk disclosures, and governance topics that quantitatively investigate the antecedents and informativeness of risk disclosures by banks from 14 countries in MENA region over the 2006–2013 inclusive period.

The first essay aims at investigating the impact of multi-layer governance mechanisms on the level of risk disclosures by banks. The essay result suggests a variation between MENA banks in the level of risk disclosures with a significant improvement from 2006 to 2013. Specifically, the findings are three-fold. First, the results suggest that Sharia Supervisory Board (SSB) is positively associated with the level of risk disclosures by banks. Second and at the bank-level, the essay finds that ownership (governmental ownership and family ownership) and board (board size and non-executive directors) structures have a positive effect on the level of risk disclosures by banks, whilst CEO duality is negative, but insignificantly related to bank risk disclosures. At the country-level, the evidence suggests that control of corruption has a positive effect on the level of bank risk disclosures, whilst political stability and absence of violence have a negative, but insignificant association with the level of bank risk disclosures.

In the second essay, the thesis investigates the relationships among national governance quality (NGQM), Islamic governance quality (ISGQ), including other bank-level governance

mechanisms, and risk management and disclosure practices (RMDPs); and consequently ascertains whether NGQM has a moderating influence on the ISGQ -RMDPs nexus. The findings are four-fold. Firstly, this study finds that RMDPs are higher in banks from countries with higher NGQM. Secondly, this essay shows that RMDPs are higher in banks with better Islamic governance. Thirdly, the study finds that board size and non-executive directors have a positive effect on the level of RMDPs. Finally, this study finds evidence that suggests that NGQM has a moderating effect on the Islamic governance quality-RMDPs nexus.

The third essay explores whether RMDPs have a predictive effect (informativeness) on banks' credit ratings (BCRs); and consequently ascertains whether governance structures can moderate such an association. The findings suggest that RMDPs have a predictive effect on BCRs. The study finds that the quality of the BCR is higher in banks that have higher risk disclosures, board size, government ownership, board independence, women directors and established SSB. On the other hand, the results indicate that the BCR quality is lower in banks that have higher foreign ownership, and CEO role duality. Furthermore, the findings suggest that governance structures moderate the relation between RMDPs and BCRs.

The final essay examines the extent to which RMDPs and multi-level governance can explain observable changes in bank value in a number of ways. First, this essay seeks to examine whether RMDPs can influence the value of banks. The second objective is to examine how NGQM may affect the bank value. Finally, this essay explores the relationship between operating in better- or poorly-governed countries and the market value of banks. The results confirm the substantial role of risk disclosures and multi-level governance in

improving bank valuation in MENA. More specifically, the results indicate that market valuation is higher in banks with bigger foreign ownership, board size, board independence, Islamic governance, and NGQM. The results also show a significant negative relationship between CEO power and bank value.

The research's empirical findings are largely in line with the predictions of the multi-theoretical framework that incorporates insights from agency, signalling, legitimacy, institutional, and resource dependence theories. The study findings are robust to alternative firm- and country-level controls, alternative multi-level governance mechanisms, risk disclosure proxies, alternative estimation techniques, and endogeneity problems.

In doing so, this study extends, as well as contributes to the banking and governance literature in a number of ways. First, to the best of the researcher's knowledge, this thesis provides a first-time cross-country evidence on the level of risk disclosures in MENA countries, especially following the 2007/08 financial crisis in the banking industry. Second, this thesis offers first-time evidence on the informativeness of Islamic governance quality and risk disclosures from equity and debt markets. Third, this thesis offers evidence and extends prior research on the influence of multi-level governance on bank value, and credit ratings, using a multi-theoretical framework. Fourth, the study offers first-time evidence on the effect of national governance quality on banks' risk disclosures, credit ratings, and bank value.

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Acknowledgement

Alhamdulillah – All praise is to Allah, the Lord of Mercy, for giving me strength, courage, and determination to complete this work.

I would like to express my greatest and endless gratitude to my supervisor, Professor Collins Ntim; I cannot sufficiently express my appreciation to him for his endless belief in me from the beginning and throughout difficult moments. Professor Ntim always provided me with guidance, insightful comments, and the motivation necessary to complete this research. I learnt a great deal of useful knowledge from his academic expertise and his friendship.

I would also like to express my sincerest appreciation to my internal examiner, Dr. Yan Wang (De Montfort University), and my external examiner, Dr. Andrews Owusu (Coventry University) for their time and invaluable comments on my thesis, as well as for their positive input.

Deep appreciation and thanks goes to Professor Khaled Hussainey (University of Portsmouth) and Professor Hussein Abdou (University of Huddersfield) for their generous support, encouragement, and comments. I would also like to express my thanks to all academic and administration staff in the Huddersfield University Business School for their generous support and assistance, especially Hannah Spencer-Chung, Martin Smith, and Parveen Yunis who support and help me. I also appreciate the friendship, support, and comments of Ph.D. colleagues.

I would like to thank the participants of the 13th workshop of British Accounting and Finance Association (BAFA), Accounting and Finance in Emerging Economies Special Interest Group (AFEE) (2015), the BAFA Doctoral Conference (March 2015), Business

School Research Conference 2016, and the 30th Annual Conference of The British Academy of Management (BAM) (2016) for their valuable comments and recommendations.

My appreciation also goes to my sponsor, Mansoura University and the Ministry of Higher Education in Egypt for partially financing and supporting my PhD studies. I am grateful to the Cultural and Educational Counsellor, and the administrative staff of the Egyptian Educational and Cultural Bureau in London for their truthful support during the period of my scholarship.

Special appreciation is expressed to my supervisors at the early stages of this work: Professor Osama Mohe-Eldeen Awad (An icon has passed, yet the influence of this man's work and life will be perceived forever), Professor Kamal Abdel Salaam, and Dr. Samah Hafez (Mansoura University, Egypt) for their supervision and support.

A great appreciation goes to my family for their endless support. I am grateful to my father, mother, brothers, and sister for their infinite love, encouragement, and support. They have always given me the motivation for this work, which I never would have completed without their love and support. I am especially grateful to my father-in-law, and mother-in-law, who were continuously in touch to support and encourage.

Last yet important, I would like to express my deepest gratitude and special thanks to my wife, Maha Wael and my lovely children, Omar and Yousef for their unending passionate and loving support over the period of this study. Thank you for your invaluable support and for being there to encourage and assist me all the way along. I would not have completed this Ph.D. without your support.

List of Abbreviations

2SLS	Two-Stage Least Squares
3SLS	Three-Stage Least Squares
AAOIFI	The Accounting and Auditing Organization for Islamic Financial Institutions
ARDI	Capital Adequacy Risk Disclosure Index
BBID	Board Independence
BBSZ	Board Size
BCAD	Capital Adequacy
BCBS	Basel Committee On Banking Supervision
BCRs	Banks' Credit Ratings
BIS	Bank for International Settlements
BLG	Bank-level governance
BODs	Board of Directors
BPR	Profitability
BSHR	Block Ownership
CBs	Commercial Banks
CEOP	Chief Executive Officer (CEO) Power
CG	Corporate Governance
CGDP	Annual GDP per capita
COCQ	Control of Corruption
CRDI	Credit Risk Disclosure Index
CSRs	Social Responsibility Disclosures
DBs	Dual Banks
FOBs	Family-Owned Banks
FOWN	Family Ownership
FSB	Financial Stability Board
FSHR	Foreign Ownership
G2SLS	Two-Stage-Least-Squares Fixed-Effects Within Estimator
GBC	Global Banking Crisis
GEQ	Government Effectiveness
GFC	Global Financial Crisis
GNDI	Gender Diversity
GOBs	Governmental-Owned Banks
GSHR	Government Ownership
IAHs	Investment Account Holders
IAS	International Accounting Standards
IBs	Islamic Banks
IFRS	International Financial Reporting Standards
IFSB	Islamic Financial Services Board
INCD	Income Diversity

INFL	Annual Inflation
ISBs	Islamic and Dual Banks
ISG	Islamic Governance
ISGQ	Islamic Governance Quality
IST	Institutional Theory
KMO	Kaiser-Meyer-Olkin
LENG	Annual Reports Length
LGT	Legitimacy Theory
LIQR	Liquidity
LNBS	Bank Size
LRDI	Liquidity Risk Disclosure Index
MD&A	Management Discussion And Analysis
MENA	Middle East and North Africa
MLG	Multi-Layer Governance
MRDI	Market Risk Disclosure Index
NGQM	National Governance Quality
ODQI	Operational Risk Disclosure Quality Index
OECD	The Organisation for Economic Co-Operation and Development
OPEF	Operations Efficiency
PCA	Principal Component Analysis
PLSM	Profit and Loss Sharing Model
PNNs	Probabilistic Neural Networks
PSQ	Political Stability Quality
RATE	Fitch Long Term Issuer Default Ratings
RMDPI	Un-Weighted Risk management and disclosure practices Index
RMDPs	Risk Management and Disclosure Practices
ROAA	Performance
ROLQ	Rule of Law Quality
RQM	Regulatory Quality
RSD	Risk Disclosures
RSDI	Risk Disclosures Index
RSDT	Resource Dependence Theory
SOEs	State-Owned Enterprises
SRDI	Strategic Risks Disclosure Quality Index
SSB	*Sharia* Supervisory Board
ST	Signalling Theory
TOQ	Tobin's Q
VAQ	Voice and Accountability Quality
WGI	Worldwide Governance Indicators
W-RMDPI	Weighted Risk management and disclosure practices Index

Introduction to the Thesis

1. Background

This thesis examines risk management and disclosure practices in the Middle East and North Africa (MENA) setting in the light of recent risk disclosures and governance reforms. Risk management and disclosure practices are a significant part of bank's long-term financial sustainability and annual reporting. They often include managerial clarifications, and commentary about a bank's up-to-date state regarding uncertainty and future predictions (Elshandidy et al., 2013; Ntim et al., 2013). However, regulators and stakeholders have been concerned with risk management and disclosure practices (RMDPs) in recent years, especially following the 2007/2008 global banking crisis (Abedifar et al., 2013; Barakat & Hussainey, 2013; BCBS, 2015; Laeven, 2013).

The past decade has witnessed, in addition to the 2007/2008 global banking crisis, credit crunch, European debt crisis, and Chinese stock market crash in 2015. In addition, there were several high profile bank failures that happened around the world (e.g., Lehman Brothers in USA, Northern Rock in the UK, Islas Finance House in Turkey, the Dubai Islamic Bank, the Islamic Investment Companies of Egypt, Bank Islam Malaysia Berthed, and Islamic Bank of South Africa). These crises have affected the banking sector worldwide, as well as reignited concerns relating to the effectiveness of RMDPs (Aebi et al., 2012; BCBS, 2015a, 2015b; Beisland., 2014; Dardac & Grigore, 2011; Hasan, 2011; Kirkpatrick, 2009; Mollaha & Zamanb, 2015).

RMDPs as a corporate governance practice are principally critical for banks due to their opaqueness, complexities, multiple agency conflicts, and severely critical information asymmetries (Adams & Jiang, 2016; Bischof et al., 2016; Leventis et al., 2013). Regulators and central bankers prefer banks to practice risk management and disclosures by imposing stricter accounting standards (e.g., IAS 32, 39; IFRS 7, 9; Basel accords) and corporate governance (CG) reforms to achieve and maintain the well-functioning of the banking industry and the entire economy (Barakat & Hussainey, 2013; BCBS, 2015; Laeven, 2013; Walker, 2009).

Ineffective governance practices, including RMDPs, alternatively, may contribute to bank crashes, which can pose a substantial impact on investors, especially in the wake of crises. This, in turn, has grown current concerns over how banks are governed and what the governance structures that can effectively influence bank credit ratings and value are. Moreover, the Basel Committee on Banking Supervision (BCBS) indicates that comprehensive and effective risk disclosures and governance structures are critical toward achieving and maintaining public trust and confidence (Barakat & Hussainey, 2013; BCBS, 2015a, 2015b; Deumes, 2008; Liang et al., 2013).

Basel Accords (i.e. I, II, and III), international and domestic equivalent accounting (e.g., IFRS 7, 9; IAS 32, 39), and governance standards (e.g., World Bank and Saudi CG codes) are often aimed at strengthening the necessity for comprehensive RMDPs. Similarly, identifying, measuring, managing, controlling, and more importantly, disclosing risks are

becoming more critical as the global banking sector becomes increasingly complex and opaque. Nonetheless, Basel Accords and IFRS lack sufficient granularity in some key risk areas (e.g., operational risks and strategic risks), which in general are omitted from risk disclosures regulations (Barakat & Hussainey, 2013; Bischof & Daske, 2012).

Hence, a number of changes have been made to Pillar 3 of the Basel Accords in order to improve risk disclosures by demonstrating that banks must provide clear, comprehensive, informative, consistent, and comparable risk disclosures on main risks in highly comparable formats (BCBS, 2015b). Revised Pillar 3 considers another step forward in the development of RMDPs; however, risk disclosure requirements should be developed frequently to ensure the quality and relevance of the risk disclosures.

Thus, in the aftermath of the financial crisis of 2007 and credit crunch, Basel III raised both the quality and quantity of the regulatory capital base and enhanced the risk coverage of the capital framework by strengthening the regulation, supervision, governance, and risk management of the banking sector (BCBS, 2011; Rattanataipop, 2013; Walker, 2011). Walker (2011) has argued for the continuous improvement in RMDPs, which is underpinned by good governance in order to reduce the likelihood of future financial crisis.

2. Motivation

Despite the complexity of concerns around bank-level governance mechanisms and RMDPs (AI-Bassam & Ntim, 2016; Barakat & Hussainey, 2013; Farook et al., 2011; Garas & Pierce, 2010; Haniffa & Cooke, 2002; Laeven, 2013; Ntim et al., 2013), to the best of the researcher's knowledge, no attention has been given to how the national governance quality can affect these practices. As proposed by Aguilera et al. (2008), Baldini et al. (2016), García-Castro et al. (2013), Schiehll et al. (2014), and Schiehll and Martins (2016), effective CG structures may be contingent on the national governance quality factors. Such national governance quality may affect managers', shareholders', and other stakeholders' insights of agency, legitimacy, and resource dependence problems (Essen et al., 2013; Hooghiemstra et al., 2015) and thus, eventually affects RMDPs choices in different governance contexts and its consequences. Consequently, many emerging markets, including those in the MENA region, have embarked upon reforms that are aimed at enhancing their CG structures and practices.

This study focuses on MENA countries for a number of reasons. First, they provide a unique context, where risk disclosure can be examined. Similar to many developing market economies, MENA countries have witnessed varied challenges in relation to their CG practices compared to their developed counterparts. These challenges include prevalence of power concentration in the form of widespread CEO role duality, limited board independence, concentrated ownership structures, and poor levels of transparency and

disclosure practices (Hassan et al., 2009; Samaha et al., 2012). Second, many MENA governments and regulatory authorities have pursued a considerable amount of reforms on CG, including implementing IFRS and Basel accords (e.g., I, II, and III), which require banks to report more information about their RMDPs.

Third, MENA banking sector has also experienced a phenomenal growth of Islamic banks (IBs), and dual banks (DBs) in recent times (Mollaha & Zamanb, 2015). Fourth, many countries in MENA region and other emerging markets, which suffered during GFC, have weaknesses in political stability, government effectiveness, regulatory quality environments and poor governance systems (Kaufmann et al., 2010; Kirkpatrick, 2009).

To bridge the gap, regulators and standard-setters in MENA region established several CG codes depending on best CG practices since the mid-2000s to enforce minority shareholder rights and accountability, as well as to improve market transparency. Notably, these codes are mandatory in some countries, such as Oman, Jordan, Saudi Arabia, Syria, and UAE or exist on "comply or explain" basis in countries such as Bahrain, Egypt, and Qatar. In other countries, such as Lebanon, Morocco, and Tunisia, CG codes are voluntary (Amico, 2014). Furthermore, and because weak CG in banks can destabilise the financial system and given the significant socio-economic effect in circumstance of bank turmoil, specific attention has been given to banks' CG (World Bank, 2009). Thus, in recent years, several MENA countries, such as Egypt, Jordan, and UAE, have issued mandatory CG code for banks, while the remaining countries have issued CG guidelines to ensure financial

strength in the MENA banking sector and in capital markets (Amico, 2014; Koldertsova, 2011; World Bank, 2009).

Moreover, BCBS issued revised CG principles for the banking sector in the wake of GFC to the well-functioning of the banking sector and the safeguarding of stakeholders' interest to achieve a sustainable growth (BCBS, 2015b). Soundly governed banks could acutely affect the bank's risk profile. For instance, soundly governed banks improve supervisory process through maintaining a competent and cost-effective management as well as prudential board oversight, sound and effective risk management, resilient internal controls, and compliance (BCBS, 2015b). Hence, the revised CG principles emphasise the importance/ implementation of rigorous risk governance, and hence, improve risk governance and disclosure practices (BCBS, 2015b). However, the low country-level governance in the majority of MENA countries may affect banks' trustworthiness. Hence, MENA context allows us to examine clearly, if national governance quality moderates the relationship between bank-level governance mechanisms and RMDPs, or the relationship between bank-level governance mechanisms, RMDPs, and bank value.

In addition to CG and IFRS reforms in MENA region, many commercial banks have transformed completely or opened a window for Islamic banking, especially after the remarkable large-scale growth in Islamic banking and finance worldwide, particularly in the MENA region (Beck et al., 2013; Ernst & Young, 2012; Ozturk, 2014; Rahman & Bukair, 2013; Safieddine, 2009).

However, and whilst this is generally a positive development, it can also create additional agency, governance, and management challenges as Islamic (IBs) and dual (DBs) banks tend to have two distinct internal CG structures. It consists of the traditional board of directors, which is expected to focus on taking conventional decisions, and Islamic governance committee/SSB, which tends to focus on ensuring that the products and services of their banks comply with Sharia law (Mollaha & Zamanb, 2015; Safieddine, 2009). These include, but are not limited to prohibition of charging interest (Reba) and prohibition from engaging in speculation. Moreover, Islamic banks rely on a risk-sharing model, and are required to be more transparent and accountable compared to conventional counterparts, because they mainly face and monitor more risks.

Despite its importance, studies examining the impact of firm-level governance structures on risk disclosure are generally rare (Barakat & Hussainey, 2013; Elshandidy et al., 2013; Elshandidy & Neri, 2015; Ntim et al., 2013), but particularly acute with respect to the banking sector of developing countries, such as those in the MENA region. Furthermore, and to the best of the researcher's knowledge, no previous research has examined the effect of multi-level governance mechanisms (e.g., board and ownership mechanisms, Sharia supervisory board – SSB, and country-level governance mechanisms) either on the level of bank risk disclosures or on bank credit ratings and value.

This conveys us also to an additional important theoretical gap in the banking research—the propensity to focus on a single country, principally the USA. Extant research has

increasingly documented that the institutional context has substantial implications for disclosure and governance findings (Aguilera et al., 2008; Elshandidy, 2016; Filatotchev et al., 2016).

Also and although there are growing suggestions that the distinctive and peculiar features of national governance quality (NGQM) are an important driver of bank strategies, behaviour, and valuations (Alon & Dwyer, 2014; Ernstberger & Grüning, 2013; Essen et al., 2013; Tunyi & Ntim, 2016), extant research relating to the impact of NGQM on disclosure quality (e.g., RMDPs) or bank credit ratings and value has received little attention (Alon & Dwyer, 2014; Barakat & Hussainey, 2013; Cahan et al., 2015; Essen et al., 2013; García-Castro et al., 2013; Schiehll et al., 2014). Thus, I conjecture that because of these variances, reliance on bank CG, and risk disclosures may lead to variances in bank credit ratings and value in different contexts. Hence, understanding the effect of country- and bank-level governance extends the knowledge of the antecedents and the economic role of risk disclosures.

Given this background, this thesis hence contains four essays that measure the level of risk disclosures in MENA banks and ascertain the extent to which multi-level governance mechanisms, including bank- and country-level governance can explain observable differences in such risk disclosures. In addition, it examines the informativeness of risk disclosures from equity and debt markets.

3. Essay 1

The first essay investigates the impact of multi-layer governance (MLG) mechanisms, consisting of board and ownership structures, Sharia supervisory board (SSB), and country-level governance characteristics on the level of risk disclosure by banks in emerging context (MENA). Despite its importance, studies examining the impact of firm-level governance structures on risk disclosures have major limitations. First, most prior studies explore the nature and determinants of risk disclosure in developed countries (Abraham & Cox, 2007; Barakat & Hussainey, 2013; Beretta & Bozzolan, 2004; Deumes, 2008; Dobler et al., 2011; Elshandidy et al., 2013, 2014; Elshandidy & Neri, 2015; Elzahar & Hussainey, 2012; Miihkinen, 2012; Linsley et al., 2006; Rajab & Handley-Schachler, 2009).

By contrast, little attention has been given to developing countries in general, but the MENA region in particular (Al-Shammari, 2014; Ismail & Rahman, 2013; Muzahem, 2011; Mokhtar & Mellett, 2013). In addition, little attention has been given to the banking sector despite its importance to global and national economies, as well as governments, other corporations, and households (Barakat & Hussainey, 2013; Rattanataipop, 2013; Savvides & Savvidou, 2012). Second, there is a limited number of large-scale cross-country studies that examine governance and risk disclosure practices (Barakat & Hussainey, 2013; Dobler et al., 2011; Elshandidy & Neri, 2015), especially in developing countries in general, and MENA banks in particular (Abdallah et al., 2015). Third, to the best of the researcher's knowledge, there is no evidence on whether Islamic governance and country-level governance

mechanisms are associated with risk disclosure in different regulatory environments, especially in developing countries. Thus, this essay seeks to answer four questions.

The first question is whether the Sharia Supervisory Board (SSB) can have an effect on the level of bank risk disclosures. The second question is -at the bank-level- whether differences in risk disclosure level could be explained by board structures. The third question is whether the ownership structures (government ownership and family ownership) can have an effect on the level of bank risk disclosures. The fourth question examines, at the country-level, the extent to which country-level governance mechanisms (i.e., control of corruption (COCQ) and political stability and absence of violence (PSQ)) can have an effect on the level of bank risk disclosures. This essay employs a multi-theoretical framework that incorporates predictions from agency, resource dependence, and signalling perspectives in order to fully explain differences in aggregate levels of risk disclosure.

This essay examined four hypotheses to determine the relationship between multi-layer governance mechanisms and the level of risk disclosures. Using one of the most extensive datasets on MLG and risk disclosure to date from 14 countries in the MENA region over the period from 2006 to 2013, in addition to employing fixed effect, 3SLS, and G2SLS regression models, the findings are three-fold. First, the results suggest that SSB is positively associated with the level of risk disclosures by banks.

Second, and at the bank-level, the essay finds that ownership (governmental ownership and family ownership) and board (board size and non-executive directors) structures have a

positive effect on the level of risk disclosures by banks, whilst CEO duality is negative, but insignificantly related to bank risk disclosures. At the country-level, the evidence suggests that control of corruption has a positive effect on the level of bank risk disclosure, whilst political stability and absence of violence have a negative, but insignificant association with the level of bank risk disclosures.

4. Essay 2

The second essay examines the relationships among national governance quality (NGQM), Islamic governance quality, including other bank-level governance mechanisms and risk management and disclosure practices (RMDPs); and consequently ascertains whether NGQM has a moderating influence on the Islamic governance quality-RMDPs nexus. Notwithstanding, prior studies investigating the relationships among national governance quality, Islamic governance quality, including other bank-level governance mechanisms (ISGQ) and RMDPs are rare (Barakat & Hussainey, 2013; Elshandidy et al., 2013; Elshandidy et al., 2015; Elshandidy & Neri, 2015; Ntim et al., 2013). Similarly, and to the best of the researcher's knowledge, there is no extant study examining how NGQM might probably affect the ISGQ-RMDPs nexus.

The second essay, therefore, seeks to answer two main questions. The first question is whether the NGQM and ISGQ have an effect on the level of RMDPs. In addition, this essay explores why and how national governance quality may have a moderating influence on the

ISGQ-RMDPs nexus in the MENA Islamic banks. This essay employs a multi-theoretical framework that incorporates predictions from agency, signalling, legitimacy, institutional, and resource dependence perspectives in order to fully explain the differences in RMDPs. This essay examined three hypotheses to determine the relationship between national governance quality (NGQM), Islamic governance quality, including other bank-level governance mechanisms and risk management and disclosure practices (RMDPs).

Using Islamic banks dataset from 10 MENA countries from 2006 to 2013, in addition to employing fixed effect and G2SLS regression models, the findings are four-fold. Firstly, this study finds that RMDPs are higher in banks from countries with higher NGQM. Secondly, this essay shows that RMDPs are higher in banks with better Islamic governance. Thirdly, the study finds that board size and non-executive directors have a positive effect on the level of RMDPs. Finally, this study finds evidence suggesting that NGQM has a moderating effect on the Islamic governance quality-RMDPs nexus.

5. Essay 3

Unlike literature on the impact of risk disclosures and governance structures, which tends to focus largely on equity markets in one national financial market, the third essay explores the predictive effect (informativeness) of risk disclosures on banks' credit ratings (BCRs). Consequently, it ascertains whether governance structures have a moderating effect on the risk disclosures-BCRs nexus.

Literature appears to suffer from a number of limitations. Firstly, limited prior studies have generally examined the informativeness of risk disclosures in developed countries (Abraham & Shrives., 2014; Maffei et al., 2014; Elshandidy & Neri., 2015; Rajgopal, 1999) and observably, large-scale, cross-country studies are limited (Elshandidy & Neri., 2015; Lau et al., 2015). Secondly, to the best of the researcher's knowledge, there is no evidence on whether Islamic governance and governance structures, in general, moderate the relationship between risk disclosures and BCRs in different regulatory environments such as MENA countries.

The third essay, hence, seeks to answer five main questions. The first question is whether risk disclosures have a predictive effect (informativeness) on bank credit ratings (BCRs) in MENA region. The second question is whether the Sharia Supervisory Board (SSB) can have a predictive effect (informativeness) on BCRs in MENA region. The third question is -at the bank-level- whether differences in BCRs could be explained by board structures. The fourth question is whether the ownership structures can have an effect on the BCRs. The fifth question examines whether governance structures have a moderating effect on the risk disclosures-BCRs nexus. This essay employs a multi-theoretical framework that incorporates predictions from agency, signalling, legitimacy, and resource dependence perspectives in order to fully explain the informativeness of risk disclosures and governance structures.

This essay examined five hypotheses to determine the informativeness of risk disclosures and governance structures on BCRs using firm-level data from 12 MENA

countries for the period from 2006-2013, in addition to employing ordered logistic regression and 2SLS regression models and The Probabilistic Neural Networks (PNNs). The findings suggest that risk disclosures have a predictive effect (informativeness) on BCRs. The study finds that the quality of the BCR is higher in banks that have higher risk disclosures, board size, government ownership, non-executive directors, women directors and established Sharia supervisory board. On the other hand, the results indicate that the BCR quality is lower in banks that have higher foreign ownership, and CEO role duality. Furthermore, the findings suggest that governance structures moderate the relation between risk disclosures and BCRs. The Probabilistic Neural Networks (PNNs) results partially support the ordered logistic regression results and provide new insights in relation to the importance of risk disclosure pre/during/post the financial crisis by rating agencies.

6. Essay 4

In the fourth essay, we undertake a cross-country study to investigate three issues related to market valuation, which are highly relevant to banks and investors in developing countries. The first issue is whether the risk disclosures can influence the value of banks. The second issue is how bank-level governance may affect the bank value. Finally, this essay explores the relationship between operating in highly governed countries and the market value of banks.

A growing research focuses on the market valuation of the risk disclosures and other multi-level governance ties in banks; however, the results so far are inconsistent. It remains ambiguous, though, whether risk disclosures and governance mechanisms affect investors' perceptions of banks' value. Extant research conveys us to an additional important theoretical gap in the banking research—the propensity to focus on a single country, principally the USA. However, extant research in developing countries is extremely rare (Moumen et al., 2015), which may influence the effectiveness of governance structures results (Filatotchev et al., 2013; Kumar & Zattoni, 2013; Nguyen et al., 2015).

The fourth essay, hence, seeks to answer three main questions. The first question is whether risk disclosures influence banks' market value in the MENA region. The second question is whether the bank-level governance, including Islamic governance, board structures, and ownership structures affect market valuation. The third question is whether country-level governance could explain differences in market valuation. This essay employs a multi-theoretical framework that incorporates predictions from agency, signal, and institutional perspectives in order to explain fully the impact of risk disclosures and multi-level governance on market valuation.

This essay examined five hypotheses to determine the impact of risk disclosures and multi-level governance on market valuation using a dataset from 14 MENA countries for a period of eight years from 2006 to 2013. The results confirm the substantial role of risk disclosures and multi-level governance in improving bank valuation in MENA. More

specifically, the results indicate that market valuation is higher in banks with bigger foreign ownership, board size, board independence, Islamic governance, and national governance quality. The results also show a significant negative relationship between CEO power and bank value. Additionally, I found evidence of informative risk disclosures and multi-level governance in countries considered as a strongly governed environment. More importantly, the bank-level governance impact is higher in poorly governed environments compare to strongly governed environments.

The next sections will present the content of each of the four essays with the final section offering an overview, as well as conclusions to the thesis.

Empirical Essays on Risk Disclosures, Multi-Level Governance, Credit Ratings, and Bank Value: Evidence from MENA Banks

Essay 1

The Impact of Multi-Layer Governance on Risk Disclosure: Evidence from MENA Banks

Abstract

This essay examines the impact of multi-layer governance (MLG) mechanisms, consisting of board and ownership structures, Sharia supervisory board (SSB), and country-level governance characteristics; on the level of risk disclosure by banks. Using one of the most extensive datasets on MLG and risk disclosure to-date from 14 countries in the Middle East and North Africa (MENA) region over the period 2006 to 2013, the findings are three-fold. First, the results suggest that SSB is positively associated with the level of risk disclosures by banks. Second and at the bank-level, the essay finds that ownership (governmental ownership and family ownership) and board (board size and non-executive directors) structures have a positive effect on the level of risk disclosures by banks, whilst CEO duality is negative but insignificantly related to bank risk disclosures. At the country-level, the evidence suggests that control of corruption has a positive effect on the level of bank risk disclosure, whilst political stability and absence of violence have a negative, but insignificant association with the level of bank risk disclosures. The empirical findings are largely in line with the predictions of the multi-theoretical framework that incorporates insights from agency, signalling, legitimacy, and resource dependence theories. The findings are robust to alternative firm- and country-level controls, alternative MLG mechanisms and risk disclosure proxies, alternative estimation techniques, and endogeneity problems.

Keywords: Risk Disclosure; Corporate Governance; *Sharia* Supervisory Board; Country Governance; MENA Banks; Multi-Theoretical Perspective.

1. Introduction

The 2007/2008 financial crisis has raised the importance of risk management and disclosure, as well as governance structures in the banking sector worldwide (Abdallah et al., 2015; Aebi et al., 2012; Barakat & Hussainey, 2013; Ebrahim & Fattah, 2015; Ntim, 2016; Walker Review, 2009). Despite its importance, studies examining the impact of firm-level governance structures on risk disclosure are generally rare (Barakat & Hussainey, 2013; Elshandidy et al., 2013; Elshandidy & Neri, 2015; Ntim et al., 2013), but particularly acute with respect to the banking sector of developing countries, such as those in the MENA region. Further, and to the best of the researcher's knowledge, no previous research has examined the effect of multi-layer governance mechanisms (e.g., board and ownership mechanisms, Sharia supervisory board – SSB, and country-level governance mechanisms) on the level of bank risk disclosures. Therefore, this study seeks to contribute to the literature by examining the impact of MLG mechanisms on the level of risk disclosure by banks. Using a dataset from 14 countries in the Middle East and North Africa (MENA) region and its unique characteristics over the period of 2006 to 2013, where current IFRS, Basel II, III, and corporate governance (CG) reforms require banks to provide more transparent information on their risk management and disclosure practices.

The risk disclosure literature generally suggests that governance structures are a key determinant of risk disclosure for a number of reasons. First, agency theory suggests that good governance structures can help reduce the level of information asymmetry and

uncertainty between shareholders and managers, as well as between shareholders and stakeholders by facilitating greater corporate transparency, and accountability through increased risk disclosures (Elshandidy et al., 2013; Jensen & Meckling, 1976; Ntim et al., 2013; Safieddine, 2009).

Second, signalling theory predicts that banks with good governance structures may choose to disclose additional information voluntarily about risk as differentiating characteristic to send significant signals to the market that additional requirements are not needed. Also, the board of directors (BODs) and shareholders may elect to signal the quality of their banks by engaging in increased risk disclosures (Connelly et al., 2011; Spence, 1973). With specific reference to Islamic banks, their SSBs can arguably communicate their monitoring power and effectiveness with respect to imposing Sharia[1] compliance to other stakeholders; through increased risk disclosures.

Third, from the standpoint of resource dependence theory, bank boards and shareholders might increase the quality of risk disclosure in order to obtain access to critical resources, such as finance and business contracts (Jia et al., 2009; Jizi et al., 2014; Ntim et al., 2013; Salancik & Pfeffer, 1978). With a particular focus on Islamic banks, their SSBs can be a

[1] *Sharia* or Islamic law is Islamic principles derived mainly from contemporary Islamic theology interpretation of the Quran and the Hadith of the Prophet Muhammad (Syed & Van Buren, 2014). It should be noted that *Sharia* or Islamic law regarding to human daily interaction (e.g., financial transactions) is not a strictly well-defined set of specific rules and principles because it may differ based on Islamic scholars' interpretation to contemporary activities (Abedifar *et al*., 2013; Lewis, 2007; Syed & Van Buren, 2014).

mechanism for securing such resources and legitimising their banks' operations and performance (Drees & Heugens, 2013; Oliveira et al., 2011; Suchman, 1995).

In general, a few empirical studies have either investigated the impact of governance structures on risk disclosure or examined it within the banking context (Barakat & Hussainey, 2013; Oliveira et al., 2011; Rattanataipop, 2013; Savvides & Savvidou, 2012). Despite the importance of risk disclosure, the general prior empirical research on risk disclosure and CG has major limitations. First, most prior studies explore the nature and determinants of risk disclosure in developed countries (Abraham & Cox, 2007; Barakat & Hussainey, 2013; Beretta & Bozzolan, 2004; Deumes, 2008; Dobler et al., 2011; Elshandidy et al., 2013, 2014; Elshandidy & Neri, 2015; Elzahar & Hussainey, 2012; Kajüter, 2006; Konishi & Ali, 2007; Miihkinen, 2012; Linsley et al., 2006; Rajab & Handley-Schachler, 2009).

By contrast, little attention has been given to developing countries in general, but the MENA region in particular (Al-Shammari, 2014; Amran et al., 2008; Ismail & Rahman, 2013; Moumen et al., 2015; Muzahem, 2011; Mokhtar & Mellett, 2013). In addition, little attention has been given to banking sector despite its importance to global and national economies, as well as governments, other corporations and households (Barakat & Hussainey, 2013; Rattanataipop, 2013; Savvides & Savvidou, 2012).

Second, there is a limited number of large-scale cross-country studies that examine governance and risk disclosure practices (Barakat & Hussainey, 2013; Dobler et al., 2011;

Elshandidy & Neri, 2015), especially in developing countries in general, and MENA banks in particular (Abdallah et al., 2015). Third, to the best of the researcher's knowledge, there is no evidence on whether Islamic governance and country-level governance mechanisms are associated with risk disclosure in different regulatory environments, especially in developing countries.

This study focuses on MENA countries because they provide a unique context, where risk disclosure can be examined. Similar to many developing market economies, MENA countries have witnessed varied challenges in relation to their CG practices compared to their developed counterparts. These challenges include prevalence of power concentration in the form of widespread CEO role duality, limited board independence, concentrated ownership structures and poor levels of transparency and disclosure practices (Hassan et al., 2009; Samaha et al., 2012). Thus, many MENA governments and regulatory authorities have pursued considerable amount of reforms on CG, including implementing IFRS and Basel accords (e.g., I, II, and III), which require banks to report more information about their risk management practices.

MENA banking sector has also experienced a phenomenal growth of Islamic banks (IBs), and dual banks (DBs) in recent times (Mollaha & Zamanb, 2015). However, whilst this is generally a positive development, it can also create additional agency, governance, and management challenges as IBs and DBs tend to have two distinct internal CG structures. It consisting of the traditional board of directors; which is expected to focus on taking

conventional decisions, and Islamic governance committee/SSB, which tends to focus on ensuring that the products and services of their banks are in compliance with Sharia law (Mollaha & Zamanb, 2015; Safieddine, 2009).

Against this background, the central objective of this study is to examine the impact of MLG on the level of risk disclosure by MENA banks. Specifically, this essay investigates the impact of board, ownership, SSB and country-level governance characteristics on the level of risk disclosure in MENA banks, consisting of IBs, commercial banks (CBs), and DBs. In doing so, this study extends, as well as makes a number of new contributions to the extant literature. First, to the best of the researcher's knowledge, this study provides a first-time cross-country evidence on the level of risk disclosures in MENA countries, especially following the 2007/08 financial crisis. Second, this essay provides evidence for the first time on the impact of SSB on the level of risk disclosure by banks. Third, this essay provides evidence on the extent to which differences in bank risk disclosures can be explained by other MLG structures, including board and ownership mechanisms and country-level factors. Finally, the study evidence offers insights into risk disclosure and governance practices over the pre- and post-2007/08 period in MENA countries.

The remainder of the study is organised as follows. Section 2 discusses risk disclosure practices, CG reforms, Sharia supervisory board (SSB), and Islamic governance in a MENA context. Section 3 provides a proposed multi-theoretical framework for risk disclosure. Section 4 reviews the literature on MLG and risk disclosure. Section 5 outlines the research

design and measurements of variables. Section 6 reports and discusses the empirical findings. Section 7 concludes.

2. Risk Management, CG Disclosure Reforms, and *Sharia* Supervisory Board in MENA

The 2007/2008 financial crisis has raised the importance of risk disclosure and management in the banking sector worldwide. Indeed, the past decade has witnessed the global financial crisis, credit crunch, European debt crisis, and several high-profile corporate failures including large global banks (e.g., AIG, Enron, Islas Finance House in Turkey, Lloyds TSB, Lehman Brothers, Northern Rock, WorldCom, the Dubai Islamic Bank and the Islamic Investment Companies of Egypt) (Barakat & Hussainey, 2013; Greuning & Bratanovic, 2003; Horcher, 2011; Ntim et al., 2013; Ozturk, 2014). These failures happened in the banking sector as banks were exposed to various types of risk.

Although risk is a key issue in banking operations, there are two approaches to defining it (Ale, 2009; GASB, 2000). The first approach concentrates on the negative effects of risk, including potential losses, negative impact, hazards, damages or threats (Ale, 2009; Bessis, 2002; GASB, 2000). By contrast, a second approach concentrates on a combination of the upside (favourable) and downside (unfavourable) of risks (IRM, 2002, COSO, 2004, ISO, 2009, IAS 32 and 39, IFRS 7). This study will follow the second approach that defines risk as uncertainty, volatility, and exposure affecting the deviation from an expected outcome,

which results in potential gains or losses because it is more comprehensive and reflects more accurately banking operations and the broader business environment. In spite of the importance of risk disclosure and management practices especially during periods of economic and financial crises, there are no comprehensive financial reporting standard that currently covers all types of risks.

Banks are exposed to various types of risk when providing their financial services. These risks have been grouped by prior research in different ways in order to suit largely their analytical framework. However, the common types of risk (Ahmed, 2010; Barakat & Hussainey, 2013; Greuning & Bratanovic, 2003; Horcher, 2011; Ntim et al., 2013), which are considered in this study include financial risks (e.g., credit risk, liquidity risk, market risks, capital management and adequacy risks), and non-financial risks (e.g., operational risks and strategic risks). Also, the Basel Committee on Banking Supervision (BCBS), a subgroup of the Bank for International Settlements (BIS), highlights enhancing market discipline in the Basel II Capital Accord (Pillar 3) by improving risk disclosure in the global banking sector (BCBS, 2006; Ismail & Rahman, 2013; Van Oorschot, 2010).

Basel II capital accord categorises three main types of risks, which are: (i) credit, (ii) market, and (iii) operational risks; to which banks have an obligation to reserve adequate capital resources (i.e., regulatory capital) in order to absorb any unexpected losses. In addition, Pillar III market discipline includes quantitative and qualitative disclosure for each separate risk type and the risk management objectives and policies have to be described. It

should be noted that apart from the Basel Accords, some international accounting standards have been issued that specially deal with the management of risks by companies. These include IAS 32, IFRS 7, and IFRS 9. A major limitation of these accounting standards is that they concentrate only on financial risks, which include credit, liquidity, market, and derivative/financial instruments trading risks. In fact, neither Basel I, II, and III nor IAS 32, IFRS 7 and IFRS 9 deal with operational (e.g., technology and integrity risks) and strategic risks (e.g., inflation and interest rates risks) (Barakat & Hussainey, 2013; BCBS, 2006).

Furthermore, risk disclosures in banks have also become more complex due to the growing financial and technological complexity, large-scale acquisitions and mergers, new business activities, globalisation, and regulations, such as the Basel Accords (Akkizidis & Bouchereau, 2005; BCBS, 2003). With specific reference to the Basel Accords and unlike Basel I, Basel II requires banks to measure, allocate, and disclose specific risks such as credit, liquidity, market and operational risks (BCBS, 2006). More importantly, the third pillar (market discipline) of Basel II sets disclosure requirements to evaluate key risk information regarding the scope of application, risk exposures, risk appetite framework, risk assessment processes, and risk capital adequacy (Barakat & Hussainey, 2013; Iren et al., 2014).

It is worthy to note that Basel II Accord proposed qualitative and quantitative risks disclosures regarding strategies, processes, structure, and nature of the credit, liquidity, market, and operational risks used by banks, in addition to risks methods that can be used to calculate the minimum capital adequacy requirements. Principally, Basel II Accord required

a qualitative risks disclosure that contains (i) risk measurement approach, (ii) risk management strategies and processes, (iii) risk management functional structure and organisation, and (iv) scope and nature of the risk reporting system (BCBS, 2006, 2014c). Basel II Accord also expected a quantitative risk disclosure that contains risk exposure, and the amount of regulatory capital for risk (pillar 1 capital) (Akkizidis & Bouchereau, 2005; BCBS, 2006). Along with the Basel II requirement, similar risk disclosure issues have been addressed by IFRS 7 and 9, in addition to IAS 32 and 39 (Bischof, 2009). For instance, IFRS 7 requires a qualitative and quantitative disclosures relating to risks arising from financial instruments (Bischof, 2009; Dobler et al., 2011; Oliveira et al., 2011). However, there is no formal granularity risks reporting requirements currently in existence (BCBS, 2016). It should be noted also that Basel II Accord is not compulsory for all banks in the MENA region. However, banks in many countries, such as Saudi Arabia, are required to fully comply with Basel II and III (BCBS, 2015a).

Currently, many MENA banks are reconsidering their risks and their governance practices (BCBS, 2014b; Izhar & Asutay, 2010; Young, 2015). Thus, we analyse risk disclosure drivers because MENA banks had a substantial degree of freedom regarding some risks such as operational and strategic risks, as has been discussed above.

Furthermore, banks in MENA face a unique challenge in managing their risk, due to the continual political turbulence, distinctive asset and liability structures, and Islamic compliance, compared to conventional banks (Abedifar et al., 2013; Abu Hussain & Al-

Ajmi, 2012; Mokni et al., 2014; Mollaha & Zaman, 2015). Additionally, the need to comply with Islamic governance rules and regulations poses stronger risk management challenges compared to their counterparts (Abedifar et al., 2013; Izhar & Asutay, 2010; Mokni et al., 2014; Pappas et al., 2012; Rosman & Abdul Rahman, 2015).

Thus and due to the apparent special nature of MENA banks, the religious features of those banks create additional risks in terms of Sharia non-compliance risk (Abedifar et al., 2013; Izhar & Asutay, 2010; Van Greuning & Iqbal, 2007). Thus, we conjecture that the antecedents of risks in MENA banks can be expected to differ from those of counterparts. As such, studying the RMDPs in MENA banks, where empirical findings are rare, can contribute to current knowledge and understanding of the motives and determinants of RMDPs.

Many experts and scholars still see the requirements of the Basel capital accords (Basel I, II, and III) and IFRS (IAS 32, IFRS 7, and IFRS 9) as being very general and qualitative in nature, although considered as an important step towards enhancing risk disclosure in banks (Barakat & Hussainey, 2013; Ford et al., 2009). Thus, in the aftermath of the financial crisis of 2007 and credit crunch, it was shown that the capital regulation of Basel II might be insufficient to strengthen the banking sector transparency and need to develop a new or revised framework (Mittoo & Varotto, 2011) for more resilience within the banking sector.

Therefore, in 2009, the Basel committee started to refine its Basel II accord, leading to the publication of the Basel III accord in 2010 with the aim of enhancing the resilience of

banks in order to improve the banking sector's ability to absorb shocks arising from financial and economic stress. In addition, Basel III raised both the quality and quantity of the regulatory capital base and enhanced the risk coverage of the capital framework by strengthening the regulation, supervision, governance and risk management of the banking sector (BCBS, 2011; Rattanataipop, 2013; Walker, 2011). Walker (2011) has argued for the continuous improvement in risk management and disclosure practices, which is underpinned by good governance in order to reduce the likelihood of future financial crisis. Consequently, many emerging markets, including those in the MENA region, have embarked on reforms that are aimed at enhancing their CG structures and practices.

In this case, Arab countries in the MENA region have significant differences in the income per capita levels, legal systems and are at different stages of economic development and reforms (McLellan, 2011). This is a fundamental fact regarding the aims of their implementation of CG codes in such contexts. Moreover, MENA countries, similar to many emerging market economies, face a number of challenges with respect to their CG practices compared to their developed counterparts. For instance, MENA banks are characterised by either majority family-owned banks (FOBs) or governmentl-owned banks (GOBs), often with significant governance challenges. These include weak CG structures like role duality, limited board independence, concentrated ownership structures, and poor transparency and disclosure practices (Samaha et al., 2012; Baydoun et al., 2012).

Moreover, banks have legal, ethical, and moral obligation to mitigate their risks in order to protect their shareholders, as well as stakeholders, and improve their performance because of the complexity and opaqueness of the banks' operations and their related exposures and risks (Falikhatun et al., 2010). Therefore, banks need to comply with sound CG practices in order to increase their levels of transparency and disclosure in order to reduce risks and agency costs, as well as to legitimise their activities (Carcello & Neal, 2003; Cheng & Courtenay, 2006; World Bank, 2010).

CG structures in the MENA countries have witnessed substantial changes over the past decades that have been motivated by the need to improve the integrity of local markets, and align governance practices with the relevant international standards in order to be attractive to foreign investors. Indeed, the awareness of the need to improve CG practices of financial institutions in the MENA region has been growing. Consequently, Oman was the first country in the MENA region to issue a code of CG in 2002, relating to companies listed on the Muscat securities market (Baydoun et al., 2012). Also, CG guidelines for UAE bank directors was issued in June 2006, and a code of CG was issued in 2007 for joint-stock companies (Hassan, 2009; Muzahem, 2011). Similarly, a code of CG was introduced in Saudi Arabia in 2006 (Al-Janadi et al., 2012; Baydoun et al., 2012). In Jordan, further to issuing the bank director's handbook of CG in 2004, the Central Bank of Jordan issued a CG code in 2007 (Central Bank of Jordan, 2007). Egypt published its first code for state-owned enterprises (SOEs) and private sector organisations in 2006.

Furthermore, the MENA context is characterised by increased interest in Islamic banking often with added risks and CG challenges. In particular, international financial institutions are increasingly becoming interested in Islamic finance and investment because of the large global growth in Islamic finance and banking worldwide, which has occurred during the last twenty-five years. For instance, the amount of Islamic finance in 2011 totalled approximately $1.3 trillion in assets and an annual expected growth rate between 10% and 20% per year (Ernst & Young, 2012). Also, a 2012 report by Ernst and Young (2012) suggests that the growth of Islamic finance continues steadily, suggesting an average annual growth of 19% over the 2009 to 2011 period.

Moreover, several major international banks (e.g., BNP Paribas, Citibank, Deutsche Bank, and HSBC) established Islamic windows to meet the increasing demand for Islamic products (Ozturk, 2014; Pomeranz, 1997). In the last decade, Islamic banking has transformed itself from a trivial financial experiment to a major player in the global banking sector. Prior research (Beck et al., 2013; Farooq & Zaheer, 2015; Hasan & Dridi, 2010) suggests that the rapid development of Islamic financial sector is accompanied by assertions about relative resilience of Islamic banking to financial crises in comparison with conventional banking. For instance, Islamic finance experienced less deposit withdrawals, better capitalisation, asset growth, and relatively better stock market performance than conventional banks. Thus, this study seeks to examine the impact of CG in IBs in comparison with CBs that may offer some benefits to regulatory authorities.

Compliance with Sharia principles can also create unique CG challenges. The need to ensure compliance with Sharia principles differentiates Islamic financial institution in its products, instruments, operations, practices, and management from traditional financial institution. As Islamic banks must comply with Sharia, Islamic governance is considered the backbone of Islamic banking and finance. It legitimises the practices of banking and finance, and increases the confidence of the shareholders, as well as the public through ensuring that all practices and products are in compliance with Sharia principles and rules.

On the other hand, the existence of Sharia risk (Non-Sharia compliant manner) would not just affect the confidence of the shareholders and the public in Islamic banking and finance institutions, but might also expose Islamic banking to similar financial crises often faced by conventional banks (e.g., fiduciary and reputational risks). Most interestingly, surveys such as those conducted by Chapra and Ahmed (2002) in Bahraini and Sudanese Islamic banks show that most depositors (86% and 95% of depositors in Bahraini and Sudanese Islamic banks) of Islamic banks are prepared to withdraw their funds, if those banks fail to operate in a Sharia compliant manner (Chapra & Ahmed, 2002; Darmadi, 2013; Kettell, 2011; Matoussi & Grassa, 2012; Safieddine, 2009).

Given this background, the main aim of this study is to measure the level of risk disclosures in MENA banks and ascertain the extent to which MLG mechanisms, including SSB, can explain observable differences in such risk disclosures.

3. Theoretical Framework

A number of theories, including agency, legitimacy, institutional, stakeholder, signalling, proprietary costs, and resource dependence can generally explain the motivations and variations in risk disclosure, as well as MLG impact on risk disclosure. Also, a comprehensive theory of risk disclosure does not currently exist (Abraham & Shrives, 2014; Amran et al., 2008; Elshandidy et al., 2013; Elzahar & Hussainey, 2012; Greco, 2012; Linsley & Shrives, 2006; Lopes & Rodrigues, 2007; Ntim et al., 2013; Oliveira et al., 2011; Taylor et al., 2010). These theories in some literature tend to place emphasis on different aspects of risk disclosure and governance phenomena, as explained below, and to this extent, they are not mutually exclusive. Each particular theoretical perspective is being limited in its ability to explain fully the impact of MLG on the level of risk disclosures (Abdel-Fattah, 2008; Morris, 1987; Ntim et al., 2013; Ntim & Soobaroyen, 2013b).

Therefore, in this study, I rely on a number of theories in order to assess the extent to which MLG mechanisms may be able to explain observable differences in the level of risk disclosures by banks. For example, Helbok and Wagner (2006) examined voluntary operational risk disclosure determinants, by relying on agency, signalling and political costs theories, whilst Oliveira et al. (2011) employed legitimacy, resource dependence, and stakeholders theories in doing same. Hence, in this study, I rely on a multi-theoretical framework that incorporates predictions from agency, resource dependence, and signalling theories in order to explain completely the differences in aggregate levels of risk disclosure.

Thus, it could be argued that these theories are relevant in explaining the relationship between risk disclosures and MLG mechanisms (e.g., Linsley & Shrives, 2000; Ntim et al., 2013; Woods & Reber, 2003).

First, agency theory is a relevant and powerful theory, which can be used to explain risk disclosures, especially when it comes to explaining information asymmetry and uncertainty between shareholders and management (Elshandidy et al., 2013; Ntim et al., 2013). Better governance structures could enable investors to deal more effectively with risk diversification, portfolio investment decision-making and reducing investors' uncertainty by alleviating information asymmetry between insiders and outsiders via enhancing risk disclosure (Greco, 2012; Rajab & Handley-Schachler, 2009; Solomon et al., 2000). Also, in Islamic banking, there is a unique agency problem between management and all stakeholders regarding Sharia compliance, which can be mitigated via enhancing risk disclosure (Safieddine, 2009).

Principally, there are several theoretical reasons why banks could be involved in wide-ranging RMDPs. Agency theory predicts that effective mechanisms of the multi-layer governance may lead to transparent RMDPs. Thus, it mitigates agency conflicts and reduces the information asymmetry between management and shareholders (Abraham & Cox, 2007; Elshandidy et al., 2013; Jensen & Meckling, 1976; Safieddine, 2009).

Agency theory (AT) seeks to explain the principal(s) - agent relationship from an economic utilitarianism view (Ross, 1973). Specifically, AT suggests that a conflict of

interest in the bilateral principal-agent relationship is due to self-interested individuals (opportunistic behaviour) (Aguilera, 2005; Jensen & Meckling, 1976). Hence, AT emphases on determining the optimal implicit or explicit nexus of contracts for aligning the interests of contracting parties (Cuevas-Rodríguez et al., 2012; Fama & Jensen, 1983; Jensen & Meckling, 1976). More importantly, the conflict of interest between the contracting parties creates information asymmetry and agency cost which may affect firm valuations (Armstrong et al., 2011; 2010).

Armstrong et al. (2010, 2011) underline the influences of information asymmetry between the agents of the firm and the principal(s) on the market valuations for the firm's shares. We can argue that multi-layer governance may reduce asymmetric information in terms of risk disclosures; consequently, it can similarly improve the market valuations of bank's shares. A recent empirical instance of this is Ntim et al. (2013) who suggest that risk-related disclosure as a channel of reducing information asymmetry are tied to governance structures. Another example is Elshandidy et al. (2013) who reveal that corporate governance significantly improves risk related information.

Additionally, AT seeks to attenuate agency costs through the design of governance system to align the interests of principal(s) and their agents (Cuevas-Rodríguez et al., 2012; García-Castro et al., 2013; Jensen & Meckling, 1976; Ntim et al., 2013). Accordingly, most of the theoretical foundation of the extant research on corporate governance built upon AT, and is involved in linking different corporate governance (CG) mechanisms with risk

disclosure (Aguilera, 2005; Filatotchev & Wright, 2011; Zona et al., 2015). AT argues that principal(s) may use multi-layer governance, including board of directors monitoring (Fama & Jensen, 1983; Ntim et al., 2015a, 2015c), Islamic governance (Safieddine, 2009), and ownership structure (Al-Bassam et al., 2015; Chen et al., 2009; Fama & Jensen, 1983) to align the interests of principal(s) and agents to constrain managerial opportunistic behaviour and improves risk disclosure.

In other words, by managing the principal(s)-agents' conflicts through better governance system, banks will work more efficiently, which will be reflected on enhanced risk disclosures. Moreover, Tunyi and Ntim (2016), and Wiseman et al. (2012) argue that the institutional setting, such as the national governance quality and/ or country risk, is necessary for improving the understanding of the particular agency conflicts that may affect the bank transparency in different settings. However, AT was criticised because of its simplistic expectations about different risk preferences; it ignores stewardship interests; and does not indicate the social context importance (Cuevas-Rodríguez et al., 2012; Wiseman et al., 2012).

Second, from signalling theory perspective, in the current complex business environment, banks may choose to ameliorate risk disclosure as differentiating characteristic; to send significant signals to the market that additional requirements may not be needed. Also, board of directors and shareholders signal their performance quality through an increase in the level of risk disclosures, and thus, a decrease in the level of information asymmetry (Connelly et al., 2011; Morris, 1987; Spence, 1973). Moreover, in Islamic

banking, SSBs can communicate their performance by disclosing their level of Sharia compliance to other stakeholders. Specifically, signalling theory (ST) seeks to reduce asymmetric information between two parties by conveying significant information about intentions and abilities of firms (Ntim et al., 2013; Spence, 2002). For instance, management signals the underlying unobservable excellence of their companies to prospective investors by the recognizable financial statements transparency that may influence decision-making in the stock market (Connelly et al., 2011; Zhang & Wiersema, 2009). However, some of the extant research argues that institutional environment may influence signals to be more (or less) observable (Bergh et al., 2014; Connelly et al., 2011).

The central ST assumption in the context of bank valuation is that asymmetric information affects external investors, which depend on a number of signals in establishing judgments about bank quality (Bergh et al., 2014; Morris, 1987; Spence, 2002). Per se, bank quality can be considered as a result of a signalling process, where signals such as risk disclosures are used by prospective investors to make valuation judgments related to banks (Musteen et al., 2010). However, signals must be recognizable and be perceived as relevant proxies of firms' true position to have a significant impact. Specifically, since information on risk disclosures and multi-layer governance are presented to the stock markets, it can be debated that they convey effective signals that send significant information related to the bank valuation assessment.

Such signals affect a bank's sustainability and managerial accountability (Miller et al., 2013). Hence, ST focuses on distinguishing a bank with higher capabilities from their counterparts, unlike the institutional theory that concentrates on achieving imperative legitimacy (Miller et al., 2013). Legitimacy is defined as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, p. 574).

Signalling theory literature suggests that banks communicate RMDPs information to the external environment to drive a message to prospective investors about the bank and the effectiveness of national governance through prudential RMDPs (Connelly et al., 2011; Ntim, 2012c; Ntim et al., 2013). However, the explanatory power of agency and signalling theories is limited, as they tend to focus exclusively on managers and shareholders/investors to the detriment of other stakeholders, such as the local community.

Third, from the standpoint of resource dependence theory, bank boards and shareholders might increase the quality of risk disclosure in order to help in secure critical resources such as finance and business contracts (Jia et al., 2009; Jizi et al., 2014; Salancik & Pfeffer, 1978). Similarly, SSB can be a mechanism for securing such resources and legitimise bank operations and performance (Drees & Heugens, 2013; Suchman, 1995). In addition, resource dependence theory offers a number of benefits resulting from the bank and national governance's effectiveness through wider interdependencies of MENA banks. Specifically,

bank and national governance effectiveness work as an instrument for banks to decrease uncertainty and dependence through improved RMDPs. Particularly, in increased competitive environment, improved RMDPs may work as an indication of bank quality (Christopher, 2010; Zona et al., 2015). However, the ability of resource dependence theory to explain discernible differences in RMDPs is also limited by its excessive focus on directing RMDPs at securing resources, especially financial resources and stakeholders, who may not necessarily be the main users of RMDPs.

However, some researchers argue that banks can evaluate risk disclosure from proprietary costs theory perspective by considering both the benefits and the costs related to risk disclosure (Abraham & Shrives, 2014; Dye, 1986; Verrecchia, 1983). Therefore, there are many theories that can be employed to explain accounting choices and risk disclosure variation, as well as governance impact on risk disclosure in banks. However, there is no exclusive theory that fully explains why banks engage in risk disclosure.

The earlier argument has debated that, although agency theory may be applicable for examining organizational behaviours and consequences in many contexts, there are settings under which a combination of signalling and institutional theories arguments would either enhance or substitute agency theory explanations. Hence, the rationale behind risk disclosures and governance structures are either guided by efficiency concerns, or legitimization and signal underlying quality to others. Therefore, by adopting a combined agency–signal–institutional–resource dependence perspective, I can investigate more

nuanced, agency cost, information asymmetry, and institutionally embedded structures that affect the bank's reaction to internal and external governance pressures to engage in risk disclosures.

Hence, this study considers the variety of individual perspectives to be complementary rather than competing theories following prior recommendations (Abraham & Shrives, 2014; Amran et al., 2008; Deegan, 2002; Elshandidy et al., 2013; Gray et al., 1995; Ntim et al., 2013; Oliveira et al., 2011). Therefore, and given the inherent interdependencies or overlaps amongst the theories, this study argues that applying a framework that combines these theories will provide a richer basis for understanding and explaining the various motivations and variation of risk disclosures within the MENA context.

4. Empirical Literature and Hypotheses Development

Risk disclosure is a requirement for all banks and its significance has increased in the aftermath of 2007/2008 financial crisis, when many CG organisations, including the Basel committee and central banks, responded with regulations and initiatives so as to enhance governance structures and encourage risk disclosure (Aureli & Salvatori, 2012; Grant & Visconti, 2006). Therefore, there has been a gradual increase in the number of studies on corporate risk disclosure. However, a few of these studies address the impact of governance on risk disclosure in general, and the banking sector in particular (Elshandidy & Neri, 2015). Thus, this study focuses on risk related information disclosure of banks in emerging context (MENA).

The risk disclosure literature as the general corporate disclosure literature has followed a similar pattern. Whilst a considerable number of studies have examined the impact of firm characteristics on the level of risk disclosure (Elzahar & Hussainey, 2012; Rajab & Handley-Schachler, 2009; Mokhtar & Mellett, 2013), few studies have examined the impact of governance variables on risk disclosure (Abraham & Cox, 2007; Elshandidy et al., 2013; Elshandidy & Neri, 2015; Muzahem, 2011; Ntim et al., 2013; Taylor, 2011). In addition, a limited number of studies have examined the impact of SSB monitoring power on banks' CG/CSR disclosure and performance (Al-Bassam et al., 2012; Al-Bassam & Ntim, 2016; Farook et al., 2011; Grassa, 2015; Rahman & Bukair, 2013), but to the best of the

researcher's knowledge, there are no prior studies examining the impact of SSB on bank risk disclosure.

Following previous studies, this study explores how bank- and country-level governance mechanisms in the form of Islamic governance/SSB characteristics, ownership mechanisms (i.e., governmental and family ownership), board characteristics (i.e., board size, duality, and non-executive directors) and country governance (i.e., political strength and lack of violence/ terrorism and control of corruption) drive the level of bank risk disclosures.

4.1 Islamic governance/SSB and risk disclosure

Islamic governance/(SSB) ensures that all practices and activities of banks (e.g., products, instruments, operations, practices, and management) are in compliance with Sharia principles and rules at all times, especially with respect to RIBA (interest) and speculative behaviour (Farook et al., 2011; Safieddine, 2009). Theoretically, the unique agency problems faced by Islamic financial institutions like "Mudarabah" (profit-sharing) can increase adverse selection and moral hazard problems. This can exacerbate agency problems by increasing opportunities for managerial expropriation of corporate resources (Safieddine, 2009; Vinnicombe, 2010). Therefore, agency theory suggests that increased managerial monitoring, that may be exerted by the SSB, might have a positive influence on banks' control and monitoring activities. This may help in enhancing the level of risk disclosure (Farook et al., 2011; Healy & Palepu, 2001; Rahman & Bukair, 2013).

Similarly, resource dependence theory indicates that the SSB may be able to offer better access to a banks' external environment in order to enhance opportunities for securing vital resources, such as finance and business contracts (Jia et al., 2009; Jizi et al., 2014; Salancik & Pfeffer, 1978). Also, Al-Bassam et al. (2012), Al-Bassam and Ntim (2016), Farook et al. (2011), and Rahman and Bukair (2013) argue that SSB with extensive and more varied expertise and knowledge, including financial expertise, may be more motivated to push for true, fair and transparent disclosures. This including those relating to inherent risks; in order to relay this information not only to shareholders, but also to other stakeholders, and thereby legitimising the banks' practices.

Empirically, limited, but a growing number of studies have suggested that SSB can be a key governance mechanism that may be able to enhance disclosure quality and performance (Al-Bassam et al., 2012; Farook et al., 2011; Mollaha & Zamanb, 2015; Rahman & Bukair, 2013). For instance, Farook et al. (2011), and Rahman and Bukair (2013) find a significant positive association between SSB characteristics and the level of CSR disclosure. Al-Bassam et al. (2012) and Al-Bassam and Ntim (2016) also find a positive relation between Islamic values in terms of SSB characteristics and the level of voluntary CG disclosure in Saudi Arabian publicly listed corporations. In addition, Mollaha and Zamanb (2015) find a positive relationship between the intensity of Sharia board supervision and bank performance.

By contrast, Safieddine (2009) finds deficiencies in Sharia governance practices. For instance, the study found that the establishment of a governance committee or an audit

committee is not common among the banks surveyed. Therefore, the financial reporting process has a deficit that could increase agency problems. Whilst some research has been carried out on Islamic governance/ SSB characteristics and voluntary disclosure, to the best of the researcher's knowledge, no prior study has examined the relation between SSB characteristics and the level of risk disclosure. Therefore, the study's first hypothesis is that:

***H_1**: There is a positive association between Islamic governance and MENA banks' risk disclosures.*

4.2 Corporate governance: bank ownership mechanisms

Ownership structure can have an impact on attitudes to governance and risk disclosure (Beattie et al., 2001; Ntim et al., 2015a, 2015c; Ntim & Soobaroyen, 2013a, 2013b). The directors (insiders) prepare the annual report for shareholders (outsiders) and thus, ownership might play a vital role in the extent of risk disclosure (Abraham & Cox, 2007). Disclosure literature applies different aspects of ownership structure as an explanatory variable of disclosure practices. Ownership structure has been divided into several categories, such as block, foreign, institutional, management, government and family ownerships (Eng & Mak, 2003; Huafang & Jianguo, 2007; Ntim et al., 2013). However, this study will use government and family ownership as MENA banks are often characterised by extremely concentrated ownership structures, primarily by government bodies and royal families.

Agency theory predicts that the main shareholders (government and family ownership) have both the power and the incentives to monitor insiders' behaviour, and thus their presence may enhance the extent of bank risk disclosure. Similarly, signalling and legitimacy theories predict that banks with concentrated ownership may choose to disclose more information about risk in order to send a signal to the external environment about the banks' performance and thereby legitimising their operations and enhancing the banks' reputation. Also, resource dependence theory suggests that a main shareholder of the banks (government and family ownership) may put pressure on managers to disclose more transparent information relating to risk in order to secure access to critical resources, such as funds and customers (Branco & Rodrigues, 2008; Salancik & Pfeffer, 1978).

Empirically, Alhazaimeh et al. (2014), Eng and Mak (2003), Ghazali (2007), Ntim et al. (2013), Ntim and Osei (2011) find that there is a positive association between government ownership and risk disclosure. In contrast, Al-Akra et al. (2010), Barakat and Hussainey (2013), and Naser et al. (2002) find no such association, whilst Dam and Scholtens (2012) find a negative association between government ownership and voluntary disclosure.

Similarly, Chau and Gray (2010), Chen and Jaggi (2001), Chen et al. (2008), and Haniffa and Cooke (2002) find negative relation between family shareholding and disclosure, whilst Ali et al. (2007), Cascino et al. (2010), Chen et al. (2008), Wan-Hussin (2009), and Wang (2006) find a positive relation between family shareholding and disclosure quality.

In addition, Al-Akra and Hutchinson (2013) find that family firms are more (or less) expected to disclose mandatory (voluntary) information. Notably, to the best of the researcher's knowledge, no prior research has examined the relation between family ownership and risk disclosure. Therefore, the study's second hypothesis is that:

***H_2**: There is a relationship between ownership concentration and MENA banks' risk disclosures.*

***H_{2a}**: There is a positive relationship between government ownership and MENA banks' risk disclosures.*

***H_{2b}**: There is a positive relationship between family ownership and MENA banks' risk disclosures.*

4.3 Corporate governance: bank board characteristics variables

Most CG codes recommend that board of directors should include a reasonable number of independent directors with explicit power to monitor bank executives (Abraham & Cox, 2007; Barakat & Hussainey, 2013; Elshandidy & Neri, 2015; Elzahar & Hussainey, 2012; Ntim et al., 2011; 2013; 2015). Theoretically, agency theory indicates that increased managerial monitoring associated with board structures (board size, CEO duality, and board independence-BBID) may have a positive influence on risk disclosure. Similarly, resource dependence theory suggests that enhanced board structures (board size, CEO duality, and

BBID) offer greater access to their bank's external environment, safeguarding the interests of all stakeholders by reducing any conflict of interest among stakeholders.

Thus enhanced risk disclosure may facilitate securing critical resources, such as finance and business contracts (Jia et al., 2009; Jizi et al., 2014). Also, Elshandidy et al. (2013), Elshandidy and Neri (2015), Elzahar and Hussainey (2012), and Mokhtar and Mellett (2013) argue that larger board of directors (BODs) with increased independent directors with wide and more diversified expertise and knowledge, including accounting expertise, may be more motivated to engage in increased risk disclosure. In contrast, it could be argued that larger board size may influence its control and monitoring activities negatively (Cheng & Courtenay, 2006) because of poor co-ordination, communication, monitoring, and increased decision-making time (Jensen, 1993).

Prior empirical research largely suggests a positive association between board size and risk disclosure. For instance, Al-Shammari (2014), Alhazaimeh et al. (2014), Elmagrhi et al., 2016, Elshandidy et al. (2013), Elshandidy and Neri (2015), Gao and Kling (2012), Hussainey and Al-Najjar (2011), Jizi et al. (2014), Ntim et al. (2013), and Mokhtar and Mellett (2013) find a significant positive relation between board size and the level of voluntary risk disclosure. In comparison, Cheng and Courtenay (2006), and Elzahar and Hussainey (2012) find a non-significant association between the two variables, whilst, Domínguez and Gámez (2014) on the contrary, find a negative relationship between board size and risk disclosure.

Similarly, previous studies have reported mixed results regarding CEO duality. For instance, Al-Shammari (2014), Bassett et al. (2007), Chau and Gray (2010), Forker (1992), Mokhtar and Mellett (2013) find a negative relationship between the existence of CEO/chairman duality and the disclosure quality. In comparison, Abraham and Cox (2007), Deumes (2008), Elshandidy et al. (2013), Elshandidy and Neri (2015), and Elzahar and Hussainey (2012) find a non-significant association between CEO duality and risk disclosure, whereas Jizi et al. (2014) find a positive relationship between the two variables.

Also, prior studies largely suggest a positive relation between board independence (BBID) and risk disclosure. For instance, Abraham and Cox (2007), Chen and Jaggi (2001), Elshandidy et al. (2013), Elshandidy and Neri (2015), Elzahar and Hussainey (2012), Ntim et al. (2013), O'Sullivan et al. (2008), and Oliveira et al. (2011) find a significant positive relation between BBID and risk disclosure, whereas Al-Shammari (2014), and Barakat and Hussainey (2013) find a non-significant association between the two variables. This difference in findings leads to the third hypothesis, which is as follows:

***H_3**: There is an association between board structure and MENA banks' risk disclosures.*

***H_{3a}**: There is a positive association between board size and MENA banks' risk disclosures.*

***H_{3b}**: There is a negative association between CEO duality and MENA banks' risk disclosures.*

***H_{3c}**: There is a positive association between board independence and MENA banks' risk disclosures.*

4.4 Country-level governance

Country-level governance can have an impact on attitudes to governance and risk disclosure (Beltratti & Stulz, 2012; Essen et al., 2013; Kaufmann et al., 2010). Agency theory points out that increased managerial monitoring related to country-level governance (political strength and lack of violence/ terrorism, and control of corruption) can have a positive influence on bank' control and monitoring activities. It could protect the rights of minority shareholders, and hence minimise agency cost and information asymmetry (Essen et al., 2013). In addition, in countries with powerful governance institutions, banks may choose to engage in increased risk disclosure; in order to signal their superior performance to outside stakeholders.

La Porta et al. (1997, 2000, and 2002) theorise that better country-level governance in terms of legal rules, and their enforcement quality may enhance investors protection and effectiveness of governance structures (e.g., corporate governance, external finance type, and disclosure quality). La Porta et al. (1997, 2000, and 2002) argue that country-level governance reduces agency costs; hence, banks might be driven by institutional pressures, especially in strongly governed countries to engage in increased risk disclosure.

Empirically, extant research finds a positive relation between country-level governance and performance or/and disclosure (e.g., Claessens & Laeven, 2003; Cumming et al., 2014; Essen et al., 2013; Shen et al., 2012). For instance, Cumming et al. (2014) explore the impact of country-level governance on foreign cross-listed firms' valuation.

Using a sample of 1,334 non-US companies from 48 countries over the period 1996-2008 with 7,780 firm-year observations, Cumming et al. (2014) find foreign cross-listed companies' valuation is contingent on home country governance. Specifically, this study finds valuations of cross-listed companies are higher if those companies are cross-listed and/ or from strongly governed environments compare to those companies that are non-cross-listed and/ or from weakly governed environments.

Similarly, using a sample of 1,005 foreign cross-listed companies in the US from forty countries between 1996 and 2005, Shi et al. (2012) find home country governance and ownership structures have a positive relationship with foreign cross-listed firms' disclosure level. In addition, Beltratti and Stulz (2012), and Barakat and Hussainey (2013) find a positive, but statistically insignificant relationship between country governance indicators and performance or/ and risk disclosure.

These findings offer support for the view that the role of country-level governance may have complementary or substitutive influence on corporate disclosure. For instance, Ernstberger and Grüning (2013) use a sample of 1,044 companies from sixteen European countries to examine how country governance mechanisms affect firm-level disclosure. They theorise that country-level governance in terms of legal environments may play a complementary governance role to reinforce CG-transparency nexus in strongly governed environments.

By contrast, in weakly governed environments, firm-level governance plays a stronger bonding governance role to mitigate increased agency costs in such environments in order to gain legitimacy. The study results suggest that country-level governance and CG arrangements become substitutes in terms of their influences on corporate disclosure. This leads to the study's final hypothesis, which is as follows:

***H_4**: There is an association between country governance indicators and MENA banks' risk disclosures.*

***H_{4a}**: There is a positive association between political strength and lack of violence/ terrorism and MENA banks' risk disclosures.*

***H_{4b}**: There is a positive association between control of corruption and MENA banks' risk disclosures.*

5. Research Design

5.1 Describing the Characteristics of the Sample and Data Considerations

The sample was selected from listed commercial and Islamic banks in the MENA region with full data over eight fiscal years: 2006 to 2013. The total sample covers 100 banks listed in 14 MENA stock exchanges. This represents over 95% of the total market capitalisation of all the listed banks. Board characteristics, ownership structure, risk disclosure and financial data was collected from the sampled banks' annual reports (downloaded from the Perfect Information Database and bank websites), and the Bankscope database. Country-level macro-economic and governance variables were collected from the IMF world outlook and the World Bank's worldwide governance indicators databases, respectively. The final sample consists of 752 bank-year observations. The sample construction is presented in Table 1.

This study uses a self-constructed risk disclosure index (*RMDPI*) to measure risk disclosure level presented in Appendix 1. Prior studies follow two approaches when risk disclosure is measured. On one hand, some prior studies (Al-Najjar & Abed, 2014; Elshandidy *et al*., 2013; Elshandidy & Neri, 2015) mainly rely on predefined words or sentences that reflect risk in annual reports. However, there has been little agreement to date on what set of predefined words can be employed to consistently identify, and fairly reflect information on all risk categories in banks. Also, there will be disclosure score bias if a bank

concentrates on a certain category of risk and provides detailed information on it while failing to disclose other risk categories (Barakat & Hussainey, 2013).

Table 1 Sample construction

Country	Total banks	Banks selected	IBs obs	CBs obs	DBs obs	Full sample	percentage
Bahrain	11	11	44	16	24	84	11.17%
Egypt	11	11	13	40	20	73	9.71%
Jordan	12	12	13	75	3	91	12.10%
Iraq	9	2	0	16	0	16	2.13%
Kuwait	12	10	36	35	5	76	10.11%
Lebanon	6	6	0	28	16	44	5.85%
Morocco	4	1	0	0	8	8	1.06%
Oman	6	5	0	34	5	39	5.19%
Palestine	3	1	0	8	0	8	1.06%
Qatar	8	8	24	11	28	63	8.38%
Saudi Arabia	12	11	21	0	63	84	11.17%
Syria	9	2	6	8	0	14	1.86%
Tunisia	10	2	0	9	0	9	1.20%
UAE	19	18	32	39	72	143	19.02%
Total	**132**	**100**	**189**	**319**	**244**	**752**	**100.00%**

On the other hand, other prior studies (Barakat & Hussainey, 2013; Ntim *et al*., 2013; Mokhtar & Mellett, 2013; Savvides & Savvidou, 2012; Van Oorschot, 2010) rely on a constructed index to measure the level of risk disclosure; which fairly captures the comparative weights of different risk categories. Therefore, this study uses constructed RMDPI. The items contained in the RMDPI were drawn from the IAS 32, IFRS7, IFRS 9, Basel II, Basel III; and key risk disclosure items that have previously been used in related studies (Barakat & Hussainey, 2013; Ford *et al*., 2009; Greco, 2012; Helbok & Wagner, 2006; Ntim *et al*., 2013; Savvides & Savvidou, 2012). Hence, RMDPI is composed of 6 main sections, comprising of 96 sub-items, which fairly capture the comparative weights of different risk categories. Appendices 1 and 2 present the scoring criteria and composition of the RMDPI, respectively.

5.2 Definition of Variables and Model Specification

This essay classifies the variables into six main categories as presented in Table 2 with their full definitions. First, the dependent variable is risk disclosure level (*RMDPI*), which measures quality/level of risk disclosure in six key areas as set out by IAS 32, IFRS 7, IFRS 9, Basel II, Basel III and prior literature (Barakat & Hussainey, 2013; Greco, 2012; Ntim *et al*., 2013). It consists of: (1) credit risk disclosure index (*CRDI*); (2) liquidity risk disclosure index (*LRDI*); (3) market risk disclosure index (*MRDI*); (4) capital adequacy risk disclosure index (*ARDI*); (5) operational risk disclosure quality index (*ODQI*); and (6) strategic risk disclosure quality index (*SRDI*).

Second, to examine H_1 to H_4, I gathered data on multi-layer governance. For instance, *SSB* is used as a proxy for Islamic governance. Board structure variables include board size (*LNBS*), CEO duality (*CEOP*), and board independence (*BBID*). Ownership structure variables include government ownership (*GSHR*) and family ownership (*FOWN*). Country-level governance variables include political strength and lack of violence/ terrorism (*PSQ*), and control of corruption (*COCQ*). Finally, to address issues relating to potential omitted correlated variables, I include a number of firm- and country-level control variables. The firm-level controls include, bank size (*LNBS*), performance (*ROAA*), liquidity (*LIQR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), and the length of the annual report (*LENG*), whilst the country-level controls include inflation (*INFL*), and GDP per capita (*CGDP*).

Table 2 Summary of definitions and operationalisation of variables

Variables	Definitions and coding
Panel A: Dependent variables (risk disclosure).	
RMDPI	Is the overall risk disclosure score determined depending on the un-weighted risk disclosure index and scoring criteria clarified in Appendices 1 and 2.
Panel B: Sharia Supervisory Board (SSB)	
SSB	Is the total SSB characteristics score determined according to the un-weighted SSB index consisting of 7 provisions and scoring criteria are; SSB Existence=1, if a bank has SSB board, 0 otherwise.; SSB Report=1, if a bank has disclosed SSB report, 0 otherwise; Number of Member=1, if a bank has disclosed number of SSB's member, 0 otherwise; SSB Meetings=1, if a bank has disclosed number of SSB meetings, 0 otherwise; Independent=1, if SSB's members are independent from management, 0 otherwise; Experience=1, if if a bank discloses SSB experience, 0 otherwise; Total fees disclosed=1, if a bank discloses SSB fees/ compensation, 0 otherwise.
Panel C: Corporate governance (CG) ownership characteristics	
GSHR	Percentage of governmental ownership with at least 5% to total bank ordinary shareholdings.
FOWN	Percentage of family ownership with at least 5% to the total bank ordinary shareholdings.
Panel D: Corporate governance (CG) board characteristics	
BBSZ	Number of directors in BODs.
CEOP	1, if the bank CEO and chairperson positions are held by same person, 0 otherwise.
BBID	Board indepencece is calculated as percentage of non-executive directors to the total number of the bank BODs.

Variables	Definitions and coding
Panel E: Country level governance variables	
PSQ	Country- level political strength and absence of violence/ terrorism score based on Kaufmann *et al*. (2010) which calculates the probability of the government to threatened by violent or illegal means, containing politically-inspired terrorism and violence in years 2006 until 2013. A higher score means better political strength and absence of violence/ terrorism.
COCQ	Country- level corruption governor score based on Kaufmann *et al*. (2010) which calculates the level to which abuse of bestowed public power to acquire a private benefit. A higher score means better control of corruption.
Panel F: Control variables	
LNBS	Bank size is measured by natural log of total assets.
ROAA	Performance is measured by return on assets, which are percentage of net income to total asset.
LIQR	Liquidity is measured by net loans to total assets.
OPEF	Operations efficiency is measured percentage of cost to income.
BCAD	The capital adequacy ratio.
LENG	Number of bank annual report pages.
INFL	Inflation, which is consumer prices (annual %).
CGDP	GDP per capita (current US$).

Due to well established research and space limitations, I did not develop direct theoretical and empirical links between these control variables and risk disclosure, but there are extensive prior empirical studies that suggest that they can impact on the level of bank risk disclosures (Abraham & Cox, 2007; Barakat & Hussainey, 2013; Beretta & Bozzolan, 2004; Cabedo & Tirado, 2004; Elshandidy *et al*., 2013; Elshandidy & Neri, 2015; Linsley & Shrives, 2006; Ntim *et al*., 2013; Mokhtar & Mellett, 2013; Savvides & Savvidou, 2012).

Following Elshandidy and Neri (2015) and Ntim *et al*. (2013), this study uses the panel data regression model to examine the impact of MLG (SSB, board structure, ownership structure, and country-level governance) on the level of risk disclosure. Therefore, regression model is identified as follows:

$$RMDPI_{it} = \alpha_0 + \beta_i \sum_{i=1}^{8} MLG_{it} + \sum_{i=1}^{8} \beta_i CONTROLS_{it} + \delta_{it} + \varepsilon_{it} \qquad (1)$$

where:

RMDPI is risk disclosure index, *MLG* refers to multi-layer governance, consisting of the SSB, board structures (*BBSZ*, *CEOP*, and *BBID*), ownership structures (*FOWN* and *GSHR*), and country-level governance, including absence of violence (*PSQ*) and control of corruption (*COCQ*). *CONTROLS* refer to firm-level control variables, including *LNBS*, *ROAA*, *LIQR*, *OPEF*, *BCAD*, and *LENG*, and country-level control variables include *INFL* and *CGDP*. δ_{it} is the bank-years specific fixed-effects, ε_{it} is the error term, α_0 is the intercept, and β_i are the vectors of coefficient estimates.

The main model defined in equation (1) is a standard panel data regression model that may possibly be estimated by pooled OLS, fixed effects or random effects models. Pooled OLS assumes continuous variance and uncorrelated observations. To choose pooled OLS or the random effects and fixed effects, I used Breusch and Pagan test to decide the presence of the heterogeneity.

The empirical results find that there are unobserved variables. Thus, pooled OLS estimator, arguably, is inconsistent and biased. At that point, to decide whether random effects or fixed effects will be employed, the Hausman specification test was used to choose the best model that yield more consistency and efficiency of the estimators. I chose fixed-effects regression model rather than random-effects regression model because the Hausman favoured fixed-effects over random effects.

6. Findings and Discussion

6.1 Descriptive, Univariate, and Bivariate Analyses

Table 3 presents the descriptive statistics of the un-weighted and weighted risk disclosure indices (*RMDPI and W-RMDPI*, respectively) and *SSB*, and each of the eight firm years investigated. Table 3 reveals a number of interesting findings.

First, it shows that there is a high degree of variation in the risk disclosure between banks. For instance, *RMDPI* ranges from a minimum of 1 (1.04%) to a maximum of 84 (87.5%) with a standard deviation of 16.36 indicating a significant level of discretion regarding risk disclosure quality in the annual reports.

Second, and consistent with prior risk disclosure studies (Greco, 2012; Ntim *et al.*, 2013; Rajab & Handley-Schachler, 2009), there has been a continuous increase in risk disclosure over time. For instance, the average bank disclosed 35.95 (16%), 47.77 (24.65%), 54.55 (25.97%), 57.44 (26.51), 61.24 (29.75%), 61.55 (29.90%), 62.51 (30.77%), and 63.60 (31.88%), disclosure index score (percentage) in 2006, 2007, 2008, 2009, 2010, 2011, 2012 and 2013, respectively. Also, similar consistent trends are observable with respect to the weighted disclosure index score and the SSB, demonstrating that the 07/08 global financial crisis has changed the focus of risk disclosure and SSB in MENA banks.

Table 3 Summary descriptive statistics for RMDPI and SSB indices for all 752 bank years

	All	2006	2007	2008	2009	2010	2011	2012	2013
The un-weighted risk disclosure index (RMDPI)									
Mean	54.78	35.95	49.77	54.55	57.44	61.24	61.55	62.51	63.60
Median	60.00	36.00	53.00	58.00	61.00	63.00	63.00	64.00	65.00
STD	16.36	13.58	15.73	15.52	15.39	10.44	10.58	10.69	9.65
Min	1.00	6.00	6.00	1.00	7.00	25.00	24.00	19.00	19.00
Max	84.00	77.00	80.00	80.00	80.00	80.00	78.00	84.00	84.00
The weighted risk disclosure index (W-RMDPI)									
Mean	79.95	44.99	69.99	78.22	82.06	88.10	88.60	90.49	91.66
Median	86.00	42.00	76.00	84.00	87.50	89.50	92.00	93.00	93.00
STD	24.16	20.22	24.97	24.12	24.65	15.19	15.00	15.49	14.48
Min	2.00	7.00	7.00	2.00	7.00	28.00	27.00	19.00	19.00
Max	135.00	106.00	128.00	128.00	130.00	126.00	118.00	135.00	135.00
SSB index (Full sample)									
Mean	1.43	1.00	1.17	1.25	1.51	1.51	1.45	1.51	1.67
Median	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
STD	1.87	1.60	1.77	1.81	1.94	1.96	1.94	2.01	2.12
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	7.00	6.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
SSB index (Conventional banks with Islamic window)									
Mean	3.43	2.63	3.50	3.50	4.20	3.50	3.50	4.20	3.00
Median	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
STD	1.68	2.20	1.76	1.76	0.45	1.76	1.76	0.45	2.08
Min	0.00	0.00	0.00	0.00	4.00	0.00	0.00	4.00	0.00
Max	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
SSB index (Islamic banks)									
Mean	2.19	1.71	2.00	2.07	2.30	2.30	2.22	2.20	2.52
Median	2.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00
STD	1.96	1.66	1.87	1.88	1.96	1.99	1.99	2.03	2.16
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	7.00	6.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00

Notes: This Table reports descriptive statistics of levels of compliance with un-weighted risk disclosure index (*RMDPI*), weighted risk disclosure index (*W-RMDPI*), and *Sharia* supervisory board index (*SSB*) from 2006 to 2013.

Finally, the banks made a significant increase in disclosing risks during the 07/08 financial crisis compared to the pre-07/08 period and there was a general increasing trend in risk disclosure behaviour over time after 07/08 financial crisis. This increase was more observable after 2009. For example, the average bank scored 35.95 (16%) in 2006 compared with 47.77 (24.65%), 54.55 (25.97%), 57.44 (26.51), 61.24 (29.75%), 61.55 (29.90%), 62.51 (30.77%), and 63.60 (31.88%) in 2007, 2008, 2009, 2010, 2011, 2012 and 2013, respectively. These results shed light on the importance of risk disclosure for management and stakeholders, especially after Basel II made such risk disclosure compulsory in most of the sample' countries after the 07/08 financial crisis.

Table 4 shows the summary descriptive statistics of all the other independent and control variables included in the analysis. In general Table 4 shows wide spread in the distribution of all the variables. For example, Table 4 shows that *GSHR* ranges from a minimum of 0.00% to a maximum of 89.06% with government holding a 15.51% ownership in the average MENA bank. *FOWN* ranges from 0.00% to 87.00%, suggesting that despite the recommendations by the World Bank and OCED regarding the need for greater dispersion in ownership structure, the ownership structure of MENA banks are still fairly concentrated.

Table 4 Summary descriptive statistics of the independent and control variables for all 752 observations

Variables	N	Mean	Median	Std. Dev.	Minimum	Maximum
Panel A: Independent (Corporate governance (CG)/ ownership characteristics variables).						
GSHR (%)	752.00	15.51	6.25	20.85	0.00	89.06
FOWN (%)	752.00	7.74	0.00	14.23	0.00	87.00
Panel B: Independent (Corporate governance (CG)/ board characteristics variables).						
BBSZ	752.00	9.44	9.00	1.90	5.00	15.00
CEOP	750.00	0.80	0.00	0.40	0.00	1.00
BBID	752.00	0.89	0.91	0.18	0.00	1.00
Panel C: Independent (Country Level-governance variables)						
PSQ	744.00	-0.13	-0.31	0.93	-2.83	1.22
COCQ	744.00	0.23	0.24	0.70	-1.58	1.72
Panel D: Control variables						
LNBS	752.00	15.63	15.65	1.60	0.30	21.09
ROAA	752.00	0.02	0.02	0.04	-0.52	0.24
LIQR (%)	751.00	51.60	54.76	16.57	0.00	85.37
OPEF (%)	745.00	42.36	39.39	30.51	-365.63	284.00
BCAD (%)	707.00	20.25	17.24	14.39	9.26	204.41
LENG	750.00	99.22	91.50	48.62	8.00	324.00
INFL	736.00	5.39	4.00	4.93	-10.10	53.20
CGDP	732.00	23426.34	19250.90	23200.92	5.00	93714.10

Notes: Variables are defined as follows: government ownership (*GSHR*), family ownership (*FOWN*), board size (*BBSZ*), CEO duality (*CEOP*), board independence(*BBID*), political strength and absence of violence/ terrorism (*PSQ*), corruption control (*COCQ*), bank size (*LNBS*), performance (*ROAA*), liquidity (*LIQR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual reports length (LENG), inflation (*INFL*), and GDP per capita (*CGDP*). Table 2 fully defines all the variables used.

The majority of banks in the sample are profitable with a mean profitability ratio of 2%. Table 4 also shows that 80% of the banks in the sample separate the roles of CEO and chairman, and 89% of bank boards are non-executive, which is consistent with the recommendations of CG codes in MENA countries. The *BBSZ* ranges from five to fifteen directors with a mean of nine directors. Finally, the values of MLG, as well as the control variables, as shown in Table 4, suggest wide variability in the sample, and thereby minimising any possibilities of sample selection bias.

Table 5 presents the correlation matrix for the variables used in the regression analysis to test for multicollinearity. This study reports both the Pearson's parametric and Spearman's non-parametric coefficients for robust results, and, noticeably, the magnitude and direction of both coefficients are similar. This is generally indicating that no serious non-normality problems exist. As expected, *RMDPI* scores are positively and significantly correlated with the variables *LNBS*, *LIQR*, *LENG*, *GSHR*, *FOWN*, *BBID*, *SSB*, *PSQ*, *COCQ*, and *CGDP* are correlated negatively and significantly with the variables *OPEF*, *CEOP*, and *INFL*, and thereby offering support for the validity of the disclosure index.

Table 5 Pearson's and Spearman's correlation matrices of the variables for all 752 observations

Variables	RMDPI	LNBS	ROAA	LIQR	OPEF	BCAD	LENG	GSHR	FOWN	BBSZ	CEOP	BBID	SSB	PSQ	COCQ	INFL	CGDP
RMDPI		0.50**	-0.07	0.37**	-0.12**	-0.13**	0.47**	0.27**	0.06	0.06	-0.16**	0.25**	0.30**	0.24**	0.30**	-0.36**	0.16**
LNBS	0.55**		0.00	0.25**	-0.18**	-0.11**	0.31**	0.33**	-0.01	0.10**	-0.01	0.13**	0.18**	0.24**	0.20**	-0.21**	0.22**
ROAA	-0.03	0.05		0.08*	-0.23**	0.09*	-0.10**	0.04	0.03	0.03	-0.02	-0.04	-0.12**	0.11**	0.08*	0.03	0.11**
LIQR	0.33**	0.28**	0.20**		-0.17**	-0.19**	-0.07	0.31**	-0.01	-0.13**	-0.27**	0.24**	0.04	0.64**	0.60**	-0.14**	0.32**
OPEF	-0.23**	-0.41**	-0.45**	-0.34**		0.16**	0.04	-0.13**	-0.02	-0.02	0.08*	-0.08*	0.03	-0.20**	-0.14**	0.04	-0.23**
BCAD	-0.06	-0.06	0.13**	0.01	-0.12**		-0.17**	0.02	-0.09*	-0.17**	0.02	-0.12**	0.10**	0.01	0.02	-0.08*	0.00
LENG	0.53**	0.33**	-0.19**	-0.03	0.10**	-0.21**		0.02	0.04	0.28**	0.13**	0.14**	0.12**	-0.21**	-0.13**	-0.21**	-0.19**
GSHR	0.30**	0.35**	0.14**	0.39**	-0.24**	0.13**	0.03		-0.19**	0.01	-0.17**	0.11**	0.09*	0.28**	0.32**	-0.14**	0.13**
FOWN	0.12**	0.02	0.05	0.01	0.05	-0.08*	0.14**	-0.13**		-0.01	-0.12**	0.00	-0.08*	-0.08*	-0.08*	0.01	-0.14**
BBSZ	0.07	0.09*	-0.02	-0.14**	0.05	-0.19**	0.29**	0.04	0.09*		0.13**	0.02	-0.06	-0.22**	-0.18**	0.00	-0.21**
CEOP	-0.16**	-0.04	-0.09*	-0.28**	0.09*	-0.04	0.08*	-0.18**	-0.11**	0.14**		-0.45**	-0.19**	-0.20**	-0.21**	0.12**	0.02
BBID	0.14**	0.04	0.02	0.32**	-0.07	-0.03	0.09*	0.15**	-0.03	-0.05	-0.47**		0.12**	0.20**	0.18**	-0.16**	0.04
SSB	0.33**	0.35**	0.00	0.10**	-0.09*	0.07	0.15**	0.12**	-0.12**	-0.05	-0.21**	0.07*		0.04	0.12**	-0.21**	0.15**
PSQ	0.18**	0.25**	0.24**	0.62**	-0.41**	0.12**	-0.15**	0.31**	-0.12**	-0.25**	-0.19**	0.31**	0.11**		0.77**	-0.17**	0.57**
COCQ	0.20**	0.15**	0.22**	0.54**	-0.36**	0.17**	-0.08*	0.31**	-0.13**	-0.21**	-0.19**	0.26**	0.15**	0.74**		-0.23**	0.52**
INFL	-0.34**	-0.20**	0.01	-0.20**	0.07	-0.25**	-0.23**	-0.19**	-0.04	0.04	0.18**	-0.19**	-0.25**	-0.22**	-0.27**		0.02
CGDP	0.23**	0.33**	0.22**	0.37**	-0.34**	0.02	-0.08*	0.18**	-0.18**	-0.20**	-0.08*	0.18**	0.30**	0.52**	0.45**	-0.03	

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: risk disclosure quality score (*RMDPI*), bank size (*LNBS*), performance (*ROAA*), liquidity (*LIQR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*),annual reports length (LENG), government ownership (*GSHR*), family ownership (*FOWN*), board size (*BBSZ*), CEO duality (*CEOP*), board independence (*BBID*), *Sharia* supervisory board (*SSB*), political strength and absence of violence/ terrorism (*PSQ*), corruption control (*COCQ*), inflation (*INFL*), and GDP per capita (*CGDP*). Table 2 fully defines all the variables used.

6.2 Regression Analyses

Table 6 reports the results of the fixed-effects regression analysis of the impact of MLG, namely: Islamic governance (SSB), bank-level governance (i.e., ownership and board structures), and country-level governance (e.g., absence of violence and control of corruption), on the level of bank risk disclosures. The table (Table 6) further summarises the results of the regression analysis for nine different models. First, the models are statistically significant and explain 37, 47, 21, 53, 62, 24, 21, 48, and 37 percent of the variations in the level of bank risk disclosures.

Second and in general, the results reported in Table 6 suggest that MLG is significant in explaining differences in risk disclosure quality. Third and specifically, this study starts by investigating whether the *Sharia* Supervisory Board index (*SSB*) can have an effect on the level of bank risk disclosures (*RMDPI*). The coefficient of the *SSB* on the *RMDPI* in Model 1 of Table 6 is statistically significant and positive, indicating that $\boldsymbol{H_1}$ is accepted empirically. The policy suggestion is that banks with better SSB may put pressure on bank management to engage in increased levels of risk disclosures, as a signal of their monitoring power and effectiveness in achieving *Sharia* compliance.

Theoretically, the results are consistent with the expectations of the multi-theoretical framework. This result implies that engaging in good *SSB* practices can help mitigate agency costs and enhance bank legitimacy (e.g., reputation and image) by improving the risk information transparency (e.g., market, operational, and strategic risks). The result also indicates that complying with good *SSB* practices through greater risk disclosure

activities not only can increase the bank legitimacy (Al-Bassam *et al*., 2012; Mollaha & Zamanb, 2015; and Suchman, 1995), but also present opportunities to obtain important resources (Ntim *et al*., 2013; Pfeffer & Salancik, 1978). In addition, the results also offer empirical support for the findings of the few prior studies; that suggest that *SSB* can have a positive effect on disclosure and performance (Al-Bassam *et al*., 2012; Farook *et al*., 2011; Mollaha & Zamanb, 2015; Rahman & Bukair, 2013).

Fourth, at the bank-level, this study investigates whether board and ownership structures can have an impact on the *RMDPI*. Board and ownership structures include two ownership (governmental ownership — *GSHR*, and family ownership — *FOWN*) and three board (bank board size — *BBSZ*, CEO duality — *CEOP*, and board independence— *BBID*) variables, respectively, in Table 6, Model 1. The results show that bank board size (*BBSZ*), board independence (*BBID*), governmental ownership (*GSHR*), and family ownership (*FOWN*) are positively associated with the *RMDPI*, but CEO duality (*CEOP*) is negatively related to the *RMDPI*.

Similarly, the results also offer support for the multi- theoretical framework. For instance, the positive relationship among governmental ownership (*GSHR*), family ownership (*FOWN*), and the *RMDPI* is in line with those of prior studies (Alhazaimeh *et al*., 2014; Ali *et al*., 2007; Cascino *et al*., 2010; Chen *et al*., 2008; Eng & Mak, 2003; Ghazali, 2007; Ntim *et al*., 2013; Ntim & Oseit, 2011; Wan-Hussin, 2009; Wang, 2006).

Table 6 The impact of multi-layers governance on bank risk disclosure (*RMDPI*)

Variables	*Dependent variable: Bank's un-weighted risk disclosure (RMDPI)*								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Full sample	IBs	CBs	DBs	Pre 07/08	07/08	Post 07/08	3SLS	G2SLS
Panel A: Independent : multi-layers governance *variables*									
SSB	3.58***	5.01***	-	5.76***	1.36	1.82*	1.66*	3.02***	3.58***
	(0.000)	(0.000)	-	(0.000)	(0.180)	(0.074)	(0.059)	(0.003)	(0.000)
GSHR	2.33**	-0.49	1.87*	2.45**	-0.27	2.75***	1.00	2.81***	2.33**
	(0.020)	(0.625)	(0.063)	(0.015)	(0.790)	(0.008)	(0.316)	(0.005)	(0.020)
FOWN	2.53**	2.78***	1.89*	0.10	-0.94	1.48	1.56*	2.93***	2.53**
	(0.012)	(0.006)	(0.060)	(0.924)	(0.351)	(0.143)	(0.078)	(0.003)	(0.011)
BBSZ	2.98***	1.58	1.78*	2.99***	-0.78	-0.34	2.65**	2.43**	2.98***
	(0.003)	(0.116)	(0.077)	(0.003)	(0.437)	(0.735)	(0.013)	(0.015)	(0.003)
CEOP	-0.14	-0.82	-1.13	-0.36	-0.26	-1.08	-2.01**	-3.69***	-0.14
	(0.890)	(0.412)	(0.260)	(0.718)	(0.798)	(0.284)	(0.046)	(0.000)	(0.890)
BBID	3.21***	2.58**	0.10	1.86*	-0.74	0.36	1.27*	0.89	3.21***
	(0.001)	(0.011)	(0.920)	(0.064)	(0.461)	(0.718)	(0.085)	(0.373)	(0.001)
PSQ	-1.46	0.60	-0.67	-1.40	-1.34	-1.59	-5.98***	-3.94***	-1.46
	(0.145)	(0.547)	(0.504)	(0.164)	(0.184)	(0.118)	(0.000)	(0.000)	(0.144)
COCQ	2.60***	1.11*	0.53	0.56	2.03**	1.60	3.16***	1.32*	2.60***
	(0.010)	(0.071)	(0.597)	(0.574)	(0.047)	(0.114)	(0.002)	(0.088)	(0.009)

Table 6 The impact of multi-layers governance on bank risk disclosure (*RMDPI*) continued...

Panel B: Control variables									
Intercept	-1.84*	0.11	-3.77***	-6.62***	0.93	0.62	4.79***	-0.91	-1.84*
	(0.066)	(0.910)	(0.000)	(0.000)	(0.355)	(0.540)	(0.000)	(0.364)	(0.065)
LNBS	2.65***	0.06	5.44***	8.55***	1.10	0.55	0.79	4.88***	2.65***
	(0.008)	(0.955)	(0.000)	(0.000)	(0.274)	(0.587)	(0.428)	(0.000)	(0.008)
ROAA	-1.55	-1.70*	-0.36	6.03***	-0.09	0.63	-0.45	-1.12	-1.55
	(0.122)	(0.091)	(0.716)	(0.000)	(0.932)	(0.533)	(0.653)	(0.262)	(0.121)
LIQR	3.92***	1.80*	1.20	2.53**	1.09	1.08	1.16**	6.24***	3.92***
	(0.000)	(0.075)	(0.232)	(0.012)	(0.279)	(0.283)	(0.045)	(0.000)	(0.000)
OPEF	-0.16	-1.59	-0.95	2.06**	-0.79	-0.86	-1.08	-1.50	-0.16
	(0.869)	(0.115)	(0.344)	(0.041)	(0.432)	(0.395)	(0.282)	(0.134)	(0.869)
BCAD	-0.65	1.09	-1.18	-0.96	-1.28	-1.58	-1.98**	-0.13	-0.65
	(0.517)	(0.278)	(0.240)	(0.340)	(0.205)	(0.119)	(0.049)	(0.895)	(0.517)
LENG	14.23***	7.28***	6.27***	5.60***	3.97***	5.21***	6.04***	11.14***	14.23***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
INFL	-2.36**	-1.53	-0.34	-0.90	-6.51***	-1.15	-0.04	-6.73***	-2.36**
	(0.019)	(0.129)	(0.736)	(0.370)	(0.000)	(0.254)	(0.970)	(0.000)	(0.018)
CGDP	-1.22	-1.85*	-0.67	0.25	2.04**	-1.60	-1.26	-4.27***	-1.22
	(0.223)	(0.067)	(0.502)	(0.806)	(0.046)	(0.114)	(0.207)	(0.000)	(0.222)
Fixed effect	Year	Year	Year	Year	-	Year	Year	Year	Year
clustering	Bank	Bank	Bank	Bank	-	Bank	Bank	Bank	Bank

Table 6 The impact of multi-layers governance on bank risk disclosure (RMDPI) continued...

F- value (χ^2)	41.69***	26.39***	15.40***	22.16***	5.77***	5.59***	9.88***	622.41***	38435.44***
Hausman chi2	150.71***	122.48***	165.53***	111.48***	165.21***	185.21***	184.36***	-------	12.37
Overall R^2	0.37	0.47	0.21	0.53	0.62	0.24	0.21	0.48	0.37
No. of obs	682	183	263	236	73	158	451	682	682

Notes: *P*-values are in parentheses. ***, **, and * mean significance at the 1%, 5% and 10% levels, respectively. Variables are defined as follows: risk disclosure quality score (*RMDPI*), *Sharia* supervisory board (*SSB*),government ownership (*GSHR*), family ownership (*FOWN*), board size (*BBSZ*), CEO duality (*CEOP*), board independence(*BBID*), political strength and absence of violence/ terrorism (*PSQ*), corruption control (*COCQ*), bank size (*LNBS*), performance (*ROAA*), liquidity (*LIQR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*),annual reports length (LENG), inflation (*INFL*), and GDP per capita (*CGDP*). Table 2 fully defines all the variables used.

This result implies that powerful shareholders (i.e., family and government shareholders) have both the power and the incentives to monitor insiders' behaviour to safeguard minority rights and bank reputation (Al-Akra & Hutchinson, 2013; Cascino *et al*., 2010). Additionally, these results suggest that banks may engage in increased risk disclosures in order to mitigate agency problems with MENA governments and families, as powerful shareholders; to signal their compliance with government initiatives and standards that can enable them to gain access to important resources, such as finance and business contracts. This, therefore, leads us to accept $\boldsymbol{H_2}$, which suggests that there is a positive relationship between ownership concentration and MENA banks' risk disclosures.

The positive relationship among board size (*BBSZ*), board independence (*BBID*), and the *RMDPI* provides support for extant evidence that implies bigger boards with more board independence are more likely to make more risk disclosures (e.g., Abraham & Cox, 2007; Al-Shammari, 2014; Alhazaimeh *et al*., 2014; Chen & Jaggi, 2001; Elshandidy *et al*., 2013; Elshandidy & Neri, 2015; Elzahar & Hussainey, 2012; Gao & Kling, 2012; Hussainey & Al-Najjar, 2011; Jizi *et al*., 2014; Ntim *et al*., 2013; O'Sullivan *et al*., 2008; Oliveira *et al*., 2011; Mokhtar & Mellett, 2013). These results suggest that bank board size and board independence is associated with better executive monitoring; due to increased experience and skills, which may offer better access to important resources and enhance bank legitimacy.

Finally, the negative effect of CEO duality (*CEOP*) on the RMDPI is consistent with the results of previous empirical research (Bassett *et al*., 2007; Forker, 1992; Mokhtar, & Mellett, 2013). This result is also in line with the theoretical suggestions (e.g., agency theory)

that banks with less powerful CEOs (e.g., the roles of a CEO and the board chairman are held by two different people) are generally viewed to have lower agency costs because they can be seen both as a sign and an instrument of less managerial power that mitigates agency conflicts, and legitimate bank activities. This therefore leads us to accept $\boldsymbol{H_3}$.

Fifth, at the country-level, this essay examines whether country-level governance mechanisms (i.e., control of corruption (*COCQ*) and political stability and absence of violence (*PSQ*)) can have an effect on the *RMDPI*. The coefficient of the control of corruption *(COCQ)* on the *RMDPI* in Model 1 of Table 6 is statistically significant and positive, whilst political stability and absence of violence (*PSQ*) have a negative, but insignificant association with the level of bank risk disclosures. The policy suggestion is that institutional pressures (i.e., COCQ) might drive banks, especially in strongly governed countries to engage in increased risk disclosures. Theoretically, the results are consistent with the expectations of the multi-theoretical framework.

This result implies that better country-level governance in terms of control of corruption may enhance investors protection, as well as it improves governance's effectiveness and thereby impact positively on the *RMDPI*. In addition, the results are consistent with those of the few prior studies that suggest that country-level governance mechanisms can have a positive effect on risk disclosure and performance (e.g., Claessens & Laeven, 2003; Cumming *et al*., 2014; Ernstberger & Grüning, 2013; Essen *et al*., 2013; Shen *et al*., 2012). Hence, the results suggest that country-level governance in terms of control of corruption *(COCQ)* may play a complementary governance role in reinforcing CG-risk disclosure nexus; in strongly governed environments. In contrast, in weakly governed environments in

terms of political stability and absence of violence (*PSQ*), firm-level governance plays a stronger bonding governance role to mitigate increased agency costs in such environments in order to gain legitimacy.

Finally and with regard to the other control variables, this study found that *LNBS*, *LIQR*, and *LENG* are statistically significant and positively related to risk disclosure, implying that MENA banks with high *LNBS*, *LIQR*, and *LENG* are more likely to make more significant risk disclosures. This is in line with findings of Amran *et al*. (2009), Elshandidy *et al*. (2013), Elzahar and Hussainey (2012), Ntim *et al*. (2013), and Oliveira *et al*. (2011). By contrast, this study finds a negative, but insignificant relation between *ROAA*, *OPEF*, *BCAD*, and *CGDP* and risk disclosure.

6.3 Additional Analyses

This essay conducts a number of additional tests to ascertain the robustness of the results. First, the sample consists of Islamic banks, commercial banks, and dual banks. Therefore, to ascertain how MLG operates among the three categories, I re-ran equation (1) by separating the sample to three sub-samples: (i) Islamic banks (IBs); (ii) commercial banks (CBs); and (iii) dual banks (DBs). The results relating to Models 2, 3, and 4 are reported in Table 6 and those relating to Models 11, 12, and 13 are reported in Table 7, respectively and are principally the same with slight differences in the significance levels as reflected in the coefficients' value. Nevertheless, there is a negative impact of *GSHR* on risk disclosure, although this relation is statistically insignificant in IBs. In addition, the results show that *FOWN* and *COCQ* have more impact in IBs compared to CBs and DBs. Finally, the *BS* has more impact in DBs compared to CBs and IBs. This may be because dual banks are bigger,

have more activities, and have larger boards, which include greater diversity in terms of expertise and knowledge, which affect the level of risk disclosure.

Second, the sample covered the period 2006-2013, in order to ascertain how MLG systems operate pre, during, and post the GFC. To achieve this aim I re-ran equation (1) by separating the full sample into three sub-samples: (i) pre- (i.e., 2006); (ii) during (i.e., 2007 and 2008); and (iii) post- (i.e., 2009 to 2013) GFC periods. The results relating to Models 5, 6 and 7 are reported in Table 6 and those relating to Models 14, 15 and 16 are reported in Table 7, respectively and are principally the same with slight differences in the variables' significance levels. Nevertheless, there is a negative impact of *SSB*, *GSHR*, *FOWN*, *BBSZ*, and *BBID* before GFC, which indicates that governance mechanisms had limited positive impact on risk disclosures made by MENA banks before the GFC.

Third, this study tests the robustness of the results by re-regressing equation (1) and equation (2) using weighted *RMDPI* (*W-RMDPI*) as an alternative risk disclosure index. The results, reported in Table 7, are mostly the same as those results reported in Table 6 with slight sensitivity in the variables' levels of significance. Therefore, these findings indicate that the results are robust whether the *RMDPI* is un-weighted or weighted. Finally, and to test for presence of any potential endogeneity problems, which have been debated to be a common problem in CG studies (Elshandidy & Neri, 2015; Larcker & Rusticus, 2010; Mollaha & Zamanb, 2015; Ntim *et al*., 2013; Ntim & Soobaroyen, 2013a, 2013b), this study uses three-stage least squares (*3SLS*) (Belsley, 1988; Larcker & Rusticus, 2010; Zellner & Theil, 1962). The *3SLS* methodology consists of three steps. First, MLG instruments are generated. Second, estimates the covariance matrix for MLG instrumental values based on

the residuals. Third, performs GLS regression based on covariance matrix (Dennis & Taisier, 2014; Mollaha & Zamanb, 2015). Therefore, the model to be assessed is identified as:

$$RMDPI_{it} = \alpha_0 + \hat{\beta}_i \sum_{i=1}^{8} MLG_{it} + \sum_{i=1}^{8} \beta_i CONTROLS_{it} + \delta_{it} + \varepsilon_{it} \quad (2)$$

where:

everything remains unaffected as identified in equation (1) except that, this study uses the covariance matrix from the second step estimation as instruments for the eight MLG variables. The results for Model 8 are reported in Table 6 and for Model 17 are reported in Table 7. These results are mostly similar to those reported for Model 1 in Table 6 and for Model 10 in Table 7, suggesting that the results are robust to possible endogeneity problems that may arise from omitted factors.

The minor increase in the coefficients' value of the MLG variables in Model 8 of Table 6 and in Model 17 of Table 7 compared with those in Model 1 of Tables 6 and in Model 10 of Table 7 are in line with previous studies which indicate that instrumented variables of MLG variables are likely to predict risk disclosure more powerfully than their un-instrumented variables (Larcker & Rusticus, 2010).

This study also implements G2SLS (two-stage-least-squares fixed-effects within estimator) to fitting panel data model (Balestra & Varadharajan-Krishnakumar, 1987; Baltagi & Deng, 2015). The results for Model 9 are reported in Table 6 and for Model 18 are reported in Table 7 are mostly similar to those reported in Model 1 of Table 6 and those in Model 10 of Table 7, suggesting that the results are robust to possible endogeneity problems.

Table 7 The impact of multi-layers governance on bank risk disclosure (*W-RMDPI*)

Variables	*Dependent variable: Bank's weighted risk disclosure (W-RMDPI)*								
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Full sample	IBs	CBs	DBs	Pre 07/08	07/08	post07/08	3SLS	G2SLS
Panel A: Independent : multi-layers governance *variables*									
SSB	3.30***	4.10***	----	5.84***	-2.03**	1.89*	0.19	2.75***	3.30***
	(0.001)	(0.000)	----	(0.000)	(0.047)	(0.063)	(0.848)	(0.006)	(0.001)
GSHR	2.50**	-0.52	1.88*	2.49**	-0.19	2.57**	0.85	2.97***	2.50**
	(0.013)	(0.607)	(0.062)	(0.014)	(0.849)	(0.013)	(0.396)	(0.003)	(0.012)
FOWN	2.05**	2.88***	1.23*	0.23	-0.80	1.03	2.19**	2.33**	2.05**
	(0.041)	(0.005)	(0.081)	(0.818)	(0.430)	(0.307)	(0.047)	(0.020)	(0.040)
BBSZ	3.09***	1.63	1.82*	3.04***	-0.58	0.30	2.73**	2.51**	3.09***
	(0.002)	(0.106)	(0.070)	(0.003)	(0.565)	(0.763)	(0.046)	(0.012)	(0.002)
CEOP	-0.10	-0.61	-0.33	-0.08	-0.85	0.81	-2.48**	-2.84***	-0.10
	(0.921)	(0.544)	(0.741)	(0.935)	(0.400)	(0.422)	(0.014)	(0.005)	(0.921)
BBID	3.15***	2.25**	0.80	1.81*	-0.51	1.12**	0.80	0.87**	3.15***
	(0.002)	(0.026)	(0.427)	(0.071)	(0.614)	(0.046)	(0.427)	(0.033)	(0.002)
PSQ	-1.81*	0.22	-0.42	-2.19**	-1.35	-1.89*	-6.73***	-3.92***	-1.81*
	(0.071)	(0.830)	(0.672)	(0.030)	(0.181)	(0.064)	(0.000)	(0.000)	(0.070)
COCQ	2.42**	1.58*	0.30	0.37*	1.48	1.81*	3.31***	1.25*	2.42**
	(0.016)	(0.064)	(0.762)	(0.072)	(0.145)	(0.075)	(0.001)	(0.020)	(0.015)

Table 7 The impact of multi-layers governance on bank risk disclosure (*W-RMDPI*) continued....

Panel B: Control variables									
Intercept	-2.47**	-0.09	-3.30***	-7.39***	1.19	0.82	4.82***	-0.75	-2.47**
	(0.014)	(0.927)	(0.001)	(0.000)	(0.239)	(0.417)	(0.000)	(0.456)	(0.014)
LNBS	2.42**	0.05	4.41***	8.94***	0.61	0.23	0.02	4.27***	2.42**
	(0.016)	(0.962)	(0.000)	(0.000)	(0.547)	(0.820)	(0.986)	(0.000)	(0.015)
ROAA	-1.67*	-2.09**	-0.82	6.19***	0.11	0.23	-0.98	-1.15***	-1.67*
	(0.096)	(0.038)	(0.413)	(0.000)	(0.912)	(0.817)	(0.326)	(0.000)	(0.095)
LIQR	4.07***	2.15**	0.97	2.68***	1.00	1.22	2.40*	5.83***	4.07***
	(0.000)	(0.033)	(0.335)	(0.008)	(0.321)	(0.227)	(0.064)	(0.000)	(0.000)
OPEF	-0.09	-1.42	-1.31	2.12**	-1.28	-1.26	-0.99	-1.35	-0.09
	(0.930)	(0.158)	(0.190)	(0.035)	(0.204)	(0.211)	(0.325)	(0.177)	(0.930)
BCAD	-0.50	1.11	-1.67*	-0.73	-1.22	-2.55**	-1.42	-0.07	-0.50
	(0.619)	(0.271)	(0.096)	(0.467)	(0.227)	(0.013)	(0.156)	(0.947)	(0.619)
LENG	12.98***	6.43***	6.13***	4.15***	3.02***	4.25***	5.39***	9.02***	12.98***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)
INFL	-1.35	-1.02	-0.22	-0.37	-6.79***	-0.48	-1.13	-6.39***	-1.35
	(0.177)	(0.310)	(0.830)	(0.714)	(0.000)	(0.637)	(0.260)	(0.000)	(0.177)
CGDP	-1.98**	-2.39**	-0.59	-0.29	2.74***	-2.08**	-1.10	-4.31***	-1.98*
	(0.048)	(0.018)	(0.557)	(0.773)	(0.008)	(0.042)	(0.272)	(0.000)	(0.048)
fixed effect	Year	Year	Year	Year	-	Year	Year	Year	Year
clustering	Bank	Bank	Bank	Bank	-	Bank	Bank	Bank	Bank

Table 7 The impact of multi-layers governance on bank risk disclosure (W-RMDPI) continued...

F- value (χ^2)	35.72***	21.04***	13.13***	20.57***	5.33***	5.94***	9.77***	480.61***	27205***
Hausman chi2	145.65***	132.98***	168.23***	123.45***	156.28***	185.21***	166.36***	-------	5.37
Overall R^2	0.29	0.38	0.16	0.44	0.60	0.15	0.21	0.41	0.29
No. of obs	682	183	263	236	73	158	451	682	682

Notes: *P*-values are in parentheses. ***, **, and * mean significance at the 1%, 5% and 10% levels, respectively. Variables are defined as follows: risk disclosure quality score (*RMDPI*), *Sharia* supervisory board (*SSB*),government ownership (*GSHR*), family ownership (*FOWN*), board size (*BBSZ*), CEO duality (*CEOP*), board independence(*BBID*), political strength and absence of violence/ terrorism (*PSQ*), corruption control (*COCQ*), bank size (*LNBS*), performance (*ROAA*), liquidity (*LIQR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual reports length (LENG), inflation (*INFL*), and GDP per capita (*CGDP*). Table 2 fully defines all the variables used.

7. Summary and Conclusion

The financial crises that have been witnessed over the last decade have raised the importance of risk disclosure in the banking sector worldwide. This study examines the impact of banks' multi-layer governance (MLG) on banks' risk disclosure using a sample of 14 countries in the Middle East and North Africa (MENA) region over the period of 2006 to 2013. The examination of the impact of MLG on banks' risk disclosure is motivated by the dearth of research investigating the impact of board, ownership, SSB, and country governance characteristics on risk disclosure in banks. The study is also motivated by the fact that during the 2006 – 2013 period, all MENA authorities made considerable changes to CG and implemented IFRS standards and Basel accords, which required banks to report more information about their risks.

The multivariate analysis results suggest that the MLG is significant in explaining differences in risk disclosure level. Specifically, the results suggest that *Sharia* Supervisory Board index (*SSB*) is positively associated with the level of risk disclosures by banks. Secondly, at the bank-level, this study finds that ownership (governmental ownership and family ownership) and board (board size and non-executive directors) structures have a positive effect on the level of risk disclosures by banks, whilst CEO duality is negative, but insignificantly related to bank risk disclosures. At the country-level, the evidence suggests that control of corruption has a positive effect on the level of bank risk disclosure, whilst political stability and absence of violence have a negative, but insignificant association with the level of bank risk disclosures.

These results provide empirical support for the predictions of the multi-theoretical framework that incorporates insights from agency, signal, legitimacy, and resource dependence theories. Also, the results are robust after controlling for a number of bank- and country-level factors in a number of models that address different risk disclosure measures in addition to addressing endogeneity problems with different econometric models.

The results extend, as well as make a number of new contributions to the extant research. First, to the best of the researcher's knowledge, the study provides a first-time cross-country evidence on the level of risk disclosures in MENA, especially following the 2007/08 financial crisis. Second, the essay provides evidence for the first time on the impact of in-board layer (i.e., SSB) on the level of risk disclosures by MENA banks. Third, the study provides evidence on the extent to which differences in bank risk disclosures can be explained by bank-level governance, including board and ownership, and country-level governance. Finally, the evidence offers insights into risk disclosure and governance practices over the pre- and post-2007/08 period.

This study has a number of implications for policymakers, regulators, practitioners and investors, as well as IBs, CBs, and DBs, especially for banks and authorities in other emerging markets. Firstly, the results show that the banking sector has responded to the recent regulatory pressure to enhance disclosure, transparency, and governance, and thus, these results shed light on the importance of risk disclosure reforms for management, policy makers, and regulators in the banking sector especially after GFC. Secondly, the findings show the importance of current CG reforms in MENA banks and their impact on enhancing risk disclosures. Examples of such changes include employing independent chairpersons,

increasing board size, and independent members acting as effective bank level advisors and monitors of risk disclosure. As a consequence, regulators and policymakers should continually pursue reforms to encourage banks to follow CG principles that are promoted as good practice.

Thirdly, for IBs and DBs, the results demonstrate the importance of SSB, which mitigates agency costs, and works with BODs as additional governance layers to enhance transparency through comprehensive risk disclosures. Finally, for policy makers, regulators and investors, country governance results show the importance of sound governance institution such as control of corruption in enhancing a banks' transparency through risk disclosure.

This research contains some limitations. This study depends on banks annual reports only. Although important, they are not the only means by which banks disclose information about risk. Future research could examine the economic consequences of risk disclosure from an equity and debt investors' perspective, as well as its impact on bank performance and value. In addition, this study depends on a number of ownership structures only. Although important, they are not the only types of ownership structures. Future research could examine the other types of ownership structures such as block, foreign, institutional, and managerial ownership. Finally, further research can address sample size limitations and the impact of further CG mechanism (e.g., audit committee, risk committee, independent non-executive board members) on risk disclosure quality.

Empirical Essays on Risk Disclosures, Multi-Level Governance, Credit Ratings, and Bank Value: Evidence from MENA Banks

Essay 2

The Impact of National and Islamic Governance Quality on Risk Management and Disclosure Practices: A Cross-Country Study

Abstract

This essay examines the relationships among national governance quality (NGQM), Islamic governance quality, including other bank-level governance mechanisms and risk management and disclosure practices (RMDPs); and consequently ascertains whether NGQM has a moderating influence on the Islamic governance quality-RMDPs nexus. Using Islamic banks dataset from 10 Middle East and North Africa (MENA) countries from 2006 to 2013, the findings are four-fold. Firstly, this study finds that RMDPs are higher in banks from countries with higher NGQM. Secondly, this essay shows that RMDPs are higher in banks with better Islamic governance. Thirdly, the study finds that board size and non-executive directors have a positive effect on the level of RMDPs. Finally, this study finds evidence that suggests that NGQM has a moderating effect on the Islamic governance quality-RMDPs nexus. These results are consistent with the predictions of the multi-theoretical framework that incorporates insights from agency, signalling, legitimacy, institutional, and resource dependence theories.

Keywords: Banks; Islamic Governance; MENA Countries; Multi-Theoretical Framework; National Governance; Risk Management and Disclosure Practices

1. Introduction

Risk management and disclosure practices are a significant part of bank's long-term financial sustainability and annual reporting. They often include managerial clarifications and commentaries about a bank's up-to-date state regarding uncertainty and future predictions (Elshandidy *et al*., 2013; Ntim *et al*., 2013). However, regulators and stakeholders have been concerned with risk management and disclosure practices (RMDPs) in recent years, especially following the 2007/2008 global banking crisis (Abedifar *et al*., 2013; Barakat & Hussainey, 2013; BCBS, 2015; Laeven, 2013). This notwithstanding, the role of macro-level factors, such as religion and national governance in driving business decisions and outcomes, such as RMDPs in distinct religious, cultural and business contexts, remains largely unexplored (Du *et al*., 2014; Ullah *et al*., 2014).

Specifically, prior studies investigating the relationships among national governance quality, Islamic governance quality, including other bank-level governance mechanisms (ISGQ) and RMDPs are rare (Barakat & Hussainey, 2013; Elshandidy *et al*., 2013; Elshandidy *et al*., 2015; Elshandidy & Neri, 2015; Ntim *et al*., 2013). Similarly, and to the best of the researcher's knowledge, there is no extant study examining how national governance quality might probably affect the ISGQ-RMDPs nexus. The current study, therefore, seeks to examine the relationships among national governance quality, ISGQ, and RMDPs. In addition, this essay explores why and how national governance quality may have a moderating influence on the ISGQ-RMDPs nexus in the Middle East and North Africa (MENA) Islamic banks.

RMDPs have witnessed substantial developments and interests in recent years (Abdallah *et al*., 2015; Abraham & Shrives, 2014; Al-Maghzom *et al*., 2016; Elshandidy & Neri, 2015). Prior literature suggests that Islamic banks may embark on extensive RMDPs derived from a number of theoretical reasons. From agency theory perspective, transparent and extensive RMDPs may help in reducing information asymmetry between management and shareholders (Abraham & Cox, 2007; Elshandidy *et al*., 2013; Jensen & Meckling, 1976; Ntim *et al*., 2013; Safieddine, 2009).

Signalling theory states that transparent and extensive RMDPs may send signals to prospective investors about banks' prudential risk management and disclosure practices (Connelly *et al*., 2011; Ntim *et al*., 2013). From legitimacy theory perspective, engaging in improved RMDPs may be a strategic approach towards enhancing their legitimacy to exist and conduct their operations (Al-Bassam *et al*., 2015; Ntim *et al*., 2013; Pittroff, 2014). Institutional theory argues that banks often react to societal norms and pressures (i.e., coercive, societal, and institutional pressures) by improving RMDPs in order to gain organisational legitimacy (Chandler & Hwang, 2015; DiMaggio & Powell, 1983; Ntim & Soobaroyen, 2013b). Finally, resource dependence theory suggests that improved RMDPs can offer Islamic banks access to required resources, such as *Sukuk* and contracts (Al-Bassam *et al*., 2015; Ntim *et al*., 2013; Pfeffer & Salancik, 2003).

Therefore, extant research has examined a wide range of motivations, and antecedents of RMDPs (e.g., Abdallah *et al*., 2015; Al-Maghzom *et al*., 2016; Barakat & Hussainey, 2013; Dobler *et al*., 2011; Elshandidy *et al*., 2013, 2015; Ntim *et al*., 2013). However, existing research seems to suffer from a number of weaknesses. Despite the significance of

better RMDPs and the substantial accounting standards (e.g., International Financial Reporting Standards - IFRS 7 & 9), International Accounting Standards (IAS 32 & 39), and corporate governance (CG) reforms worldwide (Al-Maghzom *et al*., 2016; Miihkinen, 2012; Ntim *et al*., 2013), existing RMDPs research is largely focused on examining the influence of either firm characteristics (e.g., Dobler *et al*., 2011; Linsley & Shrives, 2006) or internal CG mechanisms (Abraham & Cox, 2007; Elshandidy *et al*., 2013, 2015; Ntim *et al*., 2013) on RMDPs in non-financial firms in developed countries. By contrast, studies investigating why and how the banking industry may disclose RMDPs are rare (Barakat & Hussainey, 2013), especially in developing countries (Abdallah *et al*., 2015).

Also, and although growing suggestions that national governance quality (NGQM) is an important driver of bank strategies, behaviour, and valuations (Alon & Dwyer, 2014; Ernstberger & Grüning, 2013; Essen *et al*., 2013; Tunyi & Ntim, 2016), extant research relating to the impact of NGQM on disclosure quality (e.g., RMDPs) has received little attention (Alon & Dwyer, 2014; Barakat & Hussainey, 2013; Cahan *et al*., 2015; Essen *et al*., 2013; García-Castro *et al*., 2013; Schiehll *et al*., 2014).

Notwithstanding, either the theoretical suggestions or inconsistent empirical results about the direction and significance of the ISGQ-RMDPs nexus (Abraham & Shrives, 2014; Aguilera *et al*., 2008; Barakat & Hussainey, 2013; Elshandidy *et al*., 2015; Essen *et al*., 2013; Ntim *et al*., 2013; Williams, 2014; Zattoni & Van Ees, 2012), to the best of the researcher's knowledge, there is no extant research that has examined whether the institutional environment (e.g., NGQM) moderates ISGQ-RMDPs relationship.

Additionally, the Middle East and North Africa (MENA) Islamic banks provide a unique context for exploring RMDPs. Islamic banks are based on Islamic business principles, values, and laws that are drawn from *Sharia*, and thus arguably offering interesting context to assess the drivers of RMDPs. Also, MENA countries have pursued CG, accounting standards, and regulatory reforms (Amico, 2014; Moumen *et al*., 2015). However, the relatively poor NGQM in a majority of MENA countries as shown in Table 8 may affect Islamic banks (ISBs) trustworthiness.

Hence, this study seeks to make three main novel contributions to the extant literature. Firstly, and to the best of the researcher's knowledge, this study offers first-time evidence on the effect of national governance quality on banks' risk management and disclosure practices. Secondly, this study offers first-time evidence on the impact of Islamic governance quality on banks' risk management and disclosure practices. Finally, this essay provides evidence for the first time relating to the moderating effect of national governance quality on the relationship between Islamic governance quality, and banks' risk management and disclosure practices.

The rest of this study is organised as follows: Section two outlines the theoretical framework. Section three analyses the extant empirical literature and develops research hypotheses. Section four outlines the research design. Section five discusses the empirical results. Finally, section six draws concluding remarks, discusses implications and recommendations for future research.

Table 8 National governance quality indicators cross-MENA countries

Governance Indicators	Year	MENA	Bahrain	Egypt	Jordan	Kuwait	Lebanon	Oman	Qatar	KSA	Syria	UAE
	2006	25	23	16	29	31	34	17	29	5	6	21
VAQ	2009	23	27	15	27	34	35	18	23	4	6	26
	2013	25	12	18	25	28	34	19	24	3	4	18
	2006	37	32	21	23	57	5	72	76	29	37	77
PSQ	2009	38	40	26	32	55	8	74	91	28	28	81
	2013	28	9	7	26	52	7	62	91	33	0	75
	2006	46	66	37	61	63	44	64	70	47	18	80
GEQ	2009	49	69	47	63	62	39	66	80	52	34	81
	2013	45	70	21	50	52	43	61	81	58	8	83
	2006	43	71	37	62	61	48	68	62	52	7	70
RQM	2009	48	74	47	61	56	53	69	73	57	18	66
	2013	44	71	28	56	50	50	67	74	56	4	75
	2006	46	63	50	62	67	32	62	70	56	22	61
ROLQ	2009	49	66	54	62	67	30	69	82	59	38	63
	2013	44	62	34	63	63	25	67	83	61	3	71
	2006	46	64	29	66	72	18	62	83	49	16	79
COCQ	2009	48	66	41	65	71	22	67	92	59	13	80
	2013	45	69	32	61	54	18	60	84	58	8	88

Notes: This table reports the six dimensions of national governance quality indicators (*NGQM*) cross-MENA countries in fiscal years 2006, 2009, and 2013. The six dimensions of national governance quality indicators (*NGQM*) are defined as follows: Voice and accountability quality (*VAQ*), political stability quality (*PSQ*), government quality (*GEQ*), regulatory quality (*RQM*), rule of law quality (*ROLQ*), control of corruption quality (*COCQ*). Source: Worldwide Governance Indicators (WGI), World Bank Group, 2016.

2. Islamic Governance Quality, National Governance Quality, and Risk management and disclosure practices in MENA Islamic Banks

A considerable number of extant literature has suggested that weak risk management and governance framework in the banking industry is a significant contributing factor for the recent global banking crisis (Aebi *et al*., 2012; BCBS, 2015; Grove *et al*., 2011; Hagendorff *et al*., 2010; Laeven, 2013; Leventis *et al*., 2013; McNulty *et al*., 2013; Minton *et al*., 2014). Additionally, ISBs need to comply with religious rules and regulations in addition to conventional banking rules, and therefore create additional governance challenges (Abedifar *et al*., 2013; Ahmed, 2015; AI-Bassam & Ntim, 2016; Khediri *et al*., 2015; Ntim, 2013a, 2013b). Therefore, CG literature in the banking sector demonstrates that board structure and related committees inadequateness interact with banks' unique features, which played a key role in the financial crisis (García-Castro *et al*., 2013; Kirkpatrick, 2009; McNulty *et al*., 2013; Minton *et al*., 2014; Walker, 2009).

Specifically, the difference in banks governance structures is due to banks distinctive features, such as banks' heavily regulation, opacity, complexity, and leverage, which differentiate bank governance when compared to non-financial firms. Additionally, banks deal with numerous agency conflicts, such as conflicts between shareholders and managers and/or other stakeholders (e.g., debtholders) (Laeven, 2013; Leventis *et al*., 2013). Accordingly, to stimulate prudential corporate governance practices of banks, the Basel Committee on Banking Supervision (BCBS) revised and issued corporate governance (CG) principles for banks guidelines in 2015. BCBS (2015, p. 3) defines CG as:

> "*Corporate governance determines the allocation of authority and responsibilities by which the business and affairs of a bank are carried out by its board and senior management, including how they: (1) set the bank's strategy and objectives; (2) select and oversee personnel; (3) operate the bank's business on a day-to-day basis; (4) protect the interests of depositors, meet shareholder obligations, and take into account the interests of other recognised stakeholders; (5) align corporate culture, corporate activities and behaviour with the expectation that the bank will operate in a safe and sound manner, with integrity and in compliance with applicable laws and regulations; and (6) establish control functions*".

Notably, governance reforms in the banking industry worldwide have placed a special emphasis on strengthening rigorous risk management, and disclosure practices (Barakat & Hussainey, 2013; BCBS, 2015; Ntim *et al*., 2013). In addition, BCBS (2015) and Financial Stability Board (FSB) (2014) argue that effective and improved risk management and disclosure practices are a key indicator to assess bank strategy, efficiency, and risk culture. Moreover, recently, CG reforms and extant literature demonstrate that board of directors and related sub-committees adequateness play a crucial role in strengthening a bank's risk management and disclosure practices (Barakat & Hussainey, 2013; Laeven, 2013; Ntim *et al*., 2013).

Although extensive literature demonstrates that the Islamic governance quality, including other bank-level governance mechanisms may strongly affect bank's risk management and disclosure practices (AI-Bassam & Ntim, 2016; Barakat & Hussainey, 2013; Farook *et al*., 2011; Garas & Pierce, 2010; Haniffa & Cooke, 2002; Laeven, 2013; Ntim, 2013c, 2013d; Ntim *et al*., 2013). To the best of the researcher's knowledge, no attention has been given to how the national governance quality can affect these practices.

As proposed by Aguilera *et al*. (2008), Baldini *et al*. (2016), García-Castro *et al*. (2013), Schiehll *et al*. (2014), and Schiehll and Martins (2016), effective CG structures may be contingent on the national governance quality factors. In this study, we explore national governance quality as captured by six country governance indicators employed by Kaufmann *et al*. (2010, 2011), and in line with extant literature (Barakat & Hussainey, 2013; Essen *et al*., 2013; García-Castro *et al*., 2013; Tunyi & Ntim, 2016; Yoshikawa *et al*., 2014). Kaufmann *et al*. (2011, p. 222) define national governance quality as;

> *"The traditions and institutions by which authority in a country is exercised. This includes (a) the process by which governments are selected, monitored, and replaced; (b) the capacity of the government to effectively formulate and implement sound policies; and (c) the respect of citizens and the state for the institutions that govern economic and social interactions among them."*[2]

Such national governance quality may affect managers', shareholders' and other stakeholders' insights on agency, legitimacy, and resource dependence problems (Essen *et al*., 2013; Hooghiemstra *et al*., 2015) and thus, eventually, affects RMDPs choices in different governance contexts. Therefore, the national governance quality has been argued to determine outlooks about the extent to which managers behave versus bank's stakeholders (Alon & Dwyer, 2014). Particularly, the level to which managers decide to disclose risk information may depend on the national governance quality that impacts individual managers' ethics, and behaviours. Notwithstanding the importance of RMDPs, the

[2] Based on Kaufmann *et al*. (2011) definition for the national governance quality , they construct six dimensions to measure the national governance quality: (I) voice and accountability quality (VAQ); (II) political stability quality (PSQ); (III) government quality (GEQ); (IV) regulatory quality (RQM); (V) rule of law quality (ROLQ); and (VI) control of corruption quality (COCQ).

understanding of why managers decide to disclose such information; in ISBs context is limited.

ISBs are considered a new trend in banking sector whose religion compliance is at least (if not more) as imperative as maximising shareholders wealth (Haniffa & Hudaib, 2007). Simultaneously, Islamic banking has gained specific attention of regulators, academics, and investors due to its steady increase in recent years (Abedifar *et al.*, 2013; Elghuweel *et al*., 2016). As a result, many international banks operating in sizeable Muslim population countries have created a number of *Sharia*-compliant products. For instance, Citi-group, HSBC, Standard Chartered among others, have opened Islamic windows (i.e. dual banks) (Khediri *et al*., 2015).

Initially, the increasing growth of Islamic banking is due to a corresponding increase in demand for *Sharia*-compliant products, which are generated based on profit and loss sharing model (PLSM). Specifically, Islamic banking products must comply with the Islamic religion (*Sharia* principles), which mainly restricts involvement in charging interest, excessive uncertainty or gambling, and religion banned products (Gheeraert, 2014). However, ISBs special nature increases inherent risks. For instance, liquidity risks raise from heavily rely on long-term equity (e.g., *Sukuk*); operational risks (e.g., withdrawal risk) raise from non-compliance with *Sharia* principles (Ahmed, 2015).

Due to the need to comply with religious rules, Islamic banks are required to establish Islamic governance structure combined with the traditional governance structure. Islamic governance has been established to ensure all bank's operations and activities comply with Islamic law (*Sharia* principles) (Abedifar *et al*., 2013; Khediri *et al*., 2015). Despite some

distinguished exceptions, the extant literature shows insignificant variances among ISBs and conventional banks regarding their competition, efficiency, and risk characteristics (Abedifar *et al*., 2013).

Alternatively, the special religious nature of Islamic banks may trigger these banks to be more accountabe (Abedifar *et al*., 2013). Hence, MENA ISBs provide a unique context where RMDPs can be studied since religious factors create coercive and societal pressures which may impact banks' behaviour. Also, MENA countries have pursued corporate governance (CG), accounting standards and regulatory reforms (Al-Malkawi *et al*., 2014; Moumen *et al*., 2015). For example, all MENA countries have issued CG codes to promote governance best practices (Amico, 2014).

In addition, most of MENA countries have adopted Basel accords (I, II, and III) which seek to improve the transparency and risk management practices of banks for the benefit of stakeholders (Grassa, 2013; Khediri *et al*., 2015). However, the low country-level governance in the majority of MENA countries where ISBs are operating may affect their trustworthiness. Hence, MENA context allows us to clearly examine whether national governance quality moderates the relationship between Islamic governance quality, including other bank-level governance mechanisms and risk management and disclosure practices (RMDPs).

3. Theoretical Framework

The variations in RMDPs could be explained through multi-theoretical lens because a globally accepted theory of RMDPs and governance is still elusive (Christopher, 2010; Ntim *et al*., 2013; Zattoni & Van Ees, 2012). In addition, I respond to the latest calls for a more holistic view of RMDPs (Abraham & Shrives, 2014; Christopher, 2010; Dobler *et al*., 2011; Elshandidy *et al*., 2015; Ntim, 2012a, 2012c; Ntim *et al*., 2013). For example, each theory may not singularly offer a complete clarification of how Islamic and national governance mechanisms affect RMDPs. However, linking insights from multi-theoretical perspectives may give unique insights into interpreting and explaining RMDPs in different regulatory and institutional contexts. Also, these perspectives may allow examining the interaction between Islamic governance quality and national governance quality (Ntim *et al*., 2013; Ntim & Soobaroyen, 2013b; Zattoni & Van Ees, 2012; Zona *et al*., 2015).

From this perspective, joint insights from agency, legitimacy, signalling, institutional, and resource dependence theories are considered an important step in improving the relevance of Islamic and national governance mechanisms in explaining the motivations to be involved in RMDPs. This is particularly important in the regulatory and socio-demographical diversity of MENA countries, where multi-theoretical approach could help in explaining the seemingly inconsistent results of RMDPs variation (Al-Bassam *et al*., 2015; Ntim *et al*., 2013; Zattoni & Van Ees, 2012; Zona *et al*., 2015).

Particularly, there are several theoretical reasons why ISBs could be involved in wide-ranging RMDPs. Agency theory predicts that effective mechanisms of the bank-level and

national-level governance may lead to transparent RMDPs. Consequently, it mitigates agency costs and reduces the information asymmetry between management and shareholders (Abraham & Cox, 2007; Elshandidy *et al*., 2013; Jensen & Meckling, 1976; Safieddine, 2009). Signalling theory literature suggests that ISBs communicate RMDPs information to the external environment to drive a message to prospective investors about the bank and the effectiveness of national governance through prudential RMDPs (Connelly *et al*., 2011; Ntim, 2012c; Ntim *et al*., 2013). However, the explanatory power of agency and signalling theories is limited, as they tend to focus exclusively on managers and shareholders/investors to the detriment of other stakeholders, such as the local community.

From legitimacy theory (LGT) perspective, engaging in improved RMDPs may be a strategic approach towards enhancing ISBs legitimacy to exist and conduct their operations. Subsequently, banks may choose to improve RMDPs as symbol instead of a substantive systems to avoid reputation damage and increase society's acceptance (Al-Bassam *et al*., 2015; Ntim, 2012c; Ntim *et al*., 2013; Pittroff, 2014). Also, LGT predicts that ISBs may drive a message to the society about prudential RMDPs (e.g., comply with *Sharia*) to meet the society's boundaries, norms, and requirements (Edkins, 2009; Pittroff, 2014). Similarly, legitimacy theory has been criticised for being vague about the identity of the key stakeholders of the firm, and therefore, limited ability to explain observable differences in RMDPs.

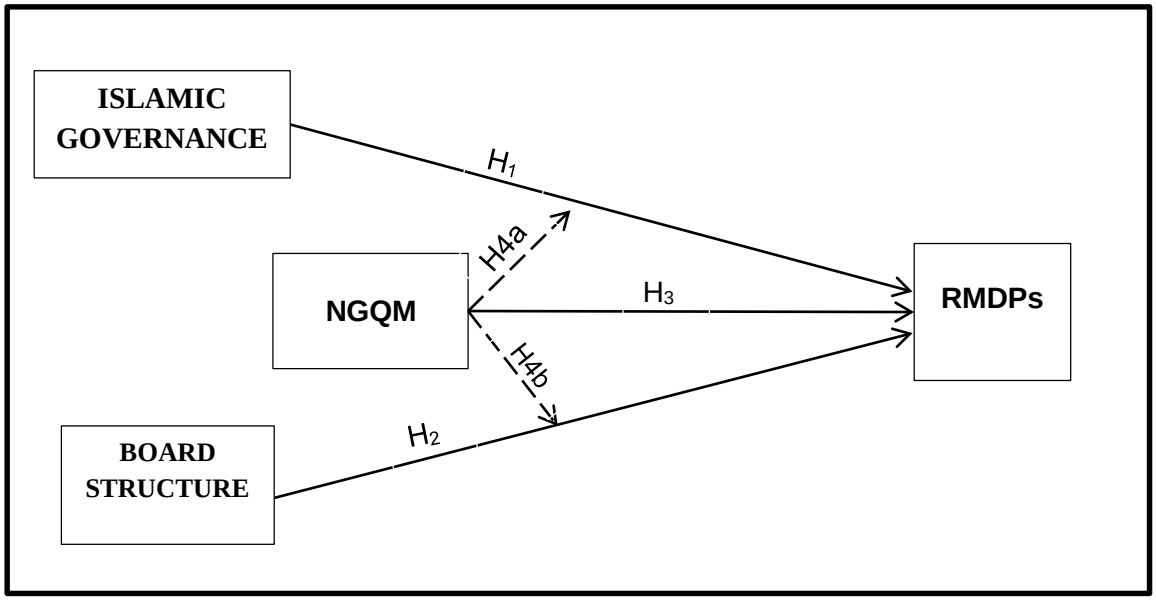
Institutional theory (IST) research states that banks also react to societal norms impact and pressure for improving RMDPs (Ntim *et al*., 2013; Ntim & Soobaroyen, 2013b). These pressures arise from banks' external and internal forces and may lead to institutionalization

and organizations' isomorphic behaviour (DiMaggio & Powell, 1983; Martinez & Dacin, 1999; Ntim *et al*., 2013). In particular, IST argues that coercive and societal pressures arise from banks' external settings. These pressures may create management incentives to gain organizational legitimacy through mimic RMDPs, and consequently, form mimetic isomorphism (DiMaggio & Powell, 1983; Ntim & Soobaroyen, 2013b). Similarly, IST emphasizes that established RMDPs inside banks may create institutional pressure, which arises when RMDPs stay for a long-term, culturally acknowledged, as well as resilient to change. Accordingly, institutional pressure forms normative isomorphism (Chandler & Hwang, 2015; DiMaggio & Powell, 1983). However, IST has been critiqued for paying no attention to the role of agency, and hence, providing over-socialised clarifications of organizational behaviour (Chandler & Hwang, 2015; Scott, 1987).

Resource dependence theory (RSDT) predicts that improved RMDPs can offer Islamic banks access to required resources, such as *Sukuk* and contracts (Al-Bassam *et al*., 2015; Ntim *et al*., 2013; Pfeffer & Salancik, 2003). Also, RSDT offers a number of benefits resulting from the bank and national governance's effectiveness through wider interdependencies of ISBs. Specifically, bank and national governance effectiveness work as an instrument for banks to decrease uncertainty and dependence through improved RMDPs. Particularly, in increased competitive environment, improved RMDPs may work as an indication of bank quality (Christopher, 2010; Zona *et al*., 2015). However, the ability of resource dependence theory to explain discernible differences in RMDPs is also limited by its excessive focus on directing RMDPs at securing resources, especially financial resources and stakeholders, who may not necessarily be the main users of RMDPs.

With these apparent limitations of each individual theory, but yet different bank motivations for engaging in risk disclosures, this study seeks to enhance their explanatory power by drawing on insights from agency, legitimacy, signalling, institutional and resource dependence perspectives to understand the RMDPs phenomenon. Hence, this study merges their seemingly inconsistent results concerning the bank-level, national-level governance, and RMDPs nexus. The five perspectives have been assimilated to explain the critical functions Islamic bank-governance and national-governance quality perform and how these functions affect RMDPs. Furthermore, to add further theoretical nuance to the multi-theoretical lens, this study cogitates how national governance quality and further effects such as ethical and religious values of the MENA region (i.e., Islamic governance) may be of influence RMDPs as presented in Figure 1.

Figure 1 Proposed Empirical Model for the Structural Relations between Islamic Governance, Board Structure, NGQM, and RMDPs



Notes: The graph describes the structural relations between Islamic governance, board structure, national governance quality and risk management and disclosure practices (RMDPs), either directly (solid lines) or via moderating effect of national governance quality (NGQM) (dotted lines).

4. Related Literature and Research Hypotheses Development

Most prior literature on risk management and disclosure practices (RMDPs) focuses on firm-specific factors (e.g., Amran *et al*., 2008; Deumes, 2008; Dobler *et al*., 2011; Helbok & Wagner, 2006; Hassan, 2009). However, the focus has recently shifted from firm-specific factors to a firm's internal CG, following unprecedented malfeasance and banks failures (Abraham & Cox, 2007; AlHadi *et al*., 2015; Barakat & Hussainey, 2013; Dalton & Dalton, 2011; Elshandidy *et al*., 2013; Elshandidy *et al*., 2014; Ntim *et al*., 2013). Conversely, there is no evidence of regular relations between CG mechanisms and disclosure quality, particularly RMDPs in banks (Abraham & Cox, 2007; Elshandidy *et al*., 2013; Elzahar & Hussainey, 2012; Miihkinen, 2012; Ntim *et al*., 2013).

Moreover, an ample amount of prior RMDPs cross-country studies rely on one governance level analytical approach, while being inattentive to the national governance level (Barakat & Hussainey, 2013). Consequently, this study seeks to examine the impact of Islamic governance quality, including other bank-level governance mechanisms on the level of RMDPs. Additionally, this study investigates the effect of national governance quality on the level of RMDPs. Then, it explores why and how national-level governance quality may have a moderating influence on the Islamic governance quality-RMDPs nexus in MENA Islamic banks.

4.1 Islamic Governance Quality and RMDPs

4.1.1 Islamic Governance and RMDPs

Prudential supervision and principles regarding Islamic governance may place a better emphasis on disclosure practices for many theoretical considerations (AI-Bassam & Ntim, 2016; Farook *et al*., 2011; Haniffa & Cooke, 2002). According to agency theory, Islamic governance is likely to convey additional monitoring requirements to ISBs due to further rules, experience, and knowledge relating to being *Sharia*-compliant (AI-Bassam & Ntim, 2016; Jensen & Meckling, 1976, Ntim *et al*., 2016). In particular, Islamic governance may offer motivations to engage in greater RMDPs through confirming whether ISBs have complied with *Sharia* and related risks, and thus mitigates information asymmetries (AI-Bassam & Ntim, 2016; Farook *et al*., 2011; Jensen & Meckling, 1976; Ntim et al., 2015a, 2015b, Safieddine, 2009).

From signalling and legitimacy perspectives, Islamic governance may offer incentives to engage in greater RMDPs to avoid reputation damage and increase society's acceptance by verifying ISBs legitimacy (Al-Bassam *et al*., 2015; Haniffa & Hudaib, 2007; Ntim *et al*., 2013; Pittroff, 2014). In addition, communicating the sound RMDPs to prospective investors, and outside environment, especially as it relates to compliance with *Sharia* and related risks, and hence, banks could achieve a sustainable growth in the society (Connelly *et al*., 2011; Haniffa & Hudaib, 2007; Pittroff, 2014). Institutional theory (IST) predicts that Islamic governance may offer incentives to engage in greater RMDPs especially practices that are linked to *Sharia* and related risks due to coercive and societal pressure arising from banks'

external settings as well as institutional pressure from inside the banks (Chandler & Hwang, 2015; DiMaggio & Powell, 1983; Ntim *et al*., 2015c; Ntim & Soobaroyen, 2013b).

Finally, from resource dependence perspective, Islamic governance may offer incentives to engage in greater RMDPs so as to offer Islamic banks access to required resources such as *Sukuk* through prudential *Sharia* and related risks disclosure practices (Al-Bassam *et al*., 2015; Ntim *et al*., 2013; Pfeffer & Salancik, 2003).

A number of current studies explore the nature of Islamic governance in ISBs. For example, Haniffa and Hudaib (2007) examine the ISBs' ethical identity using annual reports data from 7 ISBs in four Gulf countries from 2002 to 2004. They found that ISBs disclose information related to *Sharia* supervisory boards (SSBs) as an ethical identity dimension for those banks. Safieddine (2009) explores CG practices using a survey of 43 questions from 40 ISBs in 5 Gulf countries. In addition, three interviews from three ISBs have been conducted. Safieddine (2009) finds that ISBs have and recognize the significance of well-established *Sharia* supervisory boards as a proxy for Islamic governance on the basis of independence, structure, education, and power. However, Safieddine (2009) argues that ISBs suffer from some governance weaknesses regarding audit and transparency.

Prior studies find strong evidence supporting that Islamic governance has a positive impact on social responsibility disclosures (CSRs) within ISBs context (Farook *et al*., 2011; Haniffa & Hudaib, 2007; Rahman & Bukair, 2013). For instance, using a data from 47 ISBs in 14 countries, Farook *et al*. (2011) found that integrating Islamic governance with *Sharia* supervisory boards (SSBs) have a positive impact on the level of CSRs. Consistently, prior literature finds evidence relating to Islamic governance-disclosure quality nexus. For

instance, using a data from 75 firms listed on the Saudi market in annual reports from 2004 to 2010, AI-Bassam and Ntim (2016) find that Islamic governance, including SSBs characteristics, have a positive effect on the voluntary CG disclosure. Notably, to the best of the researcher's knowledge, no literature has examined the impact of Islamic governance on RMDPs to date. Accordingly, this study hypothesises that:

***H_1**: The level of Islamic governance is positively related to the level of RMDPs.*

4.1.2 Board Structure of ISBs and RMDPs

RMDPs are further driven by the ISBs board structure in terms of board size, diversity and independence for many theoretical reasons (Abraham & Cox, 2007; Al-Maghzom *et al*., 2016; Barakat & Hussainey, 2013; Elshandidy *et al*., 2013, 2014; Ntim *et al*., 2013; Mokhtar & Mellett, 2013). According to agency theory, board structure (i.e., larger boards, more board diversity, and independence) is likely to deliver improved monitoring requirements to ISBs due to further rules, experience and knowledge (AI-Bassam & Ntim, 2016; Jensen & Meckling, 1976). Particularly, board structure (i.e., larger boards, more board diversity, and independence) may have a substantial effect on bank's monitoring activities. Accordingly, it places more pressure on management to engage in greater RMDPs, and thus, mitigates agency costs (Blessy Sekome & Taddesse Lemma, 2014; Elshandidy *et al*., 2013; Elzahar & Hussainey, 2012; Healy & Palepu, 2001; Ntim *et al*., 2013).

From signalling and legitimacy perspectives, board structure (i.e., larger boards, more board diversity, and independence) may offer motivations to engage in greater RMDPs to avoid reputation damage and increase society acceptance (Al-Bassam *et al*., 2015;Ntim *et al*., 2013; Pittroff, 2014). In addition, communicating the sound RMDPs to prospective

investors and outside environment, helps banks achieve a sustainable growth in the society (Connelly *et al*., 2011; Haniffa & Hudaib, 2007; Pittroff, 2014).

IST research suggests that board structure (i.e., larger boards, more board diversity, and independence) may offer isomorphism incentives to engage in greater RMDPs due to coercive and societal pressure arising from banks' external settings as well as institutional pressure from inside banks (Chandler & Hwang, 2015; DiMaggio & Powell, 1983; Ntim & Soobaroyen, 2013b).

Finally, from resource dependence perspective, board structure (i.e., larger boards, more board diversity and independence) may offer incentives to engage in greater RMDPs to offer Islamic banks access to required resources, such as *Sukuk* that can assist their prospects for sustainable survival (Al-Bassam *et al*., 2015; Ntim *et al*., 2013; Pfeffer & Salancik, 2003). However, it could be debated that larger boards could impact RMDPs negatively (Cheng & Courtenay, 2006) as a result of co-ordination and communication weaknesses (Jensen, 1993; Ntim & Soobaroyen, 2013b).

Literature has provided an unsystematic relationship between board size and RMDPs level (e.g., Domínguez & Gámez, 2014; Elzahar & Hussainey, 2012; Ntim *et al*., 2013). However, most of previous studies suggest a positive relationship between board size and RMDPs level (e.g., Al-Shammari, 2014; Allegrini & Greco, 2011; Elshandidy *et al*., 2013; Elshandidy & Neri, 2015; Hussainey & Al-Najjar, 2011; Jizi *et al*., 2014; Ntim *et al*., 2013; Mokhtar & Mellett, 2013).

For instance, using data from 50 firms in South Africa over the period from 2002 to 2011, Ntim *et al*. (2013) report a positive relationship between board size and RMDPs level. By contrast, Domínguez and Gámez (2014) find a negative relationship between board size and RMDPs in Spanish context. While, other studies (Allini *et al*., 2016; Cheng & Courtenay, 2006; Elzahar & Hussainey, 2012) suggest a non-significant association between board size and RMDPs. It is advocated that larger boards should focus on benefits such as further experiences and knowledge in such complex industry.

Similarly, the prior literature suggests that board diversity would strengthen the RMDPs level (Adams & Ferreira, 2009; Al-Maghzom *et al*., 2016; Allini *et al*., 2016; Ntim *et al*., 2013; Ntim & Soobaroyen, 2013b). For instance, Al-Maghzom *et al*. (2016) found a positive association between board diversity and RMDPs in Saudi Arabia context. However, Allini *et al*. (2014) found a negative association between board diversity and RMDPs in the Italian context.

Also, prior literature suggests board independence (BBID) would underpin the RMDPs (Abraham & Cox, 2007; Chen & Jaggi, 2001; Elshandidy *et al*., 2013; Elshandidy & Neri, 2015; Elzahar & Hussainey, 2012; Ntim *et al*., 2013; Oliveira *et al*., 2011). For instance, using a data from 290 firms in the UK from 2005 to 2009, Elshandidy *et al*. (2013) found a positive relationship between board independence and RMDPs suggesting that BBID has a valuable knowledge and place further monitoring power over management, and hence, reduces information asymmetry.

By contrast, Al-Maghzom *et al*. (2016) found a negative association between board independence (i.e., BBID) and RMDPs in Saudi Arabia context. However, other studies

suggest a non-significant association between board independence (i.e., BBID) and RMDPs (Al-Shammari, 2014; Allini *et al*., 2016; Barakat & Hussainey, 2013). Accordingly, I hypothesise that:

***H_2**: Board structures (i.e., larger boards, more board diversity, and independence) are positively related to the level of RMDPs.*

***H_{2a}**: Board size is positively related to the level of RMDPs.*

***H_{2b}**: Board diversity is positively related to the level of RMDPs.*

***H_{2c}**: Board independence is positively related to the level of RMDPs.*

4.2 National Governance Quality and RMDPs

Effective national governance may place further emphasis on RMDPs (Barakat & Hussainey, 2013; Essen *et al*., 2013; Kaufmann *et al*., 2011; Zattoni & Van Ees, 2012). Agency theory literature suggests that banks in countries with improved national governance may provide additional monitoring level to mitigate information asymmetries, and hence offer motivations and pressures to engage in greater RMDPs (Aguilera *et al*., 2008; Barakat & Hussainey, 2013; Beltratti & Stulz, 2012).

Similarly, from signalling and legitimacy viewpoints, national governance quality may offer incentives to engage in greater RMDPs to avoid reputation damage, and increase society's acceptance by confirming ISBs legitimacy (Barakat & Hussainey, 2013; Haniffa & Hudaib, 2007; Ntim *et al*., 2013; Pittroff, 2014). Additionally, to communicating the sound RMDPs to prospective investors and outside environment (Connelly *et al*., 2011; Haniffa & Hudaib, 2007; Pittroff, 2014; Yoshikawa *et al*., 2014).

IST also, suggests that national governance quality may offer incentives to engage in greater RMDPs due to coercive and societal pressures that arise from banks' external settings (Aguilera *et al*., 2008; Barakat & Hussainey, 2013; Chandler & Hwang, 2015; DiMaggio & Powell, 1983; Ntim & Soobaroyen, 2013b). Finally, from resource dependence perspective, effective national governance may offer motivations and pressures to engage in greater RMDPs so as to offer Islamic banks access to required resources, such as *Sukuk* (Alon and Dwyer, 2014; Barakat & Hussainey, 2013; Ntim *et al*., 2013; Pfeffer & Salancik, 2003).

Previous studies have largely suggested that national governance quality is an important driver of bank strategies, behaviour, and valuations (Alon & Dwyer, 2014; Ernstberger & Grüning, 2013; Essen *et al*., 2013; Tunyi & Ntim, 2016). However, empirical literature regarding the impact of national governance quality on disclosure quality and RMDPs especially has received little attention. For instance, using 85 banks from 20 European countries, Barakat and Hussainey (2013) found that countries with stronger national governance quality (i.e., the rule of law) are associated with an increase in the operational risk disclosure.

On the other hand, using a data from 71 nations, Alon and Dwyer (2014) found that countries with weaker national governance quality mechanisms are the early IFRS adopters compared with their counterparts to access critically needed resources. Remarkably, to the best of the researcher's knowledge, no prior studies have examined the impact of national governance quality on RMDPs to date, and therefore offers genuine opportunities to contribute to the extant literature by examining the effect of national governance quality on risk disclosures. Accordingly, this study hypothesises that:

H_3: *National governance quality is positively related to the level of RMDPs.*

4.3 Governance Quality and RMDPs: The Moderating Effect of National Governance Quality

Inconsistent results about the sign and significance of the governance quality-RMDPs nexus have triggered a number of studies to explore them further (Abraham & Shrives, 2014; Aguilera *et al*., 2008; Barakat & Hussainey, 2013; Elshandidy *et al*., 2015; Essen *et al*., 2013; Ntim *et al*., 2013; Williams, 2014; Zattoni & Van Ees, 2012). On the one hand, a number of studies have indicated that different methodological approaches have led to inconsistent results (e.g., Al-Bassam *et al*., 2015; Barakat & Hussainey, 2013; Ntim *et al*., 2013). For instance, endogeneity problem (e.g., Barakat & Hussainey, 2013; Ntim *et al*., 2013), time frames differences (e.g., Abraham & Cox, 2007; Ntim *et al*., 2013) and different RMDPs measures (e.g., Elshandidy *et al*., 2015; Ntim *et al*., 2013).

On the other hand, other research shows that reconciling the mixed results of the governance-RMDPs literature can be done by concentrating on how probable theory-driven variable moderates such relation (Aguilera, 2005; Aguilera *et al*., 2008; Alon & Dwyer, 2014; Cahan *et al*., 2015; Ernstberger & Grüning, 2013; Essen *et al*., 2013). Hence, this essay assumes that Islamic governance quality-RMDPs relationship is highly sensitive to the institutional environment, as characterised by the national governance quality. Accordingly, I hypothesise that:

H_4a: *National governance quality moderates the relationship between Islamic governance and RMDPs.*

***H_4b**: National governance quality moderates the relationship between board structure and RMDPs.*

The earlier hypothesised relations are shown in Figure 1.

5. Research Design

5.1 Describing the Characteristics of the Sample

The sample is based on all listed Islamic and dual banks (ISBs) located in 10 countries in the Arab MENA region namely, Bahrain, Egypt, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, and UAE. This essay sample is based on the Bankscope database as shown in Table 9, from 2006 to 2013, covering pre-, during- and post 2007/2008 banking crisis period. In addition, this essay begins with 2006 since Basel II become effective from mid-2005 and data before 2006 in the vast majority of the sample is unavailable. This results in a final sample of 64 banks for over 8 years from 2006 to 2013, which generated 425 bank-year observations for the tests relating to Hypotheses.

Table 9 Sample structure

Country	Banks	Islamic banks obs	Dual banks obs	All Banks obs	Percentage
Bahrain	9	44	24	68	14.56%
Egypt	6	13	20	33	8.01%
Jordan	3	3	13	16	3.88%
Kuwait	6	36	5	41	9.95%
Lebanon	2	0	16	16	3.88%
Oman	4	0	5	5	1.21%
Qatar	8	24	28	52	12.62%
Saudi Arabia	11	21	63	84	20.39%
Syria	1	6	0	6	0.24%
UAE	14	32	72	104	25.24%
Sum	64	179	246	425	100.00%

This study collected the data from three different sources. Firstly, RMDPs and governance variables were collected from annual reports which were obtained mainly from the *Perfect Information* database and banks' websites. Secondly, financial data was obtained from *Bankscope* database. Finally, national macro statistics and national governance quality (NGQM) were obtained from *World Bank* databases.

5.2 Definition of Variables

The study variables are categorised into four main types, and Table 10 presents the full definitions of all variables used in this study. To examine $\boldsymbol{H_1}$ to $\boldsymbol{H_4}$, the main dependent variable is the RMDPI scores, which seek to measure the risk management and disclosure practices level.

The study measured *RMDPs* variable using self-constructed risk management and disclosure practices index (*RMDPI*) based on several sources. Particularly, the study uses the Basel II guidelines, IFRS 7 and other RMDPs items that are employed in closely related studies (Barakat & Hussainey, 2013; Ford *et al*., 2009; Helbok & Wagner, 2006; Ntim *et al*., 2013).

Hence, RMDPI contains 96 items classified as follows: (a) bank financial risk management and disclosure practices, consisting of (i) credit (ii) liquidity (iii) market and (iv) capital risk management and disclosure practices; and (b) bank non-financial risk management and disclosure practices, consisting of (i) operational and (ii) strategic risk management and disclosure practices.

Table 10 Summary of definitions of variables

Variables	Definitions and coding
Panel A: Dependent variable (risk management and disclosure practices index).	
RMDPI	The total risk management and disclosure practices score (*RMDPI*) is calculated based on the un-weighted (weighted) risk management and disclosure practices index and full scoring criteria are clarified in Appendices 1 and 2.
Panel B: Islamic governance quality variables	
SSBs	The total Islamic governance characteristics score (*SSBs*) is calculated based on SSBs index which involving of 7 items in addition to scoring criteria are; SSBs Existence=1, if a bank has SSBs board, 0 otherwise; SSBs Report=1, if a bank has disclosed SSBs report, 0 otherwise; Number of SSBs Member=1, if a bank has disclosed number of SSBs' member, 0 otherwise; SSBs Meetings=1, if a bank has disclosed number of SSBs meetings, 0 otherwise; Independent=1, if SSBs' members are independent from management, 0 otherwise; Experience=1, if if a bank discloses SSB experience, 0 otherwise; Total SSBs fees disclosed=1, if a bank discloses SSBs fees, 0 otherwise.
BDSZ	Board size for each bank year is calculated based on number of board of directors.
GNDI	Gender diversity for each bank year is calculated based on number of female directors divided by the total number of board of directors.
BBID	Board independence for each bank year is calculated based on the non-executive directors divided by the total number of board of directors.
Panel C: National governance quality (*NGQM*)	
NGQM	National governance quality for each bank year is calculated as a composite measure for the overall *NGQM* dimensions, which are Voice and accountability quality (*VAQ*), political stability quality (*PSQ*), government quality (*GEQ*), regulatory quality (*RQM*), rule of law quality (*ROLQ*), control of corruption quality (*COCQ*).

Table 10 Summary of definitions of variables continued...

Panel D: Control variables	
LNBS	Bank size for each bank year is calculated based on natural log of the book value of total assets.
ROAA	Performance for each bank year is calculated based on return on assets (ROAA) which is net income divided by total asset.
LIQR	Liquidity for each bank year is calculated based on net loans divided by total assets.
OPEF	Operations efficiency for each bank year is calculated based on cost divided by income.
BCAD	Bank's capital adequacy for each bank year is calculated based on capital divided by risk-weighted asset.
INFL	Annual inflation for each bank year is consumer prices change (annual %).
CGDP	GDP per capita for each bank year is average income per individual (current US$).

Islamic governance quality data contains Islamic governance (*SSBs*), board size (*BDSZ*), gender diversity (*GNDI*) and non-executive directors (*BBID*). This study implemented the "Worldwide Governance Indicators" developed by the World Bank to measure national governance quality (*NGQM*). Kaufmann *et al*. (2011) identify six dimensions of *NGQM*: voice and accountability (*VAQ*), political stability (*PSQ*), government effectiveness (*GEQ*), regulatory quality (*RQM*), the rule of law (*ROLQ*), and control of corruption (*COCQ*). Correlation matrix in Table 11 shows that there are high inter-correlations among *NGQM* dimensions which are consistent with prior studies (Alon & Dwyer, 2014; Chang *et al*., 2012).

Table 11 Correlation matrix of the national governance quality' dimensions

Variable	VAQ	PSQ	GEQ	RQM	ROLQ	COCQ
VAQ	1					
PSQ	0.3005	1				
GEQ	0.2839	0.7928	1			
RQM	0.2423	0.6025	0.862	1		
ROLQ	0.2161	0.8197	0.7615	0.7902	1	
COCQ	0.2899	0.8731	0.9379	0.7849	0.8349	1

Notes: This table reports the six dimensions of national governance quality indicators (*NGQM*) correlation matrix. The six dimensions of national governance quality indicators (*NGQM*) are defined as follows: Voice and accountability quality (*VAQ*), political stability quality (*PSQ*), government quality (*GEQ*), regulatory quality (*RQM*), rule of law quality (*ROLQ*), control of corruption quality (*COCQ*).

Therefore, following prior research (Dikova & Van Witteloostuijn, 2007; Nguyen *et al*., 2015; Tunyi & Ntim, 2016), the study employs the principal component analysis (PCA) to create a composite measure for the overall *NGQM* dimensions. PCA aims at reduce high correlated variables by extract the significant information.

Specifically, PCA is a linear dimensionality reduction technique that employs an orthogonal transformation to transform a set of observations of probably correlated variables into a set of values of linearly uncorrelated variables named principal components to resolve the colinearity issue. Thus, using PCA will allow to identify data patterns, and highlight data similarities and differences. Also, PCA is a powerful instrument for analysing high dimension data. Thus, PCA arguably reduce the number of dimensions without loss significant information which reflect the original variables. On the other hand, other methods such as mean, sum, median, measures of central tendency, do not reflect the original variables. Specifically, the measures of central tendency is mainly vulnerable to the effect of either outliers or when the frequency distribution for our data is skewed.

Table 12 shows the PCA (eigenvectors) and diagnostics of NGQM dimensions. The overall KMO (Kaiser-Meyer-Olkin) which I used as a measure of sampling adequacy (MSAD) is 0.7029, which is higher than the recommended PCA minimum of 0.50 (Tunyi & Ntim, 2016).

Table 12 PCA (eigenvectors) and diagnostics of the national governance quality' dimensions

Variables	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6	Unexplained	KMO
VAQ	0.176	0.979	0.060	0.075	-0.035	-0.019	0	0.8226
PSQ	0.428	-0.008	-0.659	-0.054	0.599	0.148	0	0.7523
GEQ	0.455	-0.067	0.203	-0.530	0.018	-0.683	0	0.6687
RQM	0.419	-0.111	0.699	0.178	0.393	0.369	0	0.6309
ROLQ	0.435	-0.145	-0.130	0.755	-0.307	-0.329	0	0.6658
COCQ	0.463	-0.063	-0.125	-0.329	-0.626	0.517	0	0.7950
Eigenvalue	4.336	0.900	0.416	0.250	0.070	0.028		
Proportion	0.723	0.150	0.069	0.042	0.012	0.005		
KMO								0.7029

Notes: This table reports the six dimensions of national governance quality indicators (*NGQM*) PCA (eigenvectors). The six dimensions of national governance quality indicators (*NGQM*) are defined as follows: Voice and accountability quality (*VAQ*), political stability quality (*PSQ*), government quality (*GEQ*), regulatory quality (*RQM*), rule of law quality (*ROLQ*), control of corruption quality (*COCQ*). Also Kaiser-Meyer-Olkin measure (KMO) is a measure of sampling adequacy (MSAD).

Finally, a wide range of bank characteristics was included as control variables. These include bank size (*LNBS*), performance (*ROAA*), liquidity (*LIQR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), as well as macro-economic variables such as annual inflation (*INFL*), and annual GDP per capita (*CGDP*). This essay does not develop direct theoretic relations between these variables and *RMDPI* for brevity, but there are wide prior studies that find they can impact *RMDPI* (e.g., Abdallah *et al*., 2015; Barakat & Hussainey, 2013; Farook *et al*., 2011; Ford *et al*., 2009; Helbok & Wagner, 2006; Ntim *et al*., 2013).

5.3 Model Specification

This study uses fixed effects regression analysis (Elshandidy *et al*., 2015; Ntim *et al*., 2013) to investigate the moderating effect of NGQM on the relationship between Islamic governance quality and RMDPs in MENA ISBs.

Therefore, regression model to be considered is identified as follows:

$$RMDPI_{it} = \alpha_0 + \beta_i \sum_{i=1}^{4} ISGQ_{it} + \beta_i NGQM_{it} + \beta_i \sum_{i=1}^{4} ISGQ_{it} * NGQM_{it} + \sum_{i=1}^{7} \beta_i CONTROLS_{it} + \delta_{it} + \varepsilon_{it} \quad (3)$$

where:

RMDPI is a proxy of risk management and disclosure practices level for bank *i* during year *t*. *ISGQ* refers to Islamic governance (*SSBs*), board size (*BDSZ*), gender diversity (*GNDI*), and non-executive directors (*BBID*). *NGQM* refers to national governance quality. *CONTROLS* refers to bank size (*LNBS*), performance (*ROAA*), liquidity (*LIQR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual inflation (*INFL*), and annual GDP per capita (*CGDP*). δ is the bank-year specific fixed-effects, and ε is the white noise error term.

The main model defined in equation (3) is a standard panel data regression model that may possibly be estimated by pooled OLS, fixed effects or random effects models. Pooled OLS assumes continuous variance and uncorrelated observations. To choose pooled OLS or the random effects and fixed effects, I used Breusch and Pagan test to decide the presence of the heterogeneity.

The empirical results find that there are unobserved variables. Thus, pooled OLS estimator, arguably, is inconsistent and biased. At that point, to decide whether random effects or fixed effects will be employed, the Hausman specification test was used to choose the best model that yield more consistency and efficiency of the estimators. I chose fixed-effects regression model rather than random-effects regression model because the Hausman favoured fixed-effects over random effects.

The empirical analyses, including the descriptive statistics, bivariate and regression are presented in the following sections.

6. Empirical Results and Discussion

6.1 Descriptive Statistics and Bivariate Analyses

Table 13 presents descriptive statistics for the main indices i.e., the un-weighted risk management and disclosure practices index (*RMDPI*), the weighted risk management and disclosure practices index (*W-RMDPI*) and national governance quality (*NGQM*) for the full data-set, as well as for each of the 8 bank-years examined, respectively. On average, the distribution of the *RMDPI* differs considerably, ranging from 1.04 per cent (1 out of 96 items disclosed) to 87.50 per cent (84 out of 96) with the mean of 58.07 per cent. Also, Table 13 reports that *RMDPI* improves over time.

For instance, *RMDPI* mean is improved steadily from 35.87 per cent in 2006 to 65.14 per cent in 2013. The steady improvement in *RMDPI* suggests that the implementation of Basel II from 2006 and CG codes have improved RMDPs among banks. This reflects the importance given to RMDPs and national governance particularly during and after the 2007/08 crunch (Barakat & Hussainey, 2013; Essen *et al*., 2013; Ntim *et al*., 2013).

Table 13 Summary statistics for *RMDPI*, W-*RMDPI*, and *NGQM* for all 425-bank years

	All	2006	2007	2008	2009	2010	2011	2012	2013
Panel A: Dependent The un-weighted risk management and disclosure practices index (RMDPI)									
Mean	58.07	35.87	49.77	55.87	59.49	62.26	62.15	63.70	65.14
STD	14.81	12.27	15.73	16.15	15.38	10.65	10.89	9.86	8.51
Min	1.00	6.00	7.00	1.00	7.00	33.00	29.00	35.00	36.00
Max	84.00	77.00	73.00	77.00	77.00	77.00	77.00	77.00	84.00
Panel B: Dependent The weighted risk management and disclosure practices index (W-RMDPI)									
Mean	83.08	44.97	69.99	80.42	85.2	89.96	90.29	92.39	94.33
STD	22.89	17.99	24.97	24.16	24.39	14.89	14.77	13.69	12.51
Min	2.00	7.00	7.00	2.00	7.00	45.00	45.00	50.00	61.00
Max	135.00	106.00	106.00	109.00	116.00	116.00	116.00	116.00	135.00
Panel C: Independent national governance quality (NGQM)									
Mean	0.48	-0.13	0.09	0.20	0.25	0.09	-0.27	-0.14	-0.05
STD	2.08	1.84	1.78	1.88	2.00	1.79	2.11	2.41	2.53
Min	-8.19	-3.71	-4.00	-4.80	-4.55	-4.66	-5.44	-7.59	-8.19
Max	3.22	1.69	1.82	2.16	3.22	2.83	2.14	2.99	3.05

Notes: This table present summary of descriptive statistics of compliance levels with un-weighted risk management and disclosure practices index (*RMDPI*) and weighted risk management and disclosure practices index (*W-RMDPI*), in addition to national governance quality (*NGQM*) in the full sample and each year separately from 2006 to 2013. See Table 10 for the definitions of each variable.

Similarly, the distribution of the *W-RMDPI* shows a similar pattern to *RMDPI* distribution. By contrast, the distribution of the *NGQM* fluctuates substantively, ranging from -8.19 to 3.22 with the mean of 0.48. Also, Table 13 reports that *NGQM* has been fluctuating over time. Continues fluctuations in *NGQM* reflect the nature of MENA context. In particular, MENA countries face considerable political instability as well as the impact of the 2007/08 crunch in MENA region (Beltratti & Stulz, 2012; Hasan & Dridi, 2010).

Table 14 Summary statistics of all variables for all 425 observations

Variables	N	Mean	Std. Dev.	Minimum	Maximum
RMDPI	425.00	58.07	14.81	1.00	84.00
W-RMDPI	425.00	83.08	22.89	2.00	135.00
NGQM	425.00	0.48	2.08	-8.19	3.22
BDSZ	425.00	10.17	2.01	3.00	15.00
GNDI	425.00	0.02	0.05	0.00	0.23
BBID	425.00	0.88	0.19	0.00	1.00
SSBs	425.00	2.48	1.87	0.00	7.00
LNBS	425.00	16.03	1.58	3.73	21.09
ROAA	425.00	0.01	0.05	-0.52	0.24
LIQR (%)	425.00	53.42	15.74	0.00	79.93
OPEF (%)	425.00	41.04	38.29	11.91	284.00
BCAD (%)	425.00	21.18	16.83	9.26	204.41
INFL	425.00	4.70	4.12	-5.00	15.00
CGDP	425.00	28068.99	24723.56	1472.60	93714.10

Notes: This table reports the mean, standard deviation and values of the minimum and the maximum range for the following variables: un-weighted risk management and disclosure practices index (*RMDPI*), weighted risk management and disclosure practices index (W-*RMDPI*), national governance quality (NGQM) board size (*BDSZ*), gender diversity (*GNDI*), non-executive directors (*BBID*), Islamic governance(*SSBs*), bank size (*LNBS*), performance (*ROAA*), liquidity (*LIQR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual inflation (*INFL*), and annual GDP per capita (*CGDP*). See Table 10 for the definitions of each variable.

Table 14 shows summary statistics for all variables. Similar to the *RMDPI*, all the independent and control variables distributions generally show widespread variations. For instance, Islamic governance (*SSBs*) ranges from 0.00 to 7.00 with a mean of 2.48. Also, board size (*BDSZ*) ranges from 3.00 to 15.00 with a mean of 10 board members. These results are in line with previous related studies in the banking sector (e.g., Erkens *et al*., 2012; Hasan & Dridi, 2010; Rosman *et al*., 2014). Lastly, the values of other variables reported in Table 14 suggest widespread variations in the sample, and hence decreasing potentials of a biased sample selection.

Table 15 reports the correlation matrix of Pearson's parametric for all variables to test multicollinearity for the regression analysis. Evidently, low correlation coefficients between the variables of Table 15 indicate that the examination does not encounter multicollinearity problems. In addition, Table 15 shows statistically significant correlation between *RMDPI* and variables. For instance, *BDSZ*, *BBID*, *SSBs*, *NGQM*, *LNBS*, and *LIQR* are substantially statistically and positively correlated with *RMDPI*, whilst *BCAD* and *INFL* are substantially statistically and negatively correlated with *RMDPI*.

Table 15 Correlation matrix for variables used for all 425 observations

Variable	RMDPI	BDSZ	GNDI	BBID	*SSBs*	NGQM	LNBS	ROAA	LIQR	OPEF	BCAD	INFL	CGDP
RMDPI		0.461**	-0.078	0.343**	0.364**	0.244**	0.501**	-0.080	0.317**	-0.073	-0.133**	-0.421**	0.037
BDSZ	0.475**		0.093	0.104*	0.116*	-0.068	0.263**	-0.021	0.000	-0.057	-0.216**	-0.116*	-0.151**
GNDI	-0.025	0.117*		0.050	0.135**	0.084	-0.167**	-0.147**	-0.235**	0.225**	-0.076	0.040	-0.152**
BBID	0.251**	0.036	0.007		0.246**	0.125**	0.112*	-0.045	0.232**	-0.079	-0.095*	-0.231**	-0.033
SSBs	0.332**	0.127**	0.161**	0.214**		-0.041	0.009	-0.188**	-0.046	0.088	0.004	-0.223**	-0.040
NGQM	0.282**	-0.093	0.003	0.205**	-0.065		0.098*	0.052	0.306**	-0.065	-0.040	-0.301**	0.269**
LNBS	0.564**	0.323**	-0.195**	0.061	0.100*	0.091		0.045	0.279**	-0.144**	-0.077	-0.227**	0.067
ROAA	-0.053	-0.054	-0.139**	0.024	-0.168**	0.159**	0.124*		0.086	-0.226**	0.085	0.074	0.125*
LIQR	0.292**	0.022	-0.160**	0.328**	-0.073	0.372**	0.280**	0.278**		-0.151**	-0.234**	-0.109*	0.266**
OPEF	-0.069	-0.009	0.330**	-0.008	0.181**	-0.222**	-0.286**	-0.541**	-0.293**		0.194**	0.043	-0.102*
BCAD	-0.116*	-0.197**	-0.162**	0.092	-0.009	0.051	-0.074	0.148**	0.020	-0.027		-0.125*	-0.047
INFL	-0.316**	-0.043	0.010	-0.269**	-0.168**	-0.434**	-0.174**	-0.011	-0.173**	0.038	-0.303**		0.079
CGDP	0.053	-0.121*	-0.099*	0.105*	0.073	0.244**	0.126**	0.274**	0.301**	-0.222**	-0.043	0.085	

Notes: This table reports the Pearson (Spearman) correlation coefficients in upper right (lower left) half between the following variables: *risk management and disclosure practices* (*RMDPI*), board size (*BDSZ*), gender diversity (*GNDI*), non-executive directors (*BBID*), Islamic governance (SSBs), national governance quality (*NGQM*), bank size (*LNBS*), performance (*ROAA*), liquidity (*LIQR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual inflation (*INFL*), and annual GDP per capita (*CGDP*). See Table 10 for the definitions of each variable.

∗∗ Significant at the 1% level.

∗ Significant at the 5% level.

6.2 Regression Analyses and Discussion

Table 16 reports the fixed-effect regression analysis results of the moderating effect of NGQM on the relationship between Islamic governance quality and RMDPs. The findings of Models 1, 2, and 3 indicate that Islamic governance quality and NGQM are important in explaining differences in RMDPs as follows. Firstly, this study examines whether Islamic governance impacts the *RMDPI* level. The coefficients of the Islamic governance (*SSBs*) in Models 2 and 3 of Table 16 are positive ($t = 8.35$, $p < .001$ and $t = 8.79$, $p < .001$, respectively), thus providing empirical support for H_1. Specifically, better Islamic-governed banks disclose more risk management and disclosure practices.

To the best of the researcher's knowledge, this is the first study that examines the impact of Islamic governance (*SSBs*) on RMDPs. This evidence is largely in line with previous studies that support the role of Islamic governance to improve disclosure quality (e.g., AI-Bassam & Ntim, 2016; Farook *et al*., 2011; Haniffa & Hudaib, 2007). This evidence is consistent with the expectations of the multi-theoretical framework presented in Figure 1, which suggests that effective Islamic governance conveys additional monitoring frames and accountability to *ISBs* by engaging in greater RMDPs (AI-Bassam & Ntim, 2016; Jensen & Meckling, 1976). Similarly, enhanced RMDPs, due to coercive and societal pressures, can increase society's acceptance and legitimate ISBs operations as well as offer access to required resources (Chandler & Hwang, 2015; Connelly *et al*., 2011; Haniffa & Hudaib, 2007; Pfeffer & Salancik, 2003; Pittroff, 2014).

Secondly, Models 2 and 3 of Table 16 largely indicate that board structure significantly impacts the RMDPs. Specifically, board size (*BDSZ*) is positively related to the *RMDPI* level

in Models 2 and 3 of Table 16 (t = 12.09, p < .000 and t = 14.06, p < .000, respectively), providing empirical support for H_{2a}. These findings are similar to previous studies, which suggest that *BDSZ* positively impacts *RMDPI* (Al-Shammari, 2014; Allegrini & Greco, 2011; Elshandidy *et al*., 2013; Elshandidy & Neri, 2015; Gao & Kling, 2012; Hussainey & Al-Najjar, 2011; Jizi *et al*., 2014; Ntim *et al*., 2013; Mokhtar & Mellett, 2013). This evidence is consistent with the expectations of the multi-theoretical frame, which suggests that larger board size places more pressure on management to engage in greater RMDPs and thus, mitigates agency costs (AI-Bassam & Ntim, 2016; Elshandidy *et al*., 2013). Similarly, larger board size engages in more RMDPs to increase banks' legitimacy as well as send signal to the external environment about board effectiveness to offer Islamic banks access to required resources.

Table 16 National Governance Quality, Islamic Governance Quality, and Risk Disclosures

Variables	Dependent variable: Bank's risk management and disclosure practices index (*RMDPI*)					
	(1) RMDPI	(2) RMDPI	(3) RMDPI	(4) G2SLS	(5) W-RMDPI	(6) W-G2SLS
Panel A: Independent variables						
BDSZ		12.090***	14.06***	13.47***	13.13***	11.88***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GNDI		-1.600	-0.86	-1.37	-0.96	-1.55
		(0.110)	(0.388)	(0.388)	(0.337)	(0.122)
BBID		5.300***	4.78***	4.23***	4.39***	3.47***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
SSBs		8.350***	8.79***	10.08***	7.09***	8.70***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
NGQM		2.840***	6.46***	5.73***	4.95***	4.28***
		(0.005)	(0.000)	(0.000)	(0.000)	(0.000)
NGQM* BDSZ			8.63***	7.80***	8.10***	6.93***
			(0.000)	(0.000)	(0.000)	(0.000)
NGQM*GNDI			3.55***	3.21***	3.41***	2.98***
			(0.000)	(0.001)	(0.001)	(0.003)
NGQM* BBID			0.080	0.15	1.37	1.10
			(0.934)	(0.878)	(0.171)	(0.269)
NGQM* SSBs			1.80*	1.71*	0.62	0.70
			(0.072)	(0.086)	(0.537)	(0.486)

Table 16 National Governance Quality, Islamic Governance Quality and Risk Disclosures continued...

Panel B: Control variables.						
LNBS	6.07***	3.930***	3.86***	5.48***	4.33***	5.65***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROAA	-1.52	-0.440	-0.23	-0.75	-0.58	-1.14
	(0.130)	(0.659)	(0.821)	(0.453)	(0.561)	(0.252)
LIQR	4.99***	4.260***	4.95***	5.08***	5.01***	4.83***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
OPEF	1.20	0.850	0.64	0.86	0.79	1.05
	(0.231)	(0.398)	(0.520)	(0.389)	(0.431)	(0.293)
BCAD	-2.07**	0.730	0.84	0.62	1.03	0.91
	(0.039)	(0.466)	(0.400)	(0.535)	(0.305)	(0.361)
INFL	-3.51***	-2.080**	-1.77*	-2.57**	-0.60	-1.88
	(0.001)	(0.039)	(0.078)	(0.010)	(0.547)	(0.060)
CGDP	-2.13**	-0.570	-0.96	-0.54	-1.81*	-0.87
	(0.034)	(0.566)	(0.339)	(0.592)	(0.071)	(0.382)
Constant	-0.65	-6.140***	-6.58***	-6.20***	-7.71***	-6.68***
	(0.514)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
fixed effect	Year	Year	Year	Year	Year	Year
Standard error clustering	Bank	Bank	Bank	Bank	Bank	Bank
F- value (Wald chi2)	23.02***	59.74***	60.02***	903.61***	50.06***	712.86***
Hausman chi2	237.71***	242.48***	265.53***	1.48	185.21***	15.21
Overall R^2	0.3284	0.5395	0.5628	0.5941	0.4903	0.5329
No of obs	425	425	425	425	425	425

Notes: This table reports the following variables: un-weighted risk management and disclosure practices (*RMDPI*), weighted risk management and disclosure practices (*W-RMDPI*), board size (*BDSZ*), gender diversity (*GNDI*), non-executive directors (*BBID*), Islamic governance (*SSBs*), national governance quality (*NGQM*), bank size (*LNBS*), performance (*ROAA*), liquidity (*LIQR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual inflation (*INFL*), and annual GDP per capita (*CGDP*). See Table 10 for the definitions of each variable.

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

Observably, non-executive directors percentage (BBID) is positively related to the RMDPI level in Models 2 and 3 of Table 16 ($t = 5.30$, $p < .000$ and $t = 4.78$, $p < .000$, respectively); thus, H_{2c} is empirically supported. These findings are similar to previous studies, which suggest that BBID positively impacts RMDPs (Abraham & Cox, 2007; Elshandidy *et al*., 2013; Ntim *et al*., 2013).

This evidence is consistent with the expectations of the multi-theoretical frame, which suggests that *BBID* serves as a mechanism for reducing information asymmetry by placing more pressure on management to engage in better RMDPs (AI-Bassam & Ntim, 2016; Elshandidy *et al*., 2013). Similarly, increased board independence places more pressure on bank management by engaging in better RMDPs to increase banks' legitimacy. Also, better RMDPs send a signal to the external environment about board independence to offer access to required resources. Board diversity based on gender displays a weak negative relationship with the *RMDPI* level in Models 2 and 3 of Table 16 ($t = -1.60$, $p < .11$ and $t = -0.86$, $p < .388$, respectively), and therefore, H_{2b} is rejected. These results are similar to Allini *et al*. (2014); however, they are inconsistent with Al-Maghzom *et al*. (2016), and Ntim *et al*. (2013).

Thirdly, the results show that cross-sectional differences in the *RMDPI* level can largely be explained by *NGQM*. Specifically, the coefficient of the national governance quality (*NGQM*) in Models 2 and 3 of Table 16 is positive ($t = 2.84$, $p < .005$ and $t = 6.46$, $p < .000$, respectively), thus providing empirical support for H_3. In particular, banks in better-governed countries engage in greater RMDPs compare to their counterparts.

To the best of the researcher's knowledge, this is the first empirical evidence that examines the impact of *NGQM* on RMDPs; however, this evidence is largely in line with previous studies that support the role of *NGQM* to improve disclosure quality (Barakat & Hussainey, 2013; Cahan *et al*., 2015). This evidence is consistent with the expectations of the multi-theoretical frame, which suggests that improved *NGQM* can provide additional monitoring level to mitigate information asymmetries, and hence, offer motivations and pressures to engage in greater RMDPs. Similarly, *NGQM* offers incentives to engage in greater RMDPs so as to avoid reputation damage and increase society acceptance by confirming ISBs legitimacy, as well as to offer Islamic banks access to required resources. Also, *NGQM* offers incentives to engage in greater RMDPs due to coercive and societal pressures arising from banks' external settings.

Finally, to ascertain whether the Islamic governance quality-RMDPs relationship can be moderated by *NGQM*, this study contains interaction variables for the four Islamic governance quality variables and *NGQM* (i.e., *NGQM*SSBs*, *NGQM*BDSZ*, *NGQM*GNDI*, and *NGQM*BBID*) in Model 3 of Table 16. The estimation is established on the developing theoretical and empirical evidence (Aguilera, 2005; Aguilera *et al*., 2008; Alon & Dwyer, 2014; Cahan *et al*., 2015; Ernstberger & Grüning, 2013; Essen *et al*., 2013), which suggests that the impact of the Islamic governance quality on RMDPs can be enhanced in stronger *NGQM* context.

Observably, the respective coefficients of *NGQM*BDSZ, NGQM*GNDI, NGQM*BBID*, and *NGQM*SSBs* on the RMDPs index in Model 3 of Table 16 ($t = 8.63$, $p < .000$; $t = 3.55$, $p < .001$; $t = 0.08$, $p < .934$ and $t = 1.80$, $p < .072$, respectively) are positive,

thus providing original evidence, which supports *H4a*, and *H4b*. That is, the Islamic governance quality-RMDPs relationship is significantly and positively improved by *NGQM*. The evidence indicates that ISBs managers in better-governed countries are more expected to carry out improved risk management and disclosure practices that can support legitimization of banks' operations by mitigating conflicts of interests between the different stakeholders.

6.3 Additional Analyses

This study performs a number of further analyses to determine the robustness of the results. Firstly, as a robustness check, this study reproduces the analyses in Model 3 of Table 16 by replacing the *RMDPI* with *W-RMDPI*, and the results are presented in Model 5 of Table 16. These results are similar to those reported in Model 3 of Table 16, implying that the results are obviously robust to the use of disclosure indices measure.

Secondly, following extant research (e.g., Elshandidy *et al*., 2013; Ntim *et al*., 2013), this essay addresses potential endogeneities that may be affected by omitted variable bias, by estimating two-stage least squares for panel-data estimators (G2SLS). In the first stage, I replaced the Islamic governance quality variables with instrument variables, which is influenced by all the control variables. In the second stage, I used the instrumented variables of the Islamic governance quality and re-run equation (4) as follows:

$$RMDPI_{it} = \alpha_0 + \hat{\beta}_i \sum_{i=1}^{4} ISGQ_{it} + \beta_i NGQM_{it} + \beta_i \sum_{i=1}^{4} ISGQ_{it} * NGQM_{it} + \sum_{i=1}^{7} \beta_i CONTROLS_{it} + \delta_{it} + \varepsilon_{it} \quad (4)$$

where:

Everything remains unaffected as stated in equation (3) except that this study used the instrumented Islamic governance quality variables. The results are presented in Model 4 of Table 16. These results are also similar to those reported in Model 3 of Table 16, implying that the results are obviously robust to the probable endogeneities issue that could be affected by omitted variable bias.

Thirdly, this essay considers the robustness of the results on sub-samples: Islamic banks and dual banks by re-running equations (3) and (4) and results reported in Table 17. Apart from a few sensitivities (such as the significant of *GNDI*), the results in Table 17 have similarities to those reported in Table 16, and this implies that the results are obviously robust to the use of sub-samples. Inconsistently, this study finds that gender diversity (*GNDI*) has an impact on *RMDPI* in Islamic banks, unlike dual banks. Finally, Table 18 indicates the variables that influence banks to provide RMDPs, and how those variables work among banks, operating in strongly-governed and poorly-governed environments.

Table 17 National Governance Quality, Islamic Governance Quality, and Risk Disclosures (Islamic vs. dual banks)

Variables	Dependent variable: Bank's risk management and disclosure practices index (*RMDPI*)					
	Islamic banks			Dual banks		
	(1) RMDPI	(2) W-RMDPI	(3) G2SLS	(4) RMDPI	(5) W-RMDPI	(6) G2SLS
Panel A: Independent variables						
BDSZ	9.20***	8.97***	7.46***	10.30***	9.75***	10.26***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GNDI	2.92***	3.48***	0.72	-4.33***	-4.76***	-3.36***
	(0.004)	(0.001)	(0.469)	(0.000)	(0.000)	(0.001)
BBID	4.25***	3.96***	3.31***	3.73***	3.53***	2.65***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.008)
SSBs	7.35***	5.73***	8.40***	6.33***	5.79***	5.23***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
NGQM	2.91***	1.21	3.83***	3.23***	2.95***	2.79***
	(0.004)	(0.229)	(0.000)	(0.001)	(0.004)	(0.005)
NGQM* BDSZ	3.10***	2.33**	3.60***	5.25***	4.98***	6.45***
	(0.002)	(0.021)	(0.000)	(0.000)	(0.000)	(0.000)
NGQM*GNDI	2.09**	1.92*	2.45**	1.95*	1.67*	3.10***
	(0.038)	(0.057)	(0.014)	(0.053)	(0.097)	(0.002)
NGQM* BBID	2.47**	1.07	2.73***	0.41	0.39	1.63
	(0.015)	(0.286)	(0.006)	(0.679)	(0.695)	(0.104)
NGQM* SSBs	2.04**	3.20***	0.94	2.19**	1.15	0.41
	(0.043)	(0.002)	(0.348)	(0.030)	(0.250)	(0.684)
Panel B: Control variables.						
LNBS	-0.57	-0.41	1.26	8.01***	8.34***	7.87***
	(0.569)	(0.679)	(0.208)	(0.000)	(0.000)	(0.000)
ROAA	0.58	0.33	-0.89	5.55***	5.65***	4.67***
	(0.560)	(0.746)	(0.375)	(0.000)	(0.000)	(0.000)
LIQR	4.06***	4.27***	3.60***	4.21***	4.19***	3.18***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
OPEF	0.68	0.89	0.38	2.14**	2.31**	2.08**
	(0.498)	(0.377)	(0.703)	(0.034)	(0.022)	(0.037)
BCAD	1.26	1.10	1.30	-0.10	0.62	0.98

Table 17 National Governance Quality, Islamic Governance Quality, and Risk Disclosures (Islamic vs. dual banks) continued...

	(0.211)	(0.271)	(0.194)	(0.921)	(0.536)	(0.329)
INFL	-0.12	0.34	-1.26	-1.43	-0.29	-0.89
	(0.903)	(0.733)	(0.207)	(0.156)	(0.770)	(0.375)
CGDP	-3.32***	-3.56***	-1.89*	0.46	-0.05	0.56
	(0.001)	(0.001)	(0.059)	(0.645)	(0.963)	(0.573)
Constant	-1.66	-2.12**	-2.37**	-9.91***	-11.21***	-8.29***
	(0.100)	(0.035)	(0.018)	(0.000)	(0.000)	(0.000)
fixed effect	Year	Year	Year	Year	Year	Year
Standard error clustering	Bank	Bank	Bank	Bank	Bank	Bank
F- value (Wald chi2)	42.45***	35.04***	542.71***	38.90***	35.87***	712.86***
Hausman chi2	89.71***	77.48***	15.53	91.48***	85.21***	15.21
Overall R^2	0.4207	0.3118	0.5734	0.6112	0.5708	0.5329
No of obs	189	189	189	236	236	236

Notes: This table reports the following variables: un-weighted risk management and disclosure practices (*RMDPI*), weighted risk management and disclosure practices (*W-RMDPI*), board size (*BDSZ*), gender diversity (*GNDI*), non-executive directors (*BBID*), Islamic governance(*SSBs*), national governance quality (*NGQM*), bank size (*LNBS*), performance (*ROAA*), liquidity (*LIQR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual inflation (*INFL*), and annual GDP per capita (*CGDP*). See Table 10 for the definitions of each variable.

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

Table 18 also offers a number of remarkable results as well as reveals that Islamic governance quality and national governance quality have a significant impact on RMDPs in banks operating in strongly-governed environments compared with their counterparts.

Similarly, this study found that gender diversity positively impacts RMDPs in banks that operate in strongly-governed environments unlike their counterparts; however, this relationship is not statistically significant. Furthermore, Islamic governance strongly impacts RMDPs in banks that operate in poorly-governed environments compare to their counterparts. These results demonstrate the accountability role, ethical values, and effectiveness of Islamic governance to boost and monitor ISBs' transparency level. Remarkably, this essay found that *NGQM* exacerbates the relation between *BBID*, *SSBs,* and *RMDPI* in poorly-governed environments. These results support the argument that NGQM plays an important role in determining the sign and significance of the Islamic governance quality-RMDPs nexus.

Table 18 National Governance Quality, Islamic Governance Quality, and Risk Disclosures (Strong vs. poor governed environments)

Variables	Dependent variable: Bank's risk management and disclosure practices index (*RMDPI*)					
	Strongly governed environment			Poorly governed environment		
	(1) RMDPI	(2) W-RMDPI	(3) G2SLS	(4) RMDPI	(5) W-RMDPI	(6) G2SLS
Panel A: Independent variables						
BDSZ	11.04***	9.37***	11.85***	7.15***	6.78***	6.70***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GNDI	0.42	0.23	0.32	-0.71	-0.40	-1.43
	(0.672)	(0.821)	(0.751)	(0.478)	(0.691)	(0.151)
BBID	5.82***	4.87***	5.70***	-0.39	-0.66	0.64
	(0.000)	(0.000)	(0.000)	(0.701)	(0.511)	(0.519)
SSBs	2.74***	2.15**	3.97***	7.64***	5.58***	8.66***
	(0.007)	(0.033)	(0.000)	(0.000)	(0.000)	(0.000)
NGQM	7.16***	5.10***	8.47***	1.50	1.27	0.34
	(0.000)	(0.000)	(0.000)	(0.136)	(0.205)	(0.732)
NGQM* BDSZ	6.67***	5.56***	7.37***	0.80	0.84	0.02
	(0.000)	(0.000)	(0.000)	(0.424)	(0.402)	(0.985)
NGQM*GNDI	-0.78	-1.01	0.42	0.25	0.93	0.32
	(0.438)	(0.312)	(0.673)	(0.801)	(0.355)	(0.752)
NGQM* BBID	-1.19	0.21	-2.01**	-2.66***	-2.22**	-1.84*
	(0.235)	(0.830)	(0.045)	(0.009)	(0.028)	(0.066)
NGQM* SSBs	1.12	0.22	1.52	-2.50**	-2.48**	-2.24**
	(0.265)	(0.824)	(0.127)	(0.013)	(0.014)	(0.025)
Panel B: Control variables						
LNBS	3.17***	3.22***	3.23***	0.91	1.71*	2.69***
	(0.002)	(0.002)	(0.001)	(0.363)	(0.089)	(0.007)
ROAA	1.32	1.02	0.96	-0.55	-1.16	-1.35
	(0.189)	(0.309)	(0.336)	(0.581)	(0.247)	(0.177)
LIQR	3.05***	3.24***	3.15***	2.49**	2.14**	2.07**
	(0.003)	(0.001)	(0.002)	(0.014)	(0.034)	(0.039)
OPEF	2.09**	1.90*	1.68*	-0.21	-0.10	0.37
	(0.039)	(0.060)	(0.093)	(0.837)	(0.922)	(0.713)
BCAD	0.62	1.30	0.74	1.10	0.65	0.53

Table 18 National Governance Quality, Islamic Governance Quality, and Risk Disclosures (Strong vs. poor governed environments) continued...

	(0.537)	(0.194)	(0.459)	(0.273)	(0.515)	(0.596)
INFL	-1.82*	-0.42	-1.83*	0.72	0.68	-1.07
	(0.071)	(0.672)	(0.067)	(0.473)	(0.500)	(0.283)
CGDP	-0.53	-1.50	-1.33	0.57	1.03	2.49**
	(0.599)	(0.135)	(0.183)	(0.571)	(0.303)	(0.013)
Constant	-5.77***	-5.91***	-5.16***	-1.68*	-2.96***	-2.78***
	(0.000)	(0.000)	(0.000)	(0.096)	(0.004)	(0.005)
fixed effect	Year	Year	Year	Year	Year	Year
Standard error clustering	Bank	Bank	Bank	Bank	Bank	Bank
F- value (Wald chi2)	47.36***	37.69***	829.46***	34.91***	27.88***	542.27***
Hausman chi2	150.71***	122.48***	5.53	151.48***	135.21***	4.21
Overall R^2	0.6900	0.5952	0.7732	0.5858	0.5351	0.6767
No of obs	199	199	199	226	226	226

Notes: This table reports the following variables: un-weighted risk management and disclosure practices (*RMDPI*), weighted risk management and disclosure practices (*W-RMDPI*), board size (*BDSZ*), gender diversity (*GNDI*), non-executive directors (*BBID*), Islamic governance(*SSBs*), national governance quality (*NGQM*), bank size (*LNBS*), performance (*ROAA*), liquidity (*LIQR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual inflation (*INFL*), and annual GDP per capita (*CGDP*). See Table 10 for the definitions of each variable.

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

7. Conclusion and Areas for Future Research

This essay examines the relationships among Islamic governance quality, including other bank-level governance mechanisms, national-level governance, and RMDPs using a data-set from MENA Islamic banks for financial years from 2006-2013. The results confirm the substantial role of Islamic governance quality, and national governance quality in improving RMDPs in MENA Islamic banks. Specifically, the results indicate that RMDPs are high in banks with high Islamic governance, board size, board independence, and national governance quality (NGQM). Also, the results indicate that NGQM moderates Islamic governance quality-RMDPs nexus. These results are consistent with the predictions of the multi-theoretical framework shown in Figure 1.

Whilst the effect of business level factors on the level corporate risk management and disclosure practices (RMDPs) have been fairly documented, the role of religion and macro-level factors, such as Islamic and national governance quality on RMDPs are rare. Therefore, this research makes three noteworthy contributions to the disclosure quality and governance literature. Firstly, and to the best of the researcher's knowledge, the study offers first-time evidence on the effect of national governance quality on bank risk management and disclosure practices using a multi-theoretical framework. Secondly, the essay offers first-time evidence of the impact of religious governance, especially Islamic governance quality on bank risk management and disclosure practices. Finally, the study provides evidence relating to the moderating effect of national governance quality on the relationship between Islamic governance quality and bank risk management and disclosure practices for the first

time. Consequently, the results have a number of implications for regulators, banks, and investors, especially in emerging markets.

The results suggest that better-governed banks at bank-level or national-level have higher expectancy for more RMDPs. These results offer regulators a resilient incentive to pursue CG reforms officially and mutually with national-level governance. Regarding banks, the results suggest that better Islamic governance is more expected to have better RMDPs. These results empower banks' shareholders to enhance board structure (e.g., board size, and BBID) and pay considerate attention to Islamic governance. These results also indicate the importance of Islamic governance to mitigating information asymmetry and gain more legitimacy to achieve society's acceptance. Lastly, the findings offer investors an opportunity to build specific expectations about the disclosure quality in term of RMDPs. Further research might investigate the impact of further governance mechanisms (e.g., risk committee and remuneration committee) on RMDPs, and might be also extended to use non-parametric statistical techniques such as neural networks to investigate whether different results can be obtained.

Empirical Essays on Risk Disclosures, Multi-Level Governance, Credit Ratings, and Bank Value: Evidence from MENA Banks

Essay 3

The Informativeness of Risk Disclosures and Governance Structures: Evidence from MENA Banks' Credit Ratings

Abstract

This study examines whether risk disclosures have a predictive effect (informativeness) on banks' credit ratings (BCRs) and consequently, ascertains whether governance structures can moderate such an association. This essay applies both conventional ordered logistic regression and Probabilistic Neural Networks (PNNs) using firm-level data from 12 Middle East and North African (MENA) countries for the period from 2006-2013. The findings suggest that risk disclosures have a predictive effect (informativeness) on BCRs. The study finds that the quality of the BCR is higher in banks that have higher risk disclosures, board size, government ownership, board independence, women directors, and established *Sharia* supervisory board. On the other hand, the results indicate that the BCR quality is lower in banks that have higher foreign ownership, and CEO role duality. Furthermore, the findings suggest that governance structures moderate the relation between risk disclosures and BCRs. The central tenor of findings remains unchanged after controlling a number of firm- and country-level factors, alternative risk, and governance proxies, conventional vs. Islamic banks, and potential endogeneities. PNN results partially support the ordered logistic regression results and provide new insights in relation to the importance of risk disclosure pre-, during-, and post the financial crisis by rating agencies. The findings were interpreted within the predictions of agency, signalling, legitimacy and resource dependence theories. The findings have important implications for investors, especially bondholders, standard setters, regulators, and central governments.

Keywords: Risk Disclosures; Banks' Credit Ratings; Governance Structures; *Sharia* Supervisory Board; Probabilistic Neural Networks; MENA

1. Introduction

Unlike current literature on the impact of risk disclosures and governance structures, which tend to focus largely on equity markets in one national financial market, this study examines the predictive effect (informativeness) of risk disclosures on banks' credit ratings (BCRs). Consequently, it ascertains whether governance structures have a moderating effect on the risk disclosures-BCRs nexus using the Middle East and North Africa (MENA) BCRs for fiscal years 2006-2013. The past decade has witnessed the global financial crisis (GFC) of 2007/2008, the Eurozone crisis, Chinese stock market crash in 2015 and several high-profile bank failures around the world (e.g., Lehman Brothers in USA, Northern Rock in the UK, Islas Finance House in Turkey, the Dubai Islamic Bank, the Islamic Investment Companies of Egypt, Bank Islam Malaysia Berthed, and Islamic Bank of South Africa). These crises have affected the banking sector worldwide as well as reignited concerns relating to the effectiveness of risk management and disclosure practices (Aebi *et al.*, 2012; Ashbaugh-Skaife *et al.*, 2006; BCBS, 2015a, 2015b; Beisland., 2014; Dardac & Grigore, 2011; Hasan, 2011; Kirkpatrick, 2009; Mersland & Strøm, 2009; Mollaha & Zamanb, 2015).

GFC has stimulated regulators worldwide in the recent years to enhance codes and regulatory reforms to avoid weak governance mechanisms as well as enhance the effectiveness of risk disclosures, especially in banking sector (Barakat & Hussainey, 2013; Iatridis, 2008; Ntim *et al.*, 2013; Vandemaele *et al.*, 2009; Walker, 2009). Similarly, The Basel Committee on Banking Supervision (BCBS) states that comprehensive and effective risk disclosures and governance structures are critical for achieving and maintaining public

trust and confidence (Barakat & Hussainey, 2013; BCBS, 2015a, 2015b; Deumes, 2008; Liang *et al.,* 2013).

Basel Accords (i.e. I, II, and III), international and domestic equivalent accounting (e.g., IFRS 7, 9; IAS 32, 39), and governance standards (e.g., World Bank and Saudi CG codes) are often aimed at strengthening the necessity for comprehensive risk management and risk disclosure practices. Similarly, identifying, measuring, managing, controlling and more importantly, disclosing risks are becoming more critical as the global banking sector becomes increasingly complex and opaque. Generally speaking, Basel Accords and IFRS concentrate on qualitative and quantitative disclosure regarding credit, liquidity, and market risks (Barakat & Hussainey, 2013; BCBS, 2015b). Therefore, from a theoretical viewpoint, market reactions to risk disclosures may differ for several reasons.

Agency theory predicts that increased risk disclosures enhance the monitoring of managerial decisions and reduce information asymmetry, which might result in reducing costs of capital and enhancing BCRs (Aman & Nguyen, 2013; Ashbaugh-Skaife *et al.*, 2006; Chan *et al.,* 2013; Jensen & Meckling, 1976; Kuang & Qin, 2013). Signalling, legitimacy and resource dependence theories can be used to understand the risk disclosures-BCRs nexus. Also, signalling, legitimacy and resource dependence theories predict that improved risk disclosures send important signals to credit rating agencies about performance and risk management in banks. Such improved risk disclosure may secure access to resources, legitimise banks' operations, and hence, reduce the cost of capital and improve BCRs.

Accordingly, previous studies have concentrated on the drivers of, and reasons for the incident and amount of risk disclosures (Barakat & Hussainey, 2013; Iatridis, 2008; Ntim *et*

al., 2013). However, prior evidence relating to the economic consequences of risk disclosures especially BCRs is rare. But Aman and Nguyen (2013), Ashbaugh-Skaife *et al.* (2006), Bhojraj and Sengupta (2003), Chan *et al.* (2013), DeBoskey and Gillett (2013), Heflin *et al.* (2011), Kuang and Qin (2013), and Sengupta (1998) found a positive relation between voluntary disclosure quality and BCRs. To the best of the researcher's knowledge, there is no previous research that has examined whether credit rating agencies incorporate risk disclosures into their risk evaluation.

Similarly, the empirical evidence relating to governance structures is limited, but largely suggests that good governance structures in terms of board size, independent and diverse boards, and CEO power can have an impact on BCRs (Aman & Nguyen, 2013; Ashbaugh-Skaife *et al.,* 2006; Bhojraj & Sengupta.; 2003; Bradley & Chen, 2011; Grassa, 2015; Grove *et al.,* 2011; Kuang & Qin., 2013; Lian *et al.,* 2013; Liang *et al.,* 2013; Li *et al.,* 2014; Nguyen & Nielsen., 2010; Ziebart & Reiter, 1992). However, prior literature appears to suffer from a number of limitations.

Firstly, limited prior studies have generally examined the informativeness of risk disclosures in developed countries (Abraham & Shrives., 2014; Maffei *et al.,* 2014; Elshandidy & Neri., 2015; Rajgopal, 1999) and observably, large-scale, cross-country studies are limited (Elshandidy & Neri., 2015; Lau *et al.,* 2015). Secondly, to the best of the researcher's knowledge, there is no evidence on whether Islamic governance and governance structures, in general, moderate the relationship between risk disclosures and BCRs in different regulatory environments such as MENA countries.

The MENA setting is particularly important for this study because MENA banks have significant weaknesses regarding governance structures. MENA banks are characterised by high level of ownership concentrations in the form of family-owned banks (FOBs), or government-owned banks (GOBs), and by recently increased foreign participation, as well as dualistic aspect in the board of directors (Koldertsova, 2011; Samaha *et al.*, 2012; World Bank, 2009).

Also, MENA banks are characterised by weak disclosure and transparency which are common practices due to disclosure–averse culture and a weaker government oversight (Kaufmann *et al.*, 2010; Samaha *et al.*, 2012; World Bank, 2009). Therefore, regulators and policymakers in MENA region have established several CG codes depending on best CG practices since the mid-2000s to enforce minority shareholder rights, accountability, and to improve market transparency (Amico, 2014; Koldertsova, 2011; World Bank, 2009).

It is worth considering in addition to CG and IFRS reforms in MENA region that many commercial banks have transformed completely or opened windows for Islamic banking. Especially after the remarkable large-scale growth in Islamic banking and finance worldwide and particularly in the MENA region (Beck *et al.*, 2013; Ernst & Young, 2012; Ozturk, 2014; Rahman & Bukair, 2013; Safieddine, 2009). Although Islamic banks have the same CG structures, they are required to be operated in *Sharia* compliant manner, which often creates unique CG and risk challenges, especially the risk concerning *Sharia* incompliance (Beck *et al.*, 2013; Safieddine, 2009).

Also, the Islamic banking sector has generally been operating with limited central government oversight, which can arguably increase the risk of Islamic banks failing (e.g., Islas Finance House in Turkey, the Dubai Islamic Bank, the Islamic Investment Companies of Egypt, Islamic Bank of South Africa, and Bank Islam Malaysia Berthed) (Chapra & Ahmed, 2002; Darmadi, 2013; Grassa, 2015; Hasan, 2011; Safieddine, 2009).

Therefore, the study creates three unique contributions. First, it seeks to contribute to the literature by providing a first-time evidence on the level of risk and governance disclosures by banks across the MENA region. Second, the study contributes to the literature by providing a first-time evidence on the link between risk disclosures and BCRs. Finally, the study contributes to the literature by providing a first-time evidence on the moderating effect of governance structures on the risk disclosure- BCRs nexus. A subsidiary contribution is that the study contributes to the literature by applying both ordered logistic regression and probabilistic neural networks as mutually supportive techniques for the first time.

The remainder of the study is structured as follows. The following section reviews BCRs, risk disclosures, CG reforms and Islamic governance in MENA context. The next sections discuss the theoretical framework for BCRs, review empirical literature on risk disclosures and governance structures, outline the research design, report the empirical results, and provide a conclusion.

2. BCRs, Risk Disclosure, and Governance Reforms in MENA Banks

BCRs have recently expanded and attracted significant attention from financial market investors, debt issuers, analysts, regulators, and policymakers seeking unbiased assessments of creditworthiness and a measure of the riskiness of the banks, especially in murky information environments. BCRs are important due to the credit rating agencies independence; its ability to access the undisclosed information, the growing complexity of financial innovation including securitization and credit derivatives, a high level of asymmetric information, and globalization (Ashbaugh-Skaife *et al.*, 2006; Bannier & Hirsch, 2010; Bellotti *et al.*, 2011; Bongaerts *et al.*, 2012; Chen, 2012; Duff & Einig, 2009b; Huang *et al.*, 2004; Shen *et al.*, 2012).

BCR is a common index which includes a combination of several quantitative and qualitative variables (economic, social, and political) including all public and non-public information sources to evaluate the financial soundness of banks. BCRs provide independent opinions on the ability of firms to fulfil their financial commitments, which can help in the banks' credit risk evaluation and assessment, and hence, it reduces information asymmetry effects, increases the marketability or evaluation of their financial commitments, highlights key investment targets, and improves bank brand image by signalling management's quality and integrity (Akdemir & Karslı, 2012; Ashbaugh-Skaife *et al.*, 2006; Bannier & Hirsch, 2010; Caporale *et al.*, 2012; Chan *et al.*, 2013; Chen, 2012; Erdem & Varli, 2014).

Moreover, rating score is more efficient to reflect overall performance since banks are inherently opaque and are exposed to a multiplicity of risks, and hence, stakeholders rely

comprehensively on the rating scores (Beisland & Mersland, 2012; Beisland *et al.*, 2014). Furthermore, the rules that credit rating agencies apply to measure bank rating score do not rely on banks' conventional performance metrics only, but also on other characteristics. These includes management quality, capital adequacy, asset quality, risk management, growth prospects, efficiency, internal control processes, IT systems, governance structure quality, the regulatory and competitive circumstances and other environmental and organizational considerations.

Thus, BCRs accurately reflect real bank credit quality (Beisland & Mersland, 2012; Beisland *et al.*, 2014; Cheng & Subramanyam, 2008; Duff & Einig, 2009b; Gutierrez-Nieto *et al.*, 2007). Moreover, when a rating score is assigned, the credit rating agencies generally are concerned with banks' governance structures since weak firm- and country-level governance structures can impair bank's financial soundness. This impacts the financial information quality disclosed to stakeholders (Ashbaugh-Skaife *et al.*, 2006; Bhojraj & Sengupta, 2003; Claessens & Laeven, 2003; Fitch Ratings, 2004; Grassa, 2015; Huang & Shen, 2015).

Therefore, GFC has stimulated regulators worldwide to enhance codes and regulatory reforms to avoid weak governance structures that further enhances the effectiveness of risk management and disclosure practices especially in the banking sector (Barakat & Hussainey, 2013; Iatridis, 2008; Ntim *et al.*, 2013; Vandemaele *et al.*, 2009; Walker, 2009). Similarly, BCBS indicates that comprehensive and effective risk disclosures as well as CG are critical to achieving and maintaining public confidence, enhance the level of trust in the banking sector and subsequently the overall economy (Barakat & Hussainey, 2013; BCBS, 2006;

Deumes, 2008; Liang *et al.,* 2013). Moreover, the Basel II Capital Accord emphasizes on the role of external credit ratings agencies by permitting banks to measure credit risk weighted assets (standardized approach) which are based on the external ratings assigned by an accepted rating agency (BCBS, 2006; Duff & Einig, 2009a; Pasiouras *et al.,* 2006). Furthermore, Basel III adds an additional role to these agencies regarding counterparty credit risk from over-the-counter derivatives (BCBS, 2011).

Consequently, regulators in MENA countries place significant focus on the comprehensive risk management and risk disclosures in banks that are widely perceived as being insufficient and have a significant impact on attracting foreign investment (Amico, 2014). Thus, most of the MENA countries have adopted the Basel Accords (I, II, III) and IFRS (7, 9) or the domestic equivalent standard. These reforms and standards strengthen the need for comprehensive risk management and risk disclosure practices. Basel Accords (I, II, III) and IFRS (7, 9) concentrate on qualitative and quantitative disclosure in relation to credit, liquidity, and market risks.

However, Basel Accords only consider operational risk as a separate category. Nonetheless, Basel Accords and IFRS lack sufficient granularity in some key risk areas (e.g., operational risks and strategic risks), which in general are omitted from risk disclosures regulations (Barakat & Hussainey, 2013; Bischof & Daske, 2012). Hence, a major reform has been done to Pillar 3 to improve risk disclosures by demonstrating that banks must provide clear, comprehensive, informative, consistent and comparable risk disclosures on main risks in highly comparable formats (BCBS, 2015b). Revised Pillar 3 considers another

step forward in the development of risk disclosures. However, risk disclosure requirements should be developed frequently to ensure the quality and relevance of the risk disclosures.

Additionally, the continuation of GFC and credit crunch ending with Chinese stock market crash in 2015 have reignited the debate about regulatory reforms to enhance weaknesses in governance structures at the country- and firm- level. This is mainly to ensure the financial reporting process quality and the financial information reliability, especially at a time of great turbulence and uncertainty in the global financial system (Alali *et al.,* 2012; Bhojraj & Sengupta, 2003; Sudworth, 2015, August 24). Correspondingly, this crises affect banking sector worldwide and highlighted weak governance mechanisms which have been suggested as one of the main obstacles that hinders the performance of the banking sector (Aebi *et al.,* 2012; Beisland *et al.,* 2014; Dardac & Grigore, 2011; Kirkpatrick, 2009; Mersland & Strøm, 2009).

It worth to mention that many countries in the MENA region and other emerging markets, which suffered during GFC, have weaknesses in political stability, government effectiveness, regulatory quality environments and poor governance systems, as shown in Table 19 (Kaufmann *et al.,* 2010; Kirkpatrick, 2009). Moreover, MENA banks have significant weaknesses regarding governance structures. MENA banks are characterised by high level of ownership concentration in the form of family-owned banks (FOBs), or government-owned banks (GOBs), and by recently increased foreign participation, as well as dualistic aspect in the board of directors (Koldertsova, 2011; Samaha *et al.,* 2012; World Bank, 2009). Also, MENA banks are characterised by weak disclosure and transparency

which are common practices due to disclosure–averse culture and a weaker government oversight (Kaufmann *et al.,* 2010; Samaha *et al.,* 2012; World Bank, 2009).

To bridge the gap, regulators and standard-setters in MENA region established several CG codes depending on best CG practices since the mid-2000s to enforce minority shareholder rights and accountability, as well as to improve market transparency. Notably, these codes are mandatory in some countries such as Oman, Jordan, Saudi Arabia, Syria, and UAE or exist on a "comply or explain" basis in countries such as Bahrain, Egypt, and Qatar. In other countries such as Lebanon, Morocco, and Tunisia CG codes are voluntary (Amico, 2014). Furthermore, weak CG in banks can destabilise the financial system and given the significant socio-economic effect on the circumstance of bank turmoil, specific attention has been given to banks' CG (World Bank, 2009).

Thus, in recent years, several MENA countries such as Egypt, Jordan and UAE have issued mandatory CG codes for banks, while the remaining countries have issued CG guidelines to ensure financial strength in the MENA banking sector and in capital markets (Amico, 2014; Koldertsova, 2011; World Bank, 2009). Moreover, BCBS issued revised CG principles for banking sector in the wake of GFC to the well-functioning of the banking sector and the safeguarding of stakeholders' interest to achieve a sustainable growth (BCBS, 2015b).

Table 19 Cross-regional worldwide governance indicators comparison (2013)

	Voice and accountability	Political Stability and absence of violence/terrorism	Government effectiveness	Regulatory quality	Rule of law	Control of corruption
East Asia & Pacific	54	63	49	47	56	53
Europe & Central Asia	66	63	68	69	66	63
Latin America& Caribbean	61	55	58	56	51	57
MENA	25	28	44	44	44	45
North America	87	77	89	90	60	89
South Asia	34	23	34	26	32	34
Sub-Saharan Africa	32	34	27	30	29	30

Notation: each number in each cell refers to the overall score (%) given to each region under each of the worldwide governance indicators. Source: Worldwide Governance Indicators (WGI) (World Bank, 2015).

Soundly-governed banks could acutely impact the bank's risk profile. For instance, soundly-governed banks improve supervisory process through maintaining a competent and cost-effective management as well as prudential board oversight, sound and effective risk management, resilient internal controls, and compliance (BCBS, 2015b). Hence, the revised CG principles emphasise the importance/implementation of rigorous risk governance, and hence, improve risk governance and disclosures practices (BCBS, 2015b).

In addition to CG and IFRS reforms in MENA region, many commercial banks have transformed completely or opened windows for Islamic banking especially after the remarkable large-scale growth in Islamic banking and finance worldwide, particularly in MENA region (Beck *et al.*, 2013; Ernst & Young, 2012; Ozturk, 2014; Rahman & Bukair, 2013; Safieddine, 2009). Although Islamic banks have the same CG structures, they are required to operate in *Sharia*-compliant manner.

It creates unique CG structures as well as raises a new risk called "*Sharia* risk" concerning *Sharia* incompliance which can generate a financial turmoil and threaten Islamic bank activities (e.g., considerable withdrawal), and hence damage the banks' reputation (Chapra & Ahmed, 2002; Darmadi, 2013; Grassa, 2015; Safieddine, 2009). Also, Islamic banking has been operating in a weaker government oversight which leads to several banks' failures e.g., Islas Finance House in Turkey, the Dubai Islamic Bank, the Islamic Investment Companies of Egypt, Islamic Bank of South Africa, and Bank Islam Malaysia Berthed (Chapra & Ahmed, 2002; Darmadi, 2013; Grassa, 2015; Hasan, 2011; Safieddine, 2009).

Therefore, most Islamic banks worldwide create additional layer of internal governance mechanisms called "Islamic governance" as a key feature of their governance structures in order to confirm banks' compliance with Islamic *Sharia* principles/values within the Islamic paradigm (Darmadi, 2013; Hasan, 2009; Kettell, 2011; Mollaha & Zamanb, 2015; Safieddine, 2009). The backbone of Islamic governance is *Sharia* supervisory boards (SSB). SSB is an independent committee with the duty of directing, guiding, and reviewing all the operations and activities of the Islamic banks to confirm that they work within the Islamic paradigm and are compliant with Islamic *Sharia* rules and principles. These are including but are not limited to prohibition of charging interest (Reba) and prohibition from engaging in speculation.

In the same vein, Islamic Financial Services Board (IFSB) and the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) guidelines emphasise that SSB should be characterised by independence, competency, integrity, and consistency (NuHtay & Salman, 2013). Therefore, Islamic banks are likely to disclose a number of SSB

criteria such as SSB members' names, experiences, meetings, qualifications, remunerations and SSB reports in relation to whether their products, services, and profits/losses have been compliant with *Sharia* rules and principles (Darmadi, 2013; Farook *et al.*, 2011; Grassa, 2015).

Moreover, Islamic banks rely on a risk-sharing model, and are required to be more transparent and accountable compared to conventional counterparts, because they mainly face and monitor more risks. For example, they monitor Investment Account Holders (IAHs) investments and report their risks (Ariffin *et al.*, 2009; Farook *et al.*, 2011; Mollaha & Zamanb, 2015; Safieddine, 2009).

3. Theoretical Literature Review

The incentives and prediction to change bank-level outcomes (e.g. BCRs) are generally explained by many theories due to the complex and opaque of bank performance. However, a comprehensive theory to understand the performance and implications of CG and disclosure does not yet exist. Hence, recent studies call for richer explanations (Ashbaugh-Skaife *et al.*, 2006; Grove *et al.*, 2011; Heflin *et al.*, 2011; Ntim *et al.*, 2013).

Agency theory might be relevant and powerful when disclosure or governance structures are linked with various operationalisations of banks' performance and risks. Agency theory suggests that there are inherent conflicts, which creates agency costs between bank shareholders and their managers as well as the conflict between bondholders and shareholders. Consequently, commitment to improving disclosure or governance structures leads to a better alignment of the interests of shareholders and their managers (or bondholders) which can subsequently enhance BCRs (Chan *et al.*, 2013; Fama & Jensen, 1983; Grove *et al.*, 2011; Jensen & Meckling, 1976; Klock *et al.*, 2005). Sound CG and risk disclosures enhance monitoring mechanisms by reducing agency costs and information asymmetry (e.g., risk disclosures) (Fama and Jensen, 1983).

The impact of agency theory on CG research can be witnessed in the majority of studies that explore three main questions. Firstly, how does the board of directors characteristics (e.g. board size, the CEO/chairman role duality, board independence) affect bank performance indicators such as BCRs (Adams & Mehran, 2012; Aebi *et al.*, 2012; Andres *et al.*, 2012; Coles *et al.*, 2008; O'Sullivan *et al.*, 2015)? Secondly, how does bank ownership structure (e.g. block, foreign, governmental ownership) affects bank performance indicators

such as BCRs (Ashbaugh-Skaife *et al.,* 2006; Bhojraj & Sengupta, 2003; Grassa, 2015)? Finally, how does special region or banks characteristics (e.g. Islamic banks) affect bank performance indicators such as BCRs (Grassa, 2015; Mollaha & Zamanb, 2015). However, the moderating effect of CG was rarely used in prior studies (e.g., Barakat & Hussainey, 2013).

According to signalling theory (Spence, 1973), the primary objective of corporate disclosure and CG is to inform stakeholders about the firm's performance and value. This suggests that disclosure decisions such as risk disclosures and good governance structures send signals to the market regarding bank performance and risks. Based on these theoretical suggestions, prior studies have attempted to empirically examine the relevance of banks disclosure and governance as a signal to the market, which might reduce the cost of capital and improve BCRs. In addition, risk disclosures and good governance structures can enhance banks' legitimacy to achieve social acceptance (Edkins, 2009; Suchman, 1995).

Finally, resource dependence theory predicts that enhanced disclosures provide an essential link between the bank and the necessary resources, such as access to finance or capital, a nation's business elite, links to competitors or suppliers (Jizi *et al.*, 2014; Nicholson & Kiel, 2007; Pfeffer & Salancik, 2003; Salancik & Pfeffer, 1978). Based on these theoretical suggestions, prior studies examined the relevance of banks' disclosure and governance to improve links with the external environment to gain necessary resources, and consequently enhance BCRs (Jizi *et al.*, 2014; Nicholson & Kiel, 2007). Therefore, this study uses a multi-theoretical framework that includes agency, signalling, legitimacy and resource dependence

theories to explain the relevance of banks' risk disclosures as well as governance structures and its impact on bank-level outcomes (BCRs).

4. Empirical Literature Review and Formation of Research Hypotheses

Prior studies (e.g., Aman & Nguyen, 2013; Ashbaugh-Skaife *et al.,* 2006; Bhojraj & Sengupta, 2003; Chan *et al.*, 2013; DeBoskey & Gillett, 2013; Kuang & Qin, 2013; Sengupta, 1998) have suggested a number of governance structures which can drive BCRs. Unlike current literature on the economic consequences of risk disclosures and governance structures, this study, first discusses how risk disclosures drive BCRs. Secondly it investigates how Islamic governance (SSB) drives BCRs. Thirdly, it examines how bank-level CG structures in the form of board structure and ownership structure drive BCRs. And finally, it explores the moderating effect of governance structures.

4.1 The Informativeness of Risk Disclosures and BCRs

IFRS and Basel accords have placed growing importance on risk disclosures (Barakat & Hussainey, 2013; BCBS, 2015b). In fact, it is crucial to identify the benefits that risk disclosures can provide. If external users find risk disclosures valuable, agency theory assumes that facilitating the management decisions' monitoring and hence reducing information asymmetry arising from risk disclosure quality can lead to enhancing the BCRs and decreasing the capital costs (Aman & Nguyen, 2013; Ashbaugh-Skaife *et al.,* 2006; Chan *et al.*, 2013; Jensen & Meckling, 1976; Kuang & Qin, 2013). On the other hand, if banks disclose additional information regarding risk, it might have adverse effects, and thus the

risk disclosure depends upon market transparency levels and the cost/benefits of risk disclosures (Hertig, 2006).

Signalling and resource dependence theories are also suggested to enhance the level of understanding of the risk disclosure and the BCRs nexus. Signalling theory and resource dependence theory assume that increasing the level of risk disclosure can send important signals to credit rating agencies regarding performance and risk management practices in banks, which might secure access to resources, reduce the cost of capital and improve the BCRs.

Prior evidence related to the relationship between disclosure and BCRs is limited. Aman and Nguyen (2013), Ashbaugh-Skaife *et al.* (2006), Bhojraj and Sengupta (2003), Chan *et al.*, 2013, DeBoskey and Gillett (2013), Heflin *et al.* (2011), Kuang and Qin (2013), and Sengupta (1998) find a positive association between disclosure quality and BCRs. However, examining the relationship between risk disclosure and BCRs is totally neglected in previous literature. Therefore, and to the best of the researcher's knowledge, this is the first study that examines if credit rating agencies incorporate risk disclosure level into their risk evaluation processes. Based on the above argument, we suggest the following hypothesis:

***H_1**: risk disclosures have a statistically significant positive impact on BCRs.*

4.2 The Informativeness of Islamic Governance (SSB) and BCRs

Islamic governance is considered as an additional layer of internal governance mechanisms for Islamic and dual banks, which plays an important role in ensuring that banks provide *Sharia*-compliant services within the Islamic paradigm (Darmadi, 2013; Hasan, 2009; Kettell, 2011; Mollaha & Zamanb, 2015; Safieddine, 2009). Agency theory assumes that adequate monitoring mechanisms through SSB with the necessary skills can reduce the agency conflicts between shareholders and management. This can also decrease the probable conflicts between depositors, bondholders and shareholders by reducing information asymmetry and agency costs, and consequently could positively affect BCRs (Fama & Jensen, 1983; Jensen & Meckling, 1976; Safieddine, 2009).

Similarly, resource dependence theory suggests that larger SSB with greater level of expertise, knowledge, and skills may offer better access to firm's external environment. This can facilitate and secure an access to vital resources and consequently lead to improving BCRs (Aman & Nguyen, 2013). In addition, such SSB may place greater efforts to ensure that banks make true, fair, and transparent disclosures to signal their performance and comply with the *Sharia* principles. It may also legitimise the practices of banking industry not only to shareholders but also to other stakeholders.

Empirically, it should be noted that there is a dearth of literature that has focused on the association between SSB and BCRs. Mollaha and Zamanb (2015) examined the effect of *Sharia* supervision on bank performance from 2005-2011, which covered 25 countries. They found that *Sharia* supervision has a positive impact on the Islamic banks' performance.

However, the investigation done by Mollaha and Zamanb (2015) only depends on the size of the SSB regardless of their level of expertise or other qualifications. Grassa (2015) examined whether SSB has an impact on BCRs in Islamic banks operating in GCC and Southeast Asia from 2005–2011 and find inconsistent results regarding SSB attributes and BCRs. Based on the above argument, the study submits the following hypothesis:

***H_2**: SSB has a statistically significant positive impact on BCRs.*

4.3 The Informativeness of Board Structures and BCRs

Prior studies point out that banks' board of directors may play significant role than non-financial institutions. Overall, financial institutions have larger board size than non-financial institutions due to complex, opaque and diverse operations as well as heavy regulation (Adams & Mehran, 2003; Laeven & Levine, 2009; O'Sullivan *et al.,* 2015). Previous studies have identified a number of board characteristics which influence the level of board effectiveness, including board size, duality, gender diversity, and board independence-BBID. These characteristics can have important implications for CG, and the BCRs (Aebi *et al.,* 2012; Alali *et al.,* 2012; Aman & Nguyen, 2013; Ashbaugh-Skaife *et al.,* 2006; Grassa, 2015).

For instance, adequate monitoring mechanisms through larger board size, less CEO power, more gender diversity and bigger BBID with the necessary skills to coordinate and communicate can reduce both the agency conflicts among shareholders and managers and the probable conflicts between depositors, bondholders and shareholders. This can lead to reducing information asymmetry and agency costs. Hence, bondholders perceive board

structure as an important factor of bond cost and therefore affect BCRs (Ashbaugh-Skaife *et al.,* 2006; Fama & Jensen, 1983). Similarly resource dependence theory suggests that larger board size, less CEO power, more gender diversity and bigger BBID with greater level of expertise, knowledge, and skills may offer better access to the external environment to facilitate and secure an access to vital resources and consequently, enhance the BCRs (Aman & Nguyen, 2013). It may also legitimise bank operations and send signal to the external environment (Pfeffer, 1972). On the other hand, Jensen (1993) argues that the benefits of larger board size may offset problems of coordination, communication and slower decision making.

The empirical evidence related to the board size has to date yielded inconsistent results. For instance, some prior studies suggest that board size can have a positive effect on BCRs (e.g., Aman & Nguyen, 2013; Bradley & Chen, 2011; Grassa, 2015). Whereas, Liang *et al.* (2013), Mamatzakis and Bermpei (2015), and Pathan and Faff (2013) find that board size has a negative impact on bank performance. Wintoki *et al.* (2012) find insignificant relationship between board size and bank performance. These inconsistent findings may result in different time frames and different methodological measures of risk disclosure (Bebchuk *et al.*, 2009; Kuang & Qin, 2013).

The empirical evidence relating to CEO power is also mixed. For example, Bebchuk *et al.,* (2009), Elsayed (2007) Grove *et al.* (2011), and Lian *et al.* (2013) find a negative association between CEO power and banks' performance. However, Li *et al.,* (2014), Mamatzakis and Bermpei (2015), Pathan (2009), and Van Ness *et al.,* (2010) find a positive relationship between CEO power and banks' performance. While, O'Sullivan *et al.* (2015)

conclude that CEO power has no effect on banks' performance. On the other hand, the conclusions of Ashbaugh-Skaife *et al.* (2006), Bradley and Chen (2011), Grassa (2015), Kuang and Qin (2013) and Liu and Jiraporn (2010) suggest that BCRs are negatively related to banks whose have CEO duality.

Similarly, the empirical evidence largely suggests that gender diversity has a positive impact on BCRs (Adams & Ferreira, 2009; Erhardt *et al.*, 2003; Farrell & Hersch, 2005; García-Meca *et al.,* 2015; Grassa, 2015; Pathan & Faff, 2013; Tanaka, 2014). By contrast, Ahern and Dittmar (2012) find a significant negative association between board diversity and firm performance. Finally, the empirical evidence that is related to board independence (the board members are not executive) is also reported inconsistent and conflict results. For example, on the one hand Ashbaugh-Skaife *et al.* (2006), Bhojraj and Sengupta (2003), Grassa (2015), Kuang and Qin (2013), Liang *et al*. (2013), Li *et al.* (2014), and Nguyen and Nielsen (2010) find that BBID have a positive impact on BCRs.

On the other hand, Aebi *et al.* (2012), Bhagat and Bolton (2008), Erkens *et al.*, (2012), and Pathan and Faff (2013) find that BBID has a negative impact on either banks' performance or BCRs. Whilst Adams and Mehran (2012), Coles *et al.* (2008), Grove *et al.* (2011), and O'Sullivan *et al.* (2015) find that BBID has no impact on either banks' performance or BCRs. While noting that the debate concerning board structure remains inconclusive, this study tests the following hypothesis:

***H_3**: Board structures (board size, CEO duality, gender diversity, and BBID) have a significant impact on BCRs.*

***H_{3a}**: Board size has a significant positive impact on BCRs.*

***H_{3b}**: CEO duality has a significant negative impact on BCRs.*

***H_{3c}**: Gender diversity has a significant positive impact on BCRs.*

***H_{3d}**: Board independence has a significant positive impact on BCRs.*

4.4 The Informativeness of Ownership Structures and BCRs

Ownership structures have a key impact on attitudes to CG and disclosure that may impact BCRs (Ashbaugh-Skaife *et al.,* 2006; Beattie *et al.,* 2001; Bhojraj & Sengupta, 2003; Bradley & Chen, 2011; Grassa, 2015). Key shareholders are expected to have both the control and the motivations to monitor management's behaviour and have less agency conflicts with managers and boards of directors. However, these agency conflicts may increase between key shareholders, minority shareholders, and other stakeholders. Concerning agency theory, ownership concentration (i.e. block, government, and foreign ownership) may on the one hand exercise excessive power over the management to gain benefits that could negatively affect other shareholders and consequently, may adversely affect BCRs (Fama & Jensen, 1983; Jensen & Meckling, 1976; Shleifer & Vishny, 1997).

On the other hand, the role of the government (foreigner) as a major shareholder, especially in unstable economies due to low political stability, regulatory quality, and presence of corruption, can be seen as mitigation mechanism to reduce agency problems. This may lead to a substantial effect on the cost of capital, and consequently could positively affect BCRs (Borisova *et al.,* 2015; Kaufmann *et al.,* 2010; Shleifer & Vishny, 1997). Ownership concentration may also facilitate access to critically needed resources by providing guarantees to securing debt financing which may enhance BCRs (Pfeffer, 1972). Proposed government (foreigner) commitment to adopt high standards may legitimise banks'

operations and reduce both agency cost and information asymmetry which consequently can positively affect BCRs (Armstrong *et al.,* 2010; Beuselinck *et al.,* 2015; Borisova *et al.,* 2015; Ntim *et al.,* 2013).

Prior evidence shows mixed findings relating to the significant and impact of block ownership on BCRs. Although Aebi *et al.* (2012), Ashbaugh-Skaife *et al.* (2006), Beltratti and Stulz (2012), Bhojraj and Sengupta (2003), Bradley and Chen (2011), Grassa (2015) and Laeven and Levine (2009) find a negative impact of block ownership on BCRs, Grove *et al.* (2011) and Li *et al.* (2014) provide evidence that the impact of block ownership on BCRs and performance is positive. Likewise, the empirical evidence is generally limited and inconsistently related to the impact of government ownership on either banks' performance or BCRs. Beuselinck *et al.* (2015) and Li *et al.* (2014) find that government ownership has a positive impact on either banks' performance or BCRs, whereas Pasiouras *et al.* (2006) find insignificant impact. On the other hand, Borisova *et al.* (2015) and Liang *et al.* (2013) find that government ownership has a negative impact on both banks' performance and BCRs.

Similarly, the empirical evidence largely suggests that foreign ownership has a positive impact on both banks' performance and BCRs (Berger *et al.,* 2010; Choi & Hasan, 2005; Jiang *et al.,* 2013; Lin & Zhang, 2009). However, Demirgüç-Kunt and Huizinga (1999), Lensink *et al.,* (2008) and Li *et al.* (2014) find that foreign ownership has negative impact on both of them. Based upon this argument, the following hypothesis is then proposed:

***H_4**: ownership structures (block, governmental, and foreign ownership) have a significant impact on BCRs.*

***H_{4a}**: Block ownership has a significant impact on BCRs.*

***H_{4b}**: Governmental ownership has a significant impact on BCRs.*

***H_{4b}**: Foreign ownership has a significant impact on BCRs.*

4.5 BCRs- Risk Disclosure Nexus: The Moderating Effect of Governance

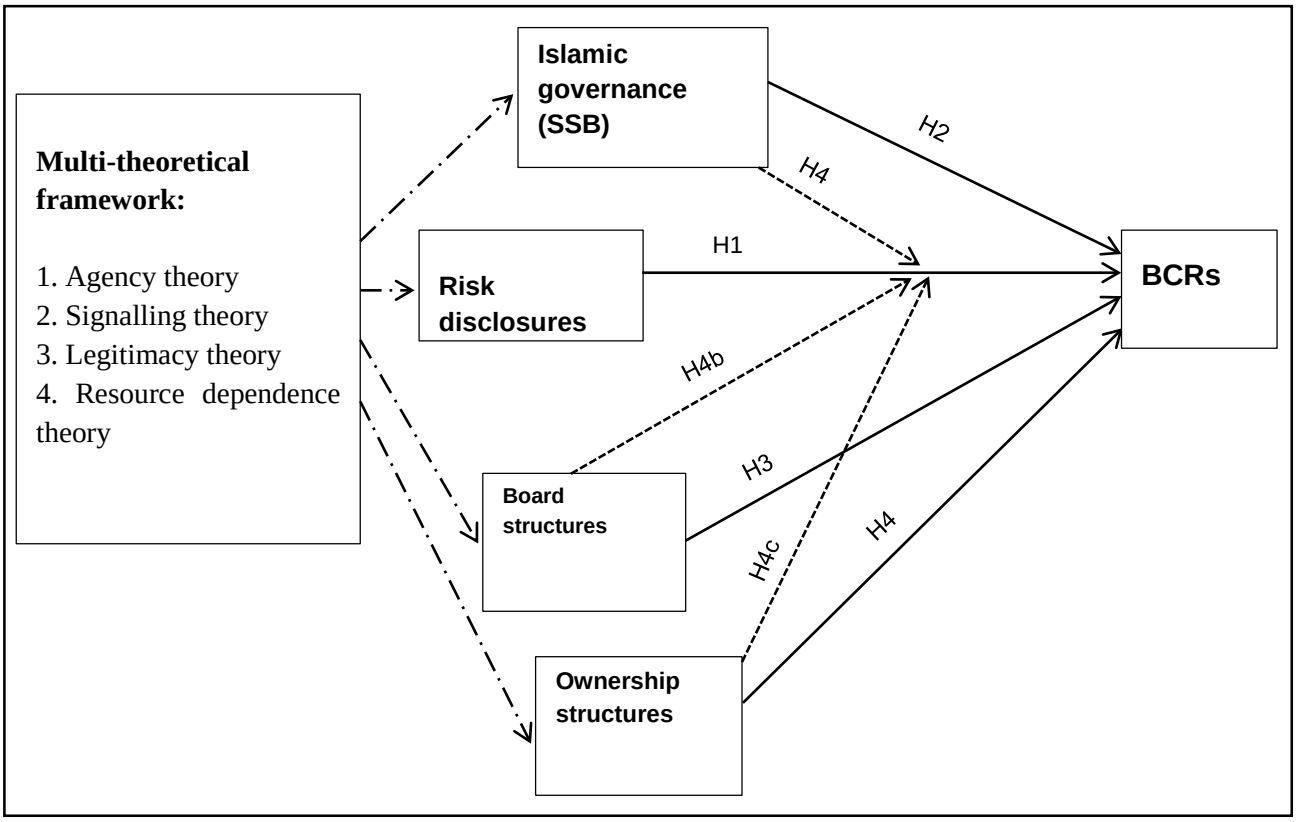
Governance structures may moderate the relationship between risk disclosures and BCRs. Considerable recent evidence (Ashbaugh-Skaife *et al.,* 2006; Beattie *et al.,* 2001; Beltratti & Stulz, 2012; Bhojraj & Sengupta, 2003; Bradley & Chen, 2011; Essen *et al.*, 2013; Grassa, 2015; Shen *et al.*, 2012) suggests that governance structures are the major determinant of both banks' performance and BCRs.

Prior studies conclude that BCRs are affected by firm- level governance in terms of board size, CEO duality, BBID, and ownership concentration (Ashbaugh-Skaife *et al.,* 2006; Beltratti & Stulz, 2012; Bhojraj & Sengupta, 2003; Bradley & Chen, 2011; Grassa, 2015; Shen *et al.*, 2012). To the best of the researcher's knowledge, no prior studies examined the moderating effect of governance structures on the relationship between risk disclosures and BCRs. We would expect that banks with better governance structures further safeguard stockholder rights and are more expected to take decisions that maximize stockholders wealth as well as other stakeholders' interests leading to a significant effect on the cost of capital, and consequently positively affect BCRs via enhancing risk disclosures. This study, therefore, tests the following hypothesis:

H5*: governance structures (i.e. SSB, board size, CEO duality, gender diversity, BBID, block, governmental, and foreign ownership) moderate the relationship between risk disclosures and BCRs.*

The previously hypothesised relationships are presented in Figure 2.

Figure 2 Suggested Empirical Model for the Structural Relations Between Risk Disclosure and BCRs



Notes: The figure defines the structural relations between risk disclosure and BCRs, either directly (solid lines) or via moderating effect of Islamic governance, board structure and ownership structure (dotted lines)

5. Research Design

5.1 Sample Selection and Data Sources

The sample is selected from listed commercial and Islamic banks in Arab MENA (hereafter referred to as MENA) region with full data over eight fiscal years, from 2006 to 2013. 118 banks in 12 countries were initially identified based on *Bankscope database* but due to the unavailability data, the final sample covers 95 banks listed in 12 MENA stock exchanges.

Table 20 Sample construction

Country	Total banks	Banks selected	IBs obs	CBs obs	DBs obs	Full sample	Percentage
Bahrain	11	9	36	8	24	68	9.71%
Egypt	11	11	13	40	20	73	10.43%
Jordan	12	12	13	75	3	91	13.00%
Kuwait	13	10	36	35	5	76	10.86%
Lebanon	6	6	0	28	16	44	6.29%
Morocco	5	1	0	8	0	8	1.14%
Oman	6	5	0	34	5	39	5.57%
Qatar	8	8	24	11	28	63	9.00%
Saudi Arabia	12	11	21	0	63	84	12.00%
Syria	11	2	1	1	0	2	0.29%
Tunisia	2	2	0	9	0	9	1.29%
UAE	21	18	32	39	72	143	20.43%
Total	118	95	176	288	236	700	100.00%

The study covers these eight fiscal years as they present the most recent available data in the MENA markets and also cover pre-, during, and post-financial crisis periods. The final sample consists of 700 bank-year observations. A detailed sample construction is presented in Table 20. Risk disclosures and corporate governance data are collected from banks' annual reports. Financial data is collected from annual reports as well as *Bankscope database*. Country-level macroeconomic and governance data is collected from World Bank databases.

This essay also uses a self-constructed risk disclosures index (*RMDPI*) to measure the level of risk disclosures. It is challenging to determine a predefined set of words that can properly reflect all information on every risk category in banks. *RMDPI* reduces the bias in the disclosure score if the bank concentrates on providing detailed information on a certain category of risk while they may fail to disclose other risk categories. Thus, *RMDPI* is more likely to capture truthfully the comparative weights of different risk categories.

This study constructs *RMDPI* depending on the financial risk requirements in IFRS 7, IFRS 9, Basel II and key risk disclosure items that are frequently used in related studies (e.g., Barakat & Hussainey, 2013; Ford *et al.*, 2009; Greco, 2012; Helbok & Wagner, 2006; Ntim *et al.*, 2013; Savvides & Savvidou, 2012). Hence, *RMDPI* is comprised of 6 main items containing 96 sub-items (Appendices 1 and 2 present the scoring criteria and composition of *RMDPI*, respectively).

5.2 Variables Definition

The essay classifies the variables into six main categories as described in Table 21, which provides full definition of all of these variables. Firstly, the dependent variable is the Fitch long-term issuer default ratings (*RATE*) following prior literature (e.g., Ashbaugh-Skaife *et al.* 2006; Alali *et al.* 2012; Grassa, 2015; Jorion *et al.* 2009). The main reason for choosing Fitch is that it has the largest market share for the banking sector in Arab MENA.

As explained by Fitch, a long-term issuer default ratings represent the rating agency's current opinion on an entity's overall vulnerability to default on financial commitments which reflect the uncured failure of that entity (Fitch Ratings, 2015). The study assigns Fitch ratings a value from 1, which reflects higher default risk and lower BCRs, to 22, which reflects lower default risk and higher BCRs, as described in Table 21.

Secondly, the study gathers data on risk disclosures level (*RMDPI*) which strive to measure level of risk disclosures in six key areas as set out by IFRS 7 and 9, Basel II Accord and prior literature (e.g., Greco, 2012; Ntim *et al.*, 2013). This consists of: credit risk disclosure index (*CRDI*); liquidity risk disclosure index (*LRDI*); market risk disclosure index (*MRDI*); capital adequacy risk disclosure index (*ARDI*); operational risk disclosure quality index (*ODQI*); and strategic risks disclosure quality index (*SRDI*).

This essay uses *Sharia* supervisory board (*SSB*) as a proxy of Islamic governance. Board structures variables are as follows: board size (*BBSZ*); CEO power (*CEOP*); gender diversity (*GNDI*); and board independence (*BBID*). Ownership structures variables are as follows: block ownership (*BSHR*); foreign ownership (*FSHR*) and government ownership (*GSHR*).

Table 21 Summary of variables definitions

Variables	*Definitions and coding.*
Panel A: Dependent variables (Fitch long term issuer default ratings).	
RATE	Is the assigned rating score for Fitch's long term issuer default ratings coded according to: 22 if the bank has Fitch ratings of AAA; 21 if AA+; 20 if AA; 19 if AA-; 18 if A+; 17 if A; 16 if A-; 15 if BBB+; 14 if BBB; 13 if BBB-; 12 if BB+; 11 if BB; 10 if BB-; 9 if B+; 8 if B; 7 if B-; 6 if CCC+; 5 if CCC; 4 if CCC-; 3 if CC; 2 if C; 1 if DDD, DD, D; 0 if NR , WD.
Panel B: Risk disclosure index.	
RMDPI	Is the overall risk disclosure score determined depending on the un-weighted risk disclosure index and scoring criteria clarified in Appendices 1 and 2.
W-RMDPI	Is the overall risk disclosure score determined depending on the weighted risk disclosure index and scoring criteria clarified in Appendices 1 and 2.
Panel C: Corporate governance (CG) variables.	
BSHR	Percentage of shareholders with at least 5% to the total bank ordinary shareholdings.
GSHR	Percentage of governmental ownership with at least 5% to total bank ordinary shareholdings.
FSHR	Percentage of foreign ownership with at least 5% to the total bank ordinary shareholdings.
BBSZ	Number the board of directors on the bank.
CEOP	1, if the company CEO and chairperson positions are held by same person, 0 otherwise.
GNDI	Percentage of women directors to the total number of the bank board of directors.
BBID	board independence measured by percentage of non-executive directors to the total number of the bank board of directors.
SSB	Is the total SSB characteristics score determined according to the un-weighted SSB index consisting of 7 provisions and scoring criteria are; SSB existence=1, if a bank has SSB board, 0 otherwise.; SSB report =1, if a bank has disclosed SSB report, 0 otherwise; SSB size =1, if a bank has disclosed number of SSB's member, 0 otherwise; Experience=1, if if a bank discloses SSB experience, 0 otherwise; SSB meetings=1, if a bank has disclosed number of SSB meetings, 0 otherwise; Independent=1, if SSB's members are independent from management, 0 otherwise; Total fees disclosed=1, if a bank discloses SSB fees/ compensation, 0 otherwise.
Panel D: Control variables.	
LNBS	Natural log of total assets, which measure bank size.

Variables	*Definitions and coding.*
ROAA	Performance, which measures by return on average assets, which are percentage of net income to total asset.
LIQR	Liquidity, which is net, loans to total assets.
INCD	Income diversity, which is percentage of net interest income/ average earning assets.
OPEF	Operations efficiency, which is percentage of cost to income.
BCAD	The capital adequacy ratio.
VAQ	Country- level voice and accountability score based on Kaufmann *et al.* (2010) which calculates the extent to which a country's residents more contributing in choosing their government, expression independence, freedom of association, and a unrestricted media in years 2006 until 2013. A higher score means more accountability.
RQM	Country- level regulatory quality score based on Kaufmann *et al.* (2010) which calculates the ability of the government to formulate and implement sound policies and regulations in years 2006 until 2013 that allow and promote private sector development. A higher score means better regulatory quality.
ROLQ	Country- level rule of low score based on Kaufmann *et al.* (2010) which calculates the level to which managers have assurance in and the rules of society abide in years 2006 until 2013, These include the quality of contract implementation, rights of property, the police, and the magistrates, as well as the probability of offence and assault.
INFL	Inflation, which is consumer prices (annual %).
CGDP	GDP per capita (current US$).
YD	Dummies for each of the fiscal years 2006 - 2013.

Finally, the models contain a wide number of control variables which are as follows: bank size (*LNBS*); performance (*ROAA*); Liquidity (*LIQR*); Income diversity (*INCD*); operations efficiency (*OPEF*); capital (*BCAD*); voice and accountability (*VAQ*); regulatory quality (*RQM*); rule of law (*ROLQ*); year dummy (*YD*); inflation (*INFL*); and GDP per capita (*CGDP*) following broad prior literature (e.g., Aman & Nguyen, 2013; Ashbaugh-Skaife *et al.*, 2006; Bhojraj & Sengupta, 2003; DeBoskey & Gillett, 2013; Grassa, 2015; Heflin *et al.*, 2011; Kuang & Qin, 2013; Pasiouras *et al.*, 2006; Sengupta, 1998).

5.3 Model Specification

This essay uses ordered logistic regression and Probabilistic Neural Networks (PNNs) as mutually supportive methods, to examine the informativeness of risk disclosures and the moderating effect of governance structure variables using MENA BCRs. Therefore, this essay has two components for the methodology. Firstly, this study uses ordered logistic regression to examine the informativeness of risk disclosures, and the moderating effect of governance structure variables using MENA BCRs. The regression model that employed is identified as follows:

$$RATE_{bt} = \alpha_0 + \beta_i RMDPI_{bt-1} + \beta_i \sum_{i=1}^{8} CG_{bt-1} + \beta_i \sum_{i=1}^{8} RMDPI * CG_{bt-1} + \sum_{i=1}^{12} \beta_i CONTROLS_{bt-1} + \varepsilon_{bt} \quad (5)$$

Where:

RATE refers to Fitch long-term issuer default ratings; *RMDPI* refers to risk disclosures index proxy for risk disclosure level; *CG* refers to *SSB*, *BBSZ*, *CEOP*, *GNDI*, *BBID*, *BSHR*, *GSHR*, and *FSHR*. CONTROLS refers to the control variables, including *LNBS*, *ROAA*, *LIQR*, *INCD*, *OPEF*, *BCAD*, *VAQ*, *RQM*, *ROLQ*, *YD*, *INFL*, and *CGDP*; ε refers to the error term; α_0 refers to the constant; β_i refers to the vectors of coefficient estimates; *b* is bank in *t* time. This essay employs ordered logistic regression because the dependent variable is categorical. Specifically, in OLS regression, the dependent variable is continuous. It can have any one of an infinite number of potential values.

However, in ordered logistic regression, dependent variable has either only a limited number of possible values, ordinal or categorical values. Thus, OLS regression would be less proper because of the violation of the assumption of independent, identically distributed errors. The study reports the empirical results and additional analyses in the next sections. Secondly, the ordered logistic regression model for the weighted risk disclosures index proxy for risk disclosure level that employed is identified as follows:

$$RATE_{bt} = \alpha_0 + \beta_i W - RMDPI_{bt-1} + \beta_i \sum_{i=1}^{8} CG_{bt-1} + \beta_i \sum_{i=1}^{8} W - RMDPI * CG_{bt-1} + \sum_{i=1}^{12} \beta_i CONTROLS_{bt-1} + \varepsilon_{bt} \quad (6)$$

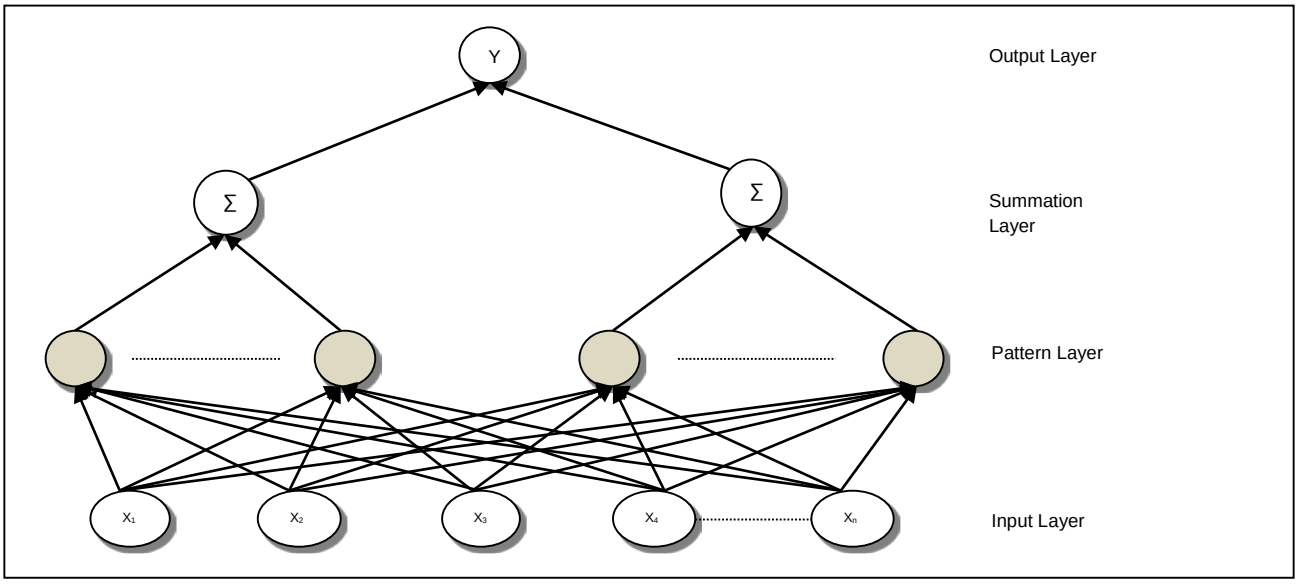
where:

RATE refers to Fitch long-term issuer default ratings; *W-RMDPI* refers to weighted risk disclosures index proxy for risk disclosure level; *CG* refers to *SSB, BBSZ, CEOP, GNDI, BBID*, *BSHR*, *GSHR*, and *FSHR.* CONTROLS refers to the control variables, including *LNBS*, *ROAA*, *LIQR*, *INCD*, *OPEF*, *BCAD*, *VAQ*, *RQM*, *ROLQ*, *YD*, *INFL*, and *CGDP*; ε refers to the error term; α_0 refers to the constant; β_i refers to the vectors of coefficient estimates; *b* is bank in *t* time.

Thirdly, this study uses PNNs to examine the informativeness of risk disclosures, and the moderating effect of governance structure variables highlighted above using MENA BCRs. PNNs implement a statistical technique, called kernel discriminant analysis (KDA), in which the processes are structured into a multilayer feed-forward neural network with several layers. Therefore, PNNs are predominantly a classifier, mapping inputs to a number of classifications, which might be imposed into a more general function (Abdou *et al*., 2008; 2012& 2016).

An example is given below of a PNN structure, which assumes there are *n* independent numeric variables, $X_1 \ldots X_n$, two dependent categories, and several training cases, including some cases in one category and some in the other one:

Figure 3 PNNs architecture



Note: a structure of a number of independent predictors for PNNs is shown above. Each node in the first "pattern layer" calculates the distance between the input case and the training case reintroduced by the node. Then, the value passes to the second "summation layer" node, which is a function of the distance in the smoothing factors, as each input has its own smoothing factor. One node per dependant category/variable is in the second layer, and each node sums up the output values for the nodes corresponding to the training cases in that category. The second layer output values can be interpreted as probability function predicted for each class. Finally, the category with the highest probability function value selected by the output node is chosen as the estimated category.

The Bayesian probability density function, for the respective output from probabilistic neural network pattern node can be represented as follows (e.g., Abdou, 2009):

$$P(\underline{X}/C_i) = \frac{1}{(2\pi)^{m/2}\sigma^m n_i} \sum_{j=1}^{n} \exp\left[\frac{-(\underline{X} - \underline{X}_{ij})^T(\underline{X} - \underline{X}_{ij})}{2\sigma^2}\right] \quad (7)$$

where:

$\underline{X}$ refers to vector; n_i refers to number of training patterns for class C_i; $\underline{X}_{ij}$ refers to j[th] training vector for class C_i; m refers to vector-dimension; σ refers to standard deviation parameter for smoothing purposes; C_i refers to category class; T refers to transposition function for vector; and P refers to probability. The conditional probability can be written as:

$$P(C_i / \underline{X}) = \frac{P(\underline{X} / C_i)P(C_i)}{P(\underline{X})} \tag{8}$$

for each class, using the basic Bayes' formula (e.g., Abdou, 2009; Ganchev *et al.*, 2007).

Probabilistic neural network training consists of two parts: optical smoothing factor and the conjugate gradient method. Abdou (2009) citing Bishop (1995, pp. 275-276) who explains that, in finding a minimum line for a search procedure, if search directions are always based on negative gradients, the search process may be very slow; indeed there can be a problem, 'in which the search point (may oscillate) on successive steps'. Instead, the option 'non-interfering on conjugate directions' can be chosen. A conjugate gradient algorithm can be usually employed, drawing on the work by Hestenes and Stiefel (1952).

The conjugate gradient algorithm provides a minimization technique, which requires only the evaluation of the error function and its derivatives and which, for a quadratic error function, is guaranteed to require a certain number of steps (Abdou, 2009). Overall, PNNs are particularly fast, they do not require a number of hidden layers and nodes, they have a parallel structure, and they classify and return probabilities for different dependent categories, and guarantee convergence to the optimal case (Abdou, 2009; Masters, 1995).

6. Empirical Results and Discussion

6.1 Descriptive Statistics and Bivariate Analyses

Table 22 summarises descriptive statistics for *RATE*, the un-weighted (*RMDPI*), weighted risk disclosures index (*W-RMDPI*), and *SSB* for all bank fiscal years and separately for each of the eight firm years investigated from 2006 to 2013. As shown in Table 22, a number of remarkable outcomes are identified.

Firstly, it reports that there is a high amount of variation in BCRs between banks. For instance, *RATE* ranges from a minimum of 1 (Default) to a maximum of 19 (AA- which imply a very high credit quality) with the median *RATE* of 14.12 (good credit quality) which indicates that most banks in MENA have good rating. However, there has been a continuous decrease in BCRs from 2008 onwards, which reflects the impact of continued crises beginning with GFC in 2007 and credit crunch in 2010.

The BCRs average are 14.4, 14.29, 14.09, 13.77, 13.69, and 13.84 in 2008, 2009, 2010, 2011 and 2012, respectively. But *RATE* began to increases in 2013, which indicates the recovery in MENA banks from the GFC crisis's effects. Finally, there is evidence that the level of listed bank *RATE* before GFC is higher than those reported during and after GFC.

Table 22 Summary descriptive statistics for RATE, RMDPI, and SSB index for all 700 bank-years observations

	All	2006	2007	2008	2009	2010	2011	2012	2013
RATE									
Mean	14.12	14.44	14.53	14.40	14.29	14.09	13.77	13.69	13.84
Median	15.00	15.00	16.00	15.00	15.00	15.00	15.00	15.00	15.00
STD	3.63	3.32	3.33	3.41	3.31	3.34	4.03	4.13	4.04
Min	1.00	7.00	7.00	7.00	7.00	7.00	1.00	1.00	1.00
Max	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00
The un-weighted risk disclosures index (RMDPI)									
Mean	56.24	35.95	49.77	54.55	57.44	61.24	61.55	62.51	63.60
Median	60.00	36.00	53.00	58.00	61.00	63.00	63.00	64.00	65.00
STD	15.32	13.58	15.73	15.52	15.39	10.44	10.58	10.69	9.65
Min	1.00	6.00	6.00	1.00	7.00	25.00	24.00	19.00	19.00
Max	84.00	77.00	80.00	80.00	80.00	80.00	78.00	84.00	84.00
The weighted risk disclosures index (W-RMDPI)									
Mean	79.95	44.99	69.99	78.22	82.06	88.10	88.60	90.49	91.66
Median	86.00	42.00	76.00	84.00	87.50	89.50	92.00	93.00	93.00
STD	24.16	20.22	24.97	24.12	24.65	15.19	15.00	15.49	14.48
Min	2.00	7.00	7.00	2.00	7.00	28.00	27.00	19.00	19.00
Max	135.00	106.00	128.00	128.00	130.00	126.00	118.00	135.00	135.00
SSB index									
Mean	1.39	1.00	1.17	1.25	1.51	1.51	1.45	1.51	1.67
Median	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
STD	1.91	1.60	1.77	1.81	1.94	1.96	1.94	2.01	2.12
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	7.00	6.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00

Notes: The final sample covers 95 banks listed in 12 MENA stock exchanges as follows: Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, and UAE. The final sample consists of 700 bank-year observations over eight fiscal years, from 2006 to 2013. This table reports descriptive statistics of Fitch long-term issuer default ratings (*RATE*), the levels of compliance with un-weighted (*RMDPI*) and weighted risk disclosure index (*W-RMDPI*) and *Sharia* supervisory board index (*SSB*).

Secondly, as shown in Table 22, there is a high variation degree in risk disclosures between MENA banks. For example, the un-weighted *RMDPI* ranges from a minimum of 1 (1.04%) to a maximum of 84 (87.50%) with a mean of 56.24 (58.58%). Risk disclosure level (percentage) indicates that there is a significant level of discretion in the bank management's decision which is consistent with the prior literature on risk disclosures (Ntim *et al.*, 2013). It is also noticeable that a stable improvement in the risk disclosures during and after the crisis was achieved e.g. banks disclose *RMDPI* mean score (percentage) of 35.95 (37.45%), 49.77 (51.84%), 54.55 (56.82%), 57.44 (59.83), 61.24 (63.79%), 61.55 (64.11%), 62.51 (65.11%), and 63.60 (66.25%) in 2006, 2007, 2008, 2009, 2010, 2011, 2012, and 2013, respectively.

This indicates that the GFC and credit crunch have changed the concentration of the banks' risk disclosures, especially after regulatory reforms (CG codes, Basel II, III and IFRS 7, 9), in most of the countries sampled after 07/08 GFC. Finally, a steady increase in *SSB* is also achieved, which indicates the importance of banks' compliance with *Sharia* and communicates these with stakeholders to legitimise their operations as shown in Table 22. However, the *SSB* composition and competence disclosure is still very low, which indicates that *Sharia* disclosure is not common in MENA banks due to disclosure adverse culture (Koldertsova, 2011; Samaha *et al*., 2012; World Bank, 2009).

Table 23 reports descriptive statistics for various governance and control variables included in the models. Generally, there are wide ranges in the distribution of all the variables. For instance, *BSHR* ranges from 0% to 100% with an average value of 55.44%. This suggests that despite the recommendations of World Bank and OCED best practices

regarding the need for greater diversity in ownership structure, MENA banks still have a significance ownership concentration.

Table 23 Summary descriptive statistics of the independent and control variables for all 700 observations

Variables	Mean	Median	Std. Dev.	Minimum	Maximum
Panel A: Independent (Corporate governance (CG)/ ownership characteristics variables).					
BSHR (%)	55.44	58.95	26.97	0.00	100.00
GSHR (%)	16.40	8.70	21.19	0.00	89.06
FSHR (%)	21.94	7.50	27.84	0.00	98.50
BBSZ	9.50	9.00	1.91	5.00	15.00
CEOP	0.19	0.00	0.60	0.00	1.00
GNDI (%)	0.02	0.00	0.06	0.00	0.27
BBID (%)	0.89	0.91	0.17	0.11	1.00
Panel B: Control variables					
LNBS	15.75	15.75	1.55	3.73	21.09
ROAA (%)	1.73	1.64	2.44	-26.27	23.47
INCD (%)	31.37	29.98	16.49	-63.35	180.83
LIQR (%)	59.05	55.65	155.10	0.00	82.01
OPEF (%)	42.46	39.17	26.50	3.99	284.00
BCAD (%)	20.42	17.40	14.62	9.26	204.41
VAQ	-0.96	-0.91	0.37	-1.86	-0.11
RQM	0.28	0.31	0.36	-0.95	0.80
ROLQ	0.30	0.38	0.41	-0.78	1.04
INFL	5.30	4.50	4.24	-4.90	15.10
CGDP	23961.70	19288.75	23546.24	1472.6	93714.10

Notes: The final sample covers 95 banks listed in 12 MENA stock exchanges as follows: Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, and UAE. The final sample consists of 700 bank-year observations over eight fiscal years, from 2006 to 2013. Variables are defined as follows: block ownership (*BSHR*), government ownership (*GSHR*), foreign ownership (*FSHR*), board size (*BBSZ*), independent chairperson (*CEOP*), gender diversity (*GNDI*), board independence(*BBID*), voice and accountability (*VAQ*), regulatory quality (*RQM*), rule of low (*ROLQ*), bank size (*LNBS*), performance (*ROAA*), liquidity (*LIQR*), income diversity (*INCD*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), inflation (*INFL*), and GDP per capita (*CGDP*). Table 21 fully defines all the variables used.

The majority of banks' performance in the sample makes profit with a mean profitability ratio of 1.73%, which is still low. Table 23 also indicates that most of the banks in the sample make a distinction between the chairman and the CEO positions with a mean of 81% and these findings are consistent with the CG best practices. Although, board of director size ranges from five to fifteen directors with a mean of 9.50 directors, only 2% of them are female directors with maximum 27%, which indicates decreased level of female presence in MENA board of directors. Regarding to country governance, Table 23 shows that voice and accountability is too low, with a mean value of -0.96 and ranges between -1.86 and -0.11. Regulatory quality (*RQM*) and rule of low (*ROLQ*) reflect better governance with mean values of 0.28 and 0.30, respectively. Finally, the values of *LNBS*, *LIQR*, *INCD*, *OPEF*, *BCAD*, *INFL*, and *CGDP* as shown in Table 23 suggest wide variability in the sample, and thus reduce any potential of sample selection bias.

Correlation coefficients among the variables used in the regression models to test for multicollinearity are presented in Table 24. The essay reports both the Pearson product-moment correlations and the Spearman rank-order correlations for robust results, and noticeably, the significant and direction of both factors are generally similar. This demonstrates that there is no serious non-normality problem within the data. Specifically, Table 24 shows that *RATE* is positively and significantly correlated with *RMDPI*, *LNBS*, *ROAA*, *LIQR*, *GSHR*, *BBSZ*, *BBID*, *SSB*, *RQM*, *ROLQ*, and *CGDP*, whereas *RATE* is negatively and significantly correlated with *OPEF*, *BSHR*, *FSHR*, *CEOP*, *GNDI*, *VAQ*, and *INFL*, which supports the validity of the models.

Table 24 Pearson's and Spearman's correlation matrices of the variables for all 700 observations

Variables	RATE	RMDPI	LNBS	ROAA	INCD	LIQR	OPEF	BCAD	BSHR	GSHR	FSHR	BBSZ	CEOP	GNDI	BBID	SSB	VAQ	RQM	ROLQ	INFL	CGDP
RATE		0.29**	0.48**	0.21**	-0.02	0.02	-0.30**	-0.05	-0.33**	0.41**	-0.55**	-0.24**	-0.31**	-0.18**	0.21**	0.21**	-0.27**	0.48**	0.67**	-0.22**	0.52**
RMDPI	0.31**		0.40**	-0.05	-0.10**	-.08*	-0.12**	-0.18**	0.00	0.25**	-0.15**	-0.01	-0.19**	-0.10**	0.23**	0.18**	-0.03	0.26**	0.24**	-0.42**	0.12**
LNBS	0.66**	0.51**		0.02	-0.04	-0.01	-0.23**	-0.13**	-0.07*	0.34**	-0.21**	0.06*	-0.02	-0.10**	0.15**	0.11**	-0.19**	0.05	0.09*	-0.20**	0.18**
ROAA	0.31**	-0.04	0.12**		0.21**	0.00	-0.44**	0.14**	-0.15**	0.05	-0.16**	-0.06	-0.04	-0.07	-0.01	-0.04	-0.06	0.17**	0.17**	0.01	0.15**
INCD	0.06	-0.08*	0.07	0.08*		-0.02	0.11**	0.02	-0.05	-0.04	0.00	-0.09*	0.00	0.04	-0.01	0.16**	-0.05	0.10*	-0.02	0.06**	0.01
LIQR	0.56**	0.27**	0.25**	0.25**	-0.13**		-0.03	-0.03	-0.01	0.00	0.01	0.01	-0.04	-0.03	0.05	-0.01	0.01	0.05*	0.06	0.00	0.00
OPEF	-0.52**	-0.15**	-0.39**	-0.62**	-0.07	-0.35**		0.22**	0.15**	-0.13**	0.17**	-0.03	0.07	0.17**	-0.04	0.07	0.07	-0.12**	-0.19**	0.07	-0.26**
BCAD	0.03	-0.14**	-0.11**	0.20**	-0.14**	-0.01	-0.13**		-0.10*	0.01	-0.07	-0.17**	-0.00	-0.07	-0.17**	0.09*	-0.01	0.04	0.06	-0.06	-0.01
BSHR	-0.31**	0.03	-0.12**	-0.29**	0.00	-0.15**	0.28**	-0.09*		0.15**	0.54**	0.19**	0.03	0.05	-0.04	-0.06	-0.03	-0.27**	-0.36**	0.02	-0.40**
GSHR	0.42**	0.26**	0.36**	0.15**	-0.09*	0.33**	-0.20**	0.12**	0.07		-0.24**	-0.02	-0.18**	-0.20**	0.12**	0.07	-0.23**	0.31**	0.26**	-0.16**	0.12**
FSHR	-0.60**	-0.07	-0.27**	-0.28**	0.04	-0.37**	0.37**	-0.16**	0.52**	-0.30**		0.26**	0.09*	0.25**	-0.20**	-0.12	0.03	-0.39**	-0.43**	0.17**	-0.40**
BBSZ	0.24**	0.03	0.06	0.09*	-0.02	-0.24**	0.08*	-0.18**	0.18**	-0.01	0.34**		0.12**	0.11**	-0.03	-0.08*	0.00	-0.21**	-0.29**	0.03	-0.25**
CEOP	-0.27**	-0.17**	-0.05	-0.09*	0.02	-0.33**	0.10*	-0.02	0.05	-0.20**	0.13**	0.12**		0.04	-0.49**	-0.16**	-0.34**	-0.32**	-0.34**	0.13**	-0.02
GNDI	-0.20**	-0.06	-0.11**	-0.11**	0.04	-0.12**	0.25**	-0.15**	0.03	-0.21**	0.22**	0.13**	0.05		0.05	-0.05	0.10*	-0.16**	-0.18**	0.03	-0.20**
BBID	0.27**	0.13**	0.06	0.09*	-0.03	0.39**	-0.10*	-0.10**	-0.10**	0.17**	-0.22**	-0.06	-0.49**	0.05		0.10*	-0.04	0.22**	0.23**	-0.16**	0.04
SSB	0.35**	0.19**	0.28**	0.05	0.09*	0.10**	-0.09*	0.03	-0.10**	0.09*	-0.18**	-0.08*	-0.19**	-0.05	0.06		-0.25**	0.15**	0.18**	-0.20**	0.13**
VAQ	-0.20**	0.01	-0.10**	-0.14**	-0.04	-0.15**	0.06	-0.02	-0.02	-0.23**	-0.01	0.04	-0.35**	0.04	-0.04	-0.24**		0.03	-0.01	0.02	0.11**
RQM	0.33**	0.19**	0.05	0.30**	0.04	0.38**	-0.24**	0.14**	-0.28**	0.31**	-0.38**	-0.19**	-0.30**	-0.14**	0.30**	0.15**	-0.08*		0.77**	-0.30**	0.38**
ROLQ	0.48**	0.22**	0.11**	0.29**	-0.07	0.48**	-0.32**	0.15**	-0.35**	0.23**	-0.47**	-0.30**	-0.18**	-0.12**	0.34**	0.13**	0.18**	0.72**		-0.27**	0.58**
INFL	-0.22**	-0.39**	-0.23**	0.01	0.14**	-0.19**	0.07	-0.23**	0.06	-0.20**	0.19**	0.06	0.16**	0.04	-0.18**	-0.20**	0.02	-0.38**	-0.27**		0.03
CGDP	0.55**	0.20**	0.32**	0.26**	0.08*	0.36**	-0.36**	-0.01	-0.36**	0.17**	-0.48**	-0.25**	-0.08*	-0.15**	0.21**	0.27**	0.12**	0.38**	0.58**	-0.04	

Notes: The final sample covers 95 banks listed in 12 MENA stock exchanges as follows: Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, and UAE. The final sample consists of 700 bank-year observations over eight fiscal years, from 2006 to 2013. The upper right half of the table shows Pearson's correlation coefficients while the lower left half of the table contains Spearman's rank-order correlations coefficients. **, and * denote correlation is significant at the 1%, and 5% level, respectively. Variables are defined as follows: Fitch long term issuer default ratings (*RATE*); risk disclosure quality (*RMDPI*); *Sharia* supervisory board (*SSB*); board size (*BBSZ*); CEO duality (*CEOP*); gender diversity (*GNDI*); board independence(*BBID*); block ownership (*BSHR*); government ownership (*GSHR*); foreign ownership (*FSHR*); bank size (*LNBS*); performance (*ROAA*); liquidity (*LIQR*); income diversity (*INCD*); operations efficiency (*OPEF*); capital (*BCAD*); voice and accountability (*VAQ*); regulatory quality (*RQM*); rule of low (*ROLQ*); inflation (*INFL*) and GDP per capita (*CGDP*). Table 21 fully defines all the variables used.

6.2 Ordered Logistic Regression Analyses and Discussion

Table 25 presents the ordered logistic regression analysis results for 10 models. This essay examines the informativeness of risk disclosures, governance structures in the form of *SSB*, ownership mechanisms (e.g. block ownership), board characteristics (e.g. board size), and the moderating effect of governance structures using MENA BCRs. The 10 models are statistically significant (i.e. *P*-value < 0.01) and explain 47.17, 50.00, 51.19, 65.11, 55.39, 60.58, 69.13, 57.35, 53.26 and 84.21 percent of the variation in *RATE*, respectively. It should be emphasised that the focus of this section's discussion is upon the first three models[3].

The results show that risk disclosures, governance structures, and the moderating effect of governance structures can explain differences in *RATE* as follows: *Firstly*, risk disclosures (*RMDPI*) coefficients in models 1 to 3 of Table 25 have positive and statistically significant impact on *RATE*, implying that MENA banks with high *RMDPI* are more likely to receive better ratings especially post-GFC. The positive relation between *RMDPI* and *RATE* is consistent with the proposed theoretical framework (i.e. support for agency, signalling, legitimacy and resource dependence theories). That is *RMDPI* alleviates agency conflicts and reduces information asymmetry. In addition, there is a greater necessity for insiders to improve risk disclosures so as to legitimise their choices to bondholder.

[3]It should be emphasised that I ran additional analysis using the weighted risk disclosure index for models 1 to 3 in which the results are shown in Table 26.

Table 25 The moderating effect of governance structures on the relation between risk disclosures and banks' ratings using ordered logistic regression

Variables	*Dependent variable: Bank's long term issuer default ratings (BCRs)*									
	(1) Full	(2) Full	(3) Full	(4) IBs	(5) CBs	(6) DBs	(7) Pre07/08	(8) 07/08	(9) post07/08	(10) 2SLS
Panel A: Un-weighted RMDPI										
RMDPI	3.91***	2.79***	2.64***	1.68*	1.73*	2.64***	1.97**	0.94	2.41**	1.91*
	(0.000)	(0.005)	(0.008)	(0.092)	(0.084)	(0.008)	(0.049)	(0.348)	(0.016)	(0.057)
Panel B: Independent: CG variables										
BSHR	-	0.36	0.15	1.86*	1.22	-2.17**	-0.52	1.27	-0.36	-1.03
		(0.722)	(0.877)	(0.063)	(0.223)	(0.030)	(0.605)	(0.202)	(0.722)	(0.303)
GSHR	-	2.01**	1.93*	-0.31	0.48	2.66***	0.39	0.92	1.22*	0.68
		(0.044)	(0.053)	(0.753)	(0.630)	(0.008)	(0.696)	(0.358)	(0.091)	(0.497)
FSHR	-	-4.73***	-4.75***	-2.69***	-3.05***	-0.71	-1.42	-1.82*	-4.34***	-3.34***
		(0.000)	(0.000)	(0.007)	(0.002)	(0.477)	(0.156)	(0.068)	(0.000)	(0.001)
BBSZ	-	1.39	1.77*	1.13*	3.11***	0.49	0.02	1.66*	0.58	2.34**
		(0.164)	(0.077)	(0.089)	(0.002)	(0.626)	(0.988)	(0.075)	(0.561)	(0.020)
CEOP	-	-1.77*	-1.51	1.64*	-1.16	-0.79	1.88*	0.28	-1.08	-1.44
		(0.076)	(0.131)	(0.092)	(0.247)	(0.432)	(0.060)	(0.781)	(0.279)	(0.149)
GNDI	-	2.76***	2.68***	2.79***	5.07***	-2.26**	0.98	0.47	2.82***	3.77***
		(0.006)	(0.007)	(0.005)	(0.000)	(0.024)	(0.328)	(0.637)	(0.005)	(0.000)
BBID	-	2.12**	2.54**	1.29*	3.39***	2.40**	-0.81	0.80	3.79***	2.74***
		(0.034)	(0.011)	(0.096)	(0.001)	(0.017)	(0.420)	(0.422)	(0.000)	(0.006)
SSB	-	5.00***	4.89***	2.33**	-	3.08***	2.01**	2.05**	3.25***	1.63*
		(0.000)	(0.000)	(0.020)		(0.002)	(0.045)	(0.040)	(0.001)	(0.094)
Panel C: Interaction variables										
RMDPI*BSHR	-	-	-0.21	-0.20	0.87	-1.34	-2.01**	0.46	0.17	-0.70
			(0.837)	(0.844)	(0.387)	(0.181)	(0.045)	(0.643)	(0.862)	(0.485)
RMDPI*GSHR	-	-	1.79*	1.72*	-0.61	1.61*	2.19**	0.96	1.94*	1.82*
			(0.074)	(0.086)	(0.539)	(0.097)	(0.028)	(0.338)	(0.088)	(0.069)

Table 25: The moderating effect of governance structures on the relation between risk disclosures and banks' ratings using ordered logistic regression continued...

RMDPI* FSHR	-	-	-2.27**	-0.26	-2.61***	-1.72*	-0.59	-1.77*	-1.68*	-2.06**
			(0.023)	(0.794)	(0.009)	(0.087)	(0.557)	(0.076)	(0.092)	(0.040)
RMDPI* BBSZ	-	-	4.10***	1.78*	2.53**	2.52**	1.78*	1.97**	2.59***	2.19**
			(0.000)	(0.075)	(0.012)	(0.012)	(0.074)	(0.049)	(0.010)	(0.029)
RMDPI*CEOP	-	-	-1.38	-0.22	-1.39	-0.02	-0.01	-0.42	-1.03	-1.11
			(0.168)	(0.829)	(0.165)	(0.986)	(0.993)	(0.672)	(0.302)	(0.269)
RMDPI*GNDI	-	-	1.62	0.11	1.55	2.49**	1.39	1.83*	1.08	1.74*
			(0.105)							
RMDPI*BBID	-	-	1.63*	0.49	2.50**	1.48	0.00	0.43	0.21	0.96
			(0.089)	(0.623)	(0.012)	(0.139)	(0.997)	(0.666)	(0.836)	(0.338)
RMDPI*SSB	-	-	1.18*	1.47*	-	0.18	0.23	0.16	0.22	0.64
			(0.086)	(0.091)		(0.856)	(0.821)	(0.870)	(0.823)	(0.519)
Panel D: Control variables.										
LNBS	17.75***	15.38***	15.06***	6.20***	8.27***	6.95***	4.40***	6.34***	12.20***	11.11***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROAA	1.02	0.96	1.40*	0.32	0.10	3.56***	2.20**	0.74	0.96	1.65*
	(0.310)	(0.336)	(0.072)	(0.752)	(0.922)	(0.000)	(0.028)	(0.457)	(0.337)	(0.099)
INCD	0.89	-0.32	-0.54	-1.08	1.73*	0.31	-0.98	-0.94	-0.83	-0.25
	(0.373)	(0.750)	(0.586)	(0.279)	(0.084)	(0.756)	(0.327)	(0.345)	(0.408)	(0.802)
LIQR	8.75***	7.96***	7.26***	1.72*	5.47***	0.17	0.62	2.05**	5.05***	8.92***
	(0.000)	(0.000)	(0.000)	(0.086)	(0.000)	(0.865)	(0.534)	(0.041)	(0.000)	(0.000)
OPEF	-1.16	-0.24	-0.13	-0.40	-0.46	-2.86***	-1.00	-0.10	-0.22	-0.29
	(0.245)	(0.809)	(0.895)	(0.688)	(0.647)	(0.004)	(0.319)	(0.923)	(0.827)	(0.769)
BCAD	2.92***	1.88*	1.53	0.76	3.18***	1.76*	-2.90***	0.44	1.94*	2.40**
	(0.003)	(0.059)	(0.125)	(0.447)	(0.001)	(0.079)	(0.004)	(0.663)	(0.052)	(0.017)
VAQ	-7.17***	-4.98***	-5.76***	-3.24***	-2.98***	-3.70***	-4.07***	-5.00***	-4.33***	-7.04***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Table 25: The moderating effect of governance structures on the relation between risk disclosures and banks' ratings using ordered logistic regression continued...

RQM	1.91*	0.24	1.61*	1.24	2.67***	2.85***	1.64*	0.23	3.21***	1.99**
	(0.056)	(0.811)	(0.084)	(0.213)	(0.008)	(0.004)	(0.081)	(0.819)	(0.001)	(0.047)
ROLQ	3.74***	3.99***	4.24***	2.16**	1.88*	3.70***	2.06**	2.54**	4.92***	2.65***
	(0.000)	(0.000)	(0.000)	(0.031)	(0.061)	(0.000)	(0.039)	(0.011)	(0.000)	(0.008)
INFL	-1.32	-0.01	-0.53	-0.54	-2.62***	-3.29***	-2.54**	-1.29	-1.94*	-3.24***
	(0.186)	(0.989)	(0.595)	(0.591)	(0.009)	(0.001)	(0.011)	(0.196)	(0.053)	(0.001)
CGDP	4.14***	3.11***	3.89***	1.51	3.60***	0.01	2.61***	3.33***	0.75	4.19***
	(0.000)	(0.002)	(0.000)	(0.130)	(0.000)	(0.995)	(0.009)	(0.001)	(0.456)	(0.000)
YD	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
LR chi2	1489.75***	1574.11***	1611.44***	450.64***	694.51***	600.29***	217.04***	399.16***	1114.78***	97.35***
Pseudo R2	0.4717	0.5000	0.5119	0.6511	0.5539	0.6058	0.6913	0.5735	0.5326	0.8421
No of obs	677	675	675	174	265	236	73	157	445	675

Notes: *P*-values are in parentheses. ***, **, and * denote regression is significance at the 1%, 5% and 10% levels, respectively. The final sample covers 95 banks listed in 12 MENA stock exchanges as follows: Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, and UAE. The final sample consists of 700 bank-year observations over eight fiscal years, from 2006 to 2013. The ordered logistic regression model that employed is identified as follows:

$$RATE_{bt} = \alpha_0 + \beta_i RDI_{bt-1} + \beta_i \sum_{i=1}^{8} CG_{bt-1} + \beta_i \sum_{i=1}^{8} RDI * CG_{bt-1} + \sum_{i=1}^{12} \beta_i CONTROLS_{bt-1} + \varepsilon_{bt}$$

Where:

RATE refers to Fitch long-term issuer default ratings; *RMDPI* refers to risk disclosures index proxy for risk disclosure level; *CG* refers to *SSB*, *BBSZ*, *CEOP*, *GNDI*, *BBID*, *BSHR*, *GSHR*, and *FOWN*. CONTROLS refers to the control variables, including *LNBS*, *ROAA*, *LIQR*, *INCD*, *OPEF*, *BCAD*, *VAQ*, *RQM*, *ROLQ*, *YD*, *INFL*, and *CGDP*; ε refers to the error term; α_0 refers to the constant; β_i refers to the vectors of coefficient estimates; *b* is bank in *t* time. Variables are defined as follows: Fitch long term issuer default ratings (*RATE*); risk disclosure quality (*RMDPI*); *Sharia* supervisory board (*SSB*); board size (*BBSZ*); CEO duality (*CEOP*); gender diversity (*GNDI*); board independence (*BBID*); block ownership (*BSHR*); government ownership (*GSHR*); foreign ownership (*FSHR*); bank size (*LNBS*); performance (*ROAA*); liquidity (*LIQR*); income diversity (*INCD*); operations efficiency (*OPEF*); capital (*BCAD*); voice and accountability (*VAQ*); regulatory quality (*RQM*); rule of low (*ROLQ*); inflation (*INFL*) and GDP per capita (*CGDP*). Table 21 fully defines all the variables used.

These results lead to the acceptance of H_1, and are quite consistent with previous research findings (e.g., Aman & Nguyen, 2013; Ashbaugh-Skaife *et al.*, 2006; Bhojraj & Sengupta, 2003; DeBoskey & Gillett, 2013; Heflin *et al.*, 2011; Kuang & Qin, 2013; Sengupta, 1998) which suggest that disclosure has a positive effect on *RATE*.

Secondly, *Sharia* supervisory board (*SSB*) coefficients are statistically significant at the 99% confidence level for models 2 and 3. This implies that MENA banks with better *SSB* are more likely to receive higher *RATE*, as shown in Table 25. These results lead to the acceptance of H_2. The positive impact of *SSB* on *RATE* is consistent with the proposed theoretical framework (i.e. support for agency, signalling and legitimacy, and resource dependence theories). That is *SSB* is a signal for reducing managerial power and facilitating access to critical resources by providing guarantees of compliance with *Sharia* rules and principles. Clearly, this can legitimise banks' operations in addition to reducing agency cost and information asymmetry, and hence, gain better BCRs.

Thirdly, the ownership structures' results indicate that in general there is a significant impact on BCRs. For instance, consistent with previous empirical research's findings (Beuselinck *et al.*, 2015; Demirgüç-Kunt & Huizinga, 1999; Grove *et al.*, 2011; Lensink *et al.*, 2008; Lensink & Naaborg, 2007; Li *et al.*, 2014), the coefficients of *GSHR* in models 2 and 3 are positive and statistically significant at different confidence levels as shown in Table 25. These findings imply that MENA banks with high *GSHR* are more likely to receive higher *RATE*.

Similarly, these results are consistent with the proposed theoretical framework (i.e. support for agency, signalling and legitimacy, and resource dependence theories). That is,

GSHR facilitates access to additional resources by providing guarantees in order to secure debt financing which can enhance BCRs. It can also send signals to enhance legitimacy of banks by committing to adopt high standards and legitimising their operations, reducing agency cost and information asymmetry, and hence gain better ratings.

Table 25 shows that the coefficients of *FSHR* are statistically significant and negatively related to *RATE* in models 2 and 3. These results are consistent with prior studies (e.g., Demirgüç-Kunt & Huizinga, 1999; Lensink *et al.,* 2008; Lensink & Naaborg, 2007; Li *et al.,* 2014), but inconsistent with other studies such as Berger *et al.* (2010), Choi and Hasan (2005), Jiang *et al.* (2013) and Lin and Zhang (2009). Finally, the coefficients of *BSHR* in Models 2 and 3 are statistically insignificant, which indicates that there is an insignificant relation between block ownership and BCRs in MENA banks.

Fourthly, the findings regarding board structures indicate that there is significant impact on BCRs. For example, the coefficient of *BBSZ* in model 3 is positive and statistically significant at the 90% confidence level as shown in Table 25 (this coefficient for model 2 is statistically insignificant but still positive). This implies that MENA banks with large *BBSZ* are more likely to receive higher *RATE*. Likewise, the positive relation between *BBSZ* and *RATE* is in line with the proposed theoretical framework (i.e. support for agency, signalling and legitimacy, and resource dependence theories). That is, larger boards may increase control over management to maximize shareholder wealth, and hence, gain better ratings.

These results are consistent with prior research findings (e.g., Andres *et al.,* 2012; Liang *et al.,* 2013; Mamatzakis & Bermpei, 2015; Mollaha & Zamanb, 2015; Pathan & Faff, 2013). As shown in Table 25, *CEOP* is statistically significant at the 90% confidence level in model

2. This may imply that MENA banks with low CEO power are more likely to receive higher ratings. This negative relation between *CEOP* and *RATE* may indicate that *CEOP* is a signal for increasing managerial power and may hinder access to critical resources by providing signals of board dependence. Thus, less CEO power can also secure debt financing and align with CG best practices by reducing agency cost and information asymmetry, thereby gaining better ratings. This is consistent with prior studies (e.g., Bebchuk *et al.*, 2009; Elsayed, 2007; Grove *et al.*, 2011; Liang *et al.*, 2013).

Table 25 also shows positive relation between *GNDI* and *RATE* in models 2 and 3 suggesting that MENA banks' boards with high gender diversity are further expected to receive higher ratings. This is in line with the proposed theoretical framework (i.e. support for agency, signalling, legitimacy, and resource dependence theories). That is, greater board diversity can reduce agency costs and information asymmetry in addition to producing unique information that can improve decision-making. It can also provide a channel to reach external environment to secure critical resources, enhance legitimacy of banks, and hence, gain better ratings. These results are consistent with prior studies (e.g., Adams & Ferreira, 2009; Erhardt *et al.*, 2003; Farrell & Hersch, 2005; Grassa, 2015; Pathan & Faff, 2013; Tanaka, 2014).

Lastly, regarding *BBID*, the coefficients for models 2 and 3 are positive and statistically significant at the 95% confidence level. This indicates that MENA banks' boards with higher percentage of *BBID* are more likely to receive higher ratings. The positive impact of *BBID* is in line with the proposed theoretical framework (i.e. support for agency, signalling, legitimacy, and resource dependence theories). That is, *BBID* can be considered as signal for

reducing managerial power and facilitating an access to critical resources by providing guarantees of board independence. It can also secure debt financing, which enhances banks' performance and sends signals to enhance banks' legitimacy. In addition, the higher the board independence, the better the CG practices in legitimising banks' operations and reducing agency cost, and hence, gain better ratings. These results are consistent with prior research findings (e.g., Ashbaugh-Skaife *et al.*, 2006; Bhojraj & Sengupta, 2003; Grassa, 2015; Kuang & Qin, 2013).

Finally, there is evidence of the moderating effect of the governance structure in the relation between risk disclosures and BCRs in model 3, as shown in Table 25. The results show that the effect of *RMDPI* on *RATE* is moderated by governance structures. Specifically, the coefficients of *RMDPI*GSHR, RMDPI*FSHR, RMDPI*BBSZ, RMDPI*BBID, and RMDPI*SSB* are significant statistically at different confidence levels.

The direct relation between risk disclosures and BCRs is positively moderated by governmental ownership, board size, proportion of BBID, and SSB. By contrast, foreign ownership negatively moderates the relation between risk disclosures and BCRs. Also, the moderating effect of the governance structures in the relation between risk disclosures and BCRs is in line with the proposed theoretical framework (i.e. support for agency, signalling and legitimacy, and resources dependent theories) and leads to support H_5.

6.3 Additional Analyses

In this section, this study performs a set of additional analyses to gauge further the robustness of the results to alternative measures or sub-sample estimations. Firstly, and to determine whether the *RATE* behaviour differs over the pre- and post-2007/2008 GFC periods, I further explored the effect of risk disclosures and governance structures on BCRs by separating the sample into pre-crisis period (2006), during crisis (2007–8) and post-crisis period (2009–13) and re-run equation (5); the study reports the results for models 7, 8 and 9, respectively in Table 25. The results are generally similar to those reported in model 3 of table 25. Model 8 of Table 25 shows that during the crisis period board size and SSB have a positive effect on the BCRs. Remarkably and unlike other models, results find that risk disclosures do not have an impact on BCRs during crisis. Also, models 7 and 8 of Table 25 show that governance structures rarely have impact on BCRs, otherwise, it shows that the results in general are robust on sub-sample.

Secondly, the study re-run equation (5) by dividing the sample into three sub-samples namely, Islamic banks (IBs), conventional banks (CBs), and dual banks (DBs) in which the results are shown in Table 25 for models 4, 5, and 6, respectively.

Table 26 The moderating effect of governance structures on the relation between risk disclosures and banks' ratings using ordered logistic regression

Variables	*Dependent variable: Bank's long term issuer default ratings (BCRs)*									
	(1) Full	(2) Full	(3) Full	(4) IBs	(5) CBs	(6) DBs	(7) Pre07/08	(8) 07/08	(9) post07/08	(10) 2SLS
Panel A: Weighted RMDPI										
W-RMDPI	7.04***	5.81***	5.82***	2.10**	2.80***	3.46***	2.28**	2.78***	5.01***	4.33***
	(0.000)	(0.000)	(0.000)	(0.036)	(0.005)	(0.001)	(0.023)	(0.005)	(0.000)	(0.000)
Panel B: Independent: CG variables										
BSHR	-	0.16	0.10	1.98**	1.36	-1.84*	-0.76	1.51	-0.39	-1.06
		(0.873)	(0.919)	(0.048)	(0.175)	(0.065)	(0.446)	(0.130)	(0.693)	(0.289)
GSHR	-	2.11**	1.99**	0.04	0.63	2.50**	0.42	0.54	1.29*	0.73
		(0.035)	(0.046)	(0.968)	(0.526)	(0.013)	(0.675)	(0.590)	(0.098)	(0.466)
FSHR	-	-4.62***	-4.66***	-2.79***	-3.35***	-0.67	-2.01**	-1.88*	-4.19***	-3.28***
		(0.000)	(0.000)	(0.005)	(0.001)	(0.500)	(0.045)	(0.060)	(0.000)	(0.001)
BBSZ	-	1.27	1.61*	1.31*	2.74***	0.47	0.07	1.60	0.39	2.31**
		(0.206)	(0.098)	(0.089)	(0.006)	(0.639)	(0.948)	(0.110)	(0.694)	(0.021)
CEOP	-	-1.93*	-1.63	1.75*	-1.27	-0.88	2.08**	0.33	-1.04	-1.52
		(0.054)	(0.102)	(0.079)	(0.205)	(0.379)	(0.037)	(0.743)	(0.298)	(0.128)
GNDI	-	3.07***	2.70***	2.94***	4.62***	-2.51**	0.71	0.87	2.95***	4.03***
		(0.002)	(0.007)	(0.003)	(0.000)	(0.012)	(0.476)	(0.382)	(0.003)	(0.000)
BBID	-	2.08**	2.30**	1.57*	3.14***	2.57***	-0.67	0.58	3.63***	2.73***
		(0.037)	(0.021)	(0.074)	(0.002)	(0.010)	(0.501)	(0.563)	(0.000)	(0.006)
SSB	-	3.86***	3.95***	2.61***	-	2.29**	1.53	1.93*	2.54**	0.59
		(0.000)	(0.000)	(0.009)		(0.022)	(0.126)	(0.053)	(0.011)	(0.556)
Panel C: Interaction variables										
W-RMDPI*BSHR	-	-	-0.01	-0.27	0.96	-1.01	-1.93*	0.54	-0.26	-0.47
			(0.989)	(0.789)	(0.338)	(0.314)	(0.053)	(0.590)	(0.796)	(0.635)
W-RMDPI*GSHR	-	-	2.44**	1.99**	0.10	1.37	2.86***	1.04	1.33	1.95*

Table 26: The moderating effect of governance structures on the relation between risk disclosures and banks' ratings using ordered logistic regression continued...

			(0.015)	(0.047)	(0.924)	(0.170)	(0.004)	(0.298)	(0.185)	(0.051)
W-RMDPI*FSHR	-	-	-1.95*	-0.88	-1.70*	-1.09	-1.34	-1.24	-0.86	-1.65*
			(0.053)	(0.380)	(0.090)	(0.276)	(0.179)	(0.215)	(0.389)	(0.100)
W-RMDPI* BBSZ	-	-	2.29**	0.16	0.35	1.64*	0.30	-0.26	1.44*	1.94*
			(0.047)	(0.872)	(0.727)	(0.084)	(0.765)	(0.793)	(0.081)	(0.052)
W-RMDPI*CEOP	-	-	-1.45	-0.08	-1.52	-0.03	-0.11	-0.34	-1.23	-1.05
			(0.148)	(0.937)	(0.129)	(0.978)	(0.909)	(0.735)	(0.218)	(0.294)
W-RMDPI*GNDI	-	-	-1.45	-0.09	-1.72*	-2.63***	1.74*	-1.91*	-1.11	-1.81*
			(0.146)	(0.931)	(0.086)	(0.009)	(0.082)	(0.056)	(0.269)	(0.071)
W-RMDPI*BBID	-	-	1.66*	1.15	1.59*	1.78*	0.41	0.49	0.78	0.68
			(0.065)	(0.250)	(0.092)	(0.074)	(0.685)	(0.626)	(0.437)	(0.498)
W-RMDPI*SSB	-	-	0.46	1.39	-	0.53	0.41	0.76	0.12	0.64
			(0.646)	(0.164)		(0.599)	(0.684)	(0.450)	(0.908)	(0.523)
Panel D: Control variables.										
LNBS	15.19***	13.67***	13.50***	5.92***	8.17***	6.33***	4.52***	5.95***	10.31***	8.21***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ROAA	0.44	0.48	0.53	0.29	0.40	2.86***	2.09**	0.24	1.22	1.31
	(0.658)	(0.635)	(0.598)	(0.775)	(0.689)	(0.004)	(0.036)	(0.810)	(0.221)	(0.189)
INCD	0.94	-0.06	-0.31	-1.15	1.77*	1.15	-0.29	-0.88	-0.85	-0.03
	(0.348)	(0.952)	(0.759)	(0.251)	(0.077)	(0.249)	(0.772)	(0.378)	(0.398)	(0.976)
LIQR	8.20***	7.47***	7.31***	1.77*	5.82***	0.50	0.52	2.14**	4.69***	8.53***
	(0.000)	(0.000)	(0.000)	(0.077)	(0.000)	(0.614)	(0.601)	(0.032)	(0.000)	(0.000)
OPEF	-0.84	-0.2	-0.34	-0.52	-0.03	-3.06***	-0.79	-0.12	-0.41	0.37
	(0.401)	(0.786)	(0.732)	(0.603)	(0.979)	(0.002)	(0.429)	(0.907)	(0.685)	(0.714)
BCAD	2.84***	2.00**	1.70*	0.71	3.49***	1.81*	-2.95***	0.01	2.05**	2.54**
	(0.005)	(0.045)	(0.090)	(0.480)	(0.000)	(0.070)	(0.003)	(0.993)	(0.040)	(0.011)
VAQ	-6.48***	-4.61***	-4.88***	-3.29***	-2.83***	-3.17***	-3.84***	-4.60***	-3.96***	-6.78***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.005)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
RQM	1.89*	0.17	1.81*	1.02	2.84***	2.90***	2.45**	0.77	3.46***	2.17**
	(0.059)	(0.861)	(0.075)	(0.309)	(0.005)	(0.004)	(0.014)	(0.443)	(0.001)	(0.030)
ROLQ	2.87***	3.18***	3.35***	2.03**	1.05	3.65***	1.87*	2.01**	4.83***	1.95*

Table 26: The moderating effect of governance structures on the relation between risk disclosures and banks' ratings using ordered logistic regression continued...

	(0.004)	(0.001)	(0.001)	(0.042)	(0.294)	(0.000)	(0.061)	(0.045)	(0.000)	(0.051)
INFL	-1.19	-0.02	-0.32	-0.72	-2.19**	-3.19***	-2.48**	-0.83	-2.41**	-3.28***
	(0.234)	(0.980)	(0.748)	(0.472)	(0.029)	(0.001)	(0.013)	(0.408)	(0.016)	(0.001)
CGDP	4.62***	3.70***	3.98***	1.51	3.47***	0.31	2.44**	3.47***	0.70	4.66***
	(0.000)	(0.000)	(0.000)	(0.130)	(0.001)	(0.759)	(0.015)	(0.001)	(0.481)	(0.000)
YD	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
LR chi2	1527.77***	1601.83***	1620.91***	438.39***	694.35***	597.21***	214.25***	402.09***	1129.77***	100.06***
Pseudo R^2	0.4838	0.5088	0.5149	0.6335	0.5538	0.6027	0.6824	0.5777	0.5398	0.8457
No of obs	677	675	675	174	265	236	73	157	445	675

Notes: *P*-values are in parentheses. ***, **, and * denote regression is significance at the 1%, 5% and 10% levels, respectively. The final sample covers 95 banks listed in 12 MENA stock exchanges as follows: Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, and UAE. The final sample consists of 700 bank-year observations over eight fiscal years, from 2006 to 2013. The ordered logistic regression model that employed is identified as follows:

$$RATE_{bt} = \alpha_0 + \beta_i W\_RDI_{bt-1} + \beta_i \sum_{i=1}^{8} CG_{bt-1} + \beta_i \sum_{i=1}^{8} RDI * CG_{bt-1} + \sum_{i=1}^{12} \beta_i CONTROLS_{bt-1} + \varepsilon_{bt}$$

Where:

RATE refers to Fitch long-term issuer default ratings; W-RMDPI refers to weighted risk disclosures index proxy for risk disclosure level; *CG* refers to *SSB, BBSZ, CEOP, GNDI, BBID, BSHR, GSHR,* and *FSHR.* CONTROLS refers to the control variables, including *LNBS, ROAA, LIQR, INCD, OPEF, BCAD, VAQ, RQM, ROLQ, YD, INFL,* and *CGDP*; ε refers to the error term; α_0 refers to the constant; β_i refers to the vectors of coefficient estimates; *b* is bank in *t* time. Variables are defined as follows: Fitch long term issuer default ratings (*RATE*); risk disclosure quality (*W-RMDPI*); *Sharia* supervisory board (*SSB*); board size (*BBSZ*); CEO duality (*CEOP*); gender diversity (*GNDI*); board independence (*BBID*); block ownership (*BSHR*); government ownership (*GSHR*); foreign ownership (*FSHR*); bank size (*LNBS*); performance (*ROAA*); liquidity (*LIQR*); income diversity (*INCD*); operations efficiency (*OPEF*); capital (*BCAD*); voice and accountability (*VAQ*); regulatory quality (*RQM*); rule of low (*ROLQ*); inflation (*INFL*) and GDP per capita (*CGDP*). Table 21 fully defines all the variables used.

The results are generally similar to those reported in model 3 of Table 25. However, there is a positive relation between *BSHR*, *CEOP*, and *RATE* in IBs, unlike DBs. This suggests that there are, to some extent, similarities between Islamic, conventional, and dual banks and the results are robust on sub-sample estimations.

Thirdly, in addition to using un-weighted *RMDPI* measure, this study also uses weighted *RMDPI* measure to examine whether the findings are sensitive to the *RMDPI* proxy. Therefore, we replicate the analyses using the weighted *RMDPI* measure and the results for various models are reported in Table 26. In general, the results suggest that risk disclosures and governance structures, as well as the moderating effect of the governance structures, are all statistically significant in explaining differences in *RATE*, and to great extent are similar to those of the un-weighted *RMDPI* measure's results reported in Table 25.

Fourthly, this essay further examines the effect of possible endogeneity that may be affected by eliminating unobserved heterogeneity and omitted variable bias problems. To this end, Two-Stage Least Squares (2SLS) statistical technique is used (e.g., Ashbaugh-Skaife *et al.*, 2006; Beiner *et al.*, 2006; Henry, 2008; Ntim *et al.*, 2013). In the first phase, and based on extensive prior studies (e.g., Aman & Nguyen, 2013; Bozec & Bozec, 2012; Grassa, 2015; Jensen & Meckling, 1976; Mollaha & Zamanb, 2015; Ntim *et al.*, 2013; Ntim *et al.*, 2015a, 2015b; Ntim & Soobaroyen, 2013b; O'Sullivan *et al.*, 2015; Wintoki *et al.*, 2012), we conjecture that the eight governance variables including *SSB* are determined via all the twelve control variables as endogenous covariates to generate predicted values of the CG variables.

We then employed their predicted values in the second stage as instruments and re-estimated equation (5) as follows:

$$RATE_{bt} = \alpha_0 + \beta_i RMDPI_{bt-1} + \hat{\beta}_i \sum_{i=1}^{8} CG_{bt-1} + \beta_i \sum_{i=1}^{8} RMDPI * CG_{bt-1} + \sum_{i=1}^{12} \beta_i CONTROLS_{bt-1} + \varepsilon_{bt} \quad \text{... (9)}$$

Equation (9) is re-estimated to equation (5) using the predicted values from the first phase estimation as instruments for the eight governance variables including *SSB*. The results of the 2SLS (Model 10), which are reported in Tables 25 and 26 after controlling for unobserved heterogeneity, simultaneity and dynamic endogeneity, are fundamentally similar to those presented for model 3 of both Table 25 and Table 26.

Overall, the results of model 10 in Table 25 implies that the evidence is fairly robust to possible endogeneity that may arise from omitted variables after directly controlling for endogeneity with 2SLS. The slight increase in the magnitude of the coefficients of the CG indicators in model 10 of Table 25 compared with those in model 3 of Tables 25 are generally in line with prior studies that instrumented parts of CG and risk disclosure variables more strongly than their un-instrumented parts in predicting *RATE* (e.g., Beiner *et al.*, 2006; Ntim *et al.*, 2013).

6.4 PNNs Results

This study presents the PNNs results for the overall sample in Tables 27 and 28, while the PNNs results for the training and for the holdout sub-samples are presented in Tables 29 and 30. The study examines the informativeness of risk disclosures, governance structures in the form of SSB, ownership structures (e.g. block ownership), board structures (e.g. board size) and the moderating effect of governance structures using MENA BCRs. Firstly, the essay applies the same set of models which were used in ordered logistic regression with probabilistic neural network to the overall sample. Remarkably, Table 27 reports 0.00% bad prediction rate for all models apart from model number six with a value of 3.13 bad prediction rate. This bad prediction rate can reflect the importance, holistic and the accuracy of the selected variables in predicting BCRs.

In general, the results suggest that risk disclosures and governance structures, as well as the moderating effect of the governance structures, are important in predicting differences in *RATE*. In particular, the results based on PNN models reported in Table 27 and Table 28 demonstrate that on average *RMDPI, GSHR, FSHR, BBSZ, BBID, SSB, RMDPI*GSHR, RMDPI* BBSZ, RMDPI*GNDI,* and *RMDPI*BBID* are the key factors in predicting *RATE*. Nevertheless, the PNN models reported in Tables 27 and 28 also identify the key financial ratios namely *LNBS, ROAA, LIQR,* and *OPEF* as critical factors in predicting BCRs (i.e. *RATE*).

Table 27 The moderating effect of governance structures on the relation between risk disclosures and banks' ratings using PNNs

Variables	*Dependent variable: Bank's long term issuer default ratings (BCR)*								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Overall Sample	Full	Full	Full	IBs	CBs	DBs	Pre07/08	During 07/08	post07/08
Diagnostic criteria									
Training sample									
No of obs	677	675	675	172	265	236	72	157	445
Bad Prediction	0.00%	0.00%	0.00%	0.00%	0.00%	3.13%	0.00%	0.00%	0.00%
MIP	2.22%	0.00%	2.29%	0.67%	0.23%	0.08%	1.17%	0.38%	1.92%
STD	6.10%	5.53%	5.62%	3.88%	0.85%	0.58%	2.74%	2.78%	5.33%
Variables impact analysis									
RMDPI	4.52%	9.91%	12.96%	17.72%	15.93%	3.41%	1.05%	9.95%	6.20%
BSHR		0.65%	2.12%	0.04%	0.01%	2.42%	0.01%	0.02%	0.70%
GSHR		10.94%	13.57%	8.26%	17.27%	4.77%	2.85%	22.31%	6.67%
FSHR		0.75%	1.91%	3.58%	0.09%	3.56%	0.00%	5.99%	6.45%
BBSZ		6.16%	3.65%	0.05%	0.01%	2.70%	3.45%	0.04%	0.50%
CEOP		0.03%	0.08%	0.02%	0.02%	0.73%	0.29%	0.01%	0.12%
GNDI		0.12%	0.47%	0.89%	0.01%	3.62%	1.57%	0.12%	0.54%
BBID		0.05%	9.91%	4.83%	21.24%	5.82%	9.43%	0.26%	12.83%
SSB		7.19%	1.30%	13.96%		4.16%	20.00%	16.41%	2.12%
RMDPI*BSHR			0.03%	0.01%	0.08%	2.33%	0.01%	0.05%	0.06%
RMDPI*GSHR			0.41%	0.11%	1.09%	4.10%	0.03%	0.02%	0.02%
RMDPI*FSHR			0.03%	0.00%	0.00%	2.07%	0.02%	0.00%	0.01%
RMDPI* BBSZ			0.50%	0.18%	0.02%	2.27%	0.02%	0.62%	1.60%
RMDPI*CEOP			0.26%	0.02%	0.02%	0.85%	0.00%	0.38%	0.37%
RMDPI*GNDI			1.07%	0.04%	2.88%	2.30%	0.83%	1.63%	7.80%
RMDPI*BBID			1.55%	0.06%	5.63%	0.02%	0.01%	0.01%	0.69%
RMDPI*SSB			0.17%	1.59%		1.66%	3.91%	0.07%	2.13%
LNBS	25.18%	23.91%	20.23%	20.40%	4.74%	5.23%	23.46%	17.57%	9.75%

Table 27 The moderating effect of governance structures on the relation between risk disclosures and banks' ratings using PNNs continued...

ROAA	12.81%	9.37%	2.30%	3.97%	0.01%	3.51%	17.97%	0.03%	3.55%
INCD	11.50%	0.02%	0.23%	0.38%	2.25%	4.82%	0.01%	0.01%	11.20%
LIQR	7.67%	0.65%	9.04%	0.97%	13.67%	5.10%	0.60%	10.84%	4.09%
OPEF	8.92%	15.15%	9.48%	2.92%	8.17%	6.44%	0.01%	0.10%	5.08%
BCAD	11.54%	0.17%	4.61%	0.02%	0.03%	4.14%	11.70%	6.25%	5.92%
VAQ	4.54%	2.52%	0.48%	0.44%	0.08%	3.07%	0.05%	1.40%	3.33%
RQM	4.21%	0.18%	0.16%	0.05%	6.44%	3.26%	0.03%	5.59%	0.08%
ROLQ	5.31%	6.92%	2.73%	18.86%	0.02%	2.48%	0.01%	0.19%	7.36%
INFL	0.06%	0.02%	0.01%	0.00%	0.00%	4.15%	0.01%	0.00%	0.27%
CGDP	3.60%	4.90%	0.52%	0.14%	0.00%	3.42%	2.68%	0.10%	0.25%
YD	Included	Included	Included	Included	Included	Included	Included	Included	Included
∑	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Notes: The final sample covers 95 banks listed in 12 MENA stock exchanges as follows: Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, and UAE. The final sample consists of 700 bank-year observations over eight fiscal years, from 2006 to 2013. The probabilistic neural network pattern node can be represented as follows:

$$P(\underline{X}/C_i) = \frac{1}{(2\pi)^{m/2}\sigma^m n_i} \sum_{j=1}^{n} \exp\left[\frac{-(\underline{X} - \underline{X}_{ij})^T(\underline{X} - \underline{X}_{ij})}{2\sigma^2}\right]$$

where,

$\underline{X}$ refers to vector; n_i refers to number of training patterns for class C_i; $\underline{X}_{ij}$ refers to j[th] training vector for class C_i; m refers to vector-dimension; σ refers to standard deviation parameter for smoothing purposes; C_i refers to category class; T refers to transposition function for vector; and P refers to probability.

The table shows probabilistic neural network model for the overall sample combined with bad prediction, mean incorrect probability (MIP) and standard deviation of incorrect probability (STD) as indicators for model accuracy. Variables are defined as follows: Fitch long term issuer default ratings (*RATE*); risk disclosure quality (*RMDPI*); *Sharia* supervisory board (*SSB*); board size (*BBSZ*); CEO duality (*CEOP*); gender diversity (*GNDI*); board independence (*BBID*); block ownership (*BSHR*); government ownership (*GSHR*); foreign ownership (*FSHR*); bank size (*LNBS*); performance (*ROAA*); liquidity (*LIQR*); income diversity (*INCD*); operations efficiency (*OPEF*); capital (*BCAD*); voice and accountability (*VAQ*); regulatory quality (*RQM*); rule of low (*ROLQ*); inflation (*INFL*) and GDP per capita (*CGDP*). Table 21 fully defines all the variables used.

Table 28 The moderating effect of governance structures on the relation between risk disclosures and banks' ratings using PNNs

Variables	*Dependent variable: Bank's long term issuer default ratings (BCRs)*								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Overall Sample	Full	Full	Full	IBs	CBs	DBs	Pre07/08	07/08	post07/08
Diagnostic criteria									
Training sample									
No of obs	677	675	675	172	265	236	72	157	445
Bad Prediction	0.15%	3.61%	0.00%	0.00%	0.00%	2.62%	0.00%	0.00%	3.55%
MIP	2.92%	2.15%	0.64%	0.03%	0.37%	0.07%	3.23%	0.67%	2.03%
STD	7.49%	5.87%	2.40%	0.13%	1.51%	0.61%	5.29%	2.66%	5.55%
Variables impact analysis									
W-RMDPI	6.99%	4.58%	5.92%	23.22%	8.65%	3.54%	0.10%	4.43%	3.75%
BSHR		2.17%	0.05%	0.00%	0.13%	3.00%	0.05%	0.11%	2.44%
GSHR		3.26%	3.08%	3.93%	5.75%	2.32%	0.24%	19.45%	1.87%
FSHR		3.43%	1.00%	8.68%	0.36%	2.95%	0.04%	4.08%	2.36%
BBSZ		5.65%	0.74%	0.00%	0.06%	5.44%	6.20%	0.31%	3.31%
CEOP		0.76%	0.74%	0.14%	0.00%	0.80%	0.02%	0.04%	0.53%
GNDI		3.63%	2.91%	3.92%	0.00%	5.62%	3.21%	1.12%	2.35%
BBID		10.13%	22.93%	20.38%	16.32%	3.65%	8.87%	9.05%	6.94%
SSB		3.68%	6.31%	4.06%		3.57%	20.40%	15.31%	2.48%
W-RMDPI*BSHR			0.08%	0.00%	0.02%	2.69%	0.02%	0.06%	3.62%
W-RMDPI*GSHR			0.59%	5.63%	2.31%	1.80%	0.23%	0.04%	2.65%
W-RMDPI*FSHR			0.00%	0.00%	0.00%	3.35%	0.16%	0.01%	2.53%
W-RMDPI* BBSZ			0.32%	0.01%	0.36%	4.40%	0.07%	6.13%	4.13%
W-RMDPI*CEOP			0.05%	0.04%	0.02%	0.92%	0.01%	0.15%	1.53%
W-RMDPI*GNDI			0.67%	0.00%	1.79%	2.10%	1.26%	0.76%	3.06%
W-RMDPI*BBID			0.05%	0.00%	11.12%	2.63%	0.03%	0.05%	1.43%
W-RMDPI*SSB			0.19%	0.81%		1.77%	3.08%	0.34%	1.88%
LNBS	22.95%	9.95%	12.59%	9.16%	21.70%	7.74%	21.20%	2.88%	6.01%

Table 28 The moderating effect of governance structures on the relation between risk disclosures and banks' ratings using PNNs continued...

ROAA	17.61%	6.71%	0.36%	0.10%	0.01%	6.17%	23.48%	4.47%	7.61%
INCD	7.82%	6.70%	0.51%	0.55%	2.74%	5.72%	0.12%	0.02%	8.38%
LIQR	9.11%	3.33%	14.14%	0.30%	15.79%	3.56%	0.64%	6.39%	4.75%
OPEF	11.33%	6.55%	8.34%	11.86%	8.30%	7.68%	0.03%	1.71%	4.14%
BCAD	10.02%	8.96%	3.59%	0.00%	0.05%	2.66%	8.32%	16.65%	5.56%
VAQ	2.96%	4.25%	0.75%	0.02%	0.05%	1.57%	0.17%	0.35%	2.68%
RQM	1.82%	4.21%	10.46%	0.03%	4.20%	2.87%	0.09%	0.02%	2.85%
ROLQ	3.69%	2.54%	3.51%	6.94%	0.01%	2.23%	0.28%	6.03%	2.34%
INFL	0.04%	2.29%	0.00%	0.00%	0.00%	3.21%	0.11%	0.00%	2.55%
CGDP	5.45%	1.90%	0.01%	0.00%	0.00%	1.74%	1.49%	0.01%	3.17%
YD	Included	Included	Included	Included	Included	Included	Included	Included	Included
∑	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Notes: The final sample covers 95 banks listed in 12 MENA stock exchanges as follows: Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, and UAE. The final sample consists of 700 bank-year observations over eight fiscal years, from 2006 to 2013. The probabilistic neural network pattern node can be represented as follows:

$$P(\underline{X}/C_i) = \frac{1}{(2\pi)^{m/2}\sigma^m n_i} \sum_{j=1}^{n} \exp\left[\frac{-(\underline{X} - \underline{X}_{ij})^T(\underline{X} - \underline{X}_{ij})}{2\sigma^2}\right]$$

where,

$\underline{X}$ refers to vector; n_i refers to number of training patterns for class C_i; $\underline{X}_{ij}$ refers to j[th] training vector for class C_i; m refers to vector-dimension; σ refers to standard deviation parameter for smoothing purposes; C_i refers to category class; T refers to transposition function for vector; and P refers to probability.

The table shows probabilistic neural network model for the overall sample combined with bad prediction, mean incorrect probability (MIP) and standard deviation of incorrect probability (STD) as indicators for model accuracy. Variables are defined as follows: Fitch long term issuer default ratings (*RATE*); risk disclosure quality (*W-RMDPI*); *Sharia* supervisory board (*SSB*); board size (*BBSZ*); CEO duality (*CEOP*); gender diversity (*GNDI*); board independence (*BBID*); block ownership (*BSHR*); government ownership (*GSHR*); foreign ownership (*FSHR*); bank size (*LNBS*); performance (*ROAA*); liquidity (*LIQR*); income diversity (*INCD*); operations efficiency (*OPEF*); capital (*BCAD*); voice and accountability (*VAQ*); regulatory quality (*RQM*); rule of low (*ROLQ*); inflation (*INFL*) and GDP per capita (*CGDP*). Table 21 fully defines all the variables used.

Moreover, the results for the 'during-crisis' models presented in Table 27 and in Table 28, reveal the importance of *RMDPI* in predicting *RATE* unlike ordered logistic regression. These results reveal that credit rating agencies incorporate risk disclosures into their risk evaluation process especially during global financial crisis. This is evident from the relatively high importance value of 9.95% (and 4.43% for the weighted model) compared to an importance value of 1.05% (and 0.10% for the weighted model) from the pre-crisis model. Similarly, PNN results for the 'post-crisis' models presented in Tables 27 and 28 reveal that credit rating agencies continue to incorporate risk disclosure to assign BCRs in the post global financial crisis but with relatively lower importance compared to the 'during-crisis' models.

Secondly, I had re-run PNNs by dividing the sample into two sub-samples: training sub-sample (i.e. 80%) and holdout sub-sample[4] (i.e. 20%). The results are very similar to those obtained from the overall sample results, as shown in Tables 29 and 30. Remarkably, Table 29, reports relatively low bad prediction rates for the holdout sub-samples for all models. In line with the overall sample results, PNN models suggest different interpretation compared to the ordered logistic models in relation to the attention paid to *RMDPI* pre-, during, and post financial crisis scenario. For instance, credit rating agencies paid more attention to *RMDPI* during crisis compared to pre-crisis. More importantly, credit rating agencies paid more attention to *RMDPI* post crisis compared to pre-crisis. This attention slightly decreased compared to during crisis period.

[4]It should be emphasised that the training and the holdout sub-samples are randomly chosen as part of the software design.

Table 29 The moderating effect of governance structures on the relation between risk disclosures and banks' ratings using PNNs

Variables	*Dependent variable: Bank's long term issuer default ratings (BCRs)*								
	(1) Full	(2) Full	(3) Full	(4) IBs	(5) CBs	(6) DBs	(7) Pre07/08	(8) 07/08	(9) post07/08
Diagnostic criteria									
Training sample									
No of obs	542	540	540	138	212	189	58	126	356
Bad Prediction	0.00%	0.74%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MIP	4.89%	6.31%	1.70%	0.03%	0.28%	0.16%	0.26%	0.02%	1.31%
STD	9.77%	12.15%	5.21%	0.24%	1.05%	0.95%	0.52%	0.06%	3.79%
Test sample									
No of obs	135	135	135	34	53	47	14	31	89
Bad Prediction	30.37%	18.52%	21.48%	14.71%	37.74%	17.02%	57.14%	57.14%	19.10%
MIP	32.99%	20.41%	25.38%	16.25%	38.08%	16.76%	54.50%	61.00%	21.64%
STD	37.08%	32.40%	38.28%	35.73%	45.20%	35.26%	40.95%	45.64%	35.07%
Variables impact analysis									
RMDPI	9.12%	3.80%	13.81%	21.31%	21.27%	3.96%	5.23%	14.21%	12.89%
BSHR		3.26%	0.09%	0.00%	1.04%	1.97%	0.00%	0.08%	2.46%
GSHR		14.53%	12.19%	0.00%	11.84%	23.01%	0.83%	17.53%	14.83%
FSHR		0.86%	7.82%	0.47%	0.04%	2.50%	0.00%	0.07%	3.95%
BBSZ		1.15%	0.90%	0.84%	0.75%	4.05%	12.22%	6.95%	0.01%
CEOP		0.11%	0.02%	0.00%	0.03%	0.00%	0.00%	0.07%	0.00%
GNDI		0.22%	0.28%	0.17%	0.14%	4.01%	0.00%	3.03%	0.01%
BBID		0.23%	0.26%	7.14%	19.30%	0.16%	0.00%	0.18%	4.20%
SSB		10.12%	8.41%	14.00%		1.65%	23.06%	10.84%	4.54%
RMDPI*BSHR			0.01%	0.00%	0.23%	0.04%	0.00%	0.36%	0.03%
RMDPI*GSHR			0.15%	0.00%	0.95%	0.00%	4.43%	0.09%	0.03%
RMDPI*FSHR			0.01%	0.00%	0.01%	0.00%	0.04%	0.30%	0.01%
RMDPI*BBSZ			0.12%	0.41%	0.07%	0.38%	0.00%	0.11%	0.05%

Table 29 The moderating effect of governance structures on the relation between risk disclosures and banks' ratings using PNNs continued...

RMDPI*CEOP			0.01%	0.71%	0.00%	0.00%	0.00%	0.07%	0.02%
RMDPI*GNDI			0.01%	0.01%	5.57%	0.07%	0.00%	0.53%	0.05%
RMDPI*BBID			0.02%	0.11%	0.00%	0.00%	0.00%	0.14%	1.39%
RMDPI*SSB			0.21%	0.93%		0.01%	2.15%	0.02%	0.14%
LNBS	24.79%	29.70%	30.40%	29.98%	9.32%	0.00%	27.81%	24.64%	16.68%
ROAA	21.56%	11.05%	2.32%	5.02%	0.00%	0.91%	0.00%	5.65%	0.01%
INCD	10.05%	5.40%	0.56%	0.00%	0.86%	4.05%	7.67%	0.21%	19.00%
LIQR	5.59%	10.74%	5.27%	0.75%	19.71%	0.01%	0.02%	2.81%	4.68%
OPEF	3.81%	0.37%	9.88%	4.48%	3.75%	24.29%	0.00%	1.05%	0.04%
BCAD	11.28%	3.23%	0.07%	1.65%	3.48%	3.95%	11.60%	0.49%	0.20%
VAQ	6.83%	0.81%	3.12%	3.17%	0.16%	6.59%	0.73%	0.27%	0.41%
RQM	0.97%	1.47%	3.65%	0.00%	0.02%	0.11%	0.00%	3.48%	0.01%
ROLQ	3.98%	0.74%	0.15%	7.78%	0.50%	9.25%	4.20%	0.04%	11.42%
INFL	0.29%	0.07%	0.00%	0.00%	0.00%	0.02%	0.00%	0.01%	0.02%
CGDP	1.37%	1.56%	0.11%	0.00%	0.00%	0.00%	0.01%	6.76%	2.54%
YD	Included	Included	Included	Included	Included	Included	Included	Included	Included
∑	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Notes: The final sample covers 95 banks listed in 12 MENA stock exchanges as follows: Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, and UAE. The final sample consists of 700 bank-year observations over eight fiscal years, from 2006 to 2013. . The probabilistic neural network pattern node can be represented as follows:

$$P(\underline{X}/C_i) = \frac{1}{(2\pi)^{m/2}\sigma^m n_i} \sum_{j=1}^{n} \exp\left[\frac{-(\underline{X}-\underline{X}_{ij})^T(\underline{X}-\underline{X}_{ij})}{2\sigma^2}\right]$$

where,

$\underline{X}$ refers to vector; n_i refers to number of training patterns for class C_i; $\underline{X}_{ij}$ refers to j[th] training vector for class C_i; m refers to vector-dimension; σ refers to standard deviation parameter for smoothing purposes; C_i refers to category class; T refers to transposition function for vector; and P refers to probability. The table shows probabilistic neural network model for the overall sample combined with bad prediction, mean incorrect probability (MIP) and standard deviation of incorrect probability (STD) as indicators for model accuracy. Variables are defined as follows: Fitch long term issuer default ratings (*RATE*); risk disclosure quality (*RMDPI*); *Sharia* supervisory board (*SSB*); board size (*BBSZ*); CEO duality (*CEOP*); gender diversity (*GNDI*); board independence (*BBID*); block ownership (*BSHR*); government ownership (*GSHR*); foreign ownership (*FSHR*); bank size (*LNBS*); performance (*ROAA*); liquidity (*LIQR*); income diversity (*INCD*); operations efficiency (*OPEF*); capital (*BCAD*); voice and accountability (*VAQ*); regulatory quality (*RQM*); rule of low (*ROLQ*); inflation (*INFL*) and GDP per capita (*CGDP*). Table 21 fully defines all the variables used.

Table 30 The moderating effect of governance structures on the relation between risk disclosures and banks' ratings using PNNs

Variables	*Dependent variable: Bank's long term issuer default ratings (BCRs)*								
	(1) BCRs Full	(2) BCRs Full	(3) BCRs Full	(4) BCRs IBs	(5) BCRs CBs	(6) BCRs DBs	(7) BCRs Pre07/08	(8) BCRs 07/08	(9) BCRs post07/08
Diagnostic criteria									
Training sample									
No of obs	542	540	540	138	212	189	58	126	356
Bad Prediction	0.74%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.79%	0.00%
MIP	6.21%	3.56%	1.48%	0.64%	0.37%	0.30%	0.62%	3.10%	0.34%
STD	11.41%	7.55%	4.31%	4.29%	1.29%	1.97%	0.87%	7.43%	1.04%
Test sample									
No of obs	135	135	133	34	53	45	14	31	89
Bad Prediction	22.22%	21.48%	27.07%	17.65%	15.09%	17.02%	64.29%	35.48%	19.10%
MIP	29.54%	24.90%	28.50%	20.64%	17.48%	17.73%	66.07%	33.58%	18.86%
STD	34.75%	33.22%	36.70%	34.10%	33.17%	36.17%	43.99%	30.31%	35.49%
Variables impact analysis									
W-RMDPI	5.49%	5.15%	5.69%	14.44%	4.74%	8.25%	4.39%	7.95%	5.30%
BSHR		0.23%	0.04%	0.00%	1.26%	0.00%	0.01%	0.05%	1.63%
GSHR		8.11%	3.75%	1.61%	0.15%	17.18%	0.02%	23.16%	2.64%
FSHR		0.18%	0.65%	7.62%	6.27%	0.00%	6.67%	8.95%	3.07%
BBSZ		0.42%	1.04%	1.37%	3.42%	12.42%	1.73%	0.97%	4.36%
CEOP		0.11%	0.07%	1.10%	0.00%	0.00%	0.00%	0.56%	0.92%
GNDI		2.83%	0.93%	5.32%	0.00%	4.66%	0.01%	0.40%	2.19%
BBID		13.21%	11.41%	0.08%	17.93%	1.66%	3.35%	2.40%	4.70%
SSB		4.43%	6.06%	5.15%		0.86%	3.80%	6.07%	2.03%
W-RMDPI*BSHR			0.07%	0.01%	0.01%	0.01%	0.00%	0.53%	2.53%
W-RMDPI*GSHR			0.24%	2.82%	0.52%	0.00%	0.00%	0.12%	1.70%
W-RMDPI*FSHR			0.02%	0.00%	0.01%	0.00%	4.25%	0.10%	1.05%
W-RMDPI*BBSZ			0.17%	0.04%	0.22%	8.66%	0.45%	1.22%	1.63%

Table 30 The moderating effect of governance structures on the relation between risk disclosures and banks' ratings using PNNs continued...

W-RMDPI*CEOP			0.06%	0.47%	1.37%	0.00%	0.00%	0.09%	2.32%
W-RMDPI*GNDI			0.03%	0.01%	2.29%	0.01%	0.02%	7.97%	1.20%
W-RMDPI*BBID			1.39%	0.25%	18.56%	0.03%	0.00%	0.05%	3.24%
W-RMDPI*SSB			0.65%	0.04%		0.01%	0.85%	0.09%	3.12%
LNBS	23.66%	10.45%	10.67%	22.65%	19.25%	2.64%	20.12%	2.42%	6.52%
ROAA	10.55%	13.49%	10.26%	2.95%	1.11%	0.05%	26.45%	0.06%	6.51%
INCD	11.20%	6.94%	8.39%	1.14%	0.24%	0.82%	12.66%	0.04%	8.71%
LIQR	10.10%	11.05%	5.57%	1.06%	13.46%	14.22%	0.01%	3.56%	3.80%
OPEF	9.97%	13.08%	4.13%	1.91%	1.35%	17.17%	0.00%	4.01%	6.81%
BCAD	11.92%	2.70%	16.65%	0.02%	0.03%	0.00%	6.69%	15.27%	7.21%
VAQ	5.86%	0.34%	2.79%	0.18%	4.14%	0.43%	0.05%	4.37%	3.31%
RQM	0.65%	0.20%	4.80%	0.10%	0.84%	0.01%	8.41%	8.16%	2.96%
ROLQ	4.67%	6.75%	4.20%	28.97%	2.68%	10.84%	0.01%	0.33%	3.27%
INFL	0.06%	0.01%	0.00%	0.00%	0.00%	0.00%	0.01%	0.06%	2.30%
CGDP	5.64%	0.05%	0.04%	0.00%	0.00%	0.11%	0.01%	0.97%	2.18%
YD	Included	Included	Included	Included	Included	Included	Included	Included	Included
∑	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Notes: The final sample covers 95 banks listed in 12 MENA stock exchanges as follows: Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, and UAE. The final sample consists of 700 bank-year observations over eight fiscal years, from 2006 to 2013. The probabilistic neural network pattern node can be represented as follows:

$$P(\underline{X}/C_i) = \frac{1}{(2\pi)^{m/2}\sigma^m n_i} \sum_{j=1}^{n} \exp\left[\frac{-(\underline{X}-\underline{X}_{ij})^T(\underline{X}-\underline{X}_{ij})}{2\sigma^2}\right]$$

where,

$\underline{X}$ refers to vector; n_i refers to number of training patterns for class C_i; $\underline{X}_{ij}$ refers to j[th] training vector for class C_i; m refers to vector-dimension; σ refers to standard deviation parameter for smoothing purposes; C_i refers to category class; T refers to transposition function for vector; and P refers to probability.

The table shows probabilistic neural network model for the overall sample combined with bad prediction, mean incorrect probability (MIP) and standard deviation of incorrect probability (STD) as indicators for model accuracy. Variables are defined as follows: Fitch long term issuer default ratings (*RATE*); risk disclosure quality (*W-RMDPI*); *Sharia* supervisory board (*SSB*); board size (*BBSZ*); CEO duality (*CEOP*); gender diversity (*GNDI*); board independence (*BBID*); block ownership (*BSHR*); government ownership (*GSHR*); foreign ownership (*FSHR*); bank size (*LNBS*); performance (*ROAA*); liquidity (*LIQR*); income diversity (*INCD*); operations efficiency (*OPEF*); capital (*BCAD*); voice and accountability (*VAQ*); regulatory quality (*RQM*); rule of low (*ROLQ*); inflation (*INFL*) and GDP per capita (*CGDP*). Table 21 fully defines all the variables used.

Thus, the results show that risk disclosure plays a significant role in the BCRs assessment especially during crunches. In particular, the findings demonstrate that risk disclosure and governance structures serve to change the way BCRs are assigned, which suggests a perpetual role for banks in improving risk disclosure and governance structures. These results have important implications for investors, especially bondholders, standard setters, regulators, banks, and central governments.

7. Conclusion

Unlike current literature on the impact of risk disclosures and governance structures, which tend to focus largely on equity markets in a single financial market, this study examines the predictive effect (informativeness) of risk disclosures on BCRs in MENA region. Consequently, it ascertains whether governance structures have a moderating effect on the risk disclosures-BCRs nexus using the MENA BCRs for fiscal years from 2006-2013. The empirical analysis shows that risk disclosures, *Sharia* supervisory board (SSB), governmental ownership, board size, gender diversity, non-executive directors and the moderating effect of governance structures are statistically significant and positively incorporated in BCRs. Whereas the results show that foreign ownership and CEO power (duality) are statistically significant and negatively related to BCRs, implying that MENA banks with high-risk disclosures, *Sharia* supervisory board (SSB), government ownership, gender diversity, and non-executive directors are more likely to receive significantly high ratings. By contrast, the empirical analysis shows that block ownership is statistically insignificant in relation to BCRs.

Notably, these results consider the effect of several other controlling variables, including bank size, performance, liquidity, income diversity, operations efficiency, capital, voice and accountability, regulatory quality, rule of law, time, inflation, and GDP per capita. The results are consistent with the expectations of agency, signal, legitimacy, and resource dependence theories.

Therefore, the contributions of this study are threefold. Firstly, it contributes to the literature by providing first-time evidence on the level of risk and governance disclosures by banks across the MENA region. Secondly, the study contributes to the literature by providing first-time evidence on the link between risk disclosures and banks' credit ratings. Finally, the study contributes to the literature by providing first-time evidence on the moderating effect of governance structures on the risk disclosure-credit rating nexus. Therefore, this study has an important policy, practitioner, and regulatory implications in emerging markets, especially for banks as well as countries in other emerging markets that are expecting or currently pursuing prudential CG and risk disclosures reforms.

Evidence of increasing informativeness of risk disclosures, and governance structures suggests that efforts by banks and regulators to improve risk disclosure, SSB, board independence, and quality of board rather than quantity become critical, and have had some positive impact on BCRs, and improve overall banks' performance. In addition to, risk disclosures requirements should be developed frequently to ensure the quality and relevance of the risk disclosures.

Also, regulators should put more regulatory reforms with regards to foreign banks in order to enhance their ratings compared to government-owned banks. Regarding Islamic banks, banks as well as regulators should emphasise on the role of SSB to legitimise their operations through more disclosure on SSBs characteristics.

Finally, it would be interesting if future research could try to examine more widely the consequences of risk disclosures, and governance structures from equity and debt investors' perception and its impact on banks' performance and value. Also, further research can address sample size limitation and the impact of either additional CG variables (e.g., risk committee, audit committee, independent non-executive board) or other types of ownership structures such as family, institutional, and managerial ownership on BCRs, and consider using more than one financial information providers' ratings such as Moody's and S&P.

Empirical Essays on Risk Disclosures, Multi-Level Governance, Credit Ratings, and Bank Value: Evidence from MENA Banks

Essay 4

Risk Disclosures, Multi-Level Governance, and Bank Value: A Cross Country Evidence

Abstract

This essay examines the impact of risk disclosures and multi-level governance on bank value using a dataset from 14 Middle East and North Africa (MENA) countries for a period of eight years from 2006 to 2013. The results confirm the substantial role of risk disclosures and multi-level governance in improving bank valuation in MENA. More specifically, the results indicate that market valuation is higher in banks with bigger foreign ownership, board size, board independence, Islamic governance, and national governance quality. The results also show a significant negative relationship between CEO power and bank value. Overall, these results are consistent with the multi-theoretical framework predictions derived from the agency, signalling, and institutional theories. More importantly, the bank-level governance impact is higher in poorly governed environments compared with strongly governed environments. These findings are robust to the different sub-samples, proxies for bank value, risk disclosures index, and for other types of endogeneity.

***Keywords**:* Bank-Level Governance; Country-Level Governance; Islamic Governance; MENA Countries; Multi-Theoretical Framework; Risk Disclosures.

1. Introduction

Risk disclosures as a corporate governance practice are principally critical for banks due to their opaqueness, complexities, multiple agency conflicts, and severely critical information asymmetries (Adams & Jiang, 2016; Bischof *et al*., 2016; Leventis *et al*., 2013). Regulators and central bankers prefer banks to practice risk management and disclosures by imposing stricter accounting standards (e.g., IAS 32, 39; IFRS 7, 9; Basel accords) and corporate governance reforms to achieve and maintain the smooth operation of the banking industry and the entire economy (Barakat & Hussainey, 2013; BCBS, 2015; Laeven, 2013; Walker, 2009). Ineffective governance practices, including risk management and disclosure, alternatively, may contribute to bank crashes, which can pose a substantial impact on investors especially in the wake of crises. This, in turn, has grown current concerns over how banks are governed and what the governance structures that can effectively influence bank value are.

In this essay, we undertake a cross-country study to investigate three issues related to market valuation that are highly relevant to banks and investors in developing countries. The first issue is whether the risk disclosures can influence the value of banks. The second issue is how bank-level governance may affect the bank value. Finally, this essay explores the relationship between operating in highly governed countries and the market value of banks. In fact, in the wake of the Global Banking Crisis (GBC), risk disclosures and multi-level governance may become a channel for mitigating several market failures (Adams & Jiang, 2016; Mamatzakis & Bermpei, 2015; Nguyen *et al*., 2015; Srivastav & Hagendorff, 2016).

However, the effect of increased risk disclosures and bank-level governance on bank value is theoretically unclear and depends on the effects of country-level governance on shareholders' protection (Nguyen *et al*., 2015; Srivastav & Hagendorff, 2016).

According to agency theory, better risk disclosures may reduce asymmetric information (Al-Hadi *et al*., 2016; Elshandidy, 2016). Specifically, the prudential risk management and disclosure practices in riskier firms like banks are critical and may lead to better valuation (Nguyen *et al*., 2015). Agency theory also seeks to attenuate agency costs by the design of governance system to constrain managerial opportunistic behaviour and its adverse effects on bank valuation (Cuevas-Rodríguez *et al*., 2012; García-Castro *et al*., 2013; Jensen & Meckling, 1976; Ntim *et al*., 2013). However, Tunyi and Ntim (2016), and Wiseman *et al*. (2012) argue that the institutional setting, such as the national governance quality and/ or country risk, is necessary to improve the perception of the particular agency conflicts that may affect the bank value in the stock market in different settings.

Signalling theory argues that prudential risk disclosures and multi-level governance are presented to convey effective signals that may lead to better bank valuation assessment (Miller *et al*., 2013). Institutional theory also argues that the institutionally embedded pressures that influence the bank’s reaction to be involved in prudential risk disclosures and governance activities to gain institutional legitimacy may have possible outcomes in terms of bank valuations (Filatotchev *et al*., 2016; Ntim *et al*., 2013; Ntim & Soobaroyen, 2013b).

The earlier argument has debated that, although agency theory may be applicable for examining organizational behaviours and consequences in many contexts, there are settings

under which a combination of signalling and institutional theories arguments would either enhance or substitute agency theory explanations.

A growing research focuses on the market valuation of the risk disclosures and other multi-level governance ties in banks; however, the results so far are inconsistent. For instance, a number of studies imply that risk disclosures will be negatively associated with firm value since such disclosed risk information is likely to incorporate it into investors' decisions on shares prices (Kothari *et al*., 2009; Kravet & Muslu, 2013). However, other research shows that risk disclosures and firm value nexus is contingent on the risk disclosures types, tone, and time orientation (Bao & Datta, 2014; Elshandidy, 2016; Kothari *et al*., 2009). By contrast, other studies show that risk disclosures are considered boilerplate (Aryani, 2016; Mollah & Zaman, 2015).

On the other hand, other studies demonstrate that risk disclosures will be positively associated with firm value since such disclosed risk information is likely to signal bank management to investors, which may affect shares prices positively. In particular, such disclosed risk information reduces information asymmetry and increases bank value (Campbell *et al*., 2014; Linsmeier *et al*., 2002; Miihkinen, 2013; Moumen *et al*., 2015). It remains ambiguous; though, whether risk disclosures and governance mechanisms affect investors' perceptions of banks' value.

This conveys us to an additional important theoretical gap in the banking research - the propensity to focus on a single country, principally the USA. Extant research has increasingly documented that the institutional context has substantial implications for disclosure and governance findings (Aguilera *et al*., 2008; Elshandidy, 2016; Filatotchev *et al*., 2016). Thus,

this essay examines the potential variances in influences of the risk disclosures, bank-level governance, and more importantly national governance on investor perceptions of banks' value.

It should also be stated that most previous research investigating risk disclosures and multi-level governance informativeness focuses on developed environments such as the USA or UK markets (Campbell *et al*., 2014; Elshandidy, 2016; Filatotchev *et al*., 2013; Nguyen *et al*., 2015). However, extant research in developing countries is extremely rare (Moumen *et al*., 2015), which may impact the effectiveness of governance structures results (Filatotchev *et al*., 2013; Kumar & Zattoni, 2013; Nguyen *et al*., 2015). I conjecture that because of these variances reliance on bank CG and risk disclosures may lead to variances in bank value. Understanding the effect of country- and bank-level governance hence can extend knowledge of the economic role of risk disclosures.

Table 31 National governance quality indicators

Panel A: National governance quality indicators cross- regions

Governance Indicators	Year	East Asia& Pacific	Europe & Central Asia	Latin America & Caribbean	MENA	North America	South Asia	Sub-Saharan Africa
VAQ	2006	52	66	61	25	87	29	34
	2008	53	66	61	23	87	33	33
	2010	52	66	61	23	86	35	32
	2012	54	66	61	25	88	32	32
PSQ	2006	62	61	53	37	71	26	36
	2008	61	64	51	38	74	19	34
	2010	63	61	53	35	73	20	35
	2012	63	62	55	28	80	21	34
GEQ	2006	53	66	56	46	90	40	27
	2008	50	66	57	49	89	37	28
	2010	48	66	57	50	89	37	27
	2012	49	67	58	45	89	35	27
RQM	2006	50	68	57	43	93	33	29
	2008	46	70	57	48	93	28	29
	2010	44	70	56	48	92	27	30
	2012	46	69	56	44	91	26	30
ROLQ	2006	59	62	52	46	88	38	30
	2008	56	64	51	49	89	36	30
	2010	54	65	52	48	92	35	30
	2012	56	66	51	44	91	33	29
COCQ	2006	50	63	58	46	91	34	32
	2008	49	62	58	48	92	32	33
	2010	50	62	58	47	90	31	32
	2012	53	63	57	45	91	33	30

Panel B: National governance quality indicators cross-MENA countries

Governance Indicators	Year	MENA	Bahrain	Egypt	Iraq	Jordan	Kuwait	Lebanon	Morocco	Oman	Palestine	Qatar	KSA	Syria	Tunisia	UAE

Table 31 National governance quality indicators continued...

VAQ	2006	25	23	16	9	29	31	34	28	17	32	29	5	6	13	21
	2008	23	27	15	14	27	34	35	26	18	27	23	4	6	11	26
	2010	23	20	14	18	27	31	35	29	19	28	24	4	5	10	23
	2012	25	12	18	16	25	28	34	29	19	23	24	3	4	42	18
PSQ	2006	37	32	21	0	23	57	5	31	72	8	76	29	37	54	77
	2008	38	40	26	1	32	55	8	26	74	4	91	28	28	49	81
	2010	35	28	19	2	34	61	6	33	67	4	88	37	22	44	73
	2012	28	9	7	5	26	52	7	32	62	4	91	33	0	22	75
GEQ	2006	46	66	37	0	61	63	44	51	64	12	70	47	18	72	80
	2008	49	69	47	9	63	62	39	48	66	6	80	52	34	66	81
	2010	50	68	43	9	59	61	45	51	67	41	77	57	33	63	78
	2012	45	70	21	13	50	52	43	53	61	26	81	58	8	54	83
RQM	2006	43	71	37	7	62	61	48	49	68	13	62	52	7	55	70
	2008	48	74	47	13	61	56	53	49	69	13	73	57	18	55	66
	2010	48	75	47	16	57	56	54	51	67	60	71	56	21	53	62
	2012	44	71	28	10	56	50	50	50	67	56	74	56	4	45	75
ROLQ	2006	46	63	50	1	62	67	32	48	62	39	70	56	22	58	61
	2008	49	66	54	1	62	67	30	47	69	22	82	59	38	58	63
	2010	48	64	51	2	61	66	30	50	67	84	80	62	36	60	63
	2012	44	62	34	3	63	63	25	49	67	40	83	61	3	51	71
COCQ	2006	46	64	29	1	66	72	18	40	62	10	83	49	16	57	79
	2008	48	66	41	1	65	71	22	43	67	8	92	59	13	53	80
	2010	47	64	34	4	61	69	20	53	66	46	91	60	13	55	80
	2012	45	69	32	8	61	54	18	42	60	31	84	58	8	54	88

Notes: This table reports the six dimensions of national governance quality indicators (*NGQM*) cross-MENA countries in fiscal years 2006, 2009, and 2013. The six dimensions of national governance quality indicators (*NGQM*) are defined as follows: Voice and accountability quality (*VAQ*), political stability quality (*PSQ*), government quality (*GEQ*), regulatory quality (*RQM*), rule of law quality (*ROLQ*), control of corruption quality (*COCQ*).
Source: Worldwide Governance Indicators (WGI), World Bank Group, 2016.

To this end, this study presents empirical evidence on the impact of risk disclosures and multi-level governance on bank value using banks' dataset from 14 MENA countries for a period of eight years from 2006 to 2013. These countries share a number of socio-economic, regulations, and structures with respect to CG and disclosure. For example, all of these countries have adopted CG codes that are driven from OCED code (e.g., Egypt, Jordon, and Saudi Arabia). Accounting standards also in most of these countries are established based on International Financial Reporting Standards (IFRS). Moreover, the country-level governance of MENA region is weak generally.

For instance, the mean of MENA political stability in Panel A of Table 31 is between 28 per cent and 38 per cent, which is considered the lowest compared to the rest of world. More importantly, the country-level governance differs considerably between MENA countries. For example, the mean of MENA control of corruption in Panel B of Table 31 is between 1 per cent and 92 per cent, which adds more insights to examine such context.

The results confirm the substantial role of risk disclosures and multi-level governance in improving bank valuation in MENA. More specifically, the results indicate that bank value is high in banks with high Islamic governance, foreign ownership, board size, board independence, and national governance quality (NGQM). The results also report a significant negative relation between CEO power and bank value. Also, consistent with previous studies, the results similarly show evidence of informative risk disclosures and multi-level governance in countries considered as a strongly governed environment. More importantly, the bank-level governance impact is higher in poorly governed environments compared to strongly governed environments.

Hence, this study contributes to the banking and governance literature as follows. First, it demonstrates that investors use the risk disclosures and multi-level governance to assess bank value. A few number of studies have been done to explore the informativeness of banks' risk disclosures and multi-level governance, and most extant studies on banks' risk disclosures and multi-level governance focus on banks in developed countries (Campbell *et al*., 2014; Elshandidy, 2016; Kothari *et al*., 2009; Nguyen *et al*., 2015). This study hence adds to the increasing research in this area.

Second, and to the best of the researcher's knowledge, it offers first-time evidence on the influence of Islamic governance on bank value. Specifically, the study provides evidence that Islamic governance has a positive impact on bank value. Third, the study offers evidence and extends prior research on the influence of multi-level governance on bank value using a multi-theoretical framework. In particular, the results show that institutional confluences affect not only the governance structures effectiveness but also the organizational outcomes, such as bank value. Hence, the results emphasize the relevance of IFRS, Basel, and CG reforms that push for more consistency in risk disclosures and CG practices. Consequently, the results have a number of implications for regulators, banks, and investors, especially in emerging markets.

The essay structures as follows. Section 2 describes the multi- theoretical framework. Section 3 describes the related literature and develops the research hypotheses. Section 4 provides the research design. Section 5 discusses the empirical results and reports the additional tests. Finally, section 6 concludes, discusses implications and recommendations for future research.

2.Multi- Theoretical Framework

This study employs multi-theoretical perspective to examine the relationship among risk disclosures, multi-level governance, and a bank's value. This essay focuses distinctively on bank valuations by investors in emerging markets as such valuations show the investors' perceptions about the banks' overall risks strategy, and specifically prudential risk management and disclosure practices (Cuevas-Rodríguez *et al*., 2012; Elshandidy & Neri, 2015; Ntim *et al*., 2012b; Wiseman *et al*., 2012). Banks may adopt risk disclosures and governance structures that meet investor perceptions to influence bank stock market performance (Cuevas-Rodríguez *et al*., 2012). Additionally, this study debates that such a relationship is contingent upon contextual factors and the specific national setting being considered (i.e., national governance quality) that may affect the bank value in the stock market (Alon & Dwyer, 2014; Nguyen *et al*., 2015; Tunyi & Ntim, 2016). By adopting a multi-theoretical lens, we can investigate further nuanced, risk disclosures and multi-level governance mechanisms that influence the bank's response to pressures, motivations, and decisions to engage in such activities that have possible benefits regarding bank valuations (Cuevas-Rodríguez *et al*., 2012; Filatotchev *et al*., 2016). Alternatively, I argue that incorporating agency, signal, and institutional perspectives may remove the limitations to the application of each theory separately, thus offering explicit perception to the pressures, motivations, and decisions contexts surrounding bank valuations.

Agency theory (AT) seeks to explain the principal(s) - agent relationship from an economic utilitarianism view (Ross, 1973). Specifically, AT suggests that a conflict of interest in the bilateral principal-agent relationship is due to self-interested individuals

(opportunistic behaviour) (Aguilera, 2005; Jensen & Meckling, 1976). Hence, AT emphases on determining the optimal implicit or explicit nexus of contracts for aligning the interests of contracting parties (Cuevas-Rodríguez *et al*., 2012; Fama & Jensen, 1983; Jensen & Meckling, 1976). More importantly, the conflict of interest between the contracting parties creates information asymmetry and agency cost which may affect firm valuations (Armstrong *et al*., 2011; 2010).

Armstrong *et al*. (2010, 2011) underline the influences of information asymmetry between the agents of the firm and the principal(s) on the market valuations for the firm's shares. We can argue that risk disclosures may reduce asymmetric information; consequently, it can similarly improve the market valuations of bank's shares. Specifically, the prudential risk management and disclosure practices in riskier firms like banks are a critical concern in determining how to evaluate banks' share prices. A recent empirical instance of this is Elshandidy (2016) who suggest that risk-related disclosure as a channel of reducing information asymmetry are tied to stock price performance. Another example is Armstrong *et al*. (2010) who reveal that financial reporting transparency significantly mitigates asymmetric information among agents, shareholders, and creditors.

Additionally, AT seeks to attenuate agency costs through the design of governance system to align the interests of principal(s) and their agents (Cuevas-Rodríguez *et al*., 2012; García-Castro *et al*., 2013; Jensen & Meckling, 1976; Ntim *et al*., 2013). Accordingly, most of the theoretical foundation of the extant research on corporate governance built upon AT, and is involved in linking different corporate governance (CG) mechanisms with firm value (Aguilera, 2005; Filatotchev & Wright, 2011; Zona *et al*., 2015). AT argues that principal(s)

may use multi-level CG, including board of directors monitoring (Fama & Jensen, 1983; Ntim *et al*., 2015a, 2015c), Islamic governance (Safieddine, 2009), and ownership structure (Al-Bassam *et al*., 2015; Chen *et al*., 2009; Fama & Jensen, 1983) to align the interests of principal(s) and agents to constrain managerial opportunistic behaviour and its adverse effects on bank valuation.

In other words, by managing the principal(s)-agents' conflicts through enhanced risk disclosures and better governance system, banks will work more efficiently, which will be reflected on banks better valuation. Moreover, Tunyi and Ntim (2016), and Wiseman *et al*. (2012) argue that the institutional setting, such as the national governance quality and/ or country risk, is necessary for improving the understanding of the particular agency conflicts that may affect the bank value in the stock market in different settings. However, AT was criticised because of its simplistic expectations about different risk preferences; it ignores stewardship interests; and does not indicate the social context importance (Cuevas-Rodríguez *et al*., 2012; Wiseman *et al*., 2012).

Signalling theory (ST) seeks to reduce asymmetric information between two parties by conveying significant information about intentions and abilities of firms (Ntim *et al*., 2013; Spence, 2002). For instance, management signals the underlying unobservable excellence of their companies to prospective investors by the recognizable financial statements transparency which may influence decision-making in the stock market (Connelly *et al*., 2011; Zhang & Wiersema, 2009). However, some of the extant research argues that institutional environment may influence signals to be more (or less) observable (Bergh *et al*., 2014; Connelly *et al*., 2011).

The central ST assumption in the context of bank valuation is that asymmetric information affects external investors, which depend on a number of signals in establishing judgments about bank valuation (Bergh *et al*., 2014; Spence, 2002). *Per se*, bank valuation can be considered as a result of a signalling process, where signals such as risk disclosures are used by prospective investors to make valuation judgments related to banks (Musteen *et al*., 2010). However, signals must be recognizable and be perceived as relevant proxies of firms' true position to have a significant impact. Specifically, since information on risk disclosures and multi-level governance are presented to the stock markets, it can be debated that they convey effective signals that send significant information related to the bank valuation assessment.

Such signals affect a bank's sustainability and managerial accountability (Miller *et al*., 2013). Hence, ST focuses on distinguishing a bank with higher capabilities from their counterparts, unlike the institutional theory that concentrates on achieving imperative legitimacy (Miller *et al*., 2013). Legitimacy is defined as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, p. 574).

Institutional theory (IST) offers a significant theoretical mechanism that explains firm-environment relationships from the institutional perspective. Bank and market activity are described from the imperative of legitimacy-seeking behaviour that, consecutively, is affected by socially constructed appropriate conduct's norms and rules (DiMaggio & Powell, 1983; Ntim & Soobaroyen, 2013b; Scott, 1987). In other words, I argue that the development

of risk disclosures and governance structures are different in the MENA context as a result of the unique convergences of formal and informal institutions which may affect investors' perceptions of the bank's legitimacy in the capital markets (Filatotchev *et al*., 2016).

Institutional theorists outline three institutional pressures that lead to greater isomorphism tendency. Firstly, *coercive* pressures result from broad-based social expectations relating to rules, laws in addition to firm interdependencies and power systems that increase legitimacy and lead to *coercive* isomorphism (DiMaggio & Powell, 1983; Iannotta *et al*., 2015). Secondly, *normative* pressures arise from mutual values, professionalization, societal and moral responsibilities within institutional environments, which create *normative* isomorphism (DiMaggio & Powell, 1983; Judge *et al*., 2010). Thirdly, *mimetic* pressures stem from uncertainty, rituals, procedures, and symbols that increase legitimacy and standardization, which result in *mimetic* isomorphism (DiMaggio & Powell, 1983; Filatotchev *et al*., 2016; Ntim & Soobaroyen, 2013b).

Risk disclosures and multi-level governance extant research shows that investors' perceptions of disclosures and numerous bank-level and country-level governance structures are incorporated in the institutional perspective on capital markets within which investors make critical evaluations toward practice adoption (Filatotchev *et al*., 2016; Ntim *et al*., 2013; Ntim & Soobaroyen, 2013b). Specifically, by embracing an institutional perspective, I can examine more nuanced, institutionally embedded pressures that influence the bank's reaction to be involved in risk disclosures and governance activities to gain institutional legitimacy that may have possible outcomes in terms of bank valuations.

Prior literature (e.g., Filatotchev *et al*., 2016; Ntim *et al*., 2013; Ntim & Soobaroyen, 2013b) argue that risk disclosures and governance structures convey three critical signals to investors regarding legitimacy: directors and management competence through *coercive* isomorphism, directors' professionalization and ethics through *normative* isomorphism, and finally, cognitive through *mimetic* isomorphism. Therefore, in a particularly uncertain institutional environment connected to bank operations, risk disclosures and governance structures are mechanisms not only enforced through the capital market efficiency but also of societal norms legitimising the adoption of appropriate accounting and CG practices that could affect bank valuations (Cuevas-Rodríguez *et al*., 2012).

The earlier argument has debated that, although agency theory may be applicable for examining organizational behaviours and consequences in many contexts, there are settings under which a combination of signalling and institutional theories arguments would either enhance or substitute agency theory explanations. Hence, the rationale behind risk disclosures and governance structures are either guided by efficiency concerns, or legitimization and signal underlying quality to others. Therefore, by adopting a combined agency–signal–institutional perspective, I can investigate more nuanced, agency cost, information asymmetry, and institutionally embedded structures that affect the bank's reaction to internal and external pressures to engage in risk disclosures and governance activities that have a possible impact on investors' valuations.

3. Prior Literature and Hypotheses Development

This section briefly describes the three relevant strands of the extant research to this essay and then I form the research hypotheses. The first strand associates to the investors' response to risk disclosures. The second relates to the bank-level governance – bank value relationship. The third focuses on the nature of the country-level governance – bank value relationship.

3.1 The Nature of the Risk Disclosures – Bank Value Relationship

There is an extensive theoretical literature suggesting that risk disclosures as a CG practice, can improve investors' perceptions of the banks' overall risks and, hence, the bank value (e.g., Aguilera *et al*., 2008; Elshandidy, 2016; Elshandidy & Neri, 2015; Filatotchev *et al*., 2016; Moumen *et al*., 2015). Agency theory argues that risk disclosures may reduce asymmetric information and agency problems between contracting parties; consequently, it can similarly improve the market valuations of bank's stock price (e.g., Armstrong *et al*., 2010; Elshandidy, 2016; Elshandidy & Neri, 2015; Fama & Jensen, 1983; Jensen & Meckling, 1976). In other words, by improving risk disclosures, investors' uncertainty might be reduced regarding risk management in riskier firms like banks, which will be reflected on banks better evaluation.

Signalling theory also predicts that banks use risk disclosures as signals to prospective investors to make better valuation judgements related to those banks (e.g., Bergh *et al*., 2014; Connelly *et al*., 2011; Spence, 2002). Specifically, investors may perceive enhanced risk

disclosure as a signal to distinguish a bank with higher risk management quality from their counterparts and, consequently, affect the bank's value (Bergh *et al*., 2014; Certo, 2003; Ntim *et al*., 2013). Institutional theory argues that institutionally embedded pressures (i.e., coercive, normative, and/ or mimetic pressures) that influence the bank's reaction to involve in risk disclosures activities to gain institutional legitimacy may have possible outcomes in terms of bank valuations (e.g., Filatotchev *et al*., 2016; Ntim *et al*., 2013; Ntim & Soobaroyen, 2013b). Hence, the rationale behind risk disclosures informativeness is either guided by efficiency concerns (agency theory), or legitimization and signal underlying quality (i.e., signalling and legitimacy theories) to others.

However, some of extant research argues that institutional environment may influence signals to be more (or less) observable due to the institutional setting quality (Bergh *et al*., 2014; Connelly *et al*., 2011; Nguyen *et al*., 2015; Tunyi & Ntim, 2016; Wiseman *et al*., 2012). In addition, other agency theorists argue that increased risk disclosures might be motivated by management opportunistic behaviour rather than efficiency hypothesis (Armstrong *et al*., 2011; Armstrong *et al*., 2010; Cuevas-Rodríguez *et al*., 2012; Filatotchev & Wright, 2011; Zona *et al*., 2015).

Extant research on the relation between risk disclosures and market value reports inconsistent results. A number of studies suggest that risk disclosures will be negatively related to firm value since such disclosed risk information is likely to be incorporated into investors' decisions on shares prices (Kothari *et al*., 2009; Kravet & Muslu, 2013). Specifically, enhanced risk disclosures may offer unknown information and contingencies, thereby decreasing investors' expectations of future performance and heightening risk

perceptions (Bao & Datta, 2014; Elshandidy, 2016; Kravet & Muslu, 2013). For instance, Elshandidy and Neri (2015) examine the informativeness of risk disclosures using a sample of 1,890 observations (1,450 from UK, and 440 from Italy) for the period of 2005 through 2010. The results show that risk disclosures are related positively to investors' risk perceptions (i.e., market liquidity); however, such relation depends on firm's governance quality. Kothari *et al*. (2009) explore market reaction to risk disclosures in terms of good and bad news using a sample of 7,044 observations between 1962 and 2004. The findings demonstrate that risk disclosures are informative; however, investors' risks perceptions (i.e., market reaction) are greater (lower) to bad (good) news disclosures.

Moreover, Kothari *et al*. (2009) imply that insiders, generally, delays the bad news announcement to investors. Using a large sample of companies drawn from Q3/1994 through Q2/2007 MD&A disclosures of 8,219 unique USA companies, Feldman *et al*. (2010) find that management's tone change are associated with window market reactions. These results show the incremental information content of management's tone beyond earnings surprises and accruals nearly the SEC filings, suggesting that management's tone changes increase investors' risk perceptions. However, such relation depends on the firm's information setting strength.

However, other research shows that risk disclosures and firm value nexus is contingent on the risk disclosures types, tone, and time orientation. For example, Bao and Datta (2014) explore the impact of risk disclosures in 10-K forms on the investors risk perceptions using a sample of 7,679 observations (1,924 USA firms) over a period of five years from 2006 to 2010. The results show that whereas the market does not incorporate two-thirds of risk

disclosures suggested, such risk information tends to be boiler-plate, and investors react to the other one-thirds of risk disclosures inconsistently.

Elshandidy (2016) also examines whether investors incorporated risk disclosures in the stock price using a sample of 1,099 UK firm-year observations during a period from 2005 to 2010. The results show that aggregate risk disclosures are not related to firm value (i.e., stock prices' co-movements) whereas forward-looking (non-forward-looking) risk disclosures lead to increase (decrease) in firm value. Moreover, these results are contingent on firms' riskiness and governance strength. Specifically, the findings show that less risky and strongly governed firms tend to disclose more useful risk disclosures than their counterparts. In addition, Kothari *et al*. (2009) explore whether the relationship between risk disclosures and capital market measures is contingent on risk disclosures tone, by using a sample of 889 firms drawn from four sectors (i.e., financial services, technology, pharmaceutical, and telecommunications) over a period of six years from 1996 to 2001(5,350 Observations). The results show that favourable risk disclosures are related negatively with firm risk (i.e., stock return volatility, cost of capital, and analyst forecast diffusion) whereas unfavourable risk disclosures lead to increased firm risk.

By contrast, other studies show that risk disclosures are considered boilerplate. For instance, using a sample of 172 banks drawn from 2005 to 2011 covering 25 countries, Mollah and Zaman (2015) find that risk disclosures are considered boiler-plate and are not related to bank value. Aryani (2016) also investigated the value relevance of risk disclosures using a sample of 413 Indonesian bank-year observations. The results suggest that risk disclosures are not significantly related to firm value.

On the other hand, a number of studies demonstrate that risk disclosures are positively related to firm value since such disclosed risk information is likely to signal bank management performance to investors, which may affect share prices positively. In particular, such disclosed risk information reduces information asymmetry and increases bank value. For instance, Campbell *et al*. (2014) examine the informativeness of risk disclosures of the annual report using a sample of 9,076 observations for the period of 2005 through 2008 from all Compustat firms. The results show that risk disclosures are related positively to systematic and idiosyncratic risks and are related positively also with information symmetry and firm value.

In fact, Campbell *et al*. (2014) argue that risk disclosures are not boilerplate, and are informative to the Securities and Exchange Commission (SEC) investors. Using a sample of 222 firms drawn from Q2/1997 through Q1/1998 in USA context, Linsmeier *et al*. (2002) also find that market risk disclosures are related positively with information symmetry and firm value. In addition, Miihkinen (2013) and Rajgopal (1999) argue that risk disclosures mitigate information asymmetry, suggesting that risk disclosures increase firm value.

Moumen *et al*. (2015) explore market reaction (i.e., future earnings change) to risk disclosures (i.e., operations, empowerment, information technology, integrity, and strategic risks) using a sample of 809 observations of listed non-financial firms between 2007 and 2012 in 9 MENA countries. The findings demonstrate that risk disclosures are informative, suggesting that risk disclosures enhance investors' risk perceptions; however, these results are depending on proprietary costs, regulation environments, and corporate governance

mechanisms. I conjecture that investors may, hence, demand better risk disclosure to increase market valuation. Thus, I hypothesise that:

Hypothesis 1. *Ceteris paribus, the value of those banks with better risk disclosure practices will have a relatively better market valuation.*

3.2 The Nature of the Bank-level Governance – Bank Value Relationship

Extant research (e.g., Adams & Mehran, 2012; Aebi *et al*., 2012; Beltratti & Stulz, 2012; Black *et al*., 2015; Busta *et al*., 2014; Enikolopov *et al*., 2014; García-Meca *et al*., 2015; Mollah & Zaman, 2015; Nguyen *et al*., 2015) has suggested a number of bank-level governance which can influence market valuation; however, their results are inconclusive. Therefore, the study discusses how Islamic governance affects market valuation; secondly, it investigates how board structure influences market valuation; thirdly, it examines how ownership concentration drives market valuation.

3.2.1 Islamic Governance – Bank Value Relationship

The presence of Islamic banking is grounded on *Sharia* and religion compliance. I conjecture that investors' behaviour embedded in such a bank may different than they would in conventional banks. More precisely, I expect that the nature of religiosity–organizational performance relationships proposed will affect market valuation of such banks. For example, in line with agency theory, one could create an argument that an Islamic bank that embraces

the *Sharia* (religious) may mitigate information asymmetry, which is a critical concern in determining how to evaluate banks' share prices.

Signalling theory also predicts that conveying effective *Sharia* compliance related to risks reduces asymmetric information between management and investors. By conveying significant *Sharia* compliance information to investors, management signals the underlying unobservable excellence about intentions and abilities of banks which may influence decision-making in the stock market (Connelly *et al*., 2011; Ntim *et al*., 2013; Spence, 2002; Zhang & Wiersema, 2009).

Arguably, the unique convergences of formal and informal MENA institutions may affect investors' perceptions of the bank's legitimacy in the capital markets. Specifically, at the bank level, *Sharia* principles translate, for example, into an additional governance structure that includes a *Sharia* Supervisory Board to ensure that all bank activities are compliance with *Sharia* principles and rules, which result in *mimetic* isomorphism (DiMaggio & Powell, 1983; Filatotchev *et al*., 2016; Mollaha *et al*., 2015; Ntim & Soobaroyen, 2013b). At the national level, the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) creates *coercive* pressures that increase legitimacy by complying with AAOIFI standards that lead to *coercive* isomorphism (Abedifar *et al*., 2013; DiMaggio & Powell, 1983; Iannotta *et al*., 2015).

MENA context also gives rise to a unique institutional environment pressure resulting from mutual values, professionalization, societal and moral responsibilities that are grounded on Islamic values, which create *normative* isomorphism (DiMaggio & Powell, 1983; Judge *et al*., 2010). The earlier hypothesised isomorphism argued that the bank's reaction to be

involved in Islamic governance to gain institutional legitimacy might have possible outcomes in terms of bank valuations.

Empirically, a number of studies have examined Islamic governance in the banking sector; however, the mainstream of them are indirect, qualitative, and sparse (Abedifar *et al*., 2013; Ayedh & Echchabi, 2015; Chapra & Ahmed, 2002; Grassa, 2013; Haniffa & Hudaib, 2007; Hasan, 2011; Hasan & bin Hasan, 2012; Rammal, 2006). For example, Haniffa and Hudaib (2007) explore the ethical identity of Islamic banks that are grounded on *Sharia* using content analysis of 7 Islamic banks' annual reports over the period from 2002–2004 in GCC region. The results demonstrate that Islamic banks suffer from expectations gap regarding *Sharia* disclosure. However, a few number of studies have explored the impact of Islamic governance in the banking sector quantitatively (Abdullah *et al*., 2015; AI-Bassam & Ntim, 2016; Elghuweel *et al*., 2016; Mallin *et al*., 2014).

Mallin *et al*. (2014) investigate the influence of corporate social responsibility (CSR) on firm performance using a sample of 180 observations (90 Islamic banks) over the period of 2010 to 2011 in 13 countries. The findings demonstrate that Islamic governance in terms of *Sharia* supervisory board size is related positively to financial performance, suggesting that Islamic governance enhances bank performance. Grassa (2015) examines the informativeness of Islamic governance from debt market view using a sample of 43 Islamic banks over the period of 2005 to 2011 in 13 countries. The results show that Islamic governance in terms of *Sharia* supervisory board expertise is related positively to credit ratings; however, it finds that *Sharia* supervisory board expertise is related negatively to credit ratings.

Mollah and Zaman (2015) examine the effect of Islamic governance on bank performance and value using a sample of 86 Islamic banks (427 firm-year observations) over the period of 2005–2011 in 25 countries. The results indicate that Islamic governance in terms of *Sharia* supervisory board size is associated positively to financial performance if it does a supervisory role; however, it finds that *Sharia* supervisory board size is associated negatively to financial performance if it plays an advisory role. Moreover, Mollah and Zaman (2015) conclude that Islamic governance is related positively to bank valuation in terms of Tobin's Q but statistically insignificant.

I conjecture that banks may have disclosures incentives for their *Sharia* monitoring effort to gain institutional legitimatization for their operations and consequently increase bank value. Hence, I hypothesise that:

Hypothesis 2. *Ceteris paribus, the value of those banks with better Islamic governance will have a relatively better market valuation.*

3.2.2 Board of Directors – Bank Value Relationship

While several theories exist on whether board of directors' structure (e.g., board size, CEO power, and board independence) is beneficial to banks, competing viewpoints using agency, signal, and institutional perspective can help provide insight as to why banks may choose to change the board of directors' structure. These viewpoints argue that board of directors are designed to constrain managerial opportunism. Agency theory argues that board of directors structure (e.g., board size, CEO power, and board independence) may reduce

asymmetric information and agency problems between contracting parties; consequently, it can similarly improve the market valuations of bank's stock price (e.g., Armstrong *et al*., 2010; Elshandidy, 2016; Elshandidy & Neri, 2015; Fama & Jensen, 1983; Ntim *et al*., 2015a, 2015c; Jensen & Meckling, 1976).

In other words, by improving board of directors structure (e.g., bigger board size, less CEO power, and more board independence), investors may respond favourably when making a valuation for banks. An alternative viewpoint using agency theory debates that smaller board may enhance monitoring and reduce agency conflict (Jensen, 1993). In particular, a smaller board may enhance coordination and communication that may lead to more effectiveness.

From a signalling perspective, banks may use improved board of directors structure (e.g., bigger board size, less CEO power, and more board independence) as a signal of bank quality to prospective investors to make better valuation judgements related to those banks (e.g., Bergh *et al*., 2014; Connelly *et al*., 2011; Ntim & Soobaroyen, 2013b; Soobaroyen & Ntim, 2013a, 2013b; Spence, 2002). Specifically, investors may perceive improved board of directors structure (e.g., bigger board size, less CEO power, and more board independence) as a signal to distinguish a bank with higher agency problems from their counterparts and, consequently, affect the bank value (Bergh *et al*., 2014; Certo, 2003; Ntim et al., 2012a, 2012b; Ntim *et al*., 2013).

Hence, investors see improved board of directors structure not only as an indication of better management oversight but also as a clue of the access they offer banks with more avenues of connecting with outside environment. Institutional theory argues that banks

improve board of directors structure (e.g., bigger board size, less CEO power, and more board independence) to gain institutional legitimacy that may have possible outcomes in terms of bank valuations (e.g., Filatotchev *et al*., 2016; Ntim *et al*., 2012b, 2012c; Ntim *et al*., 2013; Ntim & Soobaroyen, 2013b). Hence, governance extant research shows that investors' perceptions of board of directors structure is incorporated in the institutional perspective on capital markets within which investors make critical evaluations toward practice adoption (Filatotchev *et al*., 2016; Ntim *et al*., 2013; Ntim & Soobaroyen, 2013b).

There is an extensive body of extant research examining the issue of board size and bank value (e.g., Abdullah *et al*., 2016; Bertoni *et al*., 2014; De Andres & Vallelado, 2008; Nguyen *et al*., 2015). Remarkably, this research is astonishingly inclusive. A number of studies suggest that board size will be positively associated with bank value since such larger boards are likely to incorporate it into investors' decisions on shares prices (Adams & Mehran, 2012; Aebi *et al*., 2012; Bell *et al*., 2014; García-Meca *et al*., 2015; Liu *et al*., 2012). Specifically, larger boards may offer additional strategic capabilities and monitoring that enhance bank performance, thereby decreasing investors' risk perception of future performance, which may affect shares prices positively.

For instance, García-Meca *et al*. (2015) examine the impact of board size using a sample of 159 banks in nine developed countries for the period of 2004 through 2010. The findings show that board size is associated positively to bank value (i.e., Tobin's Q). Bell *et al*. (2014) investigate market reaction to governance mechanisms using a sample of 198 IPOs in the USA between 1996 and 2006. The findings demonstrate that board size is informative;

however, investors' risks perceptions (i.e., market reaction) are conditional on the power of banks' home country regulation and institutions.

However, other studies show that board size is not related to bank value (Abdullah *et al*., 2016; Beltratti & Stulz, 2012; Connelly *et al*., 2012; Elsayed, 2007; Elyasiani & Zhang, 2015; Erkens *et al*., 2012; Hagendorff *et al*., 2010; Nguyen *et al*., 2015; Nguyen *et al*., 2015). For instance, using a sample of 116 USA banks drawn from 2001 to 2010, Elyasiani and Zhang (2015) find that board size-bank value relationship is statistically insignificant. Erkens *et al*. (2012) also investigated the impact of board size on bank value using a sample of 296 financial firms from 30 countries. The results suggest that board size is not related statistically to bank value.

By contrast, other studies show that board size is statistically significant and negatively related to bank value (Bertoni *et al*., 2014; Busta *et al*., 2014; Chi & Lee, 2010; Dahya *et al*., 2008; Liang *et al*., 2013; Mamatzakis & Bermpei, 2015; Masulis *et al*., 2012; Pathan & Faff, 2013). For instance, using a sample of 23 USA banks drawn from 2000 to 2012, Mamatzakis and Bermpei (2015) find that board size is statistically significant and negatively related to bank value. Busta *et al*. (2014) also investigated the impact of board size on bank value using a sample of 358 European banks. The results suggest that board size is statistically significant and negatively related to bank value.

However, other research shows that board size and bank value nexus is concave (De Andres & Vallelado, 2008; Grove *et al*., 2011). For example, De Andres and Vallelado (2008) investigated the impact of board size on bank value using a sample of 69 financial firms from 6 countries. The results suggest that board size has an inverted U-shaped

relationship with bank value. García-Meca *et al*. (2015) indicate that cross-country studies should incorporate the effect of different regulatory environment (e.g., investor protection) quality, which may determine CG mechanisms informativeness.

Similarly, an extensive body of the research argues and shows that the presence of CEO power impacts negatively on bank value (Bertoni *et al*., 2014; Elyasiani & Zhang, 2015; Erkens *et al*., 2012; García-Meca *et al*., 2015; Grove *et al*., 2011; Masulis *et al*., 2012; Pathan & Faff, 2013). For example, Elyasiani and Zhang (2015) report a negative effect of CEO duality on bank value. Using a sample of 236 USA banks, Grove *et al*. (2011) find that CEO duality is statistically significant and negatively related to bank value. These results show that CEO duality increases CEO power and decrease management monitoring which may lead to increased agency problems that may influence bank valuation.

However, other literature argues and shows that the presence of CEO duality do not impact bank value (Aebi *et al*., 2012; Elsayed, 2007; Hagendorff *et al*., 2010; Liang *et al*., 2013; Liu *et al*., 2012; Nguyen *et al*., 2015; Nguyen *et al*., 2015). For example, Hagendorff *et al*. (2010) examine the impact of CEO duality on the bank M&A announcement returns across different regulatory environments. The results show an insignificant relationship between CEO duality and bank value. On the other hand, the results of few studies report a positive relation between CEO duality and bank value (Bell *et al*., 2014; Mamatzakis & Bermpei, 2015). For instance, Mamatzakis and Bermpei (2015) argue that CEO duality enhances bank value using a sample of 23 USA banks over the 2000-2012 period.

Similarly, a significant body of research in accounting and management examine the impact of board independence on investors' perceptions of bank value (e.g., Bell *et al*., 2014;

Bertoni *et al*., 2014; Black *et al*., 2015; Bozec & Bozec, 2012; Dahya *et al*., 2008; Elbadry *et al*., 2015; García-Meca *et al*., 2015; Hagendorff et al., 2010; Owusu, 2012; Liang *et al*., 2013; Minton *et al*., 2014; Nguyen *et al*., 2015; Ntim, 2007, 2009; & 2011). However, empirical results on the relationship between board independence and bank value are inconclusive.

Extant research strongly indicates that board independence is positively related to bank value since such increase in independence of the boards are likely to be incorporated into investors' decisions on share prices (Bell *et al*., 2014; Bertoni *et al*., 2014; Black *et al*., 2015; Bozec & Bozec, 2012; Dahya *et al*., 2008; Elbadry *et al*. 2015; García-Meca *et al*., 2015; Hagendorff *et al*., 2010; Liang *et al*., 2013; Minton *et al*., 2014; Nguyen *et al*., 2015). Specifically, these results argue that independent boards enhance monitoring effectiveness, and are likely to be more sensitive to bank performance and value. For example, using a sample of 292 USA banks over the period of 2003 to 2008, Minton *et al*. (2014) find a positive relationship between board independence and bank value. In China context, Liang *et al*. (2013) find that board independence is a key mechanism to enhance monitor and advise executives, which positively impacts bank value.

However, other research argues and shows that the board independence do not impact bank value (Abdullah *et al*., 2016; Adams & Mehran, 2012; Aebi *et al*., 2012; Connelly *et al*., 2012; Liu *et al*., 2012; Mamatzakis & Bermpei, 2015; Masulis *et al*., 2012; Nguyen *et al*., 2015). For instance, Aebi *et al*. (2012) investigate the impact of board independence on bank value during 2007/2008 financial crisis using 372 USA banks. The results show that board independence does not statistically impact on bank value. By contrast, extant research

debates and shows that board independence is positively related to bank value (Bruton *et al*., 2010; Chi & Lee, 2010; Elyasiani & Zhang, 2015; Erkens *et al*., 2012; Pathan & Faff, 2013). Thus, I hypothesise that:

Hypothesis 3. *Ceteris paribus, the value of those banks with a better board of directors structure (i.e., board size, CEO power, and board independence) will have a relatively better market valuation.*

H_3a. *Ceteris paribus, the value of those banks with a bigger board size will have a relatively better market valuation.*

H_3b. *Ceteris paribus, the value of those banks with less CEO power will have a relatively better market valuation.*

H_3c. *Ceteris paribus, the value of those banks with a better board independence will have a relatively better market valuation.*

3.2.3 Ownership Structure – Bank Value Relationship

Although board of directors shape and control their banks' strategic agenda, main shareholders, such as government owners, often exert control over management, which indirectly affects the supervision effectiveness, and hence may affect bank value (Neubaum & Zahra, 2006; Ntim *et al*., 2012a, 2012c; Sanchez-Marin & Baixauli-Soler, 2014). From agency theory perspective, ownership concentration (e.g., block, governmental, and foreign ownership) may constrain managerial opportunism and agency problems between contracting parties; consequently, it can similarly improve the market valuations of bank's stock price (Neubaum & Zahra, 2006; Ntim *et al*., 2012a, 2012c; Sanchez-Marin & Baixauli-Soler, 2014).

An opposite viewpoint using agency theory debates that ownership concentration may have a negative impact on bank value because main shareholders may divert bank resources for either their own benefits, particularly in weak governance environments for minority shareholders, or political and social goals (Li *et al*., 2015; Shleifer & Vishny, 1997). From a signalling perspective, ownership concentration by foreigner or/ and governments may use improved performance and efficiency as signals of bank quality for prospective investors to make better valuation judgments related to those banks (Bertoni *et al*., 2014; Borisova *et al*., 2012; Ntim *et al*., 2012a, 2012b). Specifically, investors may perceive foreigner or/ and government ownership as a signal to distinguish a bank with higher efficiency from their counterparts and, consequently, affect the bank value (Bergh *et al*., 2014; Certo, 2003; Ntim *et al*., 2013).

In addition, investors see government ownership as a clue of the access they offer banks with more avenues of connecting with outside environment. Institutional theory argues that main shareholders especially foreign shareholders are constrained by many pressures to gain institutional legitimacy that may have possible outcomes in terms of bank valuations (e.g., Boyd & Solarino, 2016; Filatotchev *et al*., 2016; Ntim *et al*., 2013; Ntim & Soobaroyen, 2013b).

Extant research has yielded inconsistent results on the effect of block ownership on bank value (e.g., Bell *et al*., 2014; Black *et al*., 2015; Busta *et al*., 2014; Lozano *et al*., 2016). One strand of the previous studies shows that more ownership concentration is related to higher market valuation (Bell *et al*., 2014; García-Meca *et al*., 2015; Lozano *et al*., 2016). For instance, and using 198 IPOs in the USA, Bell *et al*. (2014) find a positive relationship

between block ownership and market valuation. García-Meca *et al*. (2015) also report a positive association between block ownership and market value using a sample of 159 banks in nine countries.

The second strand of the prior studies reports that more ownership concentration is related to lower market valuation (Busta *et al*., 2014; Cheng *et al*., 2013; Maury & Pajuste, 2005). For example, Busta *et al*. (2014) examine the association between ownership concentration and market valuation for a sample of 358 European banks over a period of 1993–2005. Their results show a negative association between block ownership and market valuation, implying that the presence of main shareholders may divert bank resources for their own benefits, which can negatively influence market valuation.

The third stream of extant studies (Black *et al*., 2015; Chi & Lee, 2010; Grove *et al*., 2011; Maury, 2006; Ntim & Soobaroyen, 2013b) shows that block ownership has no effect on market valuation. For example, and using a sample of 104 Korean firms, Black *et al*. (2015) report no significant relationship between block ownership and market valuation. Furthermore, studies such as those of Liu *et al*. (2012), and Lozano *et al*. (2016) have confirmed a U-shaped relation between block ownership and market valuation.

Similarly, the results of extensive empirical studies of the government ownership– bank value relationship are inconclusive. A number of studies (Cheng *et al*., 2013; Iannotta *et al*., 2013; Liang *et al*., 2013; Lin & Zhang, 2009; Micco et al., 2007; Thomsen & Pedersen, 2000) show that less government ownership is related to higher market valuation. Their results show that government shareholders may either divert bank resources for political and socio-economic goals or increase information asymmetry and bureaucracy, which leads to poor

market valuation. For example, Liang *et al*. (2013) report a negative relationship between government ownership and market valuation, using a sample of 50 largest Chinese banks over the period of 2003–2010.

By contrast, other studies document a positive relationship between government ownership and market valuation (Bell *et al*., 2014; Beuselinck *et al*., 2015; Du & Boateng, 2015; Ntim & Soobaroyen, 2013b). Their results show that government shareholders may have economic and political advantages of special treatment, fewer financial constraints, and access to resources, which are likely to be incorporated in stock prices. Finally, other researchers (Berger *et al*., 2010; Hovey *et al*., 2003; Thomsen & Pedersen, 2000) find no relation between government ownership and market valuation.

Research also suggests contradictory results on the effect of foreign ownership on bank value (Bell *et al*., 2014; Black *et al*., 2015; Li *et al*., 2014; Liang *et al*., 2013; Lin & Zhang, 2009; Micco *et al*., 2007). A number of studies show that more foreign ownership is related to higher market valuation (Bell *et al*., 2014; Berger *et al*., 2010; Black *et al*., 2015; Choi & Hasan, 2005; He *et al*., 2013; Jiang *et al*., 2013; Lensink *et al*., 2008; Lin & Zhang, 2009; Micco *et al*., 2007). Their results show that foreign shareholders often exert more control over management, which affects market valuation. By contrast, other researchers indicate that foreign ownership is related negatively with market valuation (Demirgüç-Kunt & Huizinga, 1999; Lensink *et al*., 2008; Lensink & Naaborg, 2007; Li *et al*. (2014); Liang *et al*., 2013). However, Cornett *et al*. (2010) suggest no relationship between foreign ownership and market valuation. Thus, I hypothesise that:

Hypothesis 4. *Ceteris paribus, the value of those banks with ownership concentration (i.e., block ownership, government ownership, and foreign ownership) will have a relatively better market valuation.*

H_4a. *Ceteris paribus, the value of those banks with block ownership will have a relatively better market valuation.*

H_4b. *Ceteris paribus, the value of those banks with government ownership will have a relatively better market valuation.*

H_4c. *Ceteris paribus, the value of those banks with foreign ownership will have a relatively better market valuation.*

3.3 The Nature of the Country-level Governance – Bank Value Relationship

Institutional theory suggests that relationship among risk disclosures, bank-level governance, and market valuation is contingent on national governance quality (NGQM). In particular, this relationship may be affected by the country's culture, politics, corruption, regulation and barriers (Nguyen *et al*., 2015). A considerable and growing amount of research on disclosure and corporate governance has emphasized how NGQM differences produce differences in risk disclosures, bank-level governance, and market valuation relationship across countries (e.g., García-Castro *et al*., 2013; Nguyen *et al*., 2015).

For instance, Abdioglu *et al*., (2013), Aggarwal *et al*., (2011), Cumming *et al*., (2014), La Porta *et al*., (1997, 2000), Leuz *et al*., (2010) argue that CG structure has more effects on firm valuation in countries with stronger legal protection. They document that companies

that have good CG structure may benefit more from the national capital markets if it is located in a country with strong governance quality.

More specifically, Cumming *et al*. (2014) offer four possible benefits for NGQM, which may affect the bank valuations. First, firms comply with stringent regulation (e.g., CG and disclosure) in strongly governed countries. Second, firms in strongly governed countries are perceived as less risky, have better disclosure quality, and greater liquidity. Third, firms in strongly governed countries tend to have better investment and growth opportunities. Fourth, firms in strongly governed countries tend to have better access to capital and project financing, while firms in weakly governed countries are more subjected to political and sovereign risks. This suggests that banks from strongly governed countries may get higher market valuations than those from weakly governed countries.

Additionally, extant research (Abdioglu *et al*., 2013; Cuevas-Rodríguez *et al*., 2012; Ernstberger & Grüning, 2013a; Nguyen *et al*., 2015; Schiehll *et al*., 2014; Yoshikawa *et al*., 2014) theorizes on how country-level governance is a substitute or a complement to bank-level governance features that affect managerial discretion, and consequently, market valuation. This study combines agency, signal, and institutional theory, noting that multi-level governance works as monitors or as legitimation providers, and show how banks that combine country-level governance with bank-level governance may get higher market valuations.

The extant research mostly examines the effect of bank-level governance on market valuation, without considering the effect of country-level governance that may lead to variations in the bank-level governance effectiveness. Using a sample of 1,064 firm-year

observations from 14 EU countries between 1999 and 2003, Renders and Gaeremynck (2012) find that country-level governance is positively improving firm value. Using a sample of 1334 cross-listed firms from 48 countries over the period of 1996-2008, Cumming *et al*. (2014) report a significantly positive relationship between national governance quality and market valuation.

Lau *et al*. (2015) examine the relationship between country-level governance and market responses to earnings announcements using a sample of 15,418 firm-year observations from 23 developed markets between 2002 and 2006. The results show a positive association between country-level governance and market responses to earnings announcements especially in strongly governed countries compared with those in weakly governed countries. By contrast, Narayan *et al*. (2015) show a positive association between country-level governance and stock market returns especially in weakly governed countries. Abdi and Aulakh (2012), Boulton. (2010), Dahya *et al*. (2008), Francis *et al*. (2012); Ghoul (2016), and Nguyen *et al*. (2015) also argue that country-level governance affects market valuation positively especially in weakly governed countries.

Hypothesis 5. *Ceteris paribus, the value of those banks operate in strongly governed countries (i.e., national governance quality) will have a relatively better market valuation.*

4.Data and Research Methodology

4.1 Data Sources and Sample Selection

In this study, I target a sample of all listed commercial, Islamic, and dual banks over the period of 2006-2013 in the Arab MENA region. These countries share a number of socio-economic, regulations, and structures with respect to CG and disclosure. This study began in 2006 since the mandatory adoption of IFRS and Basel II took effect from mid-2005, and data before 2006 in the vast majority of the sample is unavailable. The sample ends in 2013 because it is the latest available year for collecting data at the time this essay was done.

Table 32 Sample structure

Country	Banks	CBs obs	IBs obs	DBs obs	All Banks obs	Percentage
Bahrain	11	16	44	24	84	11.17%
Egypt	11	40	13	20	73	9.71%
Iraq	2	16	0	0	16	2.13%
Jordan	12	75	13	3	91	12.10%
Kuwait	10	35	36	5	76	10.11%
Lebanon	6	28	0	16	44	5.85%
Morocco	1	8	0	0	8	1.06%
Oman	5	34	0	5	39	5.19%
Palestine	1	8	0	0	8	1.06%
Qatar	8	11	24	28	63	8.38%
Saudi Arabia	11	0	21	63	84	11.17%
Syria	2	8	6	0	14	1.86%
Tunisia	2	9	0	0	9	1.20%
UAE	18	39	32	72	143	19.02%
Sum	100	327	189	236	752	100.00%

The sample includes all listed commercial, Islamic, and dual banks that are included in the *Bankscope* database as shown in Table 32, from 2006 to 2013, covering pre-, during- and post-2007/2008 banking crisis period. After excluding banks that contained missing annual reports, a total of 100 banks from 14 MENA countries remained in the sample. Table 32 shows the sample distribution by country of the sample banks. Although the sample only contains nearly 76 per cent of the listed banks in Arab MENA countries, the sample covers roughly 95 per cent of the market capitalization of these countries.

The final sample is an unbalanced panel dataset composed of 752 bank-year observations of 100 banks ranging from 2006 to 2013 located in 14 MENA countries namely, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Syria, Tunisia, and United Arab of Emirates (UAE).

I collected the data from three different sources. Firstly, I collected risk disclosures and governance variables from annual reports that I obtained mainly from the *Perfect Information* database and banks' websites. Secondly, financial data was obtained from *Bankscope* database. Finally, national macro statistics and national governance quality (*NGQM*) was obtained from *World Bank* databases.

4.2 Definition of Variables and Model Specification

These study variables were categorised into five main categories and Table 33 presents the full definitions of all variables utilized in this study. First, to examine $\boldsymbol{H_1}$ to $\boldsymbol{H_4}$, the dependent variable is bank value measured by Tobin's Q (*TOQ*) following extant research (Abdullah *et al*., 2016; Ghoul *et al*., 2016; Lozano *et al*., 2016; Nguyen *et al*., 2015; Ntim *et al*., 2012b; Renders & Gaeremynck, 2012; Wang & Hussainey, 2013).

Second, I gathered data on the *RMDPI* scores, which seek to measure the risk disclosures level. The extant research employs three measurements of disclosure level. Specifically, prior literature use ratings from third-party research companies (e.g., Botosan & Plumlee, 2002; Bushman *et al*., 2004; Doidge *et al*., 2007), the manual content analysis (AI-Bassam & Ntim, 2016; Al-Maghzom *et al*., 2016; Al-Hadi *et al*., 2015; Barakat & Hussainey, 2013; Elmagrhi *et al*., 2016; Ntim *et al*., 2013), and the computerized content analysis (Bao & Datta, 2014; Elshandidy, 2016; Elshandidy *et al*., 2013, 2015; Ernstberger & Grüning, 2013; Hassanein & Hussainey, 2015; Kothari *et al*., 2009; Kravet & Muslu, 2013).

Despite the high validity and less effort of the computerized content analysis (Bao & Datta, 2014; Kravet & Muslu, 2013), Barakat and Hussainey (2013), Ntim *et al*. (2013) argue that the manual content analysis may fairly capture the disclosure level of every category of risk disclosure compared with the computerized content analysis. Also, they indicate that the computerized content analysis may not capture the true disclosure compliance level if banks concentrate on comprehensive disclosure of some risk items or categories while they ignore and/or do not fairly disclose other risk items or categories. In

addition, third-party disclosure data in MENA countries is limited and/ or not available for the latest years.

In accordance with the above-mentioned specifications, the coding procedure of scoring for the un-weighted index is 0 if risk item is not disclosed by a bank or 1 if risk item is disclosed by a bank. In additional tests, this study also employs the weighted risk disclosures index to confirm the results reliability. The coding procedure of scoring for the weighted index is 0 if risk item is not disclosed by a bank, 1 if risk item contains the past, future, good, bad and/or qualitative information, or 2 if risk item contains the past, future, good, bad, qualitative and/or quantitative information.

This essay measured risk disclosures (RMDPs) variable using self-constructed risk disclosures index (*RMDPI*) based on several sources. Principally, this study uses the Basel II guidelines, IFRS 7 and other RMDPs items that are employed in closely related studies (Barakat & Hussainey, 2013; Ford *et al*., 2009; Helbok & Wagner, 2006; Ntim *et al*., 2013). Hence, *RMDPI* score ranging from 0 to 96 items is classified as follows: (a) bank financial risk disclosures practices, consisting of (I) credit (II) liquidity (III) market and (IV) capital risk disclosures practices; and (b) bank non-financial risk disclosures practices, consisting of (I) operational and (II) strategic risk disclosures practices.

This study does not distinguish between voluntary and mandatory disclosure because I cannot reasonably discriminate between them due to the cross-country studies nature and differences between countries in compliance with IFRS and Basel regulations. This essay examined the reliability of risk disclosure index by Cronbach's alpha test. Cronbach's alpha is 83.50%, which is higher than the acceptable level in the social science of 70% (Deumes,

2008; Elshandidy, 2016). Cronbach's alpha indicates that the inter-consistency between sub-risk disclosure categories is high (Deumes, 2008; Elshandidy, 2016). Hence, risk disclosure index is reliable.

Third, bank-level governance data contains Islamic governance (*ISG*), board size (*BBSZ*), CEO power (*CEOP*), board independence (*BBID*), block shareholdings (*BSHR*), government shareholdings (*GSHR*), and foreign shareholdings (*FSHR*).

Table 33 Summary of definitions of variables

Variables	Definitions and coding.
Panel A: Dependent variable: market value (TOQ).	
TOQ	Bank value for each bank year is calculated based on the equity market value added to the book value of liabilities, all divided by the total assets book value.
Panel B: independent variable (risk management and disclosure practices index).	
RMDPI	The total risk disclosures score (*RMDPI*) is calculated based on the un-weighted (weighted) risk disclosures index and full scoring criteria are clarified in Appendices 1 and 2.
Panel C: bank- level governance variables	
ISG	The total ISG characteristics score (*ISG*) is calculated based on ISG index which involving of 7 items in addition to scoring criteria are; ISG Existence=1, if a bank has ISG board, 0 otherwise.; ISG Report=1, if a bank has disclosed ISG report, 0 otherwise; Number of ISG Member=1, if a bank has disclosed number of ISG' member, 0 otherwise; ISG Meetings=1, if a bank has disclosed number of ISG meetings, 0 otherwise; Experience=1, if if a bank discloses SSB experience, 0 otherwise; Independent=1, if ISG' members are independent from management, 0 otherwise; Total ISG fees disclosed=1, if a bank discloses ISG fees, 0 otherwise.
BSHR	Percentage of block ownership with at least 5% to total bank ordinary shareholdings.
GSHR	Percentage of government ownership with at least 5% to total bank ordinary shareholdings.
FSHR	Percentage of foreign ownership with at least 5% to the total bank ordinary shareholdings.
BBSZ	Board size for each bank year is calculated based on a number of board of directors.

Variables	Definitions and coding.
CEOP	CEO power is calculated as 1 if CEO and board chairperson the same, 0 otherwise.
BBID	Board independence for each bank year is calculated based on the non-executive directors divided by the total number of board of directors.
Panel D: country-level governance	
NGQM	Country-level governance measured by national governance quality for each bank year, which is calculated as a composite measure for the overall *NGQM*, dimensions, which are Voice and accountability quality (*VAQ*), political stability quality (*PSQ*), government quality (*GEQ*), regulatory quality (*RQM*), rule of law quality (*ROLQ*), control of corruption quality (*COCQ*).
Panel E: Control variables	
LNBS	Bank size for each bank year is calculated based on natural log of the book value of total assets.
BPR	Profitability for each bank year is calculated based on return on assets (ROAA) which is net income divided by total asset.
OPEF	Operations efficiency for each bank year is calculated based on cost divided by income.
BCAD	Bank's capital adequacy for each bank year is calculated based on capital divided by risk-weighted asset.
INFR	Annual inflation for each bank year is consumer prices change (annual %).
CGDP	GDP per capita for each bank year is average income per individual (current US$).

Fourth, country-level governance measured by national governance quality (*NGQM*) employed the "Worldwide Governance Indicators" developed by the World Bank. Kaufmann *et al*. (2011) identify six dimensions of *NGQM*: the voice and accountability (*VAQ*), the political stability (*PSQ*), the government effectiveness (*GEQ*), the regulatory quality (*RQM*), the rule of law (*ROLQ*), and the control of corruption (*COCQ*). Correlation matrix in Table 34 shows that there are high inter-correlations among *NGQM* dimensions which are consistent with prior studies (Alon & Dwyer, 2014; Chang *et al*., 2012).

Table 34 Correlation matrix of the national governance quality' dimensions

Variable	VAQ	PSQ	GEQ	RQM	ROLQ	COCQ
VAQ	1.000					
PSQ	0.131	1.000				
GEQ	0.142	0.821	1.000			
RQM	0.164	0.688	0.887	1.000		
ROLQ	0.152	0.855	0.799	0.821	1.000	
COCQ	0.151	0.871	0.939	0.822	0.854	1.000

Notes: This table reports the six dimensions of national governance quality measurement (*NGQM*) correlation matrix. The six dimensions of national governance quality measurement (*NGQM*) are defined as follows: Voice and accountability quality (*VAQ*), political stability quality (*PSQ*), government quality (*GEQ*), regulatory quality (*RQM*), rule of law quality (*ROLQ*), control of corruption quality (*COCQ*).

Therefore, and following extant research (Dikova & Van Witteloostuijn, 2007; Nguyen *et al*., 2015; Slangen & Van Tulder, 2009; Tunyi & Ntim, 2016), this study conducted the principal component analysis (PCA) to create a composite measure for the overall *NGQM* dimensions. Table 35 shows the PCA (eigenvectors) and diagnostics of *NGQM* dimensions. The overall KMO (Kaiser-Meyer-Olkin), which was employed to measure sampling adequacy (MSAD), is 0.741. This result is higher than the recommended PCA minimum of 0.50 (Cerny & Kaiser, 1977; Tunyi & Ntim, 2016).

Table 35 PCA (eigenvectors) and diagnostics of the national governance quality' dimensions

Variables	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6	Unexplained	KMO
VAQ	0.097	0.995	0.030	-0.021	0.001	-0.010	0	0.919
PSQ	0.433	-0.063	0.658	-0.107	0.578	0.174	0	0.790
GEQ	0.456	-0.054	-0.262	-0.486	0.069	-0.692	0	0.697
RQM	0.432	-0.013	-0.671	0.278	0.374	0.382	0	0.694
ROLQ	0.443	-0.038	0.210	0.730	-0.340	-0.332	0	0.718
COCQ	0.460	-0.049	0.063	-0.377	-0.637	0.484	0	0.815
Eigenvalue	4.377	0.969	0.332	0.209	0.081	0.031		
Proportion	0.730	0.161	0.055	0.035	0.014	0.005		
KMO								0.741

Notes: This table reports the six dimensions of national governance quality indicators (*NGQM*) PCA (eigenvectors). The six dimensions of national governance quality indicators (*NGQM*) are defined as follows: Voice and accountability quality (*VAQ*), political stability quality (*PSQ*), government quality (*GEQ*), regulatory quality (*RQM*), rule of law quality (*ROLQ*), control of corruption quality (*COCQ*). Also Kaiser-Meyer-Olkin measure (*KMO*) is a measure of sampling adequacy (*MSAD*).

Finally, this study included a wide range of bank characteristics as control variables that have repeatedly been recognized to influence bank value. These include bank size (*LNBS*), profitability (*BPR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), as well as macro-economic variables such as annual inflation (*INFR*), and annual GDP per capita (*CGDP*). We do not expand direct theoretic relations between these control variables and *RMDPI* for brevity, but there are wide prior studies that find they can affect bank value (e.g., Abdullah *et al*., 2016; Aryani, 2016; Bell *et al*., 2014; Black *et al*., 2015; Cahan *et al*., 2015; Cheng *et al*., 2013; Ghoul *et al*., 2016; Lozano *et al*., 2016; Moumen *et al*., 2015).

This essay uses fixed effects regression analysis (e.g., Elshandidy *et al*., 2015; Ntim *et al*., 2013; Wang & Hussainey, 2013) to investigate the impact of risk disclosures and multi-level governance on bank value in MENA banks. Therefore, the following fixed effects regression equation was estimated:

$$TOQ_{it} = \alpha_0 + \beta_i RMDPI_{it} + \beta_i \sum_{i=1}^{7} BLG_{it} + \beta_i NGQM_{it} + \sum_{i=1}^{6} \beta_i CONTROLS_{it} + \delta_{it} + \varepsilon_{it} \qquad (10)$$

where:

TOQ is a proxy of bank value measured by Tobin's Q for bank *i* during year *t*. *RMDPI* is a proxy of risk disclosures level. *BLG* refers bank-level governance, which contains Islamic governance (*ISG*), board size (*BBSZ*), CEO power (*CEOP*), board independence (*BBID*), block shareholdings (*BSHR*), government shareholdings (*GSHR*), and foreign shareholdings (*FSHR*). *NGQM* refers to country-level governance measured by a composite measure of national governance quality. *CONTROLS* refers to bank size (*LNBS*), profitability (*BPR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual inflation (*INFR*), and annual GDP per capita (*CGDP*). δ is the bank-year specific fixed-effects, and ε is the error term.

The main model defined in equation (10) is a standard panel data regression model that may possibly be estimated by pooled OLS, fixed effects or random effects models. Pooled OLS assumes continuous variance and uncorrelated observations. To choose pooled OLS or the random effects and fixed effects, I used Breusch and Pagan test to decide the presence of the heterogeneity. The empirical results find that there are unobserved variables. Thus, pooled OLS estimator, arguably, is inconsistent and biased. At that point, to decide whether

random effects or fixed effects will be employed, the Hausman specification test was used to choose the best model that yield more consistency and efficiency of the estimators. I chose fixed-effects regression model rather than random-effects regression model because the Hausman favoured fixed-effects over random effects.

This study reports the empirical analyses, covering the descriptive statistics, correlation, and multivariate in the following sections.

5. Empirical Results and Discussion

5.1 Descriptive Statistics and Correlation Analyses

Table 36 presents descriptive statistics for the main indices i.e., the un-weighted risk disclosures index (*RMDPI*), the weighted risk disclosures index (*W-RMDPI*), national governance quality (*NGQM*), and Islamic governance (*ISG*) for the full dataset, as well as for each of the 8 bank-years examined, respectively. On average, the distribution of the *RMDPI* differs considerably, ranging from 1.04 per cent (1 out of 96 items disclosed) to 87.50 per cent (84 out of 96) with the mean (median) of 54.78 (60.00) per cent. These results are consistent with Bischof *et al*., (2016).

In addition, Table 36 reports that *RMDPI* improves over time. For instance, *RMDPI* mean is improved steadily from 35.02 per cent in 2006 to 61.90 per cent in 2013. The steady improvement in *RMDPI* suggests that the implementation of Basel II from 2006 and CG codes have improved RMDPs among banks. This reflects the importance given to RMDPs and national governance, particularly during and after the 2007/08 crunch (Barakat & Hussainey, 2013; Essen *et al*., 2013; Ntim *et al*., 2013). Similarly, the distribution of the *W-*

RMDPI shows a similar pattern to *RMDPI* distribution. By contrast, the distribution of the *NGQM* fluctuates substantively, as it ranges from -7.42 to 3.50 with the mean of 0.00. In addition, Table 36 reports that *NGQM* has been fluctuating over time.

Table 36 Summary statistics for RMDPI, W-RMDPI, NGQM, and ISG for all 752-bank years

	All	2006	2007	2008	2009	2010	2011	2012	2013
Panel A: Independent The un-weighted risk disclosures index (*RMDPI*)									
Mean	54.78	35.95	49.77	54.55	57.44	61.24	61.55	62.51	63.60
STD	16.36	13.58	15.73	15.52	15.39	10.44	10.58	10.69	9.65
Min	1.00	6.00	6.00	1.00	7.00	25.00	24.00	19.00	19.00
Max	84.00	77.00	80.00	80.00	80.00	80.00	78.00	84.00	84.00
Panel B: Independent The weighted risk disclosures index (*W-RMDPI*)									
Mean	79.95	44.99	69.99	78.22	82.06	88.10	88.60	90.49	91.66
STD	24.16	20.22	24.97	24.12	24.65	15.19	15.00	15.49	14.48
Min	2.00	7.00	7.00	2.00	7.00	28.00	27.00	19.00	19.00
Max	135.00	106.0	128.0	128.0	130.0	126.0	118.0	135.00	135.0
Panel C: Independent national governance quality (*NGQM*)									
Mean	0.00	-0.03	0.19	0.18	0.23	0.06	-0.21	-0.19	-0.20
STD	2.09	2.05	1.98	2.00	2.01	1.85	2.02	2.29	2.46
Min	-7.42	-7.42	-7.26	-6.62	-6.10	-6.00	-5.65	-6.35	-6.84
Max	3.50	2.06	2.17	2.54	3.50	3.21	2.56	3.34	3.42
Panel D: Independent Islamic governance (*ISG*)									
Mean	1.43	1.00	1.17	1.25	1.51	1.51	1.45	1.51	1.67
STD	1.87	1.60	1.77	1.81	1.94	1.96	1.94	2.01	2.12
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	7.00	6.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00

Notes: This table present summary of descriptive statistics of compliance levels with un-weighted risk disclosures index (*RMDPI*), weighted risk disclosures index (*W-RMDPI*), national governance quality (*NGQM*), in addition to Islamic governance (*ISG*) in the full sample and each year separately from 2006 to 2013. See Table 33 for the definitions of each variable.

Continuous fluctuations in *NGQM* reflect the nature of MENA context. In particular, MENA countries face considerable political instability and corruption as well as the impact of the 2007/08 crunch in MENA region (Beltratti & Stulz, 2012; Hasan & Dridi, 2010). Finally, a steady increase in *ISG* is also achieved which indicates the importance that banks place on compliance with *Sharia*. Bank communicates these with stakeholders to legitimate their operations, as shown in Table 36. However, the *ISG* composition and competence disclosure are still very low (mean is 1.43) which indicates that *Sharia* disclosure is not common in MENA banks due to disclosure adverse culture (Koldertsova, 2011; Samaha *et al*., 2012; World Bank, 2009).

Table 37 shows summary statistics for all variables. For instance, bank value (*TOQ*) is between -9.83 per cent and 9.52 per cent, with a mean of 1.12 (median=1.02). This result indicates that market value of MENA banks is, on average, higher than their book value, which reflects the investors' outlooks about the strong capability of banks. Similar to the *RMDPI*, all the independent and control variables distributions generally show widespread variations. For instance, government shareholding (*GSHR*) varies substantially from 0.00 per cent to 95.15 per cent with a mean of 15.51.

Board size (*BBSZ*) also ranges from 3.00 to 16.00 with a mean of 10 board members, with, on average, 79 per cent of those directors independent. These findings suggest that MENA banks tend to follow the CG reforms that highlight the importance of independent directors. In addition, these results are in line with prior related studies in the banking sector (e.g., Erkens *et al*., 2012; Hasan & Dridi, 2010; Ntim *et al*., 2015a, 2015b; Rosman *et al*.,

2014). Lastly, the values of other variables reported in Table 37 suggest widespread variations in the sample, and hence decreasing potentials of any sample selection bias.

Table 37 Summary statistics of all variables for all 752 observations

Variables	N	Mean	STD	Minimum	25 P	Median	75 P	Maximum
TOQ	752	1.12	0.59	-9.83	0.94	1.02	1.11	9.52
RMDPI	752	54.78	16.36	1.00	46.00	60.00	66.00	84.00
W-RMDPI	752	79.95	24.16	2.00	68.00	85.00	96.00	135.00
BSHR	752	54.57	26.56	0.00	37.24	57.49	73.02	100.90
GSHR	752	15.51	20.85	0.00	0.00	6.77	21.90	95.15
FSHR	752	22.01	29.18	0.00	0.00	6.65	40.00	98.50
BBSZ	752	10.26	4.81	3.00	8.00	10.00	11.00	16.00
CEOP	750	0.80	0.40	0.00	1.00	1.00	1.00	1.00
BBID	752	0.79	0.22	0.00	0.75	0.90	1.00	1.00
ISG	752	1.43	1.87	0.00	0.00	3.00	5.00	7.00
NGQM	744	0.00	2.09	-7.42	-1.10	0.17	1.70	3.50
LNBS	752	15.05	7.31	0.30	11.95	14.84	16.87	22.34
BPR	751	0.02	0.05	-0.52	0.01	0.02	0.02	0.63
OPEF	748	43.90	45.78	-365.63	28.99	39.20	51.71	312.40
BCAD	707	20.25	14.39	9.26	14.41	17.24	21.81	204.41
INFR	731	5.40	4.95	-10.10	2.00	4.00	9.30	53.20
CGDP	732	23426.34	23200.92	5.00	3900.50	19250.90	38224.90	93714.10

Notes: The table reports the values of minimum, 25 percentile, median, mean, standard deviation (STD), 75 percentile and the maximum range of the following variables: Tobin's Q (*TOQ*), un-weighted risk disclosures index (*RMDPI*), weighted risk disclosures index (*W- RMDPI*), block shareholdings (*BSHR*), governmental shareholdings (*GSHR*), foreign shareholdings (*FSHR*), board size (*BBSZ*), CEO power (*CEOP*), board independence (*BBID*), Islamic governance (*ISG*), national governance quality (*NGQM*), bank size (*LNBS*), profitability (*BPR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual inflation (*INFR*), and annual GDP per capita (*CGDP*). See Table 33 for the definitions of each variable.

Table 38 Correlation matrix for variables used for all 752 observations

Variables	TOQ	RMDPI	BSHR	GSHR	FSHR	BBSZ	CEOP	BBID	ISG	NGQM	LNBS	BPR	OPEF	BCAD	INFR	CGDP
TOQ		0.41**	-0.02	0.10**	0.08*	0.43**	-0.22**	0.58**	0.39**	0.47**	0.01	-0.48**	0.00	-0.05	0.10**	0.12**
RMDPI	0.44**		0.01	0.27**	-0.01	0.34**	-0.16**	0.25**	0.30**	0.25**	0.50**	-0.07	-0.12**	-0.13**	-0.36**	0.16**
BSHR	-0.03	0.01		0.18**	0.30**	0.03	- 0.03	-0.01	-0.06	-0.06	-0.10**	-0.04	0.12**	-0.09*	0.00	-0.39**
GSHR	0.13**	0.30**	0.13**		-0.20**	0.01	-0.17**	0.11**	0.09*	0.09*	0.35**	0.14**	-0.24**	0.13**	-0.14**	0.13**
FSHR	-0.02	-0.05	0.28**	-0.26**		0.22**	- 0.06	0.05	0.01	0.03	-0.11**	-0.05	0.04	-0.09*	0.08*	-0.34**
BBSZ	0.40**	0.07	0.02	0.04	0.14**		0.13**	0.02	-0.06	0.38**	0.09*	-0.02	0.05	-0.19**	0.00	-0.21**
CEOP	-0.33**	-0.16**	-0.04	-0.18**	-0.11**	0.14**		- 0.45**	-0.19**	0.23**	-0.04	-0.09*	0.09*	-0.04	0.12**	0.02
BBID	0.62**	0.14**	-0.03	0.15**	-0.02	-0.05	-0.47**		0.12**	0.45**	0.04	0.02	- 0.07	-0.03	-0.16**	0.04
ISG	0.35**	0.33**	-0.08*	0.12**	-0.10**	-0.05	-0.21**	0.07*		0.47**	0.35**	0.00	- 0.09*	0.07	-0.21**	0.15**
NGQM	0.47**	0.29**	-0.17**	0.19**	-0.18**	0.38**	0.22**	0.42**	0.58**		0.42**	0.02	- 0.38**	-0.03	-0.05	0.14**
LNBS	0.57**	0.55**	-0.12**	0.33**	-0.21**	0.10**	-0.01	0.13**	0.18**	0.44**		0.00	- 0.18**	-0.11**	-0.21**	0.22**
BPR	0.02	-0.03	-0.23**	0.04	-0.29**	0.03	-0.02	- 0.04	-0.12**	0.15**	0.05		- 0.23**	0.09*	0.03	0.11**
OPEF	-0.50**	-0.23**	0.14**	- 0.13**	0.20**	- 0.02	0.08*	- 0.08*	0.03	-0.41**	-0.41**	-0.45**		0.16**	0.04	-0.23**
BCAD	0.01	-0.06	-0.08*	0.02	-0.16**	- 0.17**	0.02	- 0.12**	0.10**	0.05	-0.06	0.13**	- 0.12**		-0.08*	0.00
INFR	-0.13**	-0.34**	0.05	- 0.19**	0.15**	0.04	- 0.18**	- 0.19**	-0.25**	-0.20**	-0.20**	0.01	0.07	-0.25**		0.02
CGDP	0.12**	0.23**	-0.34**	0.18**	-0.24**	- 0.20**	0.08*	0.18**	0.30**	0.28**	0.33**	0.22**	- 0.34**	0.02	-0.03	

Notes: This table reports the Pearson (Spearman) correlation coefficients in upper right (lower left) half between the following variables: Tobin's Q (*TOQ*), un-weighted risk disclosures index (*RMDPI*), block shareholdings (*BSHR*), governmental shareholdings (*GSHR*), foreign shareholdings (*FSHR*), board size (*BBSZ*), CEO power (*CEOP*), board independence (*BBID*), Islamic governance (*ISG*), national governance quality (*NGQM*), bank size (*LNBS*), profitability (*BPR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual inflation (*INFR*), and annual GDP per capita (*CGDP*). See Table 33 for the definitions of each variable.

** Significant at the 1% level.

* Significant at the 5% level.

Table 38 reports the correlation matrix of Pearson's parametric and Spearman's non-parametric for all variables to test multicollinearity for the regression analysis. Evidently, low correlation coefficients between the variables of Table 38 indicate that the examination does not provide any signs of multicollinearity problems because the correlation coefficients amongst all variables are smaller than the 0.80 thresholds (Nguyen *et al*., 2015). In addition, Table 38 shows statistically significant correlation between *TOQ* and variables. For instance, *RMDPI, GSHR, BBSZ, BBID, ISG, NGQM, LNBS,* and *CGDP* are significant and positively correlated with *TOQ*, while *OPEF, CEOP,* and *INFL* are significant and negatively correlated with *TOQ*. These results are consistent with the multi-theoretical expectations, particularly the positive association between risk disclosures and bank value.

5.2 Multivariate Regression Analyses

Table 39 reports the fixed-effect regression estimates of the impact of risk disclosures and multi-level governance on bank value. The results of Model 1 of Table 39 indicate that risk disclosures and multi-level governance are significant in explaining variances in bank value. First, I predict that the value of those banks with better risk disclosure practices will have a relatively better market valuation. Model 1 of Table 39 suggests evidence consistent with a positive risk disclosures–bank value relationship. The coefficient of the risk disclosures (*RMDPI*) in Model 1 of Table 39 is positive ($t = 4.61$, $p < .001$), thus providing empirical support for Hypothesis 1. Specifically, better risk disclosures as a CG practice can improve investors' perceptions of the banks' overall risk management, and thus, improve the bank value. This result also indicates that complying with effective risk disclosures practices through greater risk disclosure activities not only can increase the bank legitimacy (Al-

Bassam *et al*., 2012; Mollaha & Zamanb, 2015; and Suchman, 1995), but also present opportunities to get higher market valuations (Campbell *et al*., 2014; Elshandidy, 2016; Ntim, 2016; Tunyi & Ntim, 2016).

This evidence is largely in line with previous studies that support the role of risk disclosures to improve the bank value (Campbell *et al*., 2014; Linsmeier *et al*., 2002; Miihkinen, 2013; Moumen *et al*., 2015; Rajgopal, 1999). This evidence is consistent with the expectations of the multi-theoretical frame, which suggests that better risk disclosures may reduce asymmetric information and agency problems consequently, it can improve the market valuations of bank's stock price (Aguilera *et al*., 2008; AI-Bassam & Ntim, 2016; Elshandidy, 2016; Jensen & Meckling, 1976). Similarly, enhanced risk disclosures (due to coercive and societal pressures) can increase society's acceptance and legitimate banks' operations as well as send signals to distinguish a bank with higher risk management quality from their counterparts (Bergh *et al*., 2014; Chandler & Hwang, 2015; Connelly *et al*., 2011; Haniffa & Hudaib, 2007; Pfeffer & Salancik, 2003; Pittroff, 2014).

Table 39 The impact of risk disclosures and multi-level governance on bank value (TOQ)

Variables	Dependent variable: bank value (TOQ)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Full sample	IBs	CBs	DBs	Pre GBC	GBC	Post GBC	G2SLS	ΔTOQ
Panel A: Un-weighted risk disclosures index (*RMDPI*)									
RMDPI	4.61***	2.77***	3.12***	4.91***	1.85*	1.47	5.58***	4.92***	2.32**
	(0.000)	(0.006)	(0.002)	(0.000)	(0.070)	(0.148)	(0.000)	(0.000)	(0.021)
Panel B: Bank-level governance (ownership variables)									
BSHR	-1.59	-0.80	-0.83	0.54	1.78*	-0.59	-3.74***	-0.81	-1.71*
	(0.113)	(0.425)	(0.409)	(0.589)	(0.080)	(0.557)	(0.000)	(0.418)	(0.089)
GSHR	-1.60	-1.68*	-0.43	-1.48	-2.22**	-1.94*	0.90	-2.82***	-0.10
	(0.110)	(0.095)	(0.665)	(0.142)	(0.030)	(0.056)	(0.367)	(0.005)	(0.921)
FSHR	1.95*	-0.31	0.06	2.36**	0.98	2.81***	4.04***	3.05***	2.82***
	(0.052)	(0.753)	(0.949)	(0.019)	(0.333)	(0.007)	(0.000)	(0.002)	(0.005)
Panel C: Bank-level governance (board variables)									
BBSZ	2.08**	-0.26	0.39	2.38**	0.68	1.86*	1.27	2.61***	1.88*
	(0.038)	(0.798)	(0.695)	(0.018)	(0.496)	(0.068)	(0.206)	(0.009)	(0.061)
CEOP	-1.99**	-1.93*	-1.48	-2.25**	-0.71	-1.04	-0.17	-2.57**	-0.12
	(0.047)	(0.055)	(0.140)	(0.026)	(0.478)	(0.304)	(0.861)	(0.010)	(0.903)
BBID	6.37***	2.66***	3.90***	3.03***	0.86	4.62***	2.84***	7.91***	0.96
	(0.000)	(0.009)	(0.000)	(0.003)	(0.395)	(0.000)	(0.005)	(0.000)	(0.338)
Panel D: Bank-level governance (Islamic governance)									
ISG	8.35***	2.71***	-	3.14***	2.93***	2.24**	6.25***	8.97***	4.09***
	(0.000)	(0.008)	-	(0.002)	(0.005)	(0.029)	(0.000)	(0.000)	(0.000)
Panel E: Country-level governance (national governance quality)									
NGQM	3.01***	4.59***	4.88***	1.08	1.50	2.46**	2.18**	3.69***	1.32
	(0.003)	(0.000)	(0.000)	(0.281)	(0.139)	(0.017)	(0.030)	(0.000)	(0.188)
Panel F: Control variables									
LNBS	11.88***	5.59***	7.85***	4.37***	3.20***	1.63	7.14***	12.52***	1.95*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.109)	(0.000)	(0.000)	(0.052)
BPR	0.07	-0.93	2.51**	0.45	-0.21	-0.27	1.04	0.14	0.84
	(0.946)	(0.352)	(0.013)	(0.656)	(0.836)	(0.789)	(0.298)	(0.891)	(0.403)
OPEF	-3.68***	-0.47	-1.46	-4.56***	-1.77*	-0.34	-2.06**	-2.43**	-1.70*

Table 39 The impact of risk disclosures and multi-level governance on bank value (TOQ) continued...

	(0.000)	(0.637)	(0.145)	(0.000)	(0.083)	(0.735)	(0.040)	(0.015)	(0.089)
BCAD	1.83*	1.45	0.50	1.99**	1.65	2.44**	1.35	3.33***	0.91
	(0.068)	(0.150)	(0.617)	(0.049)	(0.105)	(0.018)	(0.177)	(0.001)	(0.363)
INFR	6.01***	2.80***	1.43	4.79***	2.73***	1.44	2.27**	6.83***	1.71*
	(0.000)	(0.006)	(0.155)	(0.000)	(0.008)	(0.156)	(0.024)	(0.000)	(0.088)
CGDP	-1.86*	-0.58	-0.53	-0.85	-2.50**	2.18**	-0.58	-2.57**	0.74
	(0.063)	(0.566)	(0.595)	(0.395)	(0.015)	(0.033)	(0.566)	(0.010)	(0.461)
Constant	-2.28**	-0.11	-1.94*	0.70	-0.04	-2.58**	-1.75*	-3.35***	-4.56***
	(0.023)	(0.914)	(0.054)	(0.486)	(0.970)	(0.012)	(0.080)	(0.001)	(0.000)
Fixed effect	Year	Year	Year	Year	-	Year	Year	Year	Year
STD clustering	Bank	Bank	Bank	Bank	-	Bank	Bank	Bank	Bank
F (chi2)	218.70***	80.05***	96.80***	83.76***	26.24***	48.36***	165.81***	3453***	30.38***
Overall R2	0.8220	0.8525	0.8331	0.7696	0.8716	0.6828	0.7949	0.8285	0.2694
Hausman chi2	132.22***	92.95***	112.35***	125.78***	88.75***	98.97***	87.75***	143.97***	2.25
No. of obs	684	183	265	236	74	159	451	684	595

Notes: This table reports the t-statistics and P-value (in parentheses) from using a fixed effect regression with heteroscedasticity-robust standard errors. This table presents the following variables: Tobin's Q (*TOQ*), un-weighted risk disclosures index (*RMDPI*), block shareholdings (*BSHR*), governmental shareholdings (*GSHR*), foreign shareholdings (*FSHR*), board size (*BBSZ*), CEO power (*CEOP*), board independence (*BBID*), Islamic governance (*ISG*), national governance quality (*NGQM*), bank size (*LNBS*), profitability (*BPR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual inflation (*INFR*), and annual GDP per capita (*CGDP*). See Table 33 for the definitions of each variable.

*** Denotes significant at the 1% level.

** Denotes significant at the 5% level.

* Denotes significant at the 10% level.

Second, at the bank-level, this study examines whether Islamic governance, board, and ownership structures can have an impact on the bank value (*TOQ*). Board and ownership structures include three ownership (block shareholdings — *BSHR,* government shareholdings — *GSHR*, and foreign shareholdings— *FSHR*) and three board (bank board size — *BBSZ*, CEO power — *CEOP*, and board independence— *BBID*) variables, respectively, in Table 39, Model 1. The results show that Islamic governance (*ISG*), foreign shareholdings (*FSHR*), bank board size (*BBSZ*), and board independence (*BBID*) are positively related to the *TOQ*, but block shareholdings (*BSHR*), government shareholdings (*GSHR*), and CEO power (*CEOP*) are negatively related to the *TOQ*. The results also offer support for the multi- theoretical framework.

For instance, the positive relationship ($t = 8.35$, $p < .001$) between Islamic governance (*ISG*) and the *TOQ* is in line with those of prior studies (Abdullah *et al*., 2015; AI-Bassam & Ntim, 2016; Elghuweel *et al*., 2016; Mallin *et al*., 2014). Specifically, better Islamic governance as a CG practice can convey important signals to investors about the banks' legitimacy, and thus, improve the bank value. This result implies that Islamic governance mitigates information asymmetry, which is a critical concern in determining how to evaluate banks' share prices (Al-Akra & Hutchinson, 2013; Cascino *et al*., 2010). In addition, these results suggest that Islamic governance signals their compliance with *Sharia* to gain institutional legitimacy and society's acceptance, which have an impact on bank valuations. This, therefore, leads us to accept Hypothesis 2, which suggests that the value of those banks with better Islamic governance will have a relatively better market valuation.

Also, Model 1 of Table 39 reports positive relationship ($t = 1.95$, $p < 0.10$) between foreign shareholdings (*FSHR*) and the *TOQ* that is in line with those of previous studies (Bell *et al*., 2014; Berger *et al*., 2010; Black *et al*., 2015; Choi & Hasan, 2005; He *et al*., 2013; Jiang *et al*., 2013; Lensink *et al*., 2008; Lin & Zhang, 2009; Micco *et al*., 2007). This result implies that foreign shareholders have both the power and the incentives to monitor insiders' behaviour to safeguard minority rights and bank reputation (Al-Akra & Hutchinson, 2013; Cascino *et al*., 2010). In addition, these results suggest that foreign shareholders signal their compliance with government initiatives and standards that can enable them to gain better market valuation. This, therefore, leads us to accept H_4c, which suggests that there is a positive relation between foreign shareholdings (*FSHR*) and MENA banks' value.

The negative relationship, but insignificant, among block shareholdings (*BSHR*), government shareholdings (*GSHR*), and the *TOQ* ($t = -1.59$, $p = 0.113$, and, $t = -1.60$, $p = 0.110$, respectively) is in line with those of prior studies (Bergh *et al*., 2014; Black *et al*., 2015; Chi & Lee, 2010; Grove *et al*., 2011; Hovey *et al*., 2003; Maury, 2006; Ntim & Soobaroyen, 2013b; Thomsen & Pedersen, 2000). This result implies that the main shareholders (i.e., block and government shareholders) either divert bank resources for their own benefits and/ or for political and socio-economic goals, or increase information asymmetry and bureaucracy, which leads to poor market valuation (Busta *et al*., 2014; Cheng *et al*., 2013; Iannotta *et al*., 2013; Maury & Pajuste, 2005). In addition, these results suggest that investors may face multiple agency problems with MENA governments and the main shareholders, as powerful shareholders. This, therefore, leads to reject H_4a.

Model 1 of Table 39 shows a positive relationship among bank board size (*BBSZ*), board independence (*BBID*) and the *TOQ* (t = 2.08, p = 0.038, and, t = 6.37, p = 0.000, respectively) which provides support for extant research. It implies that bigger boards with more board independence are more likely to offer additional strategic capabilities and monitoring that enhance bank performance, thereby decreasing investors' risk perception of future performance, which may affect shares prices positively (Adams & Mehran, 2012; Aebi *et al*., 2012; Bell *et al*., 2014; Bertoni *et al*., 2014; Black *et al*., 2015; Bozec & Bozec, 2012; Dahya *et al*., 2008; Elbadry *et al*. 2015; García-Meca *et al*., 2015; Hagendorff *et al*., 2010; Liang *et al*., 2013; Liu *et al*., 2012; Minton *et al*., 2014; Nguyen *et al*., 2015). These results suggest that bank board size and board independence is associated with better executive monitoring due to increased experience and skills, which may offer better access to important resources and enhance bank legitimacy.

Finally, the negative effect of CEO power (*CEOP*) on the *TOQ* (t = -1.99, p = 0.047) is consistent with the results of previous empirical research (Bertoni *et al*., 2014; Elyasiani & Zhang, 2015; Erkens *et al*., 2012; García-Meca *et al*., 2015; Grove *et al*., 2011; Masulis *et al*., 2012; Pathan & Faff, 2013). This result is also in line with the theoretical suggestions (e.g., agency theory) that banks with less powerful CEOs (e.g., the roles of a CEO and the board chairman are held by two different people) are generally viewed to have lower agency costs. CEO duality can be seen both as a sign and an instrument of less managerial power that mitigates agency conflicts and legitimate bank activities. This, therefore, leads us to accept Hypothesis 3 (*H_3b)*. These results suggest that bank-level governance in addition to risk disclosures also contribute to the increase in bank value.

Third, at the country-level, this essay investigates whether country-level governance (i.e., national governance quality) has an impact on the bank value (*TOQ*). The result shows that cross-sectional differences in the *TOQ* can largely be explained by national governance quality *(NGQM)*. Specifically, the coefficient of the national governance quality (*NGQM*) in Model 1 of Table 39 is positive ($t = 3.01$, $p < .005$), thus providing empirical support for Hypothesis 5. In particular, banks in strongly governed countries get higher market valuation compared with their counterparts. This evidence is largely in line with previous studies that support the role of *NGQM* to improve market valuation (Abdi & Aulakh, 2012; Abdioglu *et al*., 2013; Boulton *et al*., 2010; Cumming *et al*., 2014; Dahya *et al*., 2008; Francis *et al*., 2012; Ghoul *et al*., 2016; Nguyen *et al*., 2015).

This evidence is consistent with the expectations of the multi-theoretical frame, which suggests that improved *NGQM* can provide additional monitoring level to mitigate information asymmetries and enhance investors' protection, and hence, improve bank value. Similarly, *NGQM* offers incentives to avoid reputation damage and increase society acceptance by confirming banks legitimacy. These results suggest that country-level governance in addition to risk disclosures and bank-level governance also contribute to the increase in bank value.

Regarding the control variables, the study reports consistent findings regarding how those variables impact bank value under model 1 of Table 39. Specifically, I find that a bank's size (*LNBS*), and capital adequacy (*BCAD*) have a positive impact on the *TOQ* ($t = 11.88$, $p = 0.000$, and, $t = 1.83$, $p = 0.068$, respectively), while I find that operations efficiency (*OPEF*) is significantly and negatively associated with the *TOQ* ($t = -3.68$, $p = 0.000$). The

results on these control variables are in line with previous studies (e.g., Elshandidy, 2016; Elshandidy & Neri, 2015; Lozano *et al*., 2016; Nguyen *et al*., 2015).

Taken together, the results in this section strongly support the earlier prediction that the value of those banks with better risk disclosures, bank-level governance, and country-level governance experience greater improvement in market valuation.

5.3 Additional Analyses

The study performs a number of further analyses to determine the robustness of the results. Firstly, as a robustness check, I reproduced the analyses in Model 1 of Table 39 by replacing *RMDPI* with *W-RMDPI*, and the results are presented in Model 1 of Table 40. These results are similar to those reported in Model 1 of Table 39, implying that the results are obviously robust for use in disclosure indices measure. Secondly, as a sensitivity analysis, I reproduced the analyses in Model 1 of Table 39 by replacing the *TOQ* with ΔTOQ, and the results are presented in Model 39 of Table 39. Specifically, I re-run equation (10) using change in *TOQ*, and estimated the following fixed effects regression equation:

$$\Delta TOQ_{it} = \alpha_0 + \beta_i RMDPI_{it} + \beta_i \sum_{i=1}^{7} BLG_{it} + \beta_i NGQM_{it} + \sum_{i=1}^{6} \beta_i CONTROLS_{it} + \delta_{it} + \varepsilon_{it} \quad (11)$$

where:

Everything continues unaffected as stated in equation (10) except that the study used the ΔTOQ. The essay reports that the results of this regression in Model 9 of Table 39 are like quantitatively those stated in Model 1 of Table 39, suggesting that the results are obviously robust to employ the *TOQ* measure.

Thirdly, following extant research (Elshandidy *et al*., 2013; Ntim *et al*., 2013), the study addresses potential endogeneities that may be affected by omitted variable bias by estimating two-stage least squares for panel-data estimators (G2SLS). In the first stage, I replaced the multi-level governance variables with instrument variables, which are influenced by all the control variables. In the second stage, I used the instrumented variables of the multi-level governance and re-run equation (12) as follows:

$$TOQ_{it} = \alpha_0 + \beta_i RMDPI_{it} + \hat{\beta}_i \sum_{i=1}^{7} BLG_{it} + \beta_i NGQM_{it} + \sum_{i=1}^{6} \beta_i CONTROLS_{it} + \delta_{it} + \varepsilon_{it} \quad (12)$$

where:

everything continues unaffected as stated in equation (10) except that I used the instrumented multi-level governance variables.

Table 40 The impact of risk disclosures and multi-level governance on bank value (TOQ)

Variables	Dependent variable: bank value (TOQ)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Full sample	IBs	CBs	DBs	Pre GBC	GBC	Post GBC	G2SLS	ΔTOQ
Panel A: Weighted risk disclosures index (*W-RMDPI*)									
W-RMDPI	4.36***	0.27	3.29***	2.66***	6.36***	0.09	3.97***	5.80***	1.58
	(0.000)	(0.786)	(0.001)	(0.009)	(0.000)	(0.930)	(0.000)	(0.000)	(0.114)
Panel B: Bank-level governance (ownership variables)									
BSHR	-1.39	-0.15	-0.40	0.24	2.75***	-0.62	-3.66***	-0.61	-1.60
	(0.164)	(0.883)	(0.690)	(0.810)	(0.008)	(0.537)	(0.000)	(0.542)	(0.109)
GSHR	-1.73*	-1.65	-0.96	-1.05	-2.15**	-1.64	0.70	-2.90***	-0.17
	(0.084)	(0.101)	(0.337)	(0.294)	(0.035)	(0.107)	(0.485)	(0.004)	(0.864)
FSHR	1.81*	-0.39	-0.11	2.32**	0.25	2.50**	3.55***	2.83***	2.72***
	(0.071)	(0.694)	(0.916)	(0.021)	(0.802)	(0.015)	(0.000)	(0.005)	(0.007)
Panel C: Bank-level governance (board variables)									
BBSZ	1.34	0.12	0.14	1.99**	1.13	1.91*	-0.13	1.73*	1.46
	(0.179)	(0.906)	(0.889)	(0.048)	(0.261)	(0.061)	(0.899)	(0.083)	(0.146)
CEOP	-2.06**	-2.01**	-1.37	-1.99**	-1.71*	-1.16	-0.36	-2.63***	-0.18
	(0.039)	(0.046)	(0.172)	(0.048)	(0.092)	(0.252)	(0.719)	(0.009)	(0.857)
BBID	6.57***	2.92***	4.28***	3.77***	0.69	5.25***	3.29***	7.77***	1.13
	(0.000)	(0.004)	(0.000)	(0.000)	(0.495)	(0.000)	(0.001)	(0.000)	(0.257)
Panel D: Bank-level governance (Islamic governance)									
ISG	8.33***	3.70***	-	3.84***	3.15***	2.34**	6.56***	8.84***	4.31***
	(0.000)	(0.000)	-	(0.000)	(0.003)	(0.022)	(0.000)	(0.000)	(0.000)
Panel E: Country-level governance (national governance quality)									
NGQM	3.03***	5.24***	4.77***	1.28	0.49	2.89***	2.26**	3.57***	1.41
	(0.003)	(0.000)	(0.000)	(0.203)	(0.623)	(0.005)	(0.024)	(0.000)	(0.159)
Panel F: Control variables									
LNBS	11.17***	6.85***	7.05***	5.02***	2.80***	1.65	8.14***	11.20***	2.26**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.007)	(0.104)	(0.000)	(0.000)	(0.024)
BPR	0.35	-1.32	2.65***	0.69	0.02	-0.04	1.58	0.51	0.97
	(0.724)	(0.188)	(0.009)	(0.492)	(0.984)	(0.971)	(0.114)	(0.609)	(0.332)
OPEF	-2.97***	-0.62	-0.84	-3.59***	-1.99*	-0.29	-1.04	-1.89*	-1.35

Table 40 The impact of risk disclosures and multi-level governance on bank value (TOQ) continued...

	(0.003)	(0.534)	(0.400)	(0.000)	(0.051)	(0.776)	(0.300)	(0.059)	(0.177)
BCAD	1.52	1.32	0.41	1.70*	1.07	2.13**	0.86	3.10***	0.66
	(0.128)	(0.190)	(0.684)	(0.090)	(0.288)	(0.037)	(0.392)	(0.002)	(0.507)
INFR	5.69***	2.64***	1.33	4.45***	4.02***	1.38	2.21**	6.74***	1.45
	(0.000)	(0.009)	(0.185)	(0.000)	(0.000)	(0.172)	(0.028)	(0.000)	(0.149)
CGDP	-1.79*	-0.71	-0.75	-1.11	-3.03***	2.37**	-0.48	-2.44**	0.75
	(0.074)	(0.476)	(0.453)	(0.266)	(0.004)	(0.021)	(0.629)	(0.014)	(0.456)
Constant	-1.44	-0.53	-1.86*	0.77	0.46	-2.43**	-0.45	-2.59**	-4.09***
	(0.150)	(0.599)	(0.064)	(0.442)	(0.650)	(0.018)	(0.653)	(0.010)	(0.000)
Fixed effect	Year	Year	Year	Year	-	Year	Year	Year	Year
STD clustering	Bank	Bank	Bank	Bank	-	Bank	Bank	Bank	Bank
F (chi2)	217.75***	75.50***	97.37***	75.87***	44.40***	46.61***	158.03***	3541***	30.01***
Overall R2	0.8294	0.8482	0.8511	0.7857	0.9199	0.6744	0.8045	0.8366	0.2712
Hausman chi2	174.25***	143.56***	112.22***	172.77***	103.66***	102.44***	132.85***	6.75	185.35***
No. of obs	684	183	265	236	74	159	451	684	595

Notes: This table reports the t-statistics and P-value (in parentheses) from using a fixed effect regression with heteroscedasticity-robust standard errors. This table presents the following variables: Tobin's Q (*TOQ*), weighted risk disclosures index (*W-RMDPI*), block shareholdings (*BSHR*), governmental shareholdings (*GSHR*), foreign shareholdings (*FSHR*), board size (*BBSZ*), CEO power (*CEOP*), board independence (*BBID*), Islamic governance (*ISG*), national governance quality (*NGQM*), bank size (*LNBS*), profitability (*BPR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual inflation (*INFR*), and annual GDP per capita (*CGDP*). See Table 33 for the definitions of each variable.

*** Denotes significant at the 1% level.

** Denotes significant at the 5% level.

* Denotes significant at the 10% level.

The results are reported in Model 8 of Table 39. These results are also similar to those reported in Model 1 of Table 39, implying that the results are obviously robust for the probable endogeneities issue that could be affected by omitted variable bias.

Fourthly, a potential concern regarding the above results is that the bank value differences may be driven by bank type. To mitigate this concern, the essay considers the robustness of the results on sub-samples: Islamic banks, commercial banks, and dual banks by re-running equations (1) and (3) and results presented in Table 39. Apart from limited sensitivities (such as the significance of *FSHR* and *GSHR*), the results in Models 2, 3, and 4 of Table 39 have similarities to those reported in Model 1 of Table 39. This suggests that the results are obviously robust on the sub-samples. Inconsistently, I found out that foreign shareholdings (*FSHR*) have a negative impact on *TOQ* in Islamic banks, unlike commercial and dual banks. One possible explanation could be driven from institutional theory for the reason that Islamic banks with major foreign shareholdings may not gain institutional legitimacy that affects investors' valuation.

Table 41 The impact of risk disclosures and multi-level governance on bank value (TOQ) (Highly- vs. poorly- performing banks)

Variables	Dependent variable: bank value (TOQ)								Difference t-statistics
	Highly-performing banks				Poorly-performing banks				
	(1) RMDPI	(2) W- RMDPI	(3) G2SLS	(4) Δ TOQ	(5) RMDPI	(6) W- RMDPI	(7) G2SLS	(8) Δ TOQ	
Panel A: Un-weighted risk disclosures index (*RMDPI*) / Weighted risk disclosures index (*W-RMDPI*)									
RMDPI	2.80***	3.22***	2.69***	2.22**	3.56***	2.12**	4.81***	2.14**	23.64***
	(0.006)	(0.001)	(0.007)	(0.029)	(0.000)	(0.035)	(0.000)	(0.034)	(0.000)
Panel B: Bank-level governance (ownership variables)									
BSHR	0.21	0.05	0.62	1.41	-1.90*	-1.55	-0.03	-2.54**	-0.71
	(0.833)	(0.963)	(0.536)	(0.160)	(0.059)	(0.122)	(0.978)	(0.012)	(0.477)
GSHR	-1.09	-1.14	-2.27**	-0.52	-1.75*	-1.73*	-2.30**	-0.06	2.79***
	(0.277)	(0.255)	(0.023)	(0.601)	(0.081)	(0.085)	(0.022)	(0.954)	(0.005)
FSHR	0.25	0.10	1.17	0.75	1.75*	1.88*	3.75***	2.56**	2.14**
	(0.801)	(0.919)	(0.240)	(0.453)	(0.082)	(0.062)	(0.000)	(0.012)	(0.032)
Panel C: Bank-level governance (board variables)									
BBSZ	1.53	1.38	0.91	2.02**	0.00	0.38	0.87	1.14	23.73***
	(0.127)	(0.170)	(0.364)	(0.046)	(1.000)	(0.708)	(0.385)	(0.255)	(0.000)
CEOP	0.85	0.89	0.94	omitted	-2.71***	-2.73***	-3.25***	-0.38	8.88***
	(0.398)	(0.374)	(0.347)	-	(0.007)	(0.007)	(0.001)	(0.707)	(0.000)
BBID	1.60	1.82*	2.69***	0.78	6.35***	6.93***	7.68***	3.76***	29.71***
	(0.110)	(0.071)	(0.007)	(0.438)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Panel D: Bank-level governance (Islamic governance)									
ISG	5.38***	4.84***	7.34***	0.08	0.85	1.13	0.67	0.28	19.17***
	(0.000)	(0.000)	(0.000)	(0.936)	(0.397)	(0.260)	(0.504)	(0.778)	(0.000)
Panel E: Country-level governance (national governance quality)									
NGQM	1.97*	1.89*	2.89***	1.27	0.47	0.12	2.23**	0.32	16.06***
	(0.050)	(0.060)	(0.004)	(0.208)	(0.642)	(0.906)	(0.026)	(0.752)	(0.000)
Panel F: Control variables									
LNBS	6.37***	6.60***	5.31***	2.28**	8.69***	7.08***	8.66***	1.36	36.51***
	(0.000)	(0.000)	(0.000)	(0.025)	(0.000)	(0.000)	(0.000)	(0.177)	(0.000)
BPR	0.98	1.28	0.28	1.80*	0.60	0.47	0.60	0.28	1.33
	(0.330)	(0.201)	(0.782)	(0.075)	(0.546)	(0.638)	(0.547)	(0.779)	(0.183)
OPEF	-1.14	-1.21	-1.22	-0.94	-2.30**	-2.06**	-0.83	-0.24	-18.74***
	(0.256)	(0.229)	(0.222)	(0.350)	(0.022)	(0.040)	(0.405)	(0.809)	(0.000)
BCAD	2.05**	1.87*	2.05**	0.29	0.58	0.83	2.86***	2.24**	-0.30

Table 41 The impact of risk disclosures and multi-level governance on bank value (TOQ) (Highly- vs. poorly- performing banks) continued...

	(0.042)	(0.063)	(0.040)	(0.774)	(0.561)	(0.406)	(0.004)	(0.027)	(0.767)
INFR	4.86***	4.96***	5.11***	0.79	2.84***	2.22**	4.14***	0.43	-1.80*
	(0.000)	(0.000)	(0.000)	(0.429)	(0.005)	(0.028)	(0.000)	(0.667)	(0.072)
CGDP	-0.73	-0.80	-1.79*	-0.41	-2.56**	-2.20**	-1.43	-0.02	2.28**
	(0.465)	(0.427)	(0.073)	(0.680)	(0.011)	(0.029)	(0.152)	(0.984)	(0.023)
Constant	-1.68*	-1.80*	-1.17	-1.55	-2.24**	-1.22	-3.62***	-4.40***	
	(0.093)	(0.073)	(0.241)	(0.125)	(0.026)	(0.222)	(0.000)	(0.000)	
fixed effect	Year	Year	Year	Year	Year	Year	Year	Year	
STD clustering	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	
F (chi2)	23.93***	24.36***	327.28***	4.64***	48.90***	46.87***	584.12***	8.96***	
Overall R^2	0.4320	0.4387	0.4913	0.1456	0.5385	0.5474	0.5917	0.2202	
Hausman chi2	102.25***	101.56***	8.22	121.77***	119.66***	130.44***	1.85	108.79***	
No of obs	324	324	324	174	360	360	360	200	

Notes: This table reports the t-statistics and P-value (in parentheses) from using a fixed effect regression with heteroscedasticity-robust standard errors. This table presents the following variables: Tobin's Q (*TOQ*), weighted risk disclosures index (*W-RMDPI*), block shareholdings (*BSHR*), governmental shareholdings (*GSHR*), foreign shareholdings (*FSHR*), board size (*BBSZ*), CEO power (*CEOP*), board independence (*BBID*), Islamic governance (*ISG*), national governance quality (*NGQM*), bank size (*LNBS*), profitability (*BPR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual inflation (*INFR*), and annual GDP per capita (*CGDP).* See Table 33 for the definitions of each variable.

*** Denotes significant at the 1% level.

** Denotes significant at the 5% level.

* Denotes significant at the 10% level.

Fifthly, the study classifies banks in the sample into strongly (poorly) performing banks subsample if the relative mean of bank value scores of a given bank is larger than (smaller than) the mean for all banks. Table 41 indicates the variables that influence bank value, and how those variables work among banks operating in strongly performing and poorly performing banks. Table 41 also offers a number of remarkable results as well as reveals that risk disclosures and multi-level governance have a significant impact on *TOQ* in highly performing banks compared with their counterparts. Specifically, I found that Islamic governance and national governance quality strongly affects *TOQ* in highly performing banks, unlike their counterparts. These results demonstrate the accountability role, ethical values, and effectiveness of Islamic governance and *NGQM* to boost and monitor banks' transparency level.

By contrast, I found that bank-level governance strongly influences *TOQ* in poorly performing banks, unlike their counterparts. In particular, I found that *CEOP*, *BBID*, *BSHR*, and *GSHR* strongly impact *TOQ* in poorly performing banks compared with highly performing banks. These results imply that MENA investors perceive Islamic governance and country-level governance as the main determinant of bank value; however, bank-level governance performs an important role in determining the value of poorly performing banks.

Table 42 The impact of risk disclosures and multi-level governance on bank value (TOQ) (Strongly vs. poorly governing environments)

Variables	Dependent variable: bank value (TOQ)								Difference t-statistics
	Strongly governing environment				Poorly governing environment				
	(1) RMDPI	(2) W- RMDPI	(3) G2SLS	(4) ΔTOQ	(5) RMDPI	(6) W- RMDPI	(7) G2SLS	(8) ΔTOQ	
Panel A: Un-weighted risk disclosures index (*RMDPI*) / Weighted risk disclosures index (*W-RMDPI*)									
RMDPI	3.16***	3.38***	3.21***	2.88***	4.08***	3.09***	4.61***	1.96*	16.96***
	(0.002)	(0.001)	(0.001)	(0.005)	(0.000)	(0.002)	(0.000)	(0.051)	(0.000)
Panel B: Bank-level governance (ownership variables)									
BSHR	1.11	0.92	0.99	1.51	-2.39**	-1.97**	-1.79*	-0.73	-2.38**
	(0.267)	(0.358)	(0.323)	(0.134)	(0.017)	(0.049)	(0.074)	(0.466)	(0.017)
GSHR	-0.94	-0.78	-2.11**	-0.22	-2.59**	-2.66***	-2.19**	-1.25	3.06***
	(0.351)	(0.439)	(0.035)	(0.830)	(0.010)	(0.008)	(0.029)	(0.212)	(0.002)
FSHR	0.98	0.73	0.54	1.03	2.95***	2.83***	4.21***	2.09**	-0.36
	(0.330)	(0.466)	(0.587)	(0.305)	(0.003)	(0.005)	(0.000)	(0.038)	(0.717)
Panel C: Bank-level governance (board variables)									
BBSZ	0.34	0.13	1.03	0.00	1.59	1.08	1.86*	1.67*	13.48***
	(0.737)	(0.894)	(0.301)	(0.997)	(0.112)	(0.280)	(0.062)	(0.097)	(0.000)
CEOP	1.98**	2.09**	0.68	0.87	-3.39	-3.37***	-3.56***	-0.08	6.68***
	(0.049)	(0.038)	(0.495)	(0.386)	(0.001)	(0.001)	(0.000)	(0.933)	(0.000)
BBID	1.11	1.20	0.90	1.01	7.65***	8.11***	7.76***	0.84	19.87***
	(0.270)	(0.231)	(0.368)	(0.314)	(0.000)	(0.000)	(0.000)	(0.404)	(0.000)
Panel D: Bank-level governance (Islamic governance)									
ISG	5.49***	5.07***	7.13***	0.10	1.36	1.80*	1.76*	0.22	17.58***
	(0.000)	(0.000)	(0.000)	(0.917)	(0.176)	(0.073)	(0.079)	(0.827)	(0.000)
Panel E: Country-level governance (national governance quality)									
NGQM	1.45	1.46	1.95*	1.40	-0.20	-0.64	-1.21	-0.56	22.36***
	(0.149)	(0.145)	(0.051)	(0.165)	(0.843)	(0.522)	(0.227)	(0.579)	(0.000)
Panel F: Control variables									
LNBS	5.07***	5.24***	4.68***	1.58	9.93***	9.03***	10.78***	2.61**	25.18***
	(0.000)	(0.000)	(0.000)	(0.118)	(0.000)	(0.000)	(0.000)	(0.010)	(0.000)
BPR	0.37	0.68	0.34	1.01	-0.37	-0.24	-0.34	-1.96*	0.87
	(0.714)	(0.498)	(0.735)	(0.316)	(0.712)	(0.812)	(0.736)	(0.052)	(0.386)
OPEF	-0.51	-0.65	-0.60	-0.26	-3.02***	-2.47**	-1.30	-1.03	-15.45***
	(0.608)	(0.518)	(0.546)	(0.793)	(0.003)	(0.014)	(0.194)	(0.304)	(0.000)

Table 42 The impact of risk disclosures and multi-level governance on bank value (TOQ) (Strongly vs. poorly governing environments) continued...

BCAD	1.83*	1.60	1.98**	0.48	0.70	0.65	2.55**	0.13	-1.10
	(0.069)	(0.111)	(0.047)	(0.632)	(0.487)	(0.518)	(0.011)	(0.898)	(0.273)
INFR	4.72***	4.71***	5.42***	0.65	2.37**	1.84*	2.97***	0.99	-0.84
	(0.000)	(0.000)	(0.000)	(0.520)	(0.018)	(0.067)	(0.003)	(0.322)	(0.399)
CGDP	-0.27	-0.18	-1.21	-1.03	-2.55**	-2.36**	-2.64**	-0.39	4.73***
	(0.784)	(0.854)	(0.228)	(0.307)	(0.011)	(0.019)	(0.008)	(0.699)	(0.000)
Constant	-1.57	-1.55	-0.37	-0.30	-1.53	-0.73	-2.20**	-3.05***	
	(0.117)	(0.122)	(0.712)	(0.764)	(0.126)	(0.466)	(0.028)	(0.003)	
fixed effect	Year	Year	Year	Year	Year	Year	Year	Year	
STD clustering	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	
F (chi2)	18.05***	18.28***	310.13***	4.49***	119.38***	116.32***	1607.03***	14.45***	
Overall R^2	0.4962	0.4998	0.5756	0.1206	0.7335	0.7350	0.7696	0.2828	
Hausman chi2	88.05***	85.22***	4.62	108.25***	124.54***	201.80***	3.05	72.09***	
No of obs	268	268	268	141	416	416	416	261	

Notes: This table reports the t-statistics and P-value (in parentheses) from using a fixed effect regression with heteroscedasticity-robust standard errors. This table presents the following variables: Tobin's Q (*TOQ*), weighted risk disclosures index (*W-RMDPI*), block shareholdings (*BSHR*), governmental shareholdings (*GSHR*), foreign shareholdings (*FSHR*), board size (*BBSZ*), CEO power (*CEOP*), board independence (*BBID*), Islamic governance (*ISG*), national governance quality (*NGQM*), bank size (*LNBS*), profitability (*BPR*), operations efficiency (*OPEF*), capital adequacy (*BCAD*), annual inflation (*INFR*), and annual GDP per capita (*CGDP*). See Table 33 for the definitions of each variable.

*** Denotes significant at the 1% level.

** Denotes significant at the 5% level.

* Denotes significant at the 10% level.

Sixthly, I further examined whether the behaviour of investors differs over the pre, during, and post-2007/2008 GBC periods. Findings are presented in Models 5, 6, and 7 of Table 39 and Models 5, 6, and 7 of Table 40, respectively. Model 5 of Table 39 and Model 5 of Table 40 report pre- GBC period estimates.

The results suggest evidence consistent with a positive risk disclosures–bank value relationship. However, the coefficient of the risk disclosures (*RMDPI*) in Model 5 of Table 39 is less than pooled sample. Model 5 of Table 39 and Model 5 of Table 40 report inconsistent results regarding multi-level governance. For instance, Model 5 of Table 39 reports insignificant relationship ($t = 1.50$, $p = 0.139$) between country-level governance (*NGQM*) and the TOQ. This result suggests that MENA countries have pursued important steps towards enhancing country-level governance onward. Similarly, Model 5 of Table 39 and Model 5 of Table 40 show also that most of the bank-level governance variables have an insignificant impact on bank value.

Model 6 of Table 39 and Model 6 of Table 40 report GBC period estimates. The results suggest evidence consistent with an insignificant risk disclosures–bank value relationship. This result implies that investors did not incorporate better risk disclosures in their valuation during the crisis. The results also show that investors incorporate country-level governance (*NGQM*), board independence (*BBID*), foreign shareholdings (*FSHR*), and Islamic governance (*ISG*) as the main determinants of bank value. Model 7 of Table 39 and Model 7 of Table 40 report post-GBC period estimates. The results strongly suggest similar evidence with those reported in Model 7 of Table 39 and Model 7 of Table 40 of pooled sample estimates.

Finally, previous studies argue that institutional environment significantly affects investors' decisions regarding the risk disclosure informativeness (Abdioglu *et al*., 2013; Aggarwal *et al*., 2011; Cumming *et al*., 2014; Leuz *et al*., 2010). For example, Lau *et al*. (2015) show a positive association between country-level governance and market responses to earnings announcements especially in strongly governed countries compared with those in weakly governed countries. I hypothesise, therefore, that multi-level governance and risk disclosures might be more informative for those banks that operate in strongly governed countries than for poorly governed countries. Table 42 reports the variables that influence bank value, and how those variables work among banks operating in strongly governed and poorly governed environments.

The study classifies banks in the sample into the strongly (poorly) governed environments subsample if the relative mean of *NGQM* scores of a given bank is larger than (smaller than) the mean for all banks. Table 42 also offers a number of remarkable results as well as reveals that risk disclosures and bank-level governance have a significant impact on *TOQ* in poorly governed environments compared with their counterparts. By contrast, Islamic governance and national governance quality have a significant impact on *TOQ* in strongly governed environments compared with their counterparts. I also found that both strongly (Models 1, 2, 3, and 4) and poorly (Models 5, 6, 7, and 8) governing environments are likely to provide informative risk disclosures, However, banks at poorly governing environments tend to provide more informative risk disclosures.

Remarkably, I found that *NGQM* has a negative impact on *TOQ* in poorly governed environments. These results support the argument that *NGQM* plays an important role in

determining the sign and significance of the bank value. This result also suggests that *NGQM* plays a substitute, not a complementing role to bank-level governance features that affect managerial discretion, and consequently, market valuation.

In summary, additional analyses indicate that the main results of the impact of risk disclosures and multi-level governance on bank value are robust to different sub-samples, proxies for bank value, and for risk disclosures index. However, when the study uses other sub-samples for strongly governed and poorly governed environments and/ or strongly performing and poorly performing banks, I found an evidence of a substitutive relationship between country-level governance and bank-level governance.

6.Summary and Conclusion

This study presents empirical evidence on the impact of risk disclosures and multi-level governance on bank value using a dataset from MENA banks for a period of eight years from 2006 to 2013. The results confirm the substantial role of risk disclosures and multi-level governance in improving bank valuation in MENA. More specifically, the results indicate that bank value is high in banks with higher foreign ownership, board size, board independence, Islamic governance, and national governance quality. I also find a significant negative relation between CEO power and bank value. Overall, these results support the multi-theoretical framework predictions derived from the agency, signalling, and institutional theories. In addition, I found evidence of informative risk disclosures and multi-level governance in countries considered as a strongly governed environment. More importantly, the bank-level governance impact is higher in poorly governed environments

compared to strongly governed environments. These findings are robust to the different sub-samples, proxies for bank value, and for risk disclosures index.

This research presents three significant contributions to the disclosure quality and banking literature. Firstly, and to the best of the researcher's knowledge, this study offers first-time evidence on the impact of Islamic governance on bank value. Secondly, the essay adds to the extant research of the informativeness of risk disclosures. Thirdly, the study offers evidence on the impact of multi-level governance on bank value using a multi-theoretical framework. Hence, the results emphasize the relevance of IFRS, Basel, and CG reforms that push for more consistency in risk disclosures and corporate governance practices. Consequently, the findings have a number of implications for regulators, banks, and investors, especially in emerging markets.

The results suggest that better-governed banks at bank- or national-level have a high expectancy of higher market valuation. These results offer regulators a resilient incentive to pursue CG and disclosure reforms officially and mutually with national-level governance. Regarding banks, the results suggest that better Islamic governance and risk disclosures are expected to have a better market valuation. These results empower banks' shareholders to enhance board structure (e.g., board size, and BBID) and pay considerate attention to risk disclosures. These results also indicate the importance of Islamic governance to mitigate information asymmetry and gain more legitimacy to achieve society's acceptance and enhance bank value.

Thus, these results show the monitoring and legitimacy benefits of multi-level governance, resulting in higher bank valuation. The results of the study would be beneficial

to develop countries in developing the current regulatory framework by concentrating on country-level governance as a substitute to CG structures in mitigating banks' information asymmetry. Lastly, the findings offer investors the opportunity to build specific expectations about the disclosure quality in terms of risk disclosures. Further research might investigate the impact of either governance mechanisms (e.g., risk committee and remuneration committee) or other types of ownership structures such as family, institutional, and managerial ownership on bank value. It might be also extended to use non-parametric statistical techniques such as neural networks to investigate whether different results can be obtained.

Summary and Conclusion:

Findings, Contributions, Implications and Recommendations, Limitations and Suggestions for Future Research

1. Summary of the Thesis

The financial crises that have been witnessed over the last two decades have raised the importance of risk disclosure in the banking sector worldwide. Despite its importance, studies examining the impact of firm-level governance structures on risk disclosure are generally rare, but particularly acute with respect to the banking sector of developing countries, such as those in the MENA region. Further, and to the best of the researcher's knowledge, no previous research has examined the effect of multi-level governance mechanisms (e.g., board and ownership structures, *Sharia* supervisory board, and country-level governance mechanisms) either on the level of bank risk disclosures, or on bank credit ratings and value.

Hence, this thesis measures the level of risk disclosures in MENA banks and ascertains the extent to which multi-level governance mechanisms, including bank- and country-level governance can explain observable differences in the risk disclosures. In addition, it examines the informativeness of risk disclosures from equity and debt markets using a sample of 14 countries in the MENA region over the period of 2006 to 2013. This thesis is motivated by the dearth of research investigating the impact of multi-level governance on risk disclosure in banks and its consequences. It is also motivated by the fact that during the 2006 – 2013 period, all MENA authorities made considerable changes to CG and implemented IFRS standards and Basel accords, which required banks to report more information about their risks. Risk disclosures also are critical for banks due to their opaqueness, complexities, multiple agency conflicts, and severely critical information asymmetries.

This thesis seeks to achieve fourteen objectives. First, it ascertains whether the *Sharia* Supervisory Board (SSB) can have an effect on the level of bank risk disclosures. Second, it seeks to examine, at the bank level, whether differences in risk disclosure level could be explained by board structures. Third, it attempts to determine whether the ownership structures (government ownership and family ownership) can have an effect on the level of bank risk disclosures. Fourth, it seeks to investigate, at the country level, the extent to which country-level governance mechanisms (i.e., control of corruption and political stability and absence of violence) can have an effect on the level of bank risk disclosures. Fifth, it intends to examine whether the national governance quality and Islamic governance quality have an effect on the level of risk management and disclosure practices (RMDPs).

Sixth, it attempts to explore why and how national governance quality may have a moderating influence on the Islamic governance quality - RMDPs nexus in the MENA Islamic banks. Seventh, it examines whether risk disclosures have a predictive effect (informativeness) on bank credit ratings (BCRs) in MENA region. Eighth, it attempts to ascertain whether SSB can have a predictive effect (informativeness) on BCRs in MENA region. Ninth, it investigates, at the bank level, whether differences in BCRs could be explained by board structures. Tenth, it examines whether the ownership structures can have an effect on the BCRs. Eleventh, it explores whether governance structures have a moderating effect on the risk disclosures-BCRs nexus.

Twelfth, it seeks to examine whether risk disclosures influence banks' market value in MENA region. Thirteenth, it attempts to explore whether the bank-level governance, including Islamic governance, board structures, and ownership structures affect market

valuation. Finally, it seeks to investigate whether country-level governance could explain differences in market valuation.

This thesis' multi- theoretical prospect is that effective governance structures may reduce the level of information asymmetry and uncertainty between shareholders and managers, as well as between shareholders and stakeholders by facilitating greater corporate transparency and accountability through increased risk disclosures, which may lead to better valuation. Improved risk disclosures also send important signals to the market about performance and risk management in banks. Such improved risk disclosure may secure access to resources, legitimise banks' operations, and hence, reduce the cost of capital and improve valuation. The essay results are briefly synopsised below.

2. Synopsis of Findings

The examination of the impact of MLG on banks' risk disclosure is motivated by the dearth of research investigating the impact of board, ownership, SSB and country governance characteristics on risk disclosure in banks. The study is also motivated by the fact that during the 2006 – 2013 period, all MENA authorities made considerable changes to CG and implemented IFRS standards and Basel accords, which required banks to report more information about their risks.

The first essay investigates the relationships among board, ownership, SSB and country governance characteristics and risk management and disclosure practices (RMDPs). The multivariate analysis results suggest that the MLG is significant in explaining differences in

risk disclosure level. Specifically, the results suggest that *Sharia* Supervisory Board index (SSB) is positively associated with the level of risk disclosures by banks.

Second, and at the bank level, this study finds that ownership (governmental ownership and family ownership) and board (board size and non-executive directors) structures have a positive effect on the level of risk disclosures by banks, whilst CEO duality is negative, but insignificantly related to bank risk disclosures. Finally, and at the country level, the evidence suggests that control of corruption has a positive effect on the level of bank risk disclosure, whilst political stability and absence of violence have a negative, but insignificant association with the level of bank risk disclosures. These findings are largely in line with the predictions of the multi-theoretical framework that incorporates insights from agency, signalling, legitimacy, and resource dependence theories.

The second essay examines the relationships among Islamic governance quality, including other bank-level governance mechanisms, national-level governance, and RMDPs using a dataset from MENA Islamic banks for the financial years of 2006-2013. The results confirm the substantial role of Islamic governance quality and national governance quality in improving RMDPs in MENA Islamic banks. Specifically, the results indicate that RMDPs are high in banks with high Islamic governance, board size, non-executive directors, and national governance quality.

In addition, the results indicate that NGQM moderates Islamic governance quality-RMDPs nexus. These results are consistent with the predictions of the multi-theoretical framework that incorporates insights from agency, signalling, legitimacy, institutional, and resource dependence theories. These results also support the argument that NGQM plays an

important role in determining the sign and the significance of the Islamic governance quality-RMDPs nexus.

The third essay examines the predictive effect (informativeness) of risk disclosures on BCRs in MENA region. Consequently, it ascertains whether governance structures have a moderating effect on the risk disclosures-BCRs nexus using the MENA BCRs for fiscal years 2006-2013. The empirical analysis results are five-fold. First, the result shows that risk disclosures are statistically significant and positively incorporated into the BCRs. Second, the results show that *Sharia* supervisory board is statistically significant and positively incorporated into the BCRs. Third, the results suggest that governmental ownership is statistically significant and positively incorporated into the BCRs, while foreign ownership is statistically significant and negatively incorporate in BCRs.

Fourth, board size, gender diversity, and non-executive directors are statistically significant and positively incorporated into the BCRs. While, the results indicate that CEO power (duality) is statistically significant and negatively related to BCRs. Finally, the results imply that governance structures have a moderating effect on the risk disclosures-BCRs nexus. Notably, these results consider the effect of several other controlling variables, including bank size, performance, liquidity, income diversity, operations efficiency, capital, voice and accountability, regulatory quality, rule of law, time, inflation, and GDP per capita. The results are consistent with the expectations of agency, signal, legitimacy, and resource dependence theories.

In the final essay, we undertake a cross-country study to investigate three issues related to market valuation that are highly relevant to banks and investors in developing countries.

The first issue is whether the risk disclosures can influence the value of banks. The second issue is how bank-level governance may affect the bank value. Finally, this essay explores the relationship between operating in highly governed countries and the market value of banks. The results confirm the substantial role of risk disclosures and multi-level governance in improving bank valuation in MENA.

More specifically, the results indicate that market valuation is higher in banks with bigger foreign ownership, board size, board independence, Islamic governance, and national governance quality. The results also show a significant negative relationship between CEO power and bank value. Overall, these results support the multi-theoretical framework predictions derived from the agency, signalling, and institutional theories. In addition, I found evidence of informative risk disclosures and multi-level governance in countries considered as a strongly governed environment. More importantly, the bank-level governance impact is higher in poorly governed environments compared with strongly governed environments.

In summary, regression analyses indicate that multi-level governance has positive impact on risk disclosures. The risk disclosures and multi-level governance have a significant influence on credit ratings and bank value. In addition, the results demonstrate the importance of institutional settings in determining the sign and significant of either multi-level governance-risk disclosures nexus, or the relationship between risk disclosures, multi-level governance and bank value. Finally, these results are robust to different sub-samples, proxies for bank value, and for risk disclosures index.

3. Contributions of the Thesis

The thesis results extend, as well as make a number of new contributions to the extant research. First, to the best of the researcher's knowledge, the study provides a first-time cross-country evidence on the level of risk disclosures in MENA, especially following the 2007/08 financial crisis. Second, the essays provide evidence for the first time on the impact of in-board layer (i.e., SSB) on the level of risk disclosures by MENA banks. Third, the study provides evidence on the extent to which differences in bank risk disclosures can be explained by bank-level governance, including board and ownership, and country-level governance. Fourth, the evidence offers insights into risk disclosure and governance practices over the pre- and post-2007/08 period.

Fifth, and to the best of the researcher's knowledge, the study offers first-time evidence on the effect of national governance quality on bank risk management and disclosure practices using a multi-theoretical framework. Sixth, the essays offer first time evidence on the impact of Islamic governance quality on bank risk management and disclosure practices. Seventh, the study provides evidence for the first time relating to the moderating effect of national governance quality on the relationship between Islamic governance quality and bank risk management and disclosure practices. Eighth, it contributes to the literature by providing first time evidence on the link between risk disclosures and banks' credit ratings.

Ninth, the study contributes to the literature by providing first time evidence on the moderating effect of governance structures on the risk disclosure-credit rating nexus. Tenth, and to the best of the researcher's knowledge, this study offers first-time evidence on the impact of Islamic governance on bank value. Eleventh, the essays add to the extant research

of the informativeness of risk disclosures. Twelfth, the study offers evidence on the impact of multi-level governance on bank value using a multi-theoretical framework. Hence, the results emphasize the relevance of IFRS, Basel, and CG reforms that push for more consistency in risk disclosures and corporate governance practices.

4. Implications of the Thesis and Recommendations

Given the distinctive aspects of the MENA context, this thesis has a number of implications for policymakers, regulators, practitioners and investors, as well as IBs, CBs and DBs, especially for banks and authorities in other transition and emerging markets. First, the results show that the banking sector has responded to the recent regulatory pressure to enhance disclosure, transparency, and governance, and thus these results shed light on the importance of risk disclosure reforms for management, policymakers, and regulators in the banking sector especially after GBC. This may stimulate other developing countries that either tend to issue or improve CG codes to implement CG codes so as to improve RMDPs.

Second, the RMDPs measure could also be employed as a framework for representing a list of risk disclosures guidelines and recommendations, to encourage developing countries in improving their banks' transparency and resilience towards risk management and disclosures. Third, the findings show the importance of current CG reforms in MENA banks and their impact on enhancing risk disclosures. Examples of such changes include employing independent chairpersons; increasing board size; and independent members acting as effective bank level advisors and monitors of risk disclosure. Consequently, regulators and policymakers should continually pursue reforms to encourage banks to follow CG principles that are promoted as good practice.

Fourth, the results from the four essays call attention to the ownership structure importance and its role in RMDPs. It indicates that stockholders, especially block, government, family, and foreign stockholders, have strong incentives to monitor RMDPs in banks. Prospective investors may encourage investing in banks with a high proportion of foreign and government ownership because they anticipate more transparent RMDPs that enhance market valuation. Fifth, for IBs and DBs, the results demonstrate the importance of SSB, which mitigates agency costs, and works with BODs as additional governance layers to enhance transparency through comprehensive risk disclosures. In addition, SSB plays an important role in legitimizing banks operations through more disclosure about SSB characteristics to mitigate information asymmetry and gain more legitimacy to achieve society's acceptance.

Sixth, for policymakers, regulators and investors, country governance results show the importance of sound institution governance such as control of corruption in enhancing a banks' transparency through risk disclosure. This thesis thus argues that national governance quality should be included in the corporate governance model in banks. Thus, instead of developing bank-level governance only, policymakers should turn their attention to national governance quality to reflect the interactions among bank-level governance, bank transparency, and market valuation. The results show that most of the MENA countries have low national governance quality. Thus, more effort should be made to improve national governance quality.

Seventh, evidence of increasing informativeness of risk disclosures and governance structures suggests that efforts by banks and regulators to improve risk disclosure, SSB,

board independence, and quality of board rather than quantity become critical, have had some positive impact on BCRs, and improve overall banks' performance. In addition, risk disclosures requirements should be developed frequently to ensure the quality and relevance of the risk disclosures. Eighth, regulators should put more regulatory reform regarding foreign banks in order to enhance their ratings compared to government owned banks.

Ninth, the results suggest that better-governed banks at bank- or national-level have a higher expectancy for a higher market valuation. These results offer regulators a resilient incentive to pursue CG and disclosure reforms officially and mutually with national-level governance. These results also show the monitoring and legitimacy benefits of multi-level governance, resulting in higher bank valuation. Tenth, the results of the study would be beneficial to developing countries in improving the current regulatory framework by concentrating on country-level governance as a substitute to CG structures in mitigating banks' information asymmetry. Eleventh, the results show that the multi-level governance improves RMDPs among MENA banks. This may imply that, unlike mandatory risk disclosures standards (e.g., IFRS 7, 9; and IAS 32, 39), policymakers in developing countries can rely on the multi-level governance to improve RMDPs in their countries.

Twelfth, this thesis offers also theoretical implications. Joint insights from agency, legitimacy, signalling, institutional and resource dependence theories may consider as an important step improving the relevance of Islamic and national governance mechanisms in explaining the motivations involved in risk disclosures and its consequences. This is particularly important in the regulatory and socio-demographical diversity of MENA countries where multi-theoretical approach could help in explaining the seemingly

inconsistent results of risk disclosures variation. Furthermore, to add further theoretical nuance to the multi-theoretical lens, this study cogitates how national governance quality and further effects such as ethical and religious values of the MENA region (i.e., Islamic governance) may influence risk disclosures. Thus, the multi-theoretical lens may remove the limitations to the application of each theory separately, thus offering explicit perception to the pressures, motivations, and decisions contexts surrounding bank disclosure and valuations.

Thirteenth, this thesis offers also methodological implications. First methodological implication is utilising the fixed effect, 2SLS, 3SLS, and G2SLS as presented in models of essays 1, 2, 3, and 4. These estimation models help to strongly solve any potential endogeneities that may be affected by omitted variable bias. PNNs models also may suggest different interpretation compared with the conventional models in relation to the antecedents of RMDPs and its consequences. Second, the results suggest that differentiating between banks operating in poorly governed environments compared with strongly governed environments is essential to determine the impact of institutionally embedded pressures that influence the bank's reaction to be involved in risk disclosures and governance activities.

5. Limitations and Suggestions for Future Research

This research contains some limitations. This study depends on banks annual reports only. Although important, they are not the only means by which banks disclose information about risk. Future research can examine other means by which banks discloses risk disclosures (e.g., press releases and bank website). The thesis also employs bank value (Tobin's q) as a measure of market valuation. It also uses Fitch long-term ratings as a

measure for credit ratings. The use of two or more variables to measure either market valuation (e.g., abnormal returns, market liquidity, and profit margin), or credit ratings (e.g., S&P and Moody's ratings) would be interesting if future research could try to examine it. Finally, further research can address sample size limitations and the impact of further CG mechanism (e.g., audit committee, risk committee, and independent non-executive board members) and and/or other types of ownership structures such as institutional, and managerial ownership on risk disclosures level on risk disclosures level.

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Appendices

Appendix 1: Risk disclosure index (RMDPI)

Risk type	Risk disclosure index (*RMDPI*)	Reference(s)
	Bank financial risk disclosure	
(i) Credit	1- Exposure to credit risk and how they are arise.	(IFRS 7.33b; Basel II. Pillar 3)
	2- Objectives, policies, and processes for managing the credit risk.	(IFRS 7.33b; Basel II. Pillar 3)
	3- Method of measuring credit risk exposure.	(IFRS 7.33b; Basel II. Pillar 3)
	4- Adequately describes how credit risk management occurs including providing a clear linkage between the quantitative data and qualitative description.	(IFRS 7.33b; Basel II. Pillar 3)
	5- Changes in exposure to credit risk, measurement of risk, and objectives, policies and processes to manage the credit risk from the previous period.	(IFRS 7.36a; Basel II. Pillar 3)
	6- Amount of regulatory capital for credit risk (pillar 1 capital).	(IAS 1.134-136; Basel II. Pillar 3)
	7- Information about credit quality of financial assets that are not past due or impaired.	(IFRS 7.33b; Basel II. Pillar 3)
	8- Renegotiated financial assets (that would be past due or impaired).	(IFRS 7.37a; Basel II. Pillar 3)
	9- Aging schedule for past due amounts.	(IFRS 7.37a; Basel II. Pillar 3)
	10- Impairment methods and inputs disclosed.	(IFRS 7.37a; Basel II. Pillar 3)
	11- Summary quantitative data about exposure to credit risk at the reporting date.	(IFRS 7.36a; Basel II. Pillar 3)
	12- Maximum credit exposure by currency.	(IFRS 7.37a; Basel II. Pillar 3)
	13- Maximum credit exposure by geography.	(IFRS 7.37a; Basel II. Pillar 3)
	14- Maximum credit exposure by economic activity.	(IFRS 7.37a; Basel II. Pillar 3)
	15- Disaggregated maximum credit risk exposure including derivatives and off-balance sheet items (e.g., financial guarantees, and contingent commitments).	(IFRS 7.37a; Basel II. Pillar 3)

	16- Renegotiated loans for troubled borrowers.	(IFRS 7.36a; Basel II. Pillar 3)
	17- Risk of counterparty.	(IFRS 7.36a; Basel II. Pillar 3)
	18- Credit risk concentrations.	(IFRS 7.36a; Basel II. Pillar 3)
	19- Derivatives.	(IFRS 7.36a; Basel II. Pillar 3)
	20- Off-balance sheet and joint venture structures.	(IFRS 7.36a; Basel II. Pillar 3)
	21- Credit risk transfer/mitigation/hedging techniques.	(IFRS 7.36a; Basel II. Pillar 3)
	22- Collateral.	(IFRS 7.14-15; Basel II. Pillar 3)
	23- Disclosures to help users understand credit risk.	(IFRS 7.36a; Basel II. Pillar 3)
(ii) Liquidity	24- Exposure to liquidity risk and how they arise.	(IFRS 7.33b; Basel II. Pillar 3)
	25- Objectives, policies and processes for managing the liquidity risk.	(IFRS 7.33b; Basel II. Pillar 3)
	26- Methods used to measure the liquidity risk.	(IFRS 7.33b; Basel II. Pillar 3)
	27- Changes in exposure to liquidity risk, measurement of risk, and objectives, policies and processes to manage the liquidity risk from the previous period.	(IFRS 7.33b; Basel II. Pillar 3)
	28- Contractual undiscounted cash flows.	(IFRS 7.39; Basel II. Pillar 3)
	29- Maturity analysis of non-derivative liabilities.	(IFRS 7.39; Basel II. Pillar 3)
	30- Maturity analysis of derivative liabilities.	(IFRS 7.39; Basel II. Pillar 3)
	31- Maturity analysis of off-balance sheet commitments and other financial instruments without contractually stipulated maturity (e.g., financial guarantees, etc.).	(IFRS 7.39; Basel II. Pillar 3)
	32- Maturity analysis of financial asset.	(IFRS 7.39; Basel II. Pillar 3)
	33- Expected maturity analysis.	(IFRS 7.39; Basel II. Pillar 3)
	34- Derivative and trading liabilities Treatment.	(IFRS 7.39; Basel II. Pillar 3)
	35- Liquidity risk transfer/mitigation/hedging techniques.	(IFRS 7.39; Basel II. Pillar 3)
	36- Liquidity buffers sources and volume.	(IFRS 7.39; Basel II. Pillar 3)

	37- Sensitivity analysis.	(IFRS 7.39; Basel II. Pillar 3)
	38- Financing facilities.	(IFRS 7.39; Basel II. Pillar 3)
	39- Counterparty concentration profile.	(IFRS 7.39; Basel II. Pillar 3)
	40- Disclosures to help users understand liquidity risk.	(IFRS 7.39; Basel II. Pillar 3)
(iii) Market	41- Objectives, policies, processes, and Strategies of market risk management.	(IFRS 7.33b; Basel II. Pillar 3)
	42- Structure and organization of the market risk management function.	(IFRS 7.33b; Basel II. Pillar 3)
	43- Instruments traded types.	(IFRS 7.40-42; Basel II. Pillar 3)
	44- Interest rate risk.	(IFRS 7.40; Basel II. Pillar 3)
	45- Equity risk.	(IFRS 7.40-42; Basel II. Pillar 3)
	46- Currency risk.	(IFRS 7.40-42; Basel II. Pillar 3)
	47- Commodities risk	(IFRS 7.40-42; Basel II. Pillar 3)
	48- Market risk transfer/mitigation/hedging techniques.	(IFRS 7.40-42; Basel II. Pillar 3)
	49- Linkage with credit risk.	(IFRS 7.40-42; Basel II. Pillar 3)
	50- Amount of regulatory capital for market risk (pillar 1 capital).	(IAS 1.134-136; Basel II. Pillar 3)
	51- VAR (value-at-risk).	(IFRS 7.40-42; Basel II. Pillar 3; Pérignon & Smith, 2010)
	52- VAR limitations.	(IFRS 7.40-42; Basel II. Pillar 3; Pérignon & Smith, 2010)
	53- Stress testing.	(IFRS 7.40-42; Basel II. Pillar 3; Pérignon & Smith, 2010)
	54- Stress VAR.	(IFRS 7.40-42; Basel II. Pillar 3; Pérignon & Smith, 2010)
	55- Back-testing.	(IFRS 7.40-42; Basel II. Pillar 3; Pérignon & Smith, 2010)
	56- Disclosures to help users understand market risk.	(IAS 1.134-136; Basel II. Pillar 3)

(iv) Capital	57- Capital management.	(IFRS 7.33b; Basel II. Pillar 3)
	58- Capital measurement.	(IFRS 7.33b; Basel II. Pillar 3)
	59- Risk weighted assets.	(IFRS 7.33b; Basel II. Pillar 3)
	60- Tier 1.	(IAS 1.134-136; Basel II. Pillar 3)
	61- Tier 2.	(IAS 1.134-136; Basel II. Pillar 3)
	Bank non-financial risk disclosure	
(v) Operational	62- Amount of regulatory capital for operational risk (pillar 1 capital).	(Barakat & Hussainey, 2013; BCBS, 2006, 2014b, 2015b, 2016; IAS 1.134-135; IFRS 7.33 (b))
	63- Regulatory capital for operational risk Measurement approach.	(Barakat & Hussainey, 2013; BCBS, 2014b, 2014c, 2016; IFRS 7.33 (b))
	64- Operational risk management Strategies and processes.	(Barakat & Hussainey, 2013; BCBS, 2014b, 2014c, 2015b, 2016; IFRS 7.33; Ntim et al., 2013)
	65- The operational risk management function structure and organisation.	(Barakat & Hussainey, 2013; BCBS, 2014b, 2014c, 2015b, 2016; IFRS 7.33; Ntim et al., 2013)
	66- Scope and nature of the operational risk reporting system	(Barakat & Hussainey, 2013; BCBS, 2014b, 2014c, 2015b, 2016; IFRS 7.33; Ntim et al., 2013)
	67- Operational risk transfer/mitigation/hedging techniques.	(Barakat & Hussainey, 2013; BCBS, 2014b, 2014c, 2015b, 2016; Ntim et al., 2013)
	68- Operational value-at-risk.	(Barakat & Hussainey, 2013; Ford et al., 2009)
	69- Internal audit function/internal control system.	(Barakat & Hussainey, 2013; BCBS, 2014c; Helbok & Wagner, 2006; Karim & Archer, 2013; Mokni et al., 2014; Ntim et al., 2013; Van Greuning & Iqbal, 2007)
	70- Key risk indicators (KRIs)/early warning systems (EWSs).	(Barakat & Hussainey, 2013; BCBS, 2014c; Ford

		et al., 2009; Mokni et al., 2014; Young, 2015)
	71- Self-assessment techniques (SA).	(Barakat & Hussainey, 2013; Ford et al., 2009; Young, 2015)
	72- Stress tests/ Scorecard models/scenario analyses.	(Barakat & Hussainey, 2013; Ford et al., 2009; Mokni et al., 2014; Young, 2015)
	73- Operational risk event databases (internal/external).	(Barakat & Hussainey, 2013; BCBS, 2014c; Ford et al., 2009; Ginena, 2014; Mokni et al., 2014; Van Greuning & Iqbal, 2007; Young, 2015)
	74- Legal risks.	(Barakat & Hussainey, 2013; Ginena, 2014; Helbok & Wagner, 2006; Van Greuning & Iqbal, 2007)
	75- Additional information on risk exposure and management (e.g., cumulative amounts of historical operational losses classified by event types and business).	(Barakat & Hussainey, 2013; Van Greuning & Iqbal, 2007)
	76- Technology/information technology.	(Helbok & Wagner, 2006; Ntim et al., 2013; Van Greuning & Iqbal, 2007)
	77- Compliance.	(Ginena, 2014; Ntim et al., 2013; Van Greuning & Iqbal, 2007)
	78- Marketing/customer satisfaction/boycott.	(Ntim et al., 2013; Van Greuning & Iqbal, 2007)
	79- Competition/proprietary/copyright.	(Ntim et al., 2013; Van Greuning & Iqbal, 2007)
	80- Personnel (human error, labour disputes, loss of/recruiting key employees).	(Ginena, 2014; Helbok & Wagner, 2006; Ntim et al., 2013; Van Greuning & Iqbal, 2007)
	81- Integrity/management and employee fraud.	(Helbok & Wagner, 2006; Ntim et al., 2013; Van Greuning & Iqbal, 2007)
	82- Business ethics/corruption.	(Ginena, 2014; Ntim et al., 2013; Van Greuning & Iqbal, 2007)
	83- Disclosures to help users understand operational risk.	(Barakat & Hussainey, 2013; BCBS, 2014c; Ford

		et al., 2009; Van Greuning & Iqbal, 2007)
(vi) Strategic	84- Sovereign/politics.	(Amran et al., 2009; Ntim et al., 2013; Miihkinen., 2012; Moumen et al., 2015)
	85- Performance measurement.	Amran et al., 2009, Ntim et al., 2013
	86- Regulation.	(Amran et al., 2009; Miihkinen., 2012; Ntim et al., 2013; Moumen et al., 2015)
	87- Taxation.	(Ntim et al., 2013)
	88- Macroeconomic trends.	(Ntim et al., 2013)
	89- Natural disasters/terrorism.	(Ntim et al., 2013)
	90- GDP growth/market demand/aggregate demand.	(Miihkinen., 2012; Ntim et al., 2013)
	91- Intellectual property rights.	(Ntim et al., 2013)
	92- New alliances, joint ventures and acquisitions.	(Amran et al., 2009; Miihkinen., 2012; Moumen et al., 2015; Ntim et al., 2013)
	93- Management of growth.	(Ntim et al., 2013)
	94- Reputation/goodwill/image/brand name.	(Miihkinen., 2012, Moumen et al., 2015)
	95- Strategy.	(Ntim et al., 2013)
	96- Disclosures to help users understand strategic risk.	(Ntim et al., 2013)
Total	**96 risk disclosure items**	

Appendix 2: Procedure of scoring for un-weighted/ weighted index

Procedure of scoring for un-weighted index
0: Risk item not disclosed by bank.
1: Risk item disclosed by bank.
Procedure of scoring for weighted index
0: Risk item not disclosed by bank.
1: Risk item disclosed by bank contains past, future, good, bad and/or qualitative information.
2: Risk item disclosed by bank contains past, future, good, bad, qualitative and/or quantitative information.

Appendix 3: A list of the 100 MENA sampled banks' names

No	Bank name	Country
1	Abu Dhabi Commercial Bank	AE
2	Abu Dhabi Islamic Bank	AE
3	Bank of Sharjah	AE
4	Commercial Bank International P.S.C.	AE
5	Commercial Bank of Dubai P.S.C.	AE
6	Dubai Islamic Bank PJSC	AE
7	Emirates Islamic Bank PJSC	AE
8	Emirates NBD PJSC	AE
9	First Gulf Bank	AE
10	Invest Bank P.S.C.	AE
11	Mashreqbank PSC	AE
12	National Bank of Abu Dhabi	AE
13	National Bank of Fujairah	AE
14	National Bank of Ras Al-Khaimah (P.S.C.) (The)-RAKBANK	AE
15	National Bank of Umm Al-Qaiwain	AE
16	Sharjah Islamic Bank	AE
17	Union National Bank	AE
18	United Arab Bank PJSC	AE
19	Ahli United Bank BSC	BH
20	Albaraka Banking Group B.S.C.	BH
21	Al-Salam Bank-Bahrain B.S.C.	BH
22	Arab Banking Corporation BSC	BH
23	Bahrain Islamic Bank B.S.C.	BH
24	BBK B.S.C.	BH
25	Gulf Finance House BSC	BH
26	Khaleeji Commercial Bank	BH
27	National Bank of Bahrain	BH
28	Ithmaar Bank B.S.C.	BH

No	Bank name	Country
29	Bahrain Commercial Facilities Company BSc	BH
30	Abu Dhabi Islamic Bank	EG
31	Al Baraka Bank Egypt SAE	EG
32	Arab Banking Corporation - Egypt	EG
33	Commercial International Bank (Egypt) S.A.E.	EG
34	Credit Agricole Egypt	EG
35	Egyptian Gulf Bank	EG
36	Société Arabe Internationale de Banque-SAIB	EG
37	Suez Canal Bank	EG
38	The National Bank of Kuwait - Egypt SAE-NBK	EG
39	Union National Bank - Egypt SAE	EG
40	Faisal Islamic Bank of Egypt	EG
41	Arab Bank Plc	JO
42	Arab Banking Corporation (Jordan)	JO
43	Bank of Jordan Plc	JO
44	Cairo Amman Bank	JO
45	Capital Bank of Jordan	JO
46	Housing Bank for Trade & Finance (The)	JO
47	Jordan Ahli Bank Plc	JO
48	Jordan Commercial Bank	JO
49	Jordan Dubai Islamic Bank	JO
50	Jordan Islamic Bank	JO
51	Jordan Kuwait Bank	JO
52	Société générale de Banque-Jordanie	JO
53	Ahli United Bank KSC	KW
54	Al Ahli Bank of Kuwait (KSC)	KW
55	Boubyan Bank KSCP	KW
56	Burgan Bank SAK	KW
57	Commercial Bank of Kuwait SAK (The)	KW
58	Gulf Bank KSC (The)	KW

No	Bank name	Country
59	Kuwait Finance House	KW
60	Kuwait International Bank	KW
61	National Bank of Kuwait S.A.K.	KW
62	Warba Bank	KW
63	B.L.C. Bank S.A.L	LB
64	Bank Audi SAL	LB
65	Bank of Beirut S.A.L.	LB
66	Banque BEMO SAl	LB
67	BLOM Bank S.A.L.	LB
68	Byblos Bank S.A.L.	LB
69	Banque Marocaine du Commerce Extérieur-BMCE Bank	MA
70	Bank Dhofar SAOG	OM
71	Bank Muscat SAOG	OM
72	Bank Sohar SAOG	OM
73	HSBC Bank Oman	OM
74	National Bank of Oman (SAOG)	OM
75	Ahli Bank QSC	QA
76	Al Khalij Commercial Bank	QA
77	Commercial Bank of Qatar (The) QSC	QA
78	Doha Bank	QA
79	Masraf Al Rayan (Q.S.C.)	QA
80	Qatar International Islamic Bank	QA
81	Qatar Islamic Bank SAQ	QA
82	Qatar National Bank	QA
83	Al Rajhi Bank	SA
84	Alinma Bank	SA
85	Arab National Bank	SA
86	Bank Al-Jazira	SA
87	Banque Saudi Fransi	SA
88	National Commercial Bank (The)	SA

No	Bank name	Country
89	Riyad Bank	SA
90	Samba Financial Group	SA
91	Saudi British Bank (The)	SA
92	Saudi Hollandi Bank	SA
93	Saudi Investment Bank (The)	SA
94	Bank of Syria and Overseas SA	SY
95	Syria International Islamic Bank	SY
96	Arab Tunisian Bank	TN
97	UBCI BNP PARIBAS	TN
98	Bank of Palestine Plc	PS
99	North Bank	IQ
100	Bank of Baghdad	IQ

Notes: The final sample covers 100 banks listed in 14 MENA stock exchanges as follows: United Arab of Emirates (AE), Bahrain (BA), Egypt (EG), Jordan (JO), Kuwait (KW), Lebanon (LB), Morocco (MA), Oman (OM), Qatar (QA), Saudi Arabia (SA), Syria (SY), Tunisia (TN), Palestine (PS), and Iraq (IQ). The final sample consists of 752 bank-year observations over eight fiscal years, from 2006 to 2013.