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**Risk disclosure, corporate governance, and cost of
capital of Saudi listed firms**

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BSc, MSc, CFA**

**Submitted in Fulfilment of the Requirements for
the Degree of Doctor of Philosophy in Accounting
and Finance**

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College of Social Sciences**

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Abstract

The recent financial crisis of 2009 and corporate failures have highlighted the importance of monitoring risk-taking within corporations, raising the attention of practitioners and researchers to corporate risk disclosures. This thesis provides a comprehensive analysis, which aims to examine corporate risk disclosure practices, determinants, and implications on the cost of capital. To this end, this study employs a sample consisting of all non-financial listed firms in Saudi Arabia to investigate risk disclosure practices. All data for the study were manually collected from the annual reports of sample firms over four years (from 2012 to 2015) using content analysis. The descriptive findings show that Saudi firms disclose 24 risk-related sentences on average. Operational and financial risks appear to be the most frequent disclosed risks while strategic risks are significantly lower. Most disclosed risks in the Saudi context are positive, forward-looking, and qualitative. This study further examines the determinants of corporate risk disclosure in Saudi public firms, with particular emphasis on corporate governance mechanisms, ownership structure, Islamic values, and the Loss-Making Firms Procedures (LMFPs). The findings indicate that board size, government ownership, and inside ownership are negatively and significantly related to risk disclosure. Independent and non-executive directors are positively and significantly related to risk disclosure. However, auditor type, board education, risk management committee, institutional ownership, block ownership, and Islamic values have no statistically significant relationships with risk reporting. Using a difference-in-difference model, the results show that risk disclosure for loss-making firms has increased significantly after the introduction of the Loss-Making Firms Procedures. The evidence presented thus far supports the positive impact of corporate governance on risk disclosure by examining an exogenous shock. The results also show that risk disclosure is negatively and significantly associated with the cost of capital. These results are robust to a battery of robustness tests.

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Author's Declaration

I declare that, except where explicit reference is made to the contribution of others, this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

Signature _____

Printed name: Omar Mohammed Almania

Abbreviations

BIG4	Auditor type
BLOCKOWN	Block holders ownership
BS	Board size
CAPM	The Capital Assets Pricing Model
CMA	The Capital Market Authority
COC	The Cost of Capital
GOVOWN	Government ownership
ID	Independent directors
INSIDOWN	Insiders ownership
INSTOWN	Institutional ownership
IV	Islamic values
IVI	Islamic values index
LIQ	Liquidity
LMFPs	The Loss-Making Firms Procedures
LogPages	Total disclosure
LogRD	Risk-related sentences
LogSales	Firm size
LVG	Firm risk
NED	Non-executive directors
RD	Risk disclosure
ROE	Profitability
SCGC	The Saudi Corporate Governance Code
SOCPA	The Saudi Organization for Certified Public Accountants
Tadawul	The Saudi Stock Exchange.
WAAC	Weighted average cost of capital

Chapter 1 INTRODUCTION

The scandals and failures of several well-known corporations in recent decades such as Enron, Lehman Brothers, AIG, and WorldCom have motivated regulators to work towards improving the levels of transparency and corporate governance. Likewise, the financial crisis of 2009 can be considered the consequence of taking extensive risks with a lack of disclosure. The financial crises thereby increased the attention to corporate risk reporting and encouraged shareholders and stakeholders to investigate firms' riskiness. Hence, the users of firms' financial reports are increasingly demanding more risk-related disclosure in order to assess the level of risk engaged in by firms and how it is being managed. It is believed that the enhancement of risk reporting has the potential to protect stakeholders' interests (Solomon, Solomon, Norton, & Joseph, 2000). Thus, risk disclosure research has become a popular research field in accounting and finance (Beretta & Bozzolan, 2004; Linsley & Shrivess, 2006). This strand of literature seeks to understand the determinants and implications of risk disclosure, which is defined by Linsley and Shrivess (2006) as *“any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure.”*

It is assumed that the disclosure of detailed risk-related information would help investors, lenders, analysts, auditors, and other users of accounting reports to better assess and evaluate firms (Cabedo & Tirado, 2004; Solomon et al., 2000). Hence, regulators around the world have been motivated to develop formal codes and new rules of best practices in transparency and corporate governance where the disclosure of risk-related information is obligated or encouraged. In this regard, and after the collapse of the Saudi market in 2006, the Capital Market Authority (CMA) in Saudi Arabia introduced corporate governance reforms (Al-Abbas, 2009; Al-Nodel & Hussainey, 2010). The code states that one of the boards of directors' functions is to indicate areas of risk, launch risk management plan, and ensure that the plan is implemented through forecasting the risks that may confront the firm in the future and disclose them with transparency. The updated version of the code issued in 2017 discusses the composition, competencies, and meetings

of the risk management committee¹. Any improvement in the disclosure of risk-related information would be viewed as a partial proof of the effectiveness of recent corporate governance reforms (ICAEW 1999; Solomon et al. 2000) since the Saudi Corporate Governance Code encouraged the disclosure of risk-related information. Indeed, the enhancement of risk reporting has been one of the objectives of the corporate governance reforms around the globe (Madrigal, Guzmán, & Guzmán, 2015).

In recent years, several studies have been conducted to find the determinants of corporate risk disclosure (Abdallah, Hassan, & McClelland, 2015; Abraham & Shrivess, 2014; Al-shammari, 2014; Domínguez & Gámez, 2014; Elshandidy, Fraser, & Hussainey, 2013, 2014; Elzahar & Hussainey, 2012; Hassan, 2009; Madrigal et al., 2015; Linsley & Shrivess, 2005, 2006; Miihkinen, 2012; Mohd Ali & Taylor, 2014; Muzahhem, 2011; Ntim, Lindop, & Thomas, 2013; Rajab & Schachler, 2009). These studies propose various theories (e.g. signaling theory, agency cost theory, capital need theory, proprietary cost theory, political cost theory, and institutional theory) to explain the variation in risk disclosure across companies. Yet, the evidence in these studies is mixed, calling for further empirical studies.

The extant theories suggest that the level of risk disclosure depends on firms' characteristics that determine the different benefits and costs of risk disclosure. Therefore, the present study relies on the extant theory which suggests that firms' attributes (e.g. corporation size, firm risk, profitability, leverage, liquidity, concentrated ownership, board size, the proportion of independent directors, and auditing type) play important roles in determining the level of risk disclosure of Saudi listed firms. Hence, this study intends to investigate the association between corporate governance, ownership structure and the level of risk reporting with a view to explaining the variation of corporate risk disclosure in the Saudi context. Consequently, the study aims to investigate the main drivers of risk disclosure in Saudi publicly listed firms. The study will help to broaden our understanding of the main drivers of corporate risk disclosure in one of the most important developing countries.

Saudi Arabia is considered the provenance of Islam. Most of the administrative regulations of the country emanate from Islamic law (*Sharia*) (Al-Shamrani, 2014)

¹ Further details of the Saudi Corporate Governance Code are discussed in section 2.6.

resulting in a substantial influence of Islamic values on corporate governance practices (Safieddine, 2009). *Sharia* emphasizes that Muslims are required to be truthful, honest, and careful of others at any time especially the time of business transactions (Ayub, 2007). Hence, exploring the impact of Islamic values on risk disclosure would add valuable insight to the existing governance and disclosure literature.

Additionally, the present study aims to investigate the impact of new procedures (i.e. the Loss-Making Firms Procedures) that have been enforced by the Saudi Capital Market Authority since mid-2014 which aim to rectify the performance of loss-making firms. It is important to study the effect of enforcing the procedures on risk disclosure practices for two reasons. First, the study will assess the effectiveness of the procedures given that other capital markets regulators might apply similar procedures once they are proven to be effective². Second, the study will investigate the exogenous impact of corporate governance on risk disclosure given that the current empirical literature may suffer from endogeneity. Thus, investigating the impact of introducing the Loss-Making Firms Procedures on risk disclosure is expected to have major practical and theoretical contributions.

Prior studies argue that greater disclosure leads to less uncertainty and, in turn, low estimation risk which results in lowering the cost of capital (Botosan, 1997; Diamond & Verrecchia, 1991; Healy & Palepu, 2001; Kim & Verrecchia, 1994). Additionally, Miihkinen (2013) demonstrates that the high quality of risk disclosure of Finnish firms leads to lowering information asymmetry. Therefore, theoretically, it is expected that risk disclosure should be negatively related to the cost of capital after controlling for firm riskiness. The more the firm discloses its potential risks the lower the information asymmetry faced by investors, and hence, the lower the cost of capital. Nevertheless, empirical studies provide mixed evidence on the relationship between corporate risk disclosure and cost of capital. For instance, Semper and Beltrán (2014) report a positive association between financial risk disclosure and the cost of equity in the Spanish market. This finding is in contrast to the theoretical expectation which motivates the extension of investigating this issue in other countries (Semper & Beltrán, 2014). Accordingly, the

² For instance, Abu Dhabi Global Market announces that they will introduce some precautionary procedures for loss-making firms (Almanshawi, 2018).

present study aims to contribute in this direction by providing new evidence on the impact of risk disclosure on the cost of capital in Saudi Arabia.

1.1. Research motivation

Although many studies have been conducted on corporate disclosure, there are still only a few studies that investigate corporate risk disclosure. Nevertheless, the academic works on risk disclosure are becoming popular (Beretta & Bozzolan, 2004). However, most of these studies are conducted in developed countries such as the UK (e.g. Elshandidy et al. 2013; Elzahar and Hussainey 2012; Linsley and Shrivess 2005, 2006; Rajab and Schachler 2009) Germany and the US (e.g. Elshandidy et al. 2014) Finland (e.g. Miihkinen 2012, 2013) and Spain (e.g. Semper and Beltrán 2014). Hassan (2009) states that a few studies were conducted on risk disclosure in the emerging markets such as the GCC (e.g. Abdallah et al. 2015) Kuwait (e.g. Al-shammari 2014) UAE (e.g. Hassan 2009 and Muzahhem 2011). Given that emerging markets differ from developed ones in terms of market efficiency, regulatory, transparency, and corporate governance (Aguilera & Cuervo-Cazurra, 2009), it is possible that the determinants of risk disclosure and its impact on the cost of capital differ in developed and developing markets.

The present study concentrates on the Saudi context for several reasons. First, Saudi Arabia is considered the provenance of Islam given that one of the present study's objectives is to explore the impact of Islamic values on risk disclosure. The Kings of Saudi Arabia are titled as the Custodians of the Two Holy Mosques since the two holy mosques (Mecca and Medina) are located within its land. Islam is considered the official religion of Saudi Arabia. Therefore, most of the administrative laws of the country emanate from Islamic law (*Sharia*) (Al-Shamrani, 2014) leading to a substantial influence of the Islamic values on corporate governance practices (Safieddine, 2009). Thus, the concentration of the present study on Saudi Arabia is convincing given that one of the research's objectives is to explore the impact of Islamic values on risk disclosure practices in a major Islamic context.

Second, Saudi Arabia is a resource-rich country. Beck (2011) finds empirical evidence that the stock markets of resource-rich countries are significantly less liquid with a lower level of trading activities. A low level of stock liquidity might indicate the presence of information asymmetry (Diamond & Verrecchia, 1991). Miihkinen (2013) empirically

finds that greater risk disclosure results in reducing information asymmetry. Therefore, the finding of Beck (2011) may indicate that resource-rich countries may suffer from information asymmetry. Baydoun et al. (2012) state that little academic attention has been paid to studying business and finance activities in the main oil producers countries such as Saudi Arabia. Hence, it is worthwhile to investigate risk disclosure practices where there is a lack of empirical evidence in an emerging resource-rich country such as Saudi Arabia.

Third, there is a growing interest in studying and investigating corporate governance in Islamic and Arab countries including Saudi Arabia since they are different from developed countries in terms of religion, culture, and politics (Alsaeed, 2006; Baydoun et al., 2012; Kamlam & Robert, 2010). For instance, informal social relationships prevail in Saudi Arabia and expected to have a significant influence on the business environment in the Saudi context (Al-Bassam, Ntim, Opong, & Downs, 2016; Haniffa & Hudaib, 2007) where the authority of individuals and families dominates over regulations (Hussainey and Al-Nodel 2008). Therefore, directors may act in the best interest of their families and personal relationships instead of acting in the best benefit of shareholders. Firms' managers can be affected by informal rules more than formal ones which motivate them to act in their families' interests (Boytsun, Deloof, & Matthyssens, 2011). This implies that the risk disclosure decision may be affected by informal social relations. Arguably, social and cultural norms are expected to have a great influence on the disclosure of risk-related information in the Saudi context.

Fourth, the business environment in Saudi Arabia is also distinct by ownership concentration by families and government. For instance, the Saudi government owns 42% of the total market value. It is expected that the lack of direct foreign investment and institutional ownership in the stock market would result in limiting the ability for complying with corporate regulations (Al-Razeen & Karbhari, 2004) including the engagement in risk reporting. Additionally, it is argued that concentrated ownership would result in agency conflicts between minority and large owners in contrast to the developed markets where the conflict is mainly between shareholders and managers (Alves, 2012; Shleifer & Vishny, 1997). When concentrated ownership prevails, large shareholders are the controllers of the firm because of the voting right system. Also, controlling shareholders do not depend on public disclosure, and hence, they are expected to discourage financial reports' preparers from engaging in risk reporting which makes

minority owners worse off. This implies that the risk disclosure decision may be affected by ownership concentration. Arguably, the ownership concentration in Saudi Arabia is expected to weaken the ability of the recent corporate governance reforms to encourage risk disclosure³.

Fifth, Saudi firms are exposed to further different types of risks. For example, Saudi companies face the risk of Saudization where they are asked by the government (Ministry of Labour) to employ Saudi citizens. Saudi workers are much more costly on firms than foreign labor. Therefore, firms are at risk of harsh penalties if they do not employ Saudi workers at a minimum percentage of total labor. The minimum percentage varies among industries. Also, Saudi firms depend more on direct and indirect governmental subsidies. There are several forms of governmental support for firms including, but not limited to: lending huge loans with no interest, providing oil derivatives with an extremely low level of prices, offering very low energy prices, paying part of Saudi workers' salaries, in addition to keeping the absence of corporate taxes system. Therefore, Saudi companies are at risk of losing some of the governmental supports if they do not comply with governmental demands. Additionally, Saudi Arabia suffers from terrorism. Terrorism can have a significant direct and indirect impact on Saudi firms. Several Saudi firms have been attacked by terrorists. Some foreign workers have been kidnapped or killed. As a result, Saudi companies are at risk of terrorism. Furthermore, Saudi Arabia is engaging in a war on the southern border. Since there are many listed firms located near the war area, they are at risk of the continuation of the war. This risk can apply to all other firms in Saudi Arabia since the geopolitical instability is a substantial danger. Given the above discussion, Saudi Arabian listed firms exhibit different types of risks which thereby might have an impact on the disclosure practices of risk-related information.

Sixth, Capital Market Authority which is the regulator of the Saudi stock market established a corporate governance code in 2006 after the collapse of the Saudi stock market. The purpose of this code is to enhance the efficiency of the Saudi stock market. The code encourages risk disclosure by stating that one of the boards of director's function is to indicate areas of risk, launch risk management plan, and ensure that the plan is implemented through forecasting the risks may confront the firm in the future and disclose

³ The results of the present study find no evidence of the adverse impact of ownership concentration on risk disclosure as will be discussed in section 6.4.2.

them with transparency. Thus, any improvement in the disclosure of risk-related information would be viewed as proof of the effectiveness of recent corporate governance reforms (ICAEW 1999; Solomon et al. 2000).

Seventh, Saudi Arabia is one of the largest oil exporters and producers and plays an important role in the Organization of the Petroleum Exporting Countries (OPEC). 25% of the globe's oil reserve is in Saudi Arabia (OPEC 2012). Additionally, Saudi Arabia is a member of the Group of Twenty (G20). Also, Saudi Arabia invests heavily in both developed and developing countries (Al-Filali & Gallarotti, 2012). Therefore, the Saudi context is a crucial emerging context which means that the failure of corporate governance in Saudi Arabia may have a significant impact beyond its borders (Al-Bassam et al., 2016; Albassam & Ntim, 2016). Hence, the engagement of risk reporting will increase the level of transparency which is important for the investment environment. As a result, investigating risk disclosure issues in the Saudi context is of importance since it contributes to the literature and practices of corporate governance and transparency in Saudi Arabia. In addition, Baydoun et al. (2012) state that little academic works have been conducted in relation to business and finance activities in the major oil producers countries such as Saudi Arabia.

Eighth, foreigners invest extensively in Saudi Arabia. According to OECD (2015), the value of the foreign direct investment in Saudi Arabia is 39 Billion USD. Additionally, Saudi Arabia looks for attracting foreign investors. A recent example is that regulators in Saudi Arabia opened the Saudi Stock Market for foreign direct investment in June 2015. Therefore, the present study would be beneficial for regulators and foreign investors to understand risk disclosure practices and determinants in the Saudi context since the weak disclosure and corporate governance will deepen information asymmetry and, in turn, make the Saudi Stock Market less attractive to foreign investors.

To sum up, the present study expects that the nature and determinants of corporate risk disclosure and its influence on the cost of capital in the Saudi context might be different from other developed markets because of the distinctive features of the Saudi context as discussed above. In addition, the study contributes to the literature by providing a primary understanding of risk disclosure practices in Saudi Arabia. The findings of this study have the potential to help regulators and financial reports' preparers when improving corporate risk disclosure practices in addition to helping investors, lenders, analysts, and other users

to understand the nature of risk reporting in the Saudi Arabian context when evaluating firms.

1.2. Research aims and objectives

The current study seeks to achieve four objectives. First, it aims to explore corporate risk disclosure level and practices within the annual report of Saudi listed firms over four years (2012 - 2015). The research provides evidence on the volume and trend of risk reporting, risk information categories (financial, operational, or strategic), nature (qualitative or quantitative), time-frame (historical or forward-looking), and economic sign (good, bad, or neutral). Second, the current study aims to identify the main factors that drive risk disclosure practices with emphasis on corporate governance mechanisms, ownership structure, and Islamic values. To date, studies investigating the practices and determinants of risk disclosure have produced equivocal results which highlighted the needs for more empirical studies. For instance, much uncertainty still exists about the relationship between corporate governance and risk disclosure. Moreover, existing studies do not explicitly address potential problems that may be caused by the existence of an endogenous relationship between corporate governance and risk disclosure. Thus, the third objective of the present study aims to fill this gap by examining the impact of an exogenous corporate governance shock on risk disclosure. More precisely, the present study examines the impact of the introduction of the Loss-Making Firms Procedures (LMFPs) on risk disclosure practices in Saudi Arabia⁴. This examination is crucial given that most of the existing empirical studies may suffer from endogeneity. The fourth objective of the present study aims to examine whether the higher level of risk disclosure would result in lowering the cost of capital in order to provide an insight into the implication of corporate risk disclosure on the required rate of return. The higher level of risk disclosure would lead to a reduction in the level of uncertainty thereby improving the willingness of investors and creditors to provide the disclosing firms with capital at lower costs.

⁴ The Saudi Capital Market Authority introduced new procedures (i.e. the Loss-Making Firms Procedures) that apply to firms with cumulative losses with the aim to rectify the performance of those firms. Loss-making firms were required to create a plan and establish a new committee to implement the plan in order to mitigate firms' losses. The Loss-Making Firms Procedures are discussed thoroughly in section 3.6.

1.3. Research questions

The current study aims to answer four main questions. First, what is the level and practices of the disclosure of risk-related information by Saudi listed firms? This question seeks to explore the extent to which Saudi Arabian listed firms disclose risk-related information by using a content analysis methodology approach. There are several sub-questions under the first key question. The first sub-question is: What is the trend of risk reporting over the years by Saudi Arabian listed firms? This sub-question would help to shed light on whether risk disclosure practices are improving over the years. The second sub-question relates to the nature of risk disclosure (e.g. qualitative or quantitative). The third sub-question is about the time-frame of risk disclosure (e.g. historical or forward-looking). The fourth sub-question relates to the economic sign of risk disclosure i.e. whether the news is good, bad, or neutral and lastly what the industry effect on risk disclosure is.

The second main question in the study is: What determines the level of corporate risk reporting of Saudi public firms? This question aims to explore the main drivers of risk disclosure by examining the relationship between various firms' attributes and the level of risk disclosure in order to explain the variation in corporate risk disclosure by Saudi firms. There are several sub-questions under the second key question. First, what is the impact of corporate governance mechanisms on risk disclosure? Second, what is the impact of ownership structure on risk disclosure? Third, what is the impact of Islamic values on risk disclosure?

The third key question is: What is the effect of the Loss-Making Firms Procedures (LMFPs) on risk disclosure practices? This question aims to investigate the effectiveness of the procedures and to explore the exogenous effect of corporate governance on risk disclosure using a difference-in-difference model.

The fourth key question is: How does the disclosure of risk-related information affect the cost of capital? This question aims to investigate whether an increased level of risk disclosure will lead to a lower cost of capital through lowering the uncertainty by providing managerial perspective on the risks faced by the firm.

1.4. Key Empirical Findings

Using hand-collected data of 463 firm-year observations⁵, this thesis examines the level and practices of risk disclosure for Saudi firms from 2012 to 2015. It also examines the effect of corporate governance, ownership structure, Islamic values, and the Loss-Making Firms procedures on risk disclosure. It further examines the effect of risk disclosure on the cost of capital.

The major findings of this thesis are as follows. The descriptive results show that Saudi firms report 24 risk-related sentences on average. This number is much lower than that reported in other studies elsewhere (e.g. Greco 2012; Beretta & Bozzolan 2004; Linsley & Shrive 2006; Rajab & Schachler 2009; and Konishi & Ali 2007). The low level of risk disclosure in Saudi Arabia can mainly be explained by the lack of enforcement. During the sample period, there were no mandatory requirements for Saudi listed firms to provide risk-related information in the annual reports. The results also show that there has been a steady increase in the average number of risk disclosure items by Saudi listed firms over the sample period. The rise in the number of risk-related sentences is more pronounced in the year 2015 where risk disclosure grew from 24 in 2014 to 30 in 2015. The increase in risk disclosure in 2015 can be explained by the increased risk in the Saudi economy due to the dramatic decline of oil prices which led to a financial crisis in Saudi Arabia.

Operational and financial risk disclosure appeared to be the most frequent disclosed risk while the strategic risk is significantly lower. The lack of strategic risk disclosure can be explained by the verifiability of information. Given that the strategic risks are less controllable by firms such as risks related to society, economy, or politics, firms managers have less incentive to disclose information that might put them at intense criticisms and possible legal actions if their estimation goes wrong (Mohobbot, 2005).

The most disclosed risk in the Saudi context is positive in nature. Linsley & Shrive (2006) suggest that managers would not reveal bad news since they prefer to signal a bright image of their risk management performance to the market with a view to avoiding reputation costs. Therefore, Schrand & Elliott (1998) argue that the requirements of risk disclosure should concentrate on bad risk since companies would be reluctant to disclose such information. The most disclosed risk in the Saudi context is forward-looking. Aljifri

⁵ The sample size for the current study is substantially larger than most risk disclosure studies. The content analysis for more than 26,620 pages has to be undertaken in the present study.

& Hussainey (2007) and Linsley & Shrive (2005) argue that the disclosure of forward-looking information has the potential to help investors in forecasting future cash flows which result in making better-informed investment decisions as opposed to the disclosure of historical information. However, it can be argued that forward-looking information is less reliable because it involves a high level of uncertainty in addition to the subjectivity issue associated with forward-looking information (Cabedo & Tirado, 2004). The present study also finds that most disclosed risk is qualitative in nature. Linsley & Shrive (2006) argue that companies should disclose more quantitative risk-related information in order to help stakeholders to assess the risk engaged in by firms.

The results also show significant differences in risk disclosure between industries in the Saudi context using a one-way ANOVA test. Firms' managers usually mimic the disclosure practices of other companies in the same industry regardless of the relevance of the provided information which may result in significant variation among different industries (Hassan, 2009).

The results on the corporate governance effects on risk disclosure show that board size is negatively and significantly related to risk disclosure. Jensen (1993) suggests that large board size might suffer from the deficiency of group cohesion, resulting in communication and cooperation difficulties, which might hinder the operation of the company. Xie, Davidson III, & DaDalt (2003) argue that smaller boards are better at functioning and providing a higher level of financial reporting. Thus, the present study supports the view that smaller boards are more effective regarding risk disclosure in the Saudi context⁶.

Board independence shows a significant positive relationship with risk disclosure at a 1% level of significance. Independent directors tend to put more pressure on executives to provide a higher level of disclosure and transparency since independent directors would be more concerned about their personal reputations (Lopes & Rodrigues, 2007). The Saudi Corporate Governance Code states that one-third of the board directors shall be independent, at a minimum. The present study supports the view that independent directors

⁶ This finding is in contrast to the present study's expectation. The present study hypothesized that board size is positively related to risk disclosure. Agency theory suggests that a larger board impacts positively on disclosure, risk reporting, and performance because of the higher level of monitoring and the wider variety of expertise by the larger board (Bozec & Bozec, 2012; Elzahr & Hussainey, 2012; Singh, Mathur, & Gleason, 2004).

have vital roles in promoting risk disclosure practices in Saudi Arabia. Likewise, the proportion of non-executive directors has a significant positive relationship with risk disclosure at a 1% level of significance. Non-executive directors with various experience and knowledge are more capable of enhancing the level of risk disclosure (Ntim & Soobaroyen, 2013).

The results show that the relationship between auditor type and risk disclosure is insignificant. Although auditing is considered a monitoring mechanism, recent auditing scandals (e.g. Arthur Andersen, Parmalat, etc.) do not support this assertion. The results also show that the relationship between board education and risk disclosure is insignificant. It is argued that board members with a higher level of education play a vital role in monitoring, consulting, and implicating corporate governance rules (Francis, Hasan, & Wu, 2014). However, the present study suggests that the impact of board education on risk disclosure cannot be confirmed in the Saudi context. The results also show that the relationship between the risk management committee and risk disclosure is insignificant. The existence of a risk committee would be viewed as a sign of proper risk management and risk reporting. Nevertheless, what is not yet clear is whether or not this finding study is a true representation given that only a few firms of the sample have risk committees.

In the case of ownership structure, government ownership shows a significant negative relationship with risk disclosure. Firms with a higher level of government ownership may lose the incentive to disclose more risk-related information since they do not have the need for attracting capital. These firms enjoy easy access to various forms of capital (Ghazali & Weetman, 2006). In the same vein, inside ownership is negatively and significantly related to risk disclosure. When directors' ownership is large, they might have incentives to maximize their own interest by lowering the level of transparency (Shleifer & Vishny, 1997).

The findings also show that the relationship between institutional ownership and risk disclosure is insignificant. It is argued that institutional investors have a higher ability for monitoring companies given that they possess the required resources such as experience, efficiency, and effective use of voting rights (Donnelly & Mulcahy, 2008). Nevertheless, this argument is not supported by the results of the present study. This is in line with the results of a qualitative study conducted by Albassam (2014) where he finds that the institutional investment in Saudi listed firms concentrates on short-term

investments. The results also show that block ownership is insignificantly related to risk disclosure. Firms with concentrated ownership do not experience a separation between ownership and control. In fact, block owners do not depend on public disclosure since they have access to internal information. This finding indicates that concentrated ownership might play a limited role in influencing the disclosure of risk-related information in Saudi Arabia.

The present study could not find a positive relationship between Islamic values and risk disclosure. This finding is a bit puzzling because of the established Islamic literature that encourages disclosure practices. For instance, *Sharia* emphasizes that Muslims are obligated to be honest, truthful, and careful of others at any time especially the time of business transactions (Ayub, 2007). The Holy Prophet Muhammad encourages the disclosure of all attributes of traded commodities in which traders receive enough information about commodities and their prices in the market. However, the empirical results of previous studies on the relationship between Islamic values and risk disclosure are inconclusive. For example, Albassam & Ntim (2016) report a significant and positive effect of Islamic values on corporate governance disclosure whereas Al-Maghzom et al. (2016b) and Abdallah, Hassan, & McClelland (2015) find a significant and negative effect of Islamic values over risk disclosure. Moreover, Abu-Tapanjeh (2009) compares the OECD principles with the Islamic principles and discovers that both are similar in relation to transparency and disclosure. The empirical results of the present study support this view.

In mid-2014, the Saudi Capital Market Authority enforces the Loss-Making Firms Procedures (LMFPs) that apply only to firms with cumulative losses. Using a difference-in-difference model, the results show that loss-making firms reveal significantly more risk-related information after the introduction of LMFPs in comparison with non-loss-making firms. This finding is statistically significant at the 5% level. The evidence presented thus far supports the notion that the introduction of the procedures has proven to be effective with respect to risk disclosure. This finding also supports the positive impact of corporate governance on risk disclosure by examining an exogenous shock. This approach overcomes the problem of endogeneity.

The results on the effect of risk disclosure on the cost of capital show that risk disclosure is negatively and significantly associated with the cost of capital. A higher level of risk disclosure leads to less uncertainty and, in turn, low estimation risk which results in

lowering the cost of capital. Disclosing managerial perspective on the risks faced by the firm has the potential to reduce the cost of capital by lowering the level of uncertainty. Firms' managers may have the incentive to engage in risk disclosure as they need to raise capital at a lower cost.

The present study uses a battery of robustness checks (e.g. a difference-in-difference model, a placebo test, lagged structure models, and random effect models) to verify the solidity of the results and to mitigate the problem of endogeneity. Thus, the results of the current study can be described as robust.

1.5. Contributions of the Study

The present study contributes to the corporate governance and disclosure literature in several ways. First, to the best of the researcher's knowledge, the present study is the first to examine the impact of an exogenous corporate governance shock on risk disclosure. More precisely, the present study is the first to examine the impact of the introduction of the Loss-Making Firms Procedures (LMFPs) on risk disclosure practices in Saudi Arabia. This examination of an exogenous corporate governance shock on risk disclosure practices is methodologically original. It adds theoretical contributions in relation to the impact of corporate governance on risk disclosure given that most of the existing empirical studies may suffer from endogeneity⁷. It also provides practical contributions through informing Saudi regulatory bodies of the effectiveness of such enforcement and its impact on risk disclosure practices. Investigating the effectiveness of the procedures is vital given that other capital markets regulators may apply the same procedures once they are proven to be effective. For instance, Abu Dhabi Global Market has recently announced that they are introducing some precautionary procedures for loss-making firms (Almanshawi, 2018). Hence, this research question has major practical and theoretical contributions.

Second, to the best of the researcher's knowledge, the present study is the first to investigate the effect of Islamic values of non-financial firms on risk disclosure practices. Since Saudi Arabia is considered the provenance of Islam, exploring the impact of Islamic

⁷ It is argued that empirical results can be seriously influenced by endogeneity (Larcker & Rusticus, 2010), which happens if one or several variables are related to the error term (Wooldridge, 2015). The causes of endogeneity can be due to errors with the measurements, omitting of some variables, or simultaneity (Larcker & Rusticus, 2010). Using a difference-in-difference approach is considered an effective technique for solving the endogeneity issue (Roberts & Whited, 2013).

values on risk disclosure would add valuable insight to the existing governance and disclosure literature.

Third, to the best of the researcher's knowledge, the present study is also the first to investigate the effect of risk disclosure practices on the cost of capital. Hence, the findings of this thesis could potentially be valuable to stakeholders in comprehending the importance of the disclosure of risk-related information in reducing the cost of capital. Additionally, this study will contribute to the literature by investigating the impact of risk disclosure practices on the cost of capital in an emerging context. Because emerging markets are different from developed ones in terms of regulations, transparency, market efficiency and corporate governance (Aguilera & Cuervo-Cazurra, 2009), the present study adds to the existing literature on the influence of risk reporting on the cost of capital in an emerging country.

Fourth, to the best of the researcher's knowledge, the present thesis is the first to control for the effect of total disclosure when examining the determinants of risk disclosure. This thesis argues that firms may disclose more about risk because they are good at disclosure in general. Hence, adding this variable to the regression model would take into account this effect. Thus, the present thesis isolates the effect of the tendency of firms with regards to disclosure practices from the specific disclosure on risks. This can be considered a major contribution to previous works in risk disclosure literature.

Fifth, the present study contributes to the corporate governance and disclosure literature by adding new and unique governance variables in the research model. More precisely, the present thesis provides empirical evidence on how board education and the existence of a risk management committee can affect the level of risk disclosure. These governance variables were absent from most previous studies (Abdallah, Hassan, & McClelland, 2015; Abraham & Shrives, 2014; Al-shammari, 2014; Domínguez & Gámez, 2014; Elshandidy, Fraser, & Hussainey, 2013, 2014; Elzahar & Hussainey, 2012; Hassan, 2009; Madrigal et al., 2015; Linsley & Shrives, 2005, 2006; Mohd Ali & Taylor, 2014; Ntim, Lindop, & Thomas, 2013; and Rajab & Schachler, 2009).

Sixth, the present study contributes to the literature by building a relevant risk disclosure index for the Saudi context given that Saudi firms are exposed to some unique types of risks. For instance, Saudi firms face the risk of Saudization where they are

requested by the government (Ministry of Labor) to employ Saudi citizens. Given that Saudi workers are much more costly on firms than foreign labor, firms are at risk of harsh penalties if they do not employ Saudi workers at a minimum percentage of total labor. Additionally, Saudi Arabia has an ongoing war on the southern border. Since there are many listed firms located near the war zone, they are at risk from the continuation of the war. Moreover, Saudi Arabia has been experiencing a threat of terrorism. Terrorism can have significant direct and indirect influences on Saudi firms. Several Saudi firms have been attacked by terrorists. Some foreign workers have been kidnapped or killed. Hence, Saudi firms are at risk of terrorism. To the best of the researcher's knowledge, the present study is the first to incorporate these unique risks in its risk disclosure index.

1.6. Structure of the Thesis

The thesis is organized into eight chapters as follows: Chapter two discusses the framework of risk disclosure and corporate governance in the Saudi context. It provides a general background of the regulatory bodies in Saudi Arabia. The chapter also aims to review the conceptual literature relating to defining and classifying risk.

Chapter three reviews the previous literature on risk reporting. The chapter discusses the key theories of risk disclosure and the empirical studies conducted in the developed and developing markets. Further, the chapter develops the hypotheses of the impact of corporate governance, ownership structure, and Islamic values on risk disclosure, the impact of introducing the Loss-Making Firms Procedures on risk disclosure practices, and the impact of risk disclosure on the cost of capital.

Chapter four reviews the sample and population for this study in addition to specifying the empirical models. Specifically, the chapter addresses the data collection process including the choice of the study's sample and the source of risk disclosure. The chapter also discusses the process of content analysis used to construct the risk disclosure index. The chapter presents the research models of the determinants of risk disclosure, the impact of Loss-Making Firms Procedures on risk disclosure, and the impact of risk disclosure on the cost of capital.

Chapter five presents the results of the content analysis. Particularly, the chapter presents descriptive statistics of risk disclosure in order to explore the practices of risk

disclosure for Saudi listed firms. It reviews the trend of risk reporting over the sample years 2012-2015. It discusses the various attributes of risk disclosure (i.e. qualitative, quantitative, forward-looking, historical, good, bad, or neutral). The chapter also examines the industry effect on risk disclosure.

Chapter six discusses the findings of the Ordinary Least Squares (OLS) estimation technique in investigating the effects of corporate governance, ownership structure, and Islamic values on risk disclosure in Saudi Arabia. Further, the chapter presents the results of the impact of introducing the Loss-Making Firms Procedures on risk disclosure using a difference-in-difference model and a placebo test. It also tests the robustness of the results and investigates the presence of endogeneity problems using several statistical techniques.

Chapter seven presents the empirical results of the impact of risk disclosure on the cost of capital for Saudi listed firms. Specifically, the chapter presents the descriptive statistics, the correlation matrix, the empirical results, and the robustness checks for verifying the findings of the main model.

Chapter eight presents a conclusion of the thesis. Specifically, the chapter presents a summary of the findings of this thesis, the policy implications, the contributions and limitations of this thesis, and future possible research avenues.

Chapter 2 RISK DISCLOSURE FRAMEWORK IN SAUDI ARABIA

2.1. Introduction

This chapter provides a detailed discussion on risk disclosure framework and provides an overview of the Saudi context. It provides a review of the conceptual literature relating to defining and classifying risk. It also discusses the framework of risk disclosure and corporate governance in Saudi Arabia. It also provides a discussion on regulatory bodies in Saudi Arabia such as the Ministry of Commerce, the Capital Market Authority, and the Saudi Organization for Certified Public Accountants.

This chapter is organized as follows. Section 2.2 discusses the definition of risk. Section 2.3 presents the discussion on categorizing risk. Section 2.4 discusses the risk disclosure attributes. Section 2.5 discusses the risk disclosure framework in Saudi Arabia. Section 2.6 discusses the corporate governance framework in Saudi Arabia. Section 2.7 discusses the regulatory bodies in Saudi Arabia. Section 2.8 provides a summary of the chapter.

2.2. Definition of risk

Linsley & Shrivies (2006) state that one of the difficulties in conducting a risk reporting study is the definition of ‘risk’. The term ‘risk’ refers to the distribution of future consequences (Doherty, 2000). The distribution of those future events cannot be known for certain (Rajab, 2009). Hence, any risk-related information regarding that distribution is considered as ‘risk information’ (Dobler, 2008). The Cambridge Dictionary (2002) defines risk as “*the possibility of something bad happening*”. In line with this definition, the Oxford Dictionary (1995) defines risk as “*the possibility of something bad happening at some time in the future; a situation that could be dangerous or have a bad result*”. The previous two definitions by Cambridge and Oxford dictionaries make the term ‘risk’ limited to just bad events while these two definitions exclude potential gains or opportunities. In the same vein, Ibrahim and Hussainey (2019) support this notion which suggests limiting risk disclosure to the negative side of risk. They formulate the definition upon the results of two empirical tests on a sample of annual reports of UK firms. They also provide several theoretical arguments to justify the losses-only definition of risk. They argue that most advanced risk disclosure regulations concentrate on bad risk-related information such as the German Accounting Standard and Basel Committee risk

regulations. They also refer to the definitions of risk by different dictionaries. They also find that most empirical studies on risk disclosure concentrate on the negative definition and keywords of risk.

However, another well-cited definition is proposed by Accounting Standards Board (ASB, 1994) and has been used by risk disclosure professional reports (e.g. ICAEW 1997; ICAEW 1999) and academic literature (e.g. Solomon et al. 2000; Linsley & Shrives 2005) where risk is defined as “...*uncertainty as the amount of benefit, the term includes both potentials for gain and exposure to loss.*” The later definition considers both downside risk (e.g. exposure to loss) as well as upside risk (e.g. potential for gain). Elshandidy (2011) argues that there are three main streams in the literature with regards to the inclusion of gains in ‘risk’ definition. The first stream considers only the downside risk (e.g. Adams 2009; Akintoye & MacLeod 1997; Kaplan & Garrick 1981). The second stream considers both good/upside risk and bad/downside risk (e.g. Schrand & Elliott 1998; Elmiger & Kim 2003; Damodaran 2007). The third stream uses a statistical approach in considering risk such as the probabilities of events that lead to potential gains or losses (e.g, Ansell & Wharton 1992; Stoneburner et al. 2002; Lopes 1987).

The current study adopts the broad definition of risk that includes upside and downside risks in order to identify risk disclosure in annual reports. Therefore, this study follows the definition of risk by Linsley & Shrives (2006, p.3) where they define risk disclosure as “*if the reader is informed of any opportunity or prospect, or of any hazard, danger, harm, threat, or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity prospect, hazard, harm, threat or exposure*”. Similarly, Accounting Standards Board (FRS 5, Reporting the Substance of Transactions, ASB, 1994) defines risk as “...*uncertainty as the amount of benefit, the term includes both potentials for gain and exposure to loss.*” Moreover, Hassan (2009, p.669) define risk disclosure as “*the financial statements inclusion of information about managers` estimates, judgments, reliance on market-based accounting policies such as impairment, derivative hedging, financial instruments and fair value as well as the disclosure of concentrated operations, non-financial information about corporations` plans, recruiting strategy and other operational, economic, political and financial risks*”. In addition, Abraham & Cox (2007) suggest several keywords that refer to risk such as

risk, variation, fluctuation, volatility, oscillation, amplitude, uncertainty, unexpected, contingency, surprise, shock, opportunity, prospect, potential, upside, advantage.

2.3. Quality vs. quantity of risk disclosure

The vast majority of risk reporting studies investigate the quantity of risk disclosure (e.g. Linsley & Shrivess 2006; Rajab & Schachler 2009; Muzahhem 2011; Elzahar & Hussainey 2012; Elshandidy et al. 2013; Elshandidy et al. 2014; Al-shammari 2014; Abdallah et al. 2015; Lopes & Rodrigues 2007; Lajili & Zéghal 2005; Abraham & Cox 2007). However, there are several attempts by previous studies to capture the quality of disclosure instead of quantity (e.g. Beretta & Bozzolan, 2004, 2008; Jia et al., 2016). For instance, Beretta & Bozzolan (2004), (2008); and Jia et al. (2016) propose a new methodology that tries to measure the quality of risk disclosure. they argue that the quality of disclosure is a combination of two factors: (i) quantity and (ii) richness. Quantity refers to the number of sentences disclosed and richness refers to the width and depth of disclosure. First, Width is a combination of coverage and dispersion. Coverage is the number of sub-topics disclosed divided by total subtopics. Dispersion is a measure of how much risk information is concentrated. Second, depth is a set of measurements that includes the type of measure (qualitative or quantitative), economic sign (whether the expected impact on future performance is disclosed or not), and outlook profile (whether the disclosure contains actions, decisions, or programs). This approach of measuring the disclosure quality has been criticized by Botosan (2004). Her criticisms can be explained in two points. First, Botosan (2004, p.292)states that:

It is clear that each component of Beretta & Bozzolan (2004)'s quality metric is comprised of a scaled count of disclosure items. Thus, regardless of how the measure is described, it is clear that QUALITY is the outcome of a weighted count of the number of items disclosed. In this sense, Beretta & Bozzolan (2004)'s metric is no different from prior attempts to quantify disclosure levels, and, as such, it is inappropriate for Beretta & Bozzolan (2004) to claim that their framework overcomes the shortcomings of prior attempts to assess disclosure quality by measuring the quantity of information provided.

Second, Botosan (2004) argues that their premises of developing a new measure of disclosure quality are not grounded on well-supported discussions. She adds that the development of a risk disclosure measurement should start with solid discussions of the

attributes of information that determine disclosure quality. For instance, Botosan (2004) claims that this measurement⁸ is not built on a conceptual framework derived from standard setters such as the International Accounting Standard Board (IASB). More precisely, IASB proposes four qualitative attributes of information which make it more helpful and meaningful to decision makers. They are understandability, relevance, reliability, and comparability. Those were not taken into consideration by Beretta & Bozzolan (2004), (2008); and Jia et al. (2016). Therefore, Botosan (2004) attempts to develop a new measure of risk disclosure quality relying on those four characteristics. However, she concludes that it is extremely difficult to quantify disclosure quality due to the difficulty of defining disclosure quality satisfactorily. Additionally, even if it is possible to quantify disclosure quality, using this procedure empirically is out of the question because of the need for extravagant judgment, lack of information, or huge costs (Botosan, 2004).

2.4. Categorisation of risk

After defining the notion of ‘risk’, it is essential to identify the various sources of risk. There are different sources or categories of risk that have been distinguished by prior studies. For instance, ICAEW (1997) uses the Arthur Anderson Business Risk Model that offers overall guidance for the purpose of developing a list of risk categories. The model divides the risk to three main categories: environmental risk, process risk, and information for decision-making risk. Under each type of risk, there are many sub-categories of risk listed such as financial, strategic, operational, integrity, empowerment, and technology risk.

Another business risk model is proposed by another professional body which is the International Federation of Accountants (IFAC, 1999). In this model, the risk is grouped into three different classes. The first class contains uncontrollable risks such as risk related to society, economy, or politics. The second class contains the types of risk that a firm has a limited ability to control such as reputation and competitiveness risks. The third class consists of several types of risk that a firm can have a high degree of impact on them such as financial risk.

⁸ The measurement proposed by Beretta & Bozzolan (2004) to capture risk disclosure quality.

Several prior empirical studies propose different categories of risk. For instance, Lajili & Zéghal (2005) divides the risk to eleven risk components. They are operational, financial, government regulations, technology, political, environmental, weather, seasonality, cyclical, natural resources, and suppliers risks. Linsley & Shrives (2006) and Linsley & Shrives (2005) group risk into financial, operations, empowerment, Information processing and technology, integrity, and strategic risks. Deumes (2008) classifies risk into a number sources i.e. loss and probability of loss, variance, lack of information, lack of control, macro-environmental sources, industry sources, internal sources, and other sources. Rajab & Schachler (2009) differentiate risk into a number of classes namely, environmental, operational, and strategic risks. Hassan (2009) and Abdallah et al. (2015) categorize risk as general risk information, accounting policies, financial instruments, derivatives hedging, reserves, segment information, and financial and other risks.

Miihkinen (2012) classifies risk into strategic, operational, financial, damage, and risk management. Al-shammari (2014) categorizes risk into general risk information, accounting policies, financial instruments, derivatives hedging, reserves, financial and other risks, and commodity risk. Hernández Madrigal et al. (2015) categorize risk to eight categories. They are internal environment, objective setting, events identification, risk assessment, risk response, control activities, information and communication, and monitoring. Ntim et al. (2013), Jorion (1997), and Cabedo & Tirado (2004) divide the risk to financial, operational, and strategic risks.

The current study follows the categorization of risk by Ntim et al. (2013), Jorion (1997), and Cabedo & Tirado (2004) where they divide the risk to financial, operational, and strategic risks. The choice of this classification can be justified by the absence of agreed risk classification as various categorizations of risk have been used by prior studies and professional reports. Also, the other classification of risk that has been employed by other studies (e.g. Linsley and Shrives 2000, Hassan 2009, and Abdallah et al. 2015) would be more appropriate to employ in countries that apply the International Financial Reporting Standards – IFRS. Their risk indices have been built in accordance with the IFRS. Saudi non-financial listed firms were not required to comply with the requirement of the IFRS

during the sample period (2012 – 2015)⁹. The present study makes some modifications in risk items in order to be more relevant to the Saudi Arabian context. To do so, the researcher reviews risk items used by previous studies. Further, the researcher examines a pilot sample of 10 annual reports in order to generate risk items that are most relevant to the Saudi context.

Financial risk is the risk associated with finance activities such as interest rate, liquidity, exchange rate, and financial instruments. Financial risk has a direct impact on cash flow where the non-financial risk affects the cash flow indirectly. Operational risk refers to the risk arising from the operation side of the company such as business disruption, Saudization, reputation, and internal control. It is the risk arising from the daily decisions that firms' managers make in order to maximize the shareholders' wealth (Ntim et al., 2013). Strategic risk refers to the risk arising from the change in the external environment (Ntim et al., 2013) and it is associated with future plans and strategies of the firm such as research and development, politics, regulations, competition, and macroeconomic factors.

2.5. Risk disclosure attributes

Further to the classifications of risk (financial, operational, and strategic), risk-related sentences are classified to various groups depending on their attributes. The groups are the nature of risk (qualitative vs. quantitative), the time-frame (historical, forward-looking), and the economic sign (good, bad, or neutral).

2.5.1. Nature of risk sentences (qualitative vs. quantitative)

Linsley & Shrides (2006) state that firms should disclose more quantitative risk-related information in order to help stakeholders in assessing the risk engaged in by the firms. Cabedo & Tirado (2004) believe that the disclosure of quantitative risk information has the potential to assist the annual reports' readers in making better-informed decisions. The disclosure of quantitative risk-related information can increase the credibility of the information provided in the annual reports which thereby increases the potential of

⁹ The Capital Market Authority (CMA) requires Saudi non-financial listed firms to comply with the requirement of the International Financial Reporting Standards (IFRS) from the beginning of 2017. The adoption of IFRS would make the classification employed by other studies (e.g. Linsley and Shrides 2000, Hassan 2009, and Abdallah et al. 2015) more appropriate to apply in the Saudi context from the year 2017 onward.

investment (Schrand & Elliott, 1998). SEC 1997 regulation in the US encourages firms to provide quantitative information on market risk.

However, Linsley and Shrives (2006) and Mohobbot (2005) argue that it is challenging to measure and quantify most types of risks¹⁰. Rajgopal (1999) finds that the SEC 1997 regulation in the US resulted in the disclosure of unreliable information because of measurement errors. Also, Mohobbot (2005) argues that firms' managers have less incentive to estimate and quantify information because it might put them at intense criticisms and possible legal actions if their estimation goes wrong.

Previous empirical studies report that most risk disclosure is qualitative in nature. For instance, Linsley & Shrives (2006), Rajab & Schachler (2009), Beretta & Bozzolan (2004), and Muzahhem (2011) find that 94.7%, 87.7%, 84.5%, and 70% of risk disclosure is qualitative respectively.

2.5.2. Time-frame of risk sentences (historical vs. forward-looking)

The disclosure of risk-related information can be historical, or forward-looking. Aljifri & Hussainey (2007) and Linsley & Shrives (2005) argue that the disclosure of forward-looking information has the potential to assist investors in forecasting future cash flows which result in making better-informed investment decisions unlike the disclosure of historical information.

However, it can be argued that forward-looking information has less reliability since it involves a high level of uncertainty in addition to the subjectivity issue associated with forward-looking information (Cabedo & Tirado, 2004). Also, the nature of forward-looking information is believed to be more valuable to be exploited by competitors which might influence the competitive advantage of the firm (Aljifri & Hussainey, 2007; ICAEW, 1999). Hence, financial reports' preparers might have less incentive to reveal forward-looking information (Konishi & Ali, 2007).

Empirically, Linsley & Shrives (2006) find that, on average, UK firms disclose 20.29 and 27.47 historical and forward-looking risk-related information respectively. This finding shows that UK firms disclose more forward-looking information. On the other

¹⁰ For instance, value at risk (VaR) can only be applied to market risks.

hand, Konishi & Ali (2007) and Beretta & Bozzolan (2004) discover that Japanese and Italian firms, respectively, disclose significantly more historical information while forward-looking information is limited.

2.5.3. Economic sign of risk sentences (good, bad, or neutral).

Schrand & Elliott (1998) argue that the requirements of risk disclosure should concentrate on bad risk since companies have less incentive to disclose such information. Linsley & Shrivies (2006) suggest that managers would not reveal bad news since they prefer to signal a bright image of their risk management performance to the market with a view to avoiding the reputation costs. According to a report by the Association of Chartered Certified Accountants (2014), analysts believe that most disclosed risk is biased toward positive disclosures. Kothari, Shu, & Wysocki (2009) argue that firms' managers have a higher tendency toward the disclosure of positive news while they are reluctant to disclose negative news. On the other hand, Mohobbot (2005) argues that directors have more incentive to provide negative risk information for a few reasons: (i) the absence of negative risk information would potentially damage the firms' reputations in a higher degree than if such information was disclosed, (ii) they would reveal negative risk information and refer the causes to external factors, and (iii) they would notify stakeholders about the difficulties associated with the future.

Empirically, Konishi & Ali (2007), Rajab & Schachler (2009), Muzahhem (2011), and Linsley & Shrivies (2006) find that the disclosure of good news risk information is higher than bad news information. In contrast, Lajili & Zéghal (2005) discovered that Canadian firms disclose more negative risk information.

2.6. Risk Disclosure in Saudi Arabia

The capital market regulations in the Saudi context (e.g. SCGC, Capital Market Law, and Listing Rules) emphasize the importance of disclosure and transparency. For instance, Capital Market Law, issued by the CMA, requires the prospectus to contain any information needed by investors and their consultants to make investing decisions. It also requires a clear statement regarding the financial position of the issuer and any relevant financial data, including the audited financial balance sheet, profit, and loss account and cash flow statement according to the rules of the Authority (Article 42). Also, the SCGC

has a separate part that discusses the disclosure and transparency with respect to the company policies and the board's report. Listing Rules regulation contains seven articles concerning disclosure including but not limited to means and form of disclosure, timing of disclosure, and review of disclosure. However, the emphases of the disclosure of risk-related information come into the regulators' attention as late as 2017 when the updated version of the SCGC is issued.

The enhancement of risk reporting has been one of the objectives of the corporate governance reforms around the globe (Hernández Madrigal et al., 2015). Accordingly, the updated issue of the SCGC¹¹ is the first regulation that asserts the importance of appointing a risk management committee. This is a remarkable improvement with regards to risk management and disclosure given that the old version of the SCGC was content with only two lines stating the following: *“Among the main functions of the Board is ... ensuring the implementation of control procedures appropriate for risk management by forecasting the risks that the company could encounter and disclosing them with transparency”*. Chapter 5 of part 4 of the updated Saudi Corporate Governance Code contains three articles which discuss the composition, competencies, and meetings of the risk management committee (Articles 70, 71, and 72).

Article 70 of the updated SCGC requests the company's board to establish a risk management committee where the chairperson and majority of its members are non-executive directors. It also requires the members of that committee to have an adequate level of knowledge in risk management and finance. Article 71 lists the competences of the risk management committee as follows:

- 1) *“developing a strategy and comprehensive policies for risk management that are consistent with the nature and volume of the Company's activities, monitoring their implementation, and reviewing and updating them based on the Company's internal and external changing factors;*
- 2) *determining and maintaining an acceptable level of risk that may be faced by the Company and ensuring that the Company does not go beyond such level;*
- 3) *Ensuring the feasibility of the Company continuation, the successful continuity of its activities and determining the risks that threaten its existence during the following twelve (12) months;*

¹¹ The updated version of the SCGC is issued in Feb. 2017.

- 4) *overseeing the Company's risk management system and assessing the effectiveness of the systems and mechanisms for determining and monitoring the risks that threaten the Company in order to determine areas of inadequacy therein;*
- 5) *Regularly reassessing the Company's ability to take risks and be exposed to such risks (through stress tests as an example);*
- 6) *preparing detailed reports on the exposure to risks and the recommended measures to manage such risks, and presenting them to the Board;*
- 7) *providing recommendations to the Board on matters related to risk management;*
- 8) *ensuring the availability of adequate resources and systems for risk management;*
- 9) *reviewing the organizational structure for risk management and providing recommendations regarding the same before approval by the Board;*
- 10) *verifying the independence of the risk management employees from activities that may expose the Company to risk;*
- 11) *ensuring that the risk management employees understand the risks threatening the Company and seeking to raise awareness of the culture of risk; and*
- 12) *reviewing any issues raised by the audit committee that may affect the Company's risk management.”*

Article 72 of the updated SCGC requests the risk management committee to meet regularly at least once every six months, and as needed. However, articles 70, 71, and 72 are still considered as guiding articles. This means firms are not obligated by the law to comply with these guiding articles related to risk disclosure.

From the discussion above, it is clear that there is no mandatory requirement of risk disclosure in the Saudi context. During the time period of the present study's sample (2012-2015), the sole regulation regarding risk disclosure was the article 10b (3) of the old version of the SCGC where it encourages the managing, forecasting, and disclosing risks as one of the main functions of the board.

2.7. Corporate governance in Saudi Arabia

In 2006, the Saudi capital market experienced a sudden crash with a loss in value that amounted to \$480bn and accounted for 53% of total stock market value (Alzead, 2017). As a response, the Capital Market Authority (CMA) introduced the Saudi Corporate Governance Code (SCGC) in an attempt to restrain any further crashes, to protect shareholders, and to bring back the lost confidence of investors in the capital market (Al-

Abbas, 2009). The code consists of five main parts. Part one discusses the objectives of the regulations in addition to defining the key terms, such as ‘Executive Director’ ‘Related Parties’ and ‘Stakeholder’. Part two reviews the rights of shareholders and the rights related to the meeting of the general assembly. Part three discusses disclosure and transparency with respect to the company policies and the board’s report in order to reduce information asymmetry. Part four reviews several mechanisms with regards to the board of directors such as the main functions, the responsibilities, the formation, and committees of the board. Part five reviews the closing provisions and publications coming into force.

The SCGC is voluntary in nature and the majority of the provisions are on the basis of ‘comply or explain’. Nevertheless, not all the provisions are voluntary. The CMA seems to follow the ‘comply or be penalized’ approach to enforcing the mandatory provisions (Aleshaikh, 2018). The main features of the SCGC are as follows. The board of director is a one-tier system. The number of board directors shall be between three and eleven. Directors are classified as executive, non-executive, or independent directors. The SCGC prohibits the CEO- Chairperson duality. The chairperson has to be a non-executive director. The majority of directors shall be non-executive directors. At a minimum, one-third of the board directors shall be independent. The number of meetings is not specified. The SCGC suggests the initiation of audit, remuneration and nomination committees. All the members of audit, remuneration and nomination committees shall be non-executive directors. The code recommends the disclosure of board and management compensations. Disclosure of ownership structure, dividends policy, and social contributions are required.

In 2017, the Capital Market Authority (CMA) has issued a revised version of the Saudi Corporate Governance Code (SCGC) with major improvements. Unlike the old code, the updated version states that it is compulsory for firms to comply with all provisions except what the code states otherwise. This is considered a remarkable improvement. The updated code consists of twelve parts and 98 articles. This is a considerable enhancement given that the old code has only five parts and 19 articles. The updated code provides a higher degree of details compared to the previous code. For instance, article 26 discusses the competencies and duties of executive management. Article 27 discusses the competencies and duties of the chairperson of the board. Articles 30 and 31 review the tasks and duties of the board members and duties of the independent director, respectively. Article 38 discusses the qualifications of the secretary. Article 39

reviews the training and preparation of the board members and executive management. The updated code prohibits that the tenure of independent directors to exceed nine-year, consecutive or inconsecutive (Article 20c/10). Another crucial development in the updated version is the articles (70, 71, and 72) which discuss composition, competencies, and meetings of the risk management committee. Further details of these articles are discussed in the next section.

2.8. Regulatory Bodies in Saudi Arabia

This section shed some light on regulatory bodies in Saudi Arabia. They are the Ministry of Commerce, the Capital Market Authority, and the Saudi Organization for Certified Public Accountants.

2.8.1. Ministry of Commerce

The Ministry of Commerce works as the main body responsible for regulating Saudi firms. It oversees Saudi firms to safeguard the commercial activities and to assure the economic agents that firms are complying with national rules. Before the establishment of the Capital Market Authority in 2003, the Ministry of Commerce was responsible for regulating listed firms. Afterward, this duty was transferred to the Capital Market Authority.

In 1965, The Ministry of Commerce introduced a regulation called the Companies Act which governs Saudi firms (Kantor, Roberts, & Salter, 1995). Later in 1982 and 1985, the Companies Act was modified extensively (Albassam, 2014). Albassam (2014) states that the Companies Act concentrates on board attributes and provides several provisions regarding the protection of shareholders while it does not shed a light on disclosure and transparency. According to the Companies Act, the determination of board size is left to the company's discretion; however, it must not be less than three directors. The Company Act does not specify the classification of directors (e.g. executive, non-executive, or independent directors). This is also left to the company's discretion. The CEO-Chairperson duality is allowed. These features are contradictory to the Saudi Corporate Governance Code which is discussed in section 2.3. However, Saudi listed firms are obligated to comply with both regulations.

2.8.2. Capital Market Authority

The Capital Market Authority (CMA) was instituted in the middle of 2003. Simultaneously, the Capital Market Law was also introduced. The formation of CMA is considered the most significant enhancement of the corporate governance reform in Saudi Arabia (Hussainey & Al-Nodel, 2008). The CMA has gained complete independence by reporting directly to the Prime Minister. This independence provides the CMA with the power needed in applying and implementing the corporate governance reforms (Albassam, 2014). Since its formation, the CMA has enforced several regulatory codes in relation to corporate governance practices. For example, the CMA has launched the Market Law and the Listing Rules in 2004, the Investment Funds Regulations and the Merger and Acquisition Regulations in 2005, the Saudi Corporate Governance Code in 2006, and the Anti-Money Laundering and Counter-Terrorist Financing Rules in 2008. The main duties of the CMA are as follows:

- *“Regulate and develop the capital market and promote appropriate standards and techniques for all sections and entities involved in Securities Trade Operations.*
- *Protect investors and the public from unfair and unsound practices involving fraud, deceit, cheating, manipulation, and inside information trading.*
- *Maintain fairness, efficiency, and transparency in transactions of securities.*
- *Develop appropriate measures to reduce risks pertaining to transactions of securities.*
- *Develop, regulate, and monitor the issuance of securities and under-trading transactions.*
- *Regulate and monitor the activities of entities working under CMA.*
- *Regulate and monitor full disclosure of information related to securities and issuers” (CMA, n.d.).*

2.8.3. Saudi Organization for Certified Public Accountants (SOCPA)

Before the establishment of the Saudi Organization for Certified Public Accountants (SOCPA) in 1991, the accounting and auditing professions in Saudi Arabia were suffering from the absence of an independent body that supervises the profession (Haniffa & Hudaib, 2007b). The SOCPA was initiated by the Ministry of Commerce. The main objectives of the SOCPA are the following:

- *“Review, develop and approve accounting standards.*
- *Review, develop and approve auditing standards.*
- *Establish the necessary rules for fellowship certificate examination (CPA exam) including professional, practical and scientific aspects of the audit profession and applicable regulations.*
- *Organize continuous education programs.*
- *Establish an appropriate quality review program in order to ensure that Certified Public Accountants implement professional standards and comply with the provisions of Certified Public Accountants Regulations and relevant by-laws.*
- *Conduct special research work and studies covering accounting, auditing, and other related subjects.*
- *Publish periodicals, books, and bulletins covering accountancy and audit-related subjects.*
- *Participate in local and international committees and symposiums relating to the profession of accounting and auditing.” (SOCPA, n.d.).*

Alsaeed (2006) states that the quality of accounting and audit companies has been improved upon the establishment of the SOCPA. Moreover, the institution of the SOCPA results in enhancing investors' confidence in corporate governance disclosure and the reliability of firms' annual reports (Albassam, 2014).

2.9. Chapter summary

This chapter has reviewed the framework of risk disclosure and corporate governance in the Saudi context. The present thesis follows the definition suggested by Linsley & Shrives (2006, p.3) where they define risk disclosure as *“if the reader is informed of any opportunity or prospect, or of any hazard, danger, harm, threat, or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity prospect, hazard, harm, threat or exposure”*. This thesis categorized risk to financial, operational and strategic. Regarding the nature of risk disclosure, risk sentences are classified as either qualitative or quantitative. In terms of the time-frame, risk sentences are divided into historical or forward-looking. In terms of the economic sign, risk sentences are classified as good, bad or neutral.

The emphases of the disclosure of risk-related information in Saudi Arabia are recent when the updated version of the SCGC is issued in 2017. Article 70 of the revised SCGC requires the company's board to establish a risk management committee. Also, Article 71 provides a detailed list of the competencies of the risk management committee. The SCGC is voluntary in nature and the majority of the provisions are on the basis of ‘comply or explain’. In 2017, the Capital Market Authority (CMA) has issued a revised version of the Saudi Corporate Governance Code (SCGC) with major improvements. The revised version states that it is compulsory for firms to comply with all provisions except what the code states otherwise. This is considered a remarkable improvement. The updated code consists of twelve parts and 98 articles whereas the old code has only five parts and 19 articles.

Chapter 3 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

3.1. Introduction

This chapter reviews the previous literature on risk reporting. Specifically, there are five main objectives for this chapter. First, this chapter aims to review the key theories of risk disclosure. Second, it sheds light on the empirical studies conducted in the developed and developing markets. Third, it reviews the impact of corporate governance, ownership structure, and Islamic values on risk disclosure. Fourth, it discusses the impact of introducing the Loss-Making Firms Procedures (LMFPs) on risk disclosure practices. Finally, it provides a theoretical and empirical review relating to the impact of risk reporting on the cost of capital.

This chapter is organized as follows. Section 3.2 presents the key theories of risk disclosure. Section 3.3 and section 3.4 review the empirical studies conducted in the developed and developing markets respectively. Section 3.5 reviews the hypotheses development of the impact of corporate governance, ownership structure, and Islamic values on risk disclosure. Section 3.6 discusses the impact of introducing the Loss-Making Firms Procedures (LMFPs) on risk disclosure. Section 3.7 discusses the theoretical and empirical review relating to the impact of risk reporting on the cost of capital. Section 3.8 provides a summary of the chapter.

3.2. Theories of risk disclosure

Abraham and Shrivs (2014) argue that there is no comprehensive theory yet explains the determinants of disclosure in a clear way. Instead, prior works on risk reporting usually make references to several theories while the link between these theories and the variables used is not always addressed clearly. An overview of several theories linked to risk disclosure is presented in the following subsections.

3.2.1. Signaling theory

The signaling theory has been put forward by Spence (1973) to interpret behaviors regarding information asymmetry in the labor market. The theory was also employed to enhance our understanding of voluntary disclosure and other accounting and finance

puzzles such as corporate dividends policy and capital structure decisions (Morris, 1987). It is argued that managerial signaling is a result of the asymmetric information between managers and stakeholders (Watts & Zimmerman, 1986). The theory illustrates how the information asymmetry can be minimized by signaling the informed party to others (Morris, 1987). The theory also suggests that firms' insiders are more informed about the company than outsiders (Bebchuk & Weisbach, 2010). Thus, investors and other firms' outsiders may consider managers' actions as signals (Scott, 2014).

In the disclosure context, signaling theory suggests that managers who expect their firms to perform well in the future would like to signal this to the owners by enhancing disclosures with a view to attracting more capital. This suggestion implies that firms with limited voluntary disclosure are suspected to be withholding unwanted information (Verrecchia, 1983). In fact, when information asymmetry holds, outsiders may not have the ability to identify firms with high-quality investments, from firms with lower quality investments. As a result, investors may not invest in any listed companies or they may offer lower prices for the stocks (Scott, 2014). Hence, highly profitable firms have greater incentives to reveal more information to the stock market in order to differentiate themselves from other firms and enjoy higher valuation (Campbell, 2001). This assumption can be also applied to the disclosure of risk-related information. This implies that firms' managers with excellent risk management performance exhibit increased desire to report more detailed risk-related information in order to signal to the market that they are professionals at managing their firms' risks rises the stock price (Lev & Penman, 1990; Linsley & Shrivives, 2006; Shrivives & Linsley, 2003; Woods & Reber, 2003). However, Morris (1987) argues that when a firm sends to the market incorrect signals, the market would penalize the firm since the credibility of the disclosure can be easily recognized later. Hence, only qualified firms can use signaling tools.

The brief review of signaling theory implies that the higher the level of risk disclosure, the higher the possibility of managers' signaling. Similar to previous studies (e.g. Elshandidy et al. 2013; Elzahar and Hussainey 2012; Mokhtar 2010; Muzahhem 2011; Rajab and Schachler 2009) that test the implications of signalling theory on risk reporting, this study tests this relationship by investigating the correlation between corporate risk reporting and different firms' characteristics such as firm profitability and firm risk.

3.2.2. Agency cost theory

Agency cost theory is one of the most popular theories in the literature of corporate governance. In fact, most of the studies in this context based their arguments on this theory (Filatotchev & Boyd, 2009). The agency theory by Jensen and Meckling (1976) implies that conflicts can arise between managers and shareholders because of the separation of control and ownership of the firm. The theory is based on the assumptions that stockholders (principles) and managers (agents) have different interests, and each party has an incentive to maximize their own interests (Jensen & Meckling, 1976). In theory, managers have to try their best to do what is most beneficial to shareholders. Whilst, in reality, it is possible that managers would not work for the best benefit of the shareholders (Arnold, 2007). In substance, agency theory aims to mitigate the agency costs between principles and agents by bringing the interests of managers towards what is beneficial to stockholders.

Jensen and Meckling (1976) state that the agency problem is inevitable and managers will pay the price of this problem. Therefore, managers are encouraged to minimize the agency cost to the possible minimum level. Reporting high level of information in the annual reports is one of the major techniques that managers can conduct in order to minimize the agency costs and to ensure that they are acting in the best interests of stockholders (Ness & Mirza, 1991; Watson, Shrivess, & Marston, 2002; Watts, 1977). It is believed that one of the most important aims of the annual financial reports is to provide stockholders with useful information about the firm in order to assist them in monitoring agency relationships (Firth, 1980). In fact, the annual corporate report is an efficient way to reduce agency costs (DeAngelo, 1981; Depoers, 2000). Hence, the disclosure is considered a mechanism that can reduce this agency cost by revealing a larger amount of information in financial reports (Marston & Shrivess, 1996; Morris, 1987). Reporting a high level of information is expected to result in increasing the confidence of stockholders and mitigating information asymmetry.

The link between agency cost and corporate risk disclosure has been explained by Linsley and Shrivess (2000). They argue that outsiders (e.g. shareholders and stakeholders) have little information with regard to firms' risks and how the risks are being tackled. This might motivate the owners to monitor the directors' actions in order to confirm that they are acting in the best interest of owners. In addition, the owners might put more pressure

on managers to produce a higher level of risk-related information. Hence, the executives are encouraged to reveal more information including risk and risk management disclosure with a view to fulfilling the owners` desires (Linsley & Shrivess, 2000). This implies that the higher the level of risk reporting, the lower the agency costs.

In line with prior studies (e.g. Al-shammari, 2014; Domínguez & Gámez, 2014; Elshandidy et al., 2013; Elshandidy, Fraser, & Hussainey, 2014; Elzahar & Hussainey, 2012; Mokhtar, 2010; Muzahhem, 2011; Ntim et al., 2013; Prencipe, 2004; Rajab & Schachler, 2009) that investigate the implications of agency theory on corporate risk reporting practices, the present study aims to investigate this association through testing the relationships between corporate risk disclosure and various firm attributes and corporate governance mechanisms such as leverage, audit type, ownership concentration, board size, and board independence as proxies for agency cost.

3.2.3. Capital need theory

Prior accounting studies (e.g. Alzead 2017, Muzahhem 2011, Rajab 2009, and Abd-Elsalam and Weetman 2003) have applied capital need theory in order to interpret the variation of disclosure between firms. The theory states that firms are motivated to disclose voluntarily since they desire to raise capital at a lower cost (Chio, 1973). In fact, disclosing more information will enhance transparency and mitigate information asymmetry between firms` managers and investors which reduces investors` uncertainty regarding the expected future cash flows (Choi, 1973). Hence, the ability of investors to reach informed investment decisions is increased which, in turn, results in cheaper capital (Chio, 1973). The ease of raising new capital can be enhanced by complying with mandatory disclosure and improving voluntary disclosure (Chio, 1973).

Cooke (1993) finds that listed firms disclose more information than unlisted ones. He also discovers that firms listed in multiple markets disclose more information than firms listed in one capital market. Based on the notion that one of the motivations for firms to be listed is to raise more capital, Cooke`s finding indicates that capital need is one of the motivations for firms to engage in voluntary disclosure. Choi (1973) argues that companies that engage in voluntary reporting are the ones are listed or going to be listed in the near future with a view to enjoying a lower cost of equity capital. Since there are a lot of uncertainties and risks engaged by the firms, investors need a higher level of risk

disclosure in order to allow them to evaluate the firms' riskiness and to be more accurate when forecasting the future cash flows (Foster, 1978). As a result, firms are motivated to reveal a higher level of risk-related information which helps them in raising capital at the lowest possible cost.

Alzead (2017), Muzahhem (2011), and Rajab (2009) employ capital need theory to explain the variation of risk reporting between different firms. In line with Muzahhem (2011), the present study intends to use firms' liquidity as a proxy for capital need theory. Moreover, other proxies are applied. For instance, the current thesis applies capital need theory for examining the impact of introducing the Loss-Making Firms Procedures on risk disclosure. Also, capital need theory is used to explain the impact of risk disclosure on the cost of capital.

3.2.4. Proprietary cost theory

The theory states that firms are discouraged to disclose detailed information to the public due to the costs associated with disclosing such valuable information that can be exploited by competitors (Darrough & Stoughton, 1990; Dye, 1986; Marshall & Weetman, 2007; Prencipe, 2004; Verrecchia, 1983; Wagenhofer, 1990). Therefore, companies may choose to not engage in voluntary disclosure since it might adversely affect their competitiveness in the business. For instance, since the petrochemical industry relies on the development and research, this leads to a higher level of proprietary cost of disclosure in comparison to other industries (Meek, Roberts, & Gray, 1995).

It is argued that firms are advised to not report some risk-related information if it has a commercial sensitivity (ICAEW, 1997). However, Linsley & Shrives (2005) argue that this suggestion may encourage the financial reports' preparers to omit the disclosure of risk-related information under the pretext of commercial sensitivity; which results in misleading the users of financial reports. In the presence of high level of proprietary cost in competitive sectors, investors are less likely to punish the firms for the lack of disclosure (Verrecchia, 1983).

Due to proprietary cost, there would be a gap between the content of risk in internal documents and external reports. Hence, managers decide what kind of risk-related information to disclose and to what extent. Because of proprietary costs, there is a trade-off between the positive and negative consequences of voluntary disclosure. In this regard, the

degree of market competition and the challenge of new companies entry to the market is expected to play an important role in determining the voluntary disclosure decision (Darrough & Stoughton, 1990; Verrecchia, 1983). Previous studies have discovered that the level of disclosure varies among industries (see Haniffa & Cooke 2005; Ahmed & Courtis 1999; Stanga 1976). Likewise, several empirical studies find a significant difference between industries in terms of risk reporting (e.g. Abraham et al. 2007; Amran et al. 2008; Hassan 2009; Lopes and Rodrigues 2007; Rajab and Schachler 2009). However, other empirical studies find that the significant difference between sectors with regard to risk disclosure does not exist (e.g. Abdallah et al. 2015; Al-shammari 2014; Beretta & Bozzolan 2004; Konishi & Ali 2007; Rodríguez Domínguez & Noguera Gámez 2014; Hernández Madrigal et al. 2015; and Mohd Ali & Taylor 2014).

In line with prior studies (Abdallah et al., 2015; S Abraham et al., 2007; Al-shammari, 2014; Amran et al., 2008; Beretta & Bozzolan, 2004; Domínguez & Gámez, 2014; Mostafa Hassan, 2009; Hernández Madrigal et al., 2015; Konishi & Ali, 2007; Lopes & Rodrigues, 2007; Mohd Ali & Taylor, 2014; Rajab & Schachler, 2009), the present study intends to examine risk reporting differences between Saudi industries as a proxy variable where proprietary costs can be tested.

3.2.5. Political cost theory

The theory suggests that some firms which are concerned by the public, media, and regulators are receiving high pressure (Watts & Zimmerman, 1986) and, therefore, the firms' managers decide to reveal voluntary information in order to deflect the unfavorable attention (Linsley & Shrives, 2000). In other words, managers have incentives to disclose more information in order to mitigate the political cost (Cooke, 1989).

With regards to risk disclosure, Shrives and Linsley (2003) argue that political cost theory can be employed to provide an explanation of risk disclosure practices. For instance, they assume when a rail firm has a poor safety system, it is expected to be under media and regulators' pressures. Hence, the directors of the firm might desire to reveal more information with regard to traveling risks and precautions taken to eliminate the dangers with a view to deflecting the unfavorable attention (Shrives & Linsley, 2003).

Firm size has been employed as a proxy for political cost. Because large companies have a larger amount of stakeholders and shareholders, those firms are expected to exhibit a higher level of political cost (Watts & Zimmerman, 1986). Also, larger firms draw higher attention of the regulators, public, and media; hence, a higher level of disclosure has the potential to mitigate political cost (Linsley & Shrikes, 2000). Additionally, Watts & Zimmerman (1986) propose an industry type variable as another proxy that can capture the validity of political cost theory. The present study aims to employ the two variables (firm size and industry type) as proxies for the political cost. Also, this study employs the political cost theory to explain the impact of the Loss-Making Firms Procedures on risk disclosure.

3.2.6. Institutional Theory

The theory argues that managers may have incentives to imitate other firms' disclosure because of the difficulty in determining the costs and benefits of disclosure (Dillard et al., 2004). Firms usually imitate the disclosure of other firms with a good reputation (Abraham & Shrikes, 2014). By doing so, firms signal that they have a risk management framework which is similar to the industry standard. However, within the same industry, different firms are exposed to different kinds of risks in spite of the fact that they share common risks factors (Abraham & Shrikes, 2014). This is mainly because of the differences in firm attributes (e.g. location of the business, the quality of products, the range of business activities, etc.). Hence, firms' risk disclosure should reflect the specific risk that occurs due to particular firms' characteristics whereas institutional theory suggests that companies would not disclose such information since they are just mimicking the disclosure of peer firms (Abraham & Shrikes, 2014). As a result, firms are likely to disclose symbolic and general risk-related information (Abraham & Shrikes, 2014). The vague disclosure will not be useful to the readers of the annual reports which hinder their abilities to assess the risks faced by firms. As a result, disclosures might be ignored in the long-run as they are perceived as unhelpful (Abraham & Shrikes, 2014).

“Institutional pressures can drive organizations to engage in routine social actions” (Cormier, Magnan, & Velthoven, 2005, p. 13). This suggests that firms' managers are reluctant to deviate from general and routine risk disclosure in order to avoid the adverse consequences of providing such extra disclosures (Abraham & Shrikes, 2014). As a result, firms' managers find it more convenient to rely on standardised disclosures. Given that

risks are constantly changing, the reliance on standardised static disclosures seems unacceptable in the long-term (Abraham & Shrives, 2014). The present study proposes the industry type variable as a proxy for institutional theory.

3.3. Risk disclosure in developed countries

Most of the empirical works on the level and determinants of risk reporting have been conducted in developed contexts (e.g. Abraham & Shrives, 2014; Beretta & Bozzolan, 2004; Domínguez & Gámez, 2014; Elshandidy et al., 2013, 2014; Elzahr & Hussainey, 2012; Hernández Madrigal et al., 2015; ICAEW, 1999; Linsley & Shrives, 2006; Miihkinen, 2012; Rajab & Schachler, 2009). ICAEW (1999) discusses the disclosure of risk-related information of UK firms. ICAEW (1999) argues that the current accounting standards and regulation of risk reporting in the UK fulfill shareholders' requirements and, hence, the introduction of more regulations with respect to risk disclosure is not needed. However, Linsley & Shrives (2006) argue that firms need to disclose further risk-related information.

Linsley and Shrives (2006) investigate the disclosure of risk-related information for a sample of 79 UK firms. They find that UK firms disclose 78 risk-related sentences on average. They also discover a positive relationship between the level of risk disclosure and firm size. Larger firms disclose much more than smaller ones and riskier companies do not provide much information regarding their riskiness. Also, the study finds that the relationships between risk disclosure and asset cover, beta factor, leverage, and book-to-market value are insignificant.

Similarly, Elshandidy, Fraser, and Hussainey (2013) explore the influence of firm risk on risk reporting for all UK FTSE non-financial publicly traded firms. They document that the levels of systematic, financing risks and risk-adjusted returns are positively related to aggregated and voluntary risk reporting. By contrast, the level of stocks return volatility is negatively associated with aggregated and voluntary risk disclosure. Generally, they find that high-risk companies seem to disclose more voluntary and mandatory risk reporting than low-risk firms. Their findings are supportive of the idea that regulators should encourage firms rather than mandate them to disclose risk-related information.

Elshandidy et al. (2013) also find a positive association between the level of aggregate and voluntary risk disclosure and firm size, dividend-yield, outside directors, and efficient audit environment. Likewise, Elzahar & Hussainey (2012) discover that company size and industry type have significant effects on the level of risk reporting in the interim reports for a sample of 72 UK firms. They also report that the mean of total risk disclosure is 28 sentences. Interestingly, they find that risk disclosure is not affected by the level of financial and liquidity risk.

In like manner, Rajab & Schachler (2009) find that industry type and US dual listing are significantly related to risk disclosure. However, they find no significant effect of firm size and leverage on risk reporting in a sample of 52 UK firms. They also report that the trend of risk disclosure is significantly increasing. The average number of risk-related sentences is 70. However, the average numbers of risk-related sentences are 50, 65, and 94 over the years 1998, 2001, and 2004 respectively.

Furthermore, Abraham & Shrivies (2014) employed institutional theory and proprietary cost theory as the main drivers of risk reporting. Their sample is four UK firms from the food producers and processors sector. They find that firms' managers have incentives to provide general risk-related information rather than revealing detailed risk information that is specific to their firms. Moreover, Elshandidy, Fraser, and Hussainey (2014) examine the determinants of the variations of mandatory and voluntary risk disclosure across Germany, the UK, and the US during the period from 2005 to 2010. They document significant variations between companies across these countries. They also find that the variations of mandatory and voluntary risk reporting are significantly related to systematic risk, the legal system, and cultural value.

In addition, Konishi and Ali (2007) search for the association between firm-specific attributes and the disclosure of risk-related information in the Japanese context. They find a positive relationship between the level of risk disclosure and firm size. However, there is no significant correlation found between the disclosure of risk-related information and capital structure, style of ownership, profitability, industry type, and cross-corporate shareholdings. Interestingly, Konishi and Ali (2007) declare that when the Financial Service Agency in Japan introduces regulatory guidelines on risk disclosure, the level of risk reporting has enhanced dramatically. Similarly, Miihkinen (2012) reports that the quantity of risk disclosure increases after the introduction of IFRS among Finnish firms.

He also finds significant relationships between risk reporting and profitability, firm size, and foreign listing status. In Italy, Beretta & Bozzolan (2004) find that there is no impact of industry type and firm size on the quantity of risk disclosure. They also find that Italian firms disclose 75 risk-related sentences on average.

3.4. Risk disclosure in developing countries

There have been several studies on corporate risk disclosure in the developing countries in the recent years such as the GCC (e.g. Abdallah et al. 2015 and Al-shammari 2014) the UAE (Muzahhem 2011 and Hassan 2009) Malaysia (Mohd Ali & Taylor 2014) and South Africa (Ntim et al. 2013). Hassan (2009) studies the relationship between the level of risk reporting and firms characteristics of 41 listed firms in the UAE. The findings illustrate that leverage is positively associated with risk disclosure. Also, he finds a significant variation in the level of disclosure between financial and non-financial firms. He also finds that UAE companies disclose 19.6 risk-related sentences on average.

Moreover, Muzahhem (2011) investigates the disclosure of risk-related information for a sample of 48 UAE firms over the years 2007, 2008, and 2009. He finds that the average numbers of risk-related sentences are 74, 95 and 120 sentences in 2007, 2008 and 2009 respectively. For all years, the average is 97 risk-related sentences. The results also indicate that the firms do not reveal a full picture of firms' risks which suggests the need for further regulatory requirements on risk reporting. The findings also illustrate that risk reporting is positively related to firm size, auditor type, and the presence of an audit committee. However, CEO duality is negatively associated with risk reporting. Additionally, the results show mixed evidence on the relationship between the level of risk reporting and liquidity, firm performance, industry type, risk level, board size, independent and non-executive directors.

In addition, Ntim et al. (2013) examine the impact of corporate governance mechanisms on risk reporting with a large dataset (500 firm-year observations) during the period 2002-2011 in South Africa. They report that the nature of risk-related information tends to be more 'non-financial', 'historical', 'good news' and 'qualitative'. They also document that there are negative associations between risk reporting and block-holder ownership and institutional ownership. Also, they report that board size, independent non-executive directors, and board diversity exhibit positive relationships with risk disclosure.

However, CEO-duality appears to have no significant association with risk reporting. Their findings indicate that South African firms report, on average, 526 risk-related sentences which are significantly higher than other findings from other studies. This is mainly because their sample contains the largest South African firms in addition to the large dataset of their study. They also find a significant improvement in the quantity of risk disclosure over time.

Similarly, Al-shammari (2014) investigates the influence of corporate governance on risk disclosure practices in a sample of 109 non-financial Kuwaiti firms in 2012. He documents that, on average, Kuwaiti firms report 20 risk-related sentences which are considered very limited. He reports that board size is positively related to risk disclosure while firms with CEO-duality reveal a lower level of risk disclosure.

Additionally, Abdallah et al. (2015) examine what determines the disclosure of risk-related information in a sample of 424 listed companies in the Gulf Cooperation Council countries. They divide firms into three categories. The categories are conventional financial institutions, Islamic financial institutions, and non-financial firms. As they expect, they find Islamic financial institutions disclose less risk information than conventional ones. Also, the high quality of corporate governance results in a higher level of risk reporting. They also explore that risk reporting vary across the GCC countries in spite of the regulatory and cultural similarities.

Al-Maghzom, Hussainey, & Aly (2016a) examine the effect of corporate governance on risk disclosure among Saudi listed banks during the period 2009-2013. They use an unweighted index to measure the level of risk disclosure. They find that the average risk disclosure among Saudi listed banks is 66%. They report that the main drivers of risk reporting in Saudi listed banks are firm size, profitability, gender, and external ownership. Al-Maghzom, Hussainey, & Aly (2016b) investigate the level of risk disclosure among Saudi listed banks during the period 2009-2013 using a weighted index. Their empirical results reveal that Islamic banks disclose a significantly lower level of risk disclosure than non-Islamic banks.

Most recently, Alzead (2017) investigates the practices, determinants, and consequences of risk reporting among 88 Saudi listed firms during the period 2010-2014. He uses an unweighted index to measure the level of risk disclosure. The findings show

that the level of risk disclosure among Saudi listed firms is 17%. The findings also reveal that board sized, board independence, and government ownership are negatively and significantly associated with risk reporting. On the other hand, Alzead (2017) finds that auditor type is positively related to risk disclosure. He also discovers that risk reporting has a significant negative relationship with firm value as measured by Tobin Q.

3.5. Hypothesis development: Determinants of risk disclosure

3.5.1. Corporate governance mechanisms

The present study employs various corporate governance variables. The rationale for choosing these variables is based of theoretical expectations and empirical findings by prior studies which examined the relationship between corporate governance and disclosure. Some corporate governance variables have been excluded or replaced with other governance variables because of the lack of a theoretical link with risk disclosure, a lack of variation, or the unavailability of data. For example, the board leadership structure (i.e. CEO duality) has been excluded since the Saudi Corporate Governance Code prohibits CEO duality. Also, gender diversity has been excluded because none of the sample firms has a gender diverse board. However, the present study employs another diversity variable which is the education level of directors. The audit committee variables have been replaced with a risk committee variable since the latter is more relevant to risk disclosure. The updated Saudi Corporate Governance Code states that one of the responsibilities of the risk committee is to prepare detailed reports on the exposure to risks and the recommended measures to manage such risks. Also, the audit committee may not have the time, skills, and support to assess the firm's overall risks because of the complexity of modern corporations (Field, Lowry & Mkrtchyan, 2013). The following subsections review the literature on the chosen corporate governance mechanisms that can affect corporate risk disclosure.

3.5.1.1. Auditor type and risk disclosure

Although managers are in charge of preparing and producing the annual reports, auditors may affect the level of disclosure through their consultations (Firth, 1979). It is argued that independent auditors play a vital role in the improvement of firms' annual reports especially well-known audit companies (Hail, 2002) in spite of the argument by several authors which states that auditors may act in favor of firms' managers who hire them, which might make shareholders worse off (see Healy and Palepu 2001).

Agency costs theory could be applied to explain the association between risk reporting and auditor type. Auditing is considered a monitoring mechanism that mitigates the agency costs between agents and shareholders and increases firm value (Watts & Zimmerman, 1983). It is also assumed that corporations with high agency costs tend to hire well-known audit firms in order to decrease agency costs (Inchausti, 1997). Large audit firms are expected to put pressure on their clients to reveal a high level of disclosure since the large auditors care more about their reputation (Watts & Zimmerman, 1983). Therefore, agency costs theory assumes that risk reporting is positively related to auditor type. However, recent auditing scandals (e.g. Arthur Andersen, Parmalat, etc.) do not support these theoretical assertions.

Empirically, Alzead (2017), Ntim, Lindop, and Thomas (2013) and Lopes and Rodrigues (2007) find a significant positive relationship between auditor type and the level of risk disclosure. However, other empirical studies find the association insignificant (e.g. Deumes and Knechel 2008; Neri 2010). Al-shammari (2014) also reports an insignificant relationship between auditor type and risk disclosure among banks in the GCC. Similarly, Alsaeed (2006) reports an insignificant relationship between audit firm size and voluntary corporate disclosure in the Saudi context.

From the theoretical discussion above, the first hypothesis to be tested is formulated as follows:

H₁: There is a significant and positive relationship between auditor type and risk disclosure.

3.5.1.2. Board size and risk disclosure

Cheng & Courtenay (2006) state that the empirical literature shows mixed findings regarding the relationship between board size and voluntary disclosure. The same could be applied in the context of risk disclosure (e.g. Al-shammari, 2014; Alzead, 2017; Elshandidy et al., 2013; Muzahhem, 2011; Ntim et al., 2013).

Agency theory could be applied to explain the association between risk reporting and board size. Agency theory suggests that a larger board impacts positively on disclosure, risk reporting, and performance because of the higher level of monitoring and the wider variety of expertise by the larger board (Bozec & Bozec, 2012; Elzahar &

Hussainey, 2012; Singh, Mathur, & Gleason, 2004). When there are a larger number of members sitting on the board, a greater impact is expected on the managerial monitoring activities and control (Healy & Palepu, 2001). Thus, the larger board is expected to result in revealing a higher level of reporting in order to mitigate the information asymmetry problem (Chen & Jaggi, 2000). This theoretical argument suggests a positive association between risk reporting and board size.

On the other hand, Cheng & Courtenay (2006) argue that the relationship between board size and voluntary disclosure is negative since the large board may adversely affect the company's control and monitoring procedure. A smaller board could be more efficient regarding the improvement of performance and disclosure (Jensen & Meckling, 1976). It is argued that a large board might be worse at disclosing information since the large board suffers from free-rider problems between directors, lack of communication and monitoring, a longer time for making decisions, and higher costs (Jensen, 1993).

Empirically, Al-shammari (2014); Elshandidy et al. (2013); Muzahhem (2011); Ntim et al. (2013) report a positive association between the level of risk disclosure and board size. However, Alzead (2017) reports a significant negative relationship between board size and risk disclosure among Saudi listed firms. Similarly, Al-Maghzom (2016) reports a negative relationship between board size and risk reporting among Saudi banks. However, his finding is not significant.

Based on the theoretical foundation and the equivocal findings from prior empirical studies that show positive and negative relationship between board independence and risk disclosure as discussed above, the second hypothesis to be tested is formulated as follows:

H_{2a}: There is a significant and positive relationship between board size and risk disclosure.

H_{2b}: There is a significant and negative relationship between board size and risk disclosure.

3.5.1.3. Independent directors and risk disclosure

In theory, managers have to try their best to do what is most beneficial to shareholders. Whilst, in reality, it is possible that managers would not work for the best benefit of the shareholders (Arnold, 2007) causing an agency problem. Jensen and Meckling (1976) define Agency theory as the conflicts that arise between managers and shareholders because of the separation of control and ownership of the firm. One of the mechanisms that can reduce the agency cost is by appointing independent directors and reducing the proportion of executive directors (Abraham & Cox, 2007; Al-Janadi, Rahman, & Haj Omar, 2013; J. Solomon, 2007).

Agency theory suggests that independent directors play an important role in monitoring and controlling the managers` behaviors and hence, it is expected that the more independent directors on the board, the higher the level of risk disclosure (Lopes & Rodrigues, 2007). Independent directors tend to put more pressure on executives to provide a higher level of disclosure and transparency since independent directors care about their personal reputation (Lopes & Rodrigues, 2007). Therefore, the theoretical argument suggests a positive association between corporate risk disclosure and independent directors.

The empirical findings support this view (e.g. Abraham & Cox, 2007; Al-Maghzom, Hussainey, & Aly, 2016a; Elshandidy et al., 2013; Muzahhem, 2011; Ntim et al., 2013) despite the fact that Alzead (2017) finds a negative relationship between board independence and risk disclosure. However, Lopes and Rodrigues (2007) report that the relationship between risk disclosure and independent directors is insignificant. Based on the theoretical foundation and the findings from most empirical studies that show a positive relationship between board independence and risk disclosure as discussed above, the third hypothesis to be tested is formulated as follows:

H₃: There is a significant and positive relationship between independent directors and risk disclosure.

3.5.1.4. Non-executive directors and risk disclosure

The proportion of non-executive directors on the board has been a major corporate governance variable for examining the impact of corporate governance on risk disclosure

(e.g. Abraham & Cox, 2007; Alzead, 2017). One of the mechanisms that can mitigate the agency cost is by reducing the proportion of executive directors (Abraham & Cox, 2007; Al-Janadi et al., 2013; Solomon, 2007). Decreasing the proportion of executive directors is important since it can mitigate the issue of information asymmetry, which in turn, has the potential to improve the board effectiveness (Abraham & Cox, 2007; Fama & Jensen, 1983). In this case, non-executive directors provide the necessary checks and balances required to make the board of directors more effective.

Non-executive directors are perceived to be capable of honouring the obligations of the firm and encouraging firms' managers to provide a higher level of transparency and voluntary disclosure (Michelon & Parbonetti, 2012). Likewise, Ntim, Lindop, & Thomas (2013) suggest that non-executive directors with various experience and knowledge are more capable of enhancing the practices of risk disclosure. Further, non-executive directors tend to be exposed to higher levels of risk with respect to their personal reputation (Oliveira et al., 2011) which encourages them to put higher pressures on managers to engage in risk disclosure practices.

Empirically, Chen & Jaggi (2000); Abraham & Cox (2007); Al-Maghzom et al. (2016a); Elshandidy et al. (2013); and Ntim et al. (2013) report a positive relationship between non-executive directors and risk disclosure. From the discussion above, the fourth hypothesis to be tested is formulated as follows:

H₄: There is a significant and positive relationship between non-executive directors and risk disclosure.

3.5.1.5. Board education and risk disclosure

It is argued that board members with a higher level of education play a vital role in monitoring, consulting, and implicating corporate governance rules (Francis, Hasan, & Wu, 2014). Forbes & Milliken (1999) state that the functions of the board of directors can be improved by employing academics on board. In this study, board education is calculated

as a dummy variable that takes the value of 1 if there is a board member with a PhD certificate and 0 otherwise¹².

The positive relationship between academic directors and risk disclosure is based on the theoretical work by Adams & Ferreira (2007) which emphasizes that both the monitoring and advising functions of directors are important for board efficiency. The hypothesis is also consistent with Fich and Shivdasani (2006) who argue that outside directors are not homogenous, and that some kinds of outside directors are better than others. Adams & Ferreira (2007) discover that external board members spend most of their time providing advice to executives instead of monitoring them. Therefore, Audretsch & Lehmann (2006) state that firms can improve their competitive advantage by employing academic directors since firms can benefit from the external knowledge that academics have. They also add that academic directors are experts in their fields (e.g. technology, law, or business) which increase the efficiency of the board. Academics also look at the issues in a different way from non-academics which can bring diverse opinions to the board table (Francis et al., 2014). Given the above discussion, the upper echelons theory could be applied to explain the association between risk reporting and board education. The upper echelons theory is proposed by Hambrick & Mason (1984) where they state that organizational outputs are partially predicted by managerial background attributes. Upper echelons theory claims that the attributes of firms' directors, including education, can influence strategic decision-making. Having highly educated board members, the firm is expected to reveal more risk-related information. Martikainen, Miihkinen, Kinnunen, & Trober (2015) argue that directors with a higher level of education have more ability to report more risk-related information since they are more able to provide critical judgments regarding the content of disclosed information.

Empirically, Jiang & Murphy (2007) find that firms with business professors executives perform significantly better than their peers with no academics. Francis et al. (2014) discover that the presence of academics on boards is significantly and positively related to stock prices informativeness. Regarding risk disclosure, Martikainen et al. (2015) find that boards with higher levels of education provide more risk-related information and

¹² This measurement is in line with prior studies (e.g. Jiang & Murphy, 2007 and Francis et al., 2014). This measurement is consistent with the arguments proposed in developing the hypothesis which concentrate on board members with PhD certificate.

the result is statistically significant. Thus, this study hypothesizes a positive relationship between the level of board education and risk reporting:

H₅: There is a significant and positive relationship between board education and risk disclosure.

3.5.1.6. Risk management committee and risk disclosure

It is argued that the existence of a risk committee on the board of director would be viewed as a sign of proper risk management and risk reporting (Neri, 2010). Risk reporting is considered a fundamental task of risk management systems. Thus, it is expected that firms will disclose more risk-related information when there is a risk committee on the board. The updated Saudi Corporate Governance Code states that one of the responsibilities of the risk committee is “*preparing detailed reports on the exposure to risks and the recommended measures to manage such risks, and presenting them to the Board*”¹³.

The updated Saudi Corporate Governance Code lists the competences of the risk management committee:

- 13) developing a strategy and comprehensive policies for risk management that are consistent with the nature and volume of the Company's activities, monitoring their implementation, and reviewing and updating them based on the Company's internal and external changing factors;*
- 14) determining and maintaining an acceptable level of risk that may be faced by the Company and ensuring that the Company does not go beyond such level;*
- 15) Ensuring the feasibility of the Company continuation, the successful continuity of its activities and determining the risks that threaten its existence during the following twelve (12) months;*
- 16) overseeing the Company's risk management system and assessing the effectiveness of the systems and mechanisms for determining and monitoring the risks that threaten the Company in order to determine areas of inadequacy therein;*

¹³ The updated Saudi Corporate Governance Code is issued on 13/02/2017. This updated issue is the first version that asserts the importance of appointing a risk committee. However, the appointment of the risk committee is still voluntary.

- 17) *Regularly reassessing the Company's ability to take risks and be exposed to such risks (through stress tests as an example);*
- 18) *preparing detailed reports on the exposure to risks and the recommended measures to manage such risks, and presenting them to the Board;*
- 19) *providing recommendations to the Board on matters related to risk management;*
- 20) *ensuring the availability of adequate resources and systems for risk management;*
- 21) *reviewing the organisational structure for risk management and providing recommendations regarding the same before approval by the Board;*
- 22) *verifying the independence of the risk management employees from activities that may expose the Company to risk;*
- 23) *ensuring that the risk management employees understand the risks threatening the Company and seeking to raise awareness of the culture of risk; and*
- 24) *reviewing any issues raised by the audit committee that may affect the Company's risk management.*

Stakeholder theory can be employed to explain the relationship between the existence of a risk committee and risk disclosure. Freeman (1984) defines stakeholders as individuals and groups who can influence or are influenced by firms' operations. Stakeholder theory implies that firms may be keen to have a balance between the interests of different stakeholders in order to ensure that each group receives some degree of contentment. In line with this theory, firms may form a risk committee to preserve its stakeholders' interests, which thereby can improve the disclosure of risk-related information. Firms with risk committees on the board are more likely to have more information with regards to firm riskiness which will be reflected in their disclosure quality. Also, agency theory can explain the relationship between the existence of a risk management committee and risk disclosure. The Saudi Corporate Governance Code states that the chairperson and majority of the risk management committee members shall be non-executive directors. The major responsibility of non-executive directors is monitoring the board actions with a view to protecting shareholders' interests. Therefore, this study expects that the risk management committee will play a vital positive role in risk disclosure practices due to its independence and its expertise in relation to managing risk. Since the risk management committee is requested by the law to manage risk and report appropriate disclosure to the owners, the level of risk disclosure is expected to be higher for firms that have a risk management committee (Hassan, Saleh, & Abd-Rahman, 2008).

Empirically, Al-Hadi (2015) reports a significant positive relationship between the existence of a risk committee and market risk disclosure in the Gulf Cooperation Council Countries. Similarly, Hassan et al. (2008) find a significant positive relationship between the existence of a risk committee and financial instruments disclosure among Malaysian listed firms.

Therefore, this piece of work hypothesizes a positive relationship between the existence of a risk management committee and risk reporting:

H₆: There is a significant and positive relationship between the existence of a risk management committee and risk disclosure.

3.5.2. Ownership structure variables

3.5.2.1. Government ownership

The business environment in Saudi Arabia is distinct by ownership concentration by the government where the Saudi government owns 42% of the total market value. Ghazali & Weetman (2006) argue that government ownership has the potential to encourage firms to reveal less information. Capital need theory can be employed to explain the negative association between government ownership and risk disclosure. Firms with a higher level of government ownership may lose the incentive to disclose more risk-related information since they do not have the need for attracting capital. These firms enjoy easy access to various forms of capital (Ghazali & Weetman, 2006). On the other hand, state holding can be considered as a monitoring tool which has the potential to influence the level of disclosure in firms' annual reports because of accountability to society (Ghazali & Weetman, 2006).

Empirically, Eng & Mak (2003) report a positive relationship between government ownership and voluntary disclosure in Singapore. Ntim et al. (2013) find a positive relationship between government ownership and risk disclosure in South Africa. On the contrary, Samaha, Dahawy, Hussainey, & Stapleton (2012) discover a significant negative association between corporate governance voluntary disclosure and state holdings among Egyptian listed firms. Al-Janadi, Rahman, & Haj Omar (2013) report a significant negative association between voluntary disclosure and state ownership in Saudi Arabia. Alzead (2017) also find a significant negative relationship between risk disclosure and government

ownership in Saudi Arabia. Through an analysis of the existing literature, the study develops the following hypothesis:

H₇: There is a significant and negative relationship between government ownership and risk disclosure.

3.5.2.2. Institutional ownership

Institutional investors have a higher ability for monitoring companies since they are acquiring the required resources such as efficiency, experience, and robust employment of voting rights (Donnelly & Mulcahy, 2008). They are motivated to protect their investment which, in turn, encourages them to monitor management in order to mitigate the agency conflict between owners and executives (Haniffa & Hudaib, 2006). Hence, firms are encouraged to reveal more risk-related information to fulfill the pressure imposed by institutional investors. Empirically, Guan, Sheu, & Chu (2007); Healy, Hutton, & Palepu (1999); Khan (2016); Laidroo (2009); and Ntim, Opong, Danbolt, & Thomas (2012) find a significant positive relationship between institutional ownership and disclosure. On the other hand, Schadewitz & Blevins (1998) discover that interim disclosure is negatively and significantly related to institutional holdings in Finland.

Based on the theoretical foundation and the findings of previous studies (e.g. Guan et al., 2007; Healy et al., 1999; Khan, 2016; Laidroo, 2009; Ntim et al., 2012), the eighth hypothesis to be tested is formulated as follows:

H₈: There is a significant and positive relationship between institutional ownership and risk disclosure.

3.5.2.3. Inside ownership

Inside ownership is the proportion of stocks owned by executive directors. It is argued that inside ownership is an important factor affecting firms' disclosure policy (Khlif, Ahmed, & Souissi, 2016). Agency theory suggests a possible conflict of interest between insiders and externals because of the separation between ownership and control. However, it is believed that inside ownership has the possibility to align the interests of insiders with the interests of external shareholders (Ghazali & Weetman, 2006; Jensen & Meckling, 1976). Hence, insiders might be discouraged to violate the interest of external owners and they may have a long-term interest in the firm (Khlif et al., 2016). This

theoretical assumption suggests that insider ownership is positively related to risk disclosure. On the other hand, McConnell & Servaes (1990) argue that insiders might use inside information to maximize their own wealth which makes the external owners worse off. Similarly, Shleifer & Vishny (1997) argue that if directors' ownership is large, they might have incentives to maximize their own interest by lowering the level of transparency.

Chow (1982, p.274) states that 'the degree of conflicts between the manager and the firm's shareholders and thus the amount of potential wealth transfer, increase inversely with the managers' ownership'. This implies that lower inside ownership requires more monitoring activities (Mokhtar, 2010). Therefore, firms with a low level of inside ownership are expected to reveal more risk disclosure in order to assure outsiders that they are working in the best interest of them (Mokhtar, 2010). This theoretical argument proposes that insider ownership is negatively related to risk disclosure.

Empirically, and consistent with agency theory, Eng & Mak (2003); Ghazali & Weetman (2006); and Hussainey & Al-Najjar (2012) report that disclosure is significantly and negatively related to inside ownership. However, Al-Maghzom et al. (2016a); and Guan et al. (2007) find that the relationship is insignificant. From the discussion above, the ninth hypothesis to be tested is formulated as follows:

H₉: There is a significant and negative relationship between inside ownership and risk disclosure.

3.5.2.4. Block ownership

It is assumed that governance mechanisms and ownership structure are of importance in determining the level of risk disclosure since directors and shareholders are responsible in preparing the firms' annual reports (Abraham & Cox, 2007). Agency costs theory could be applied to explain the correlation between ownership concentration and risk reporting. Firms with dispersed ownership experience higher degree of agency problem because of the separation between ownership and control which motivates shareholders to put more pressure on managers to reveal a higher level of risk disclosure (Muzahhem, 2011). On the other hand, companies with concentrated ownership do not experience a separation between ownership and control. In fact, owners do not depend on

public disclosure to monitor managers since they have access to internal information. Therefore, agency theory suggests that ownership concentration is negatively associated with risk reporting.

Ntim, Lindop, and Thomas (2013) find a significant negative association between risk reporting and ownership concentration in South Africa. Deumes and Knechel (2008) discover a negative relationship between ownership concentration and internal control disclosure. However, Konishi and Ali (2007) and Mohobbot (2005) find no significant relationship between risk reporting and ownership concentration. From the discussion above, the tenth hypothesis to be tested is formulated as follows:

H₁₀: There is a significant and negative relationship between block ownership and risk disclosure.

3.5.3. Islamic values and risk disclosure

Saudi Arabia is considered the provenance of Islam since the two holy mosques (Mecca and Medina) are located within its land. The kings of Saudi Arabia are titled as the Custodians of the Two Holy Mosques. Islam is the official religion of Saudi Arabia. Therefore, most of the administrative regulations of the country emanate from Islamic law (*Sharia*) (Al-Shamrani, 2014) resulting in a substantial influence of Islamic values on corporate governance practices (Safieddine, 2009). One of the research's objectives is to explore the impact of Islamic values on risk disclosure practices in a major Islamic context. Muslims are guided by *Sharia* to practice every aspect of their lives including business in certain manners which has an impact on the decision making (Abu-Tapanjeh, 2009) since *Sharia* considers this as a form of worship (Haniffa & Hudaib, 2007a) in contrast to some other societies where business is separate from religion (Aribi & Gao, 2011). Also, *Sharia* emphasizes that Muslims are required to be truthful, honest, and careful of others at any time especially the time of business transactions (Ayub, 2007). For instance, the Holy Prophet says: “*The truthful and honest merchant shall be with the Prophets, the truthful and the martyrs on the day of Resurrection.*” Furthermore, Prophet Muhammad encourages the disclosure of all characteristics of traded commodities in which traders receive sufficient information about commodities and their prices in the market. For example, the Holy Prophet says: “*The townsman should not sell for a man from the desert*” (with a view

to taking advantage of his ignorance of the market conditions of the city).¹⁴ The holy prophet also says “*It is not lawful for a Muslim to sell to his brother something defective without pointing out the defect*”¹⁵. In addition, Prophet Muhammad says “*O Allah, I seek refuge with you from all sins, and from being in debt.*” Someone said: “*O Allah’s Apostle! You very often seek refuge with Allah from being in debt*”. He replied: “*If a person is in debt, he tells lies when he speaks, and breaks his promise when he promises.*”¹⁶ However, This does not mean that being in debt is forbidden; the emphasis in this Hadith is on being honest and telling the truth (Ayub, 2007).

Additionally, *Gharar* (deceptive uncertainty) is forbidden in Islam and any contract that contains *Gharar* is invalid (Al-Saati, 2003). The main reason for prohibiting *Gharar* is because it involves a high level of *Jahala* (Ignorance). Likewise, Ayub (2007) states “*Ghubn which means misappropriation or defrauding others in respect of specifications of the goods and their prices, is prohibited with the purpose of ensuring that the seller gives the commodity as per its known and apparent characteristics and charges the fair price.*” It is also reported by *Abu Hurayra* that:

*The Holy Prophet once passed by a man who was selling grain. He asked him: “How are you selling it?” The man then informed him. The Prophet then put his hand in the heap of grain and found it wet inside. Then he said: “He who deceives other people is not one of us.”*¹⁷

The previous Hadith explains how *Sharia* confirms the need for the disclosure of relevant information and forbids such practices that might hide information about the quality and value of the goods to the other party since *Sharia* considers keeping silent and not telling the buyer any defect that is known by the seller as dishonesty (Ayub, 2007).

Therefore, it is predicted that Islamic corporations would manage their activities in compliance with the principles of *Sharia* in order to be honest and fair (Hussain, 1999) cited by (Aribi & Gao, 2011) and to make transparent, true, fair, and timely disclosure to stakeholders (Abu-Tapanjeh, 2009; Albassam & Ntim, 2016) including the disclosure of

¹⁴ Narrated by *Imam Muslim* in *Sahih Muslim* Book 10, Number 3628

¹⁵ Narrated by *Alhakim* in *Almostadrak*

¹⁶ Narrated by *Imam Al-Bukhari* in *Sahih Al-Bikhari Volume1, Book12, Hadith795*

¹⁷ Abu Dawud, Sunan Abu Dawud, Kitab al-Ijarah Vol.2. p.982

risk-related information. Hence, the current study expects to find a positive relationship between Islamic values and risk disclosure among Saudi listed firms.

Empirically, Albassam & Ntim (2016) study the effect of Islamic values on corporate governance disclosure using a sample of 76 Saudi listed firms over seven years. They find a robust significant influence of Islamic values over corporate governance disclosure. On the other hand, Al-Maghzom et al. (2016b) find that Islamic banks disclose a significantly lower level of risk disclosure than non-Islamic banks in Saudi Arabia.

From the discussion above, the eleventh hypothesis to be tested is formulated as follows:

H₁₁: There is a significant and positive relationship between Islamic values and risk disclosure.

3.5.4. Control variables

3.5.4.1. Firm size and risk disclosure

Firm size has been employed in the literature as a determinant of risk disclosure. Existing theories can explain the relationship between company size and the disclosure of risk-related information. For instance, Shrikes and Linsley (2003) argue that political cost theory can be employed to provide an explanation of risk disclosure practices. Political cost theory suggests that some firms with higher concern by the public, media, and regulators are receiving high pressure (Watts & Zimmerman, 1986) and, therefore, the firms' managers decide to reveal voluntary information in order to deflect the unfavorable attention (Linsley & Shrikes, 2000). Since large firms have a larger amount of stakeholders and shareholders, the political cost is expected to be higher in larger firms (Watts & Zimmerman, 1986). Also, larger firms draw a higher level of attention of the regulators, public, and media (Linsley & Shrikes, 2000). Managers have the incentive to disclose more information in order to mitigate the political cost (Cooke, 1989). Therefore, larger firms' managers have the incentive to disclose more risk-related information since the political cost is higher for them. Hence, we expect that risk disclosure is positively related to firm size in accordance with the political cost theory.

In addition, the association between firm size and corporate risk disclosure can be interpreted by information asymmetry between managers and shareholders. Investors

demand a high level of information; however, managers may not provide such information because of the costs associated with preparing, auditing, and publishing risk-related information. In this regards, there are two factors encourage large companies to produce a higher level of risk-related information. First, the operations of large firms are wider and more complex resulting in a high level of risk which leads to more risk disclosure since they have more information to reveal (Abraham & Cox, 2007). Second, larger companies tend to have lower costs of preparing, auditing and publishing information which encourage them to produce a larger amount of risk-related information (Mostafa Hassan, 2009; Lopes & Rodrigues, 2007; Muzahhem, 2011). Hence, information asymmetry suggests a positive relationship between risk disclosure and firm size.

Empirically, Abdallah et al. (2015); Al-shammari (2014); Amran, Bin, and Hassan (2008); Elshandidy et al. (2013), (2014); Linsley and Shrivess (2005); Miihkinen (2012); Mohobbot (2005); Ntim, Lindop, and Thomas (2013) find a significant positive relationship between company size and risk disclosure which is in line with the theoretical expectations.

3.5.4.2. Profitability and risk disclosure

The signaling theory could be applied to explain the association between risk reporting and profitability. It could be assumed that managers of highly profitable firms have the incentive to disclose more information as a good signal with a view to attracting investors. High profitable firms` directors would be willing to disclose more detailed risk-related information in order to signal to the market that they are professionals at managing their firms` risks (Konishi & Ali, 2007; Shrivess & Linsley, 2003). In light of signaling theory, the correlation between the disclosure of risk-related information and profitability is expected to be positive.

Empirically, Ntim et al. (2013) and Deumes and Knechel (2008) report a positive association between risk disclosure and profitability, whereas Alzead (2017) Elshandidy et al. (2014), Miihkinen (2012), and Neri (2010) find a negative relationship. However, other studies find this relationship insignificant (e.g. Al-shammari 2014; Elshandidy et al. 2013; Konishi and Ali 2007; Mohobbot 2005).

3.5.4.3. Liquidity and risk disclosure

The association between risk reporting and liquidity could be explained by capital need theory. Liquidity represents the financial ability of a firm to meet its short-term obligations. Therefore, debtholders, shareholders, and stakeholders are concerned regarding firms' liquidity ratios. It could be argued that when a firm experiences a shortage of liquidity, managers would be willing to disclose more risk-related information in order to attract investors and meet their needs by providing a higher level of transparency. As a result, managers can raise more funds and overcome liquidity shortages issues. Thus, capital need theory suggests a negative relationship between liquidity and risk reporting. When a firm suffers from a shortage of liquidity, the firm's managers would have incentives to disclose more risk-related information in order to overcome the shortage of fund.

There is a lack of empirical evidence in the literature regarding the association between risk reporting and liquidity. However, Muzahhem (2011) finds a mixed result for the relationship between liquidity and risk disclosure in the UAE context using different regression methods.

3.5.4.4. Firm risk and risk disclosure

Leverage is used as a proxy for firm risk in the risk disclosure literature (e.g. Alshammari, 2014; Elshandidy et al., 2013; Elzahar & Hussainey, 2012; Hernández Madrigal et al., 2015; Linsley & Shrivess, 2006; Muzahhem, 2011; Rajab & Schachler, 2009; Rodríguez Domínguez & Noguera Gámez, 2014; Semper & Beltrán, 2014).

It is argued that a higher level of debt results in lowering the agency problem between managers and shareholders. Having more debt is beneficial in reducing the agency cost of free cash flow (Jensen, 1986). The agency cost of free cash flow arises when the firm holds and generates substantial cash flows available for spending at the discretion of managers. Firms' managers may have the incentive to reveal more risk-related information in order to mitigate the cost of monitoring by shareholders. In the same vein, a higher level of debt would lead to agency costs between equity holders and debtholders since the later would be disadvantaged when the firm invests in risky projects (Lopes & Rodrigues, 2007). Therefore, it could be argued that risky firms' managers have the incentive to reveal

more information with a view to mitigating the agency cost (Linsley & Shrides, 2006). Hence, it is suggested that firm risk is positively related to risk disclosure.

In terms of signaling theory, Linsley and Shrides (2006) and Shrides and Linsley (2003) assume that when a firm is risky, managers would have the incentive to provide a high volume of information with a view to signaling to investors and other stakeholders that they are professionals at managing the risks. Thus, this argument also suggests a positive relationship between firm risk and risk disclosure.

On the other hand, Mohobbot (2005) argues that some firms may not choose to disclose detailed risk-related information since they do not want to draw the attention to their risks, so investors do not consider them high risky firms. In other words, managers may prefer to hide the firms` risk (i.e. Enron, Global Crossing, etc.). However, because the credibility of the disclosure can be easily recognized later, the market would penalize the company if the company send incorrect signals to the market (Morris 1987). Hence, only qualified firms can use signaling tools.

Empirically, Ntim, Lindop, and Thomas (2013) and Miihkinen (2012) find a negative association between leverage and risk reporting which supports the argument of Mohobbot (2005). However, other prior studies find the relationship between firm risk and risk disclosure to be either significantly positive (e.g. Abdallah et al., 2015; Abraham & Cox, 2007; Deumes & Knechel, 2008; Elshandidy et al., 2014; Hassan et al., 2008; Mostafa Hassan, 2009) or insignificant (e.g. Abraham & Cox, 2007; Al-shammari, 2014; Amran et al., 2008; Konishi & Ali, 2007; Linsley & Shrides, 2005; Lopes & Rodrigues, 2007; Rajab & Schachler, 2009). In addition, Ntim et al. (2013) discover a positive relationship between risk disclosure and firm risk measured as the standard deviation of operating profits.

3.5.4.5. Total disclosure

This study argues that firms may disclose more about risk because they are good at disclosure in general. Hence, adding this variable to the model has the potential to control for this effect. Thus, the present study isolates the effect of the tendency of disclosure

practices from the specific disclosure on risks¹⁸. This is considered a significant improvement over previous works in disclosure studies. The current study employs the number of pages variable (LogPages, measured by the log of the total number of pages in the annual report) in order to control for total disclosure.

3.5.4.6. Industry type and risk disclosure

Firms in various sectors face different kinds of risks such as the degree of competition, regulation, and technological development. Therefore, these different environmental factors are expected to have significant impacts on firms' risks (Beretta & Bozzolan, 2004; Mostafa Hassan, 2009). Political costs theory could be applied to explain the correlation between industry type and risk disclosure. Political cost theory suggests that some firms which are concerned by the public, media, and regulators are receiving high pressure (Watts & Zimmerman, 1986) and, therefore, the firms' managers decide to reveal voluntary information in order to deflect the unfavorable attention (Linsley & Shrive, 2000). Firms' managers operating in industries concern the public, media, and regulators might have the incentive to provide detailed risk information in order to deflect the unfavorable attention. Hence, risk disclosure is expected to vary between industries.

Furthermore, the association between industry type and corporate risk disclosure can be also interpreted by institutional theory. The theory argues that managers imitate other firms' disclosure especially firms with a good reputation (Dillard et al., 2004). By doing so, firms signal that they have a risk management framework which is similar to the industry standard. Hence, firms' managers may choose to imitate the disclosure practices similar to other companies in the same industry regardless of the importance of the information provided which may result in significant variation among different industries (Hassan, 2009).

In addition, the association between risk reporting and industry type could be explained by proprietary costs theory. The theory states that firms are discouraged to disclose detailed information to the public due to the costs associated with disclosing such valuable information that can be exploited by competitors (Darrough & Stoughton, 1990;

¹⁸ Previous studies investigate risk disclosure without taking into account the variation of disclosure practices between firms. As a result, risk disclosure in these studies might be just a proxy for total disclosure. To overcome this issue, the present study adds total disclosure as a control variable in order to take into account the variation of disclosure practices between firms when investigating risk-related disclosure.

Dye, 1986; Marshall & Weetman, 2007; Prencipe, 2004; Verrecchia, 1983; Wagenhofer, 1990). Therefore, companies may choose to not engage in voluntary disclosure since it might affect their competitiveness in the business. Verrecchia (2001) states that the proprietary costs of disclosure differ between industries. The high degree of competition in the industry may discourage directors to provide valuable risk-related information.

Empirically, Abraham et al. (2007); Amran et al. (2008); Hassan (2009); Lopes and Rodrigues (2007); Rajab and Schachler (2009) find a significant relationship between industry type and corporate risk disclosure; whereas Abdallah et al. (2015), Al-shammari (2014), Beretta & Bozzolan (2004), Konishi & Ali (2007), Rodríguez Domínguez & Noguera Gámez (2014), Hernández Madrigal et al. (2015), and Mohd Ali & Taylor (2014) find the relationship insignificant. The present study aims to test whether there are significant differences in the level of risk disclosure between industries using a One-way ANOVA test which is discussed in section 4.4.2.4. Hence, the seventeenth hypothesis to be tested is formulated as follows:

H₁₂: There is a significant difference between the levels of risk disclosure among industries.

3.6. The impact of the Loss-Making Firms Procedures (LMFPs) on risk disclosure

In mid-2014, the Saudi Capital Market Authority introduced new procedures (i.e. the Loss-Making Firms Procedures) that apply to loss-making firms. Loss-making firms are firms with cumulative losses. According to the procedures' draft, the definition of cumulative losses is the sum of previous losses plus the losses of the current period. The cumulative losses are shown in a separate item under shareholders' equity in the financial statements as can be seen in Appendix 3.

It is crucial to study the effect of introducing the procedures on risk disclosure practices for two reasons. First, the results will shed light on the effectiveness of the procedures given that other capital markets regulators may apply the same procedures once they are proven to be effective. For instance, Abu Dhabi Global Market announces that they will introduce some precautionary procedures for loss-making firms (Almanshawi, 2018). Second, the results will investigate the exogenous impact of corporate governance on risk disclosure given that the current empirical literature may suffer from endogeneity.

It is argued that empirical results can be seriously influenced by endogeneity (Larcker & Rusticus, 2010). Hence, this research question has major applied and theoretical contributions.

The procedures include several provisions. For instance, the board of director is required to create a plan and establish a new committee to implement the plan in order to mitigate firms' losses. The company is also required by the law to update and evaluate in details the progress of the implementation of the plan quarterly. In addition, the firm should disclose its expectation regarding the forward performance for the coming four quarters. The Saudi Capital Market Authority creates a flag next to the firm's symbol on the exchange platform in order to draw the investors' attention that the company has accumulated losses.

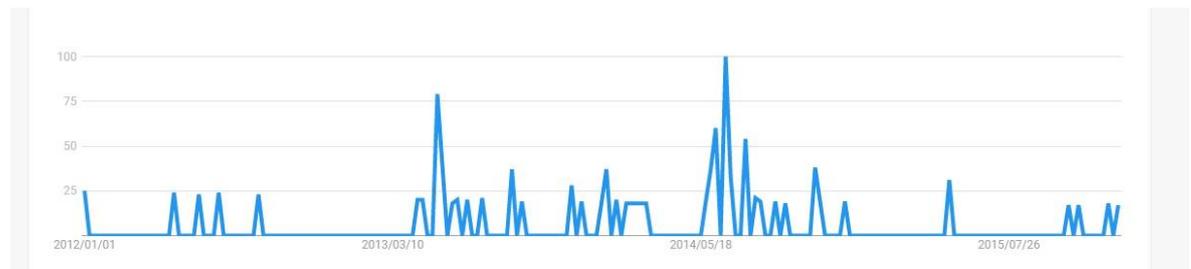
The procedures aim to put pressures on the boards of directors in order to improve the financial performance of their firms. It can be argued that the new procedures should also improve the corporate governance practices among Loss-Making firms. It should be noted that the procedures are irrelevant to the risk disclosure practices. Hence, the enforcement of the Loss-Making Firms Procedures can be considered a corporate governance mechanism that is exogenous to risk disclosure. Since the LMFPs are introduced in mid-2014, and the period of this study is 2012-2015, this enables this study to investigate the impact of the new procedures (LMFPs) on risk disclosure two years before the introduction of the procedures and two years afterward.

Political cost theory could be applied to explain the impact of the introduction of the LMFPs on risk disclosure practices. Upon the enforcement of the procedures, one would assume that unfavorable attentions have been paid to loss-making firms. Figure 3.1 shows that the level of interest of the phrase "Loss-Making Firms" generated by *Google Trends* is the highest at the time of introducing the LMFPs on 21/06/2014. Additionally, the flags that have been put next to the loss-making firms' symbols on the exchange platform are also expected to draw the investors' attention. To deflect such undesirable attention, managers of such firms might disclose more risk-related information. Cooke (1989) claims that managers tend to disclose more information in order to mitigate the political cost. Firms' directors decide to reveal voluntary information with a view to deflecting the unfavorable attention (Linsley & Shrives, 2000). Thus, the present study

hypothesizes that loss-making firms disclose a higher level of risk-related information after the introduction of the Loss-Making Firms Procedures.

Figure 3.1: The level of interest of the phrase: “Loss-Making Firms”

Note: The figure shows the level of interest of the phrase: “Loss-Making Firms” generated by *Google Trends*. The keywords are in Arabic and the search is limited within the region of Saudi Arabia. The level of interest is an index where the value 100 represents the peak of interest.



Other theories could also be applied to explain the effect of the introduction of the LMFPs on risk disclosure practices such as pecking order and capital need theories. Pecking order theory has been proposed by Donaldson (1961) and developed by Myers and Majluf (1984) in the purpose of interpreting firms` financing decisions. It states that firms prioritize to finance their operations by retained profits, debts, and lastly by issuing equity. This implies that, on average, profitable firms do not need to issue debt or equity since they can be financed internally. This also implies that loss-making firms are in need to issue debt and/or equity due to the scarce internal financing. Therefore, loss-making firms` managers may have incentives to engage in risk disclosure in order to raise capital.

Capital need theory states that firms are motivated to disclose voluntarily since they desire to raise capital at a lower cost (Abd-Elsalam & Weetman, 2003; Craven & Marston, 1999; Rajab, 2009). Hence, when a firm is not profitable, the firm might need to issue debt and/or equity in order to finance the operations. As a result, the firm`s directors would have the incentive to disclose more risk-related information in order to attract investors and raise capital at the lowest possible cost.

From the discussion above, the eighteenth hypothesis to be tested is formulated as follows:

H₁₃: There is a significant and positive relationship between risk disclosure and loss-making firms after the introduction of the Loss-Making Firms Procedures.

3.7. The impact of risk reporting on the cost of capital

The fourth main issue of this study is to investigate the influence of risk disclosure on the cost of capital of sampled firms. The notion here is that when a firm discloses less risk-related information in its annual report, the financiers would face more difficulties in predicting future cash flows. As a result, the financiers ask for a higher rate of return because of the increased information risk. In other words, firms with a low level of risk disclosure (high information risk or uncertainty) are expected to have a higher cost of capital. Botosan (1997), Diamond and Verrecchia (1991), Healy and Palepu (2001), and Kim and Verrecchia (1994) argue that a higher level of disclosure leads to less uncertainty and, in turn, low estimation risk which results in lowering the cost of capital. In other words, providing a managerial perspective on the risks faced by the firm has the potential to reduce the cost of capital by lowering the level of uncertainty. This suggests a negative association between the level of disclosure and the cost of equity.

Jensen and Meckling (1976) state that one of the mechanisms for firms to mitigate investors' uncertainties and information asymmetry is by applying good corporate governance principles. Any mitigation in information asymmetry would result in lowering the agency cost and the cost of equity by providing fair opportunities to small and large stockholders in obtaining information (Morris, 1987).

When information asymmetry prevails, firms that are considered riskier would pay a higher rate of interest on debts and would have a lower valuation for their stocks. Additionally, capital providers would put a higher risk premium which raises the cost of capital. Thus, the theoretical review suggests a negative relationship between risk disclosure and the cost of capital. However, it is hard to determine the precise effect of risk reporting on the cost of capital (ICAEW, 1997) because these two variables cannot be observed straightway (Hail, 2002). Nevertheless, Botosan (1997) declares that there are two distinct streams of research that theoretically support the negative correlation between disclosure and cost of equity. The first line of research suggests that firms increase the level of disclosure in order to increase the share market liquidity by motivating potential investors to buy the firms' stocks (e.g. Amihud and Mendelson 1986; Copeland and Galai 1983; Demsetz 1968; Diamond and Verrecchia 1991; Glosten and Milgrom 1985) cited by Botosan (1997). For instance, Diamond and Verrecchia (1991) claim that providing more information to the market would raise the incentives of investors to buy the firms' shares.

As a consequence, the stock liquidity would be increased resulting in less information asymmetry and, in turn, lower cost of equity (Diamond & Verrecchia, 1991). Similarly, Bloomfield and Wilks (2000) find that greater disclosure motivates investors to pay a high price which results in lowering the cost of equity and increasing the stock liquidity.

The second line of research proposes that higher quality of disclosure minimizes the cost of capital through mitigating information risk or estimation risk (e.g. Barry and Brown 1985; Clarkson, Guedes, and Thompson 1996; Coles, Loewenstein, and Suay 1995; Coles and Loewenstein 1988; Handa and Linn 1993; Klein and Bawa 1976) cited by Botosan (1997). This means investors demand compensation for the additional risk when there is a high level of uncertainty regarding the “true” parameters resulting from the lack of information (Botosan, 1997). When executives report a high level of information, the information risk is reduced and hence, investors demand a lower rate of return (lower cost of capital) (Healy & Palepu, 2001).

Other theories can also explain the proposed negative association between risk reporting and cost of capital such as pecking order and capital need theories. As discussed in the previous section, pecking order theory has been proposed by Donaldson (1961) and developed by Myers and Majluf (1984) in the purpose of explaining firms` financing decisions. It is a well-established theory in the literature on capital structure. It states that firms prioritize to finance their operations by retained profits, debts, and lastly by issuing equity. This implies that firms` managers may have the incentive to engage in risk disclosure just as they need to raise capital. In the same vein, capital need theory states that firms are encouraged to disclose voluntarily when they desire to raise capital at a lower cost (Abd-Elsalam & Weetman, 2003; Craven & Marston, 1999; Rajab, 2009). Hence, when firms experience shortages of liquidity, firms` directors would have the incentive to disclose more risk-related information in order to attract investors and raise capital at a lower possible cost. The above arguments suggest a negative relationship between risk disclosure and cost of capital.

Empirically, Botosan (1997) finds a negative association between the level of disclosure and the cost of equity. Hail (2002) discovers a negative association between the level of disclosure and the cost of capital. Sengupta (1998) finds that disclosure is negatively related to the cost of debt. With regards to risk disclosure literature, there are, to the best of my knowledge, only two studies that investigate the impact of risk reporting on

the cost of equity. The first study is conducted by Semper and Beltrán (2014) in Spain. Their findings indicate that there is no significant relationship between risk reporting and the cost of equity. However, financial risk disclosure is found to be significantly and positively related to the cost of equity. This is in contrast to what is expected theoretically. The other study is a PhD thesis conducted by Rajab (2009) in the UK. He finds that there is no significant association between risk reporting and the cost of equity.

From the discussion above, the nineteenth hypothesis to be tested is formulated as follows:

H₁₄: There is a significant and negative relationship between and risk disclosure and cost of capital.

3.8. Chapter summary

This chapter reviewed the previous literature on risk reporting. The key theories of risk disclosure have been discussed thoroughly (e.g. signaling theory, agency theory, proprietary cost theory, capital need theory, political cost theory, and institutional theory). The empirical studies conducted in the developed and developing markets have been reviewed. The determinants of risk disclosure are divided into four groups: (i) corporate governance mechanisms; (ii) ownership structure variables; and (iii) Islamic values. The reason for selecting these variables is based on prior research that explored the relationship between corporate governance and disclosure. The present study hypothesized that auditor type, board size, independent directors, non-executive directors, board education, risk management committee, institutional ownership, and Islamic values are significantly and positively related to risk disclosure. On the other hand, the present study hypothesized that government ownership, inside ownership, and block ownership are significantly and negatively related to risk disclosure. The current study expects that the introduction of the Loss-Making Firms Procedures (LMFPs) has a significantly positive relationship with risk disclosure. The theoretical and empirical review relating to the impact of risk reporting on the cost of capital has been also discussed. The present study hypothesized that risk disclosure has a significantly negative impact on the cost of capital.

Chapter 4 RESEARCH METHODOLOGY

4.1. Introduction

This chapter discusses the sample and population for this study in addition to the specification of the empirical models used in the study. It also discusses the sensitivity analyses that are used. There are five sections in this chapter: Section 4.2 addresses the data collection process which includes the choice of the study's sample and the source of risk disclosure, while section 4.3 discusses the descriptive statistics of the level of risk disclosure. Section 4.4 presents the research model of the impact of corporate governance, ownership structure, and Islamic values on risk disclosure. Section 4.5 presents the research model of the impact of Loss-Making Firms Procedures on risk disclosure. Section 4.6 presents the research model of the impact of risk disclosure on the cost of capital. Finally, section 4.7 presents the summary of the chapter.

4.2. Data Collection

4.2.1. Sample and population of the study

By the end of 2015, there were 173 listed firms on the Saudi Stock Exchange. Following Abraham & Cox (2007), Beretta & Bozzolan (2004), Elzahar & Hussainey (2012), Linsley & Shrive (2005 and 2006) financial firms (e.g. bank and insurance) are excluded from the sample because they operate differently from non-financial firms and they are exposed to different types of risk due to their diverse regulations (Linsley & Shrive 2005; 2006). The different rules for regulating financial firms are expected to result in significant differences in risk disclosure practices between financial and non-financial firms. For instance, the Saudi Arabian Monetary Agency (SAMA) requires Saudi banks to comply with the requirements of Basel III and International Financial Reporting Standards (IFRS). These regulations require financial firms to disclose risk-related information. Therefore, the compliance with these regulations is expected to result in a higher level of risk reporting given that non-financial firms are only required to comply with the Saudi Accounting Standards. Additionally, the operations of financial firms differ from the operations of non-financial firms which will result in the exposure to different types of risks (Muzahhem, 2011). The main product of banks is cash, while the products of non-financial firms would be goods or services such as books, food, tourism, etc. (Muzahhem, 2011). Therefore, this study excludes financial firms since they have

different risk disclosure practices which may not be comparable with the risk disclosure practices of non-financial firms.

As shown in Table 4.1, the final sample is made up of 122 non-financial firms. Details of the names of the selected companies are provided in Appendix 1. The time horizon of this study is the four year period from 2012 to 2015. The year 2015 is the last year of the sample because it represents the most recent year at the time of data collection. The year 2012 is chosen as the earliest year for data collection for the current study. The year 2012 is chosen because of the time limit of conducting this research, and the reliance of this study on the content analysis which is labor intensive and requires reading carefully the whole annual reports. The content analysis for more than 26,620 pages has to be undertaken in the present study. This amount of observations seems to be sufficient given the constraints associated with data collection¹⁹. The data are collected manually from the annual reports of listed firms. The annual reports were obtained from the *Tadawul* website which is the official website of the Saudi Stock Exchange.

Table 4.1: Data sampling

Year	2012	2013	2014	2015	Total No. of observations
Total listed firms	158	163	169	173	
(-) Financial firms (Banks and Insurance)	-44	-47	-48	-49	
(-) Missing reports	-5	-1	-2	-3	
Non-financial firms (final sample)	109	115	118	122	463

The sample size for the current study is considerably larger than most risk disclosure studies (e.g. Linsley & Shrives 2005; Linsley & Shrives 2006; Abraham & Cox 2007; Rajab & Schachler 2009; Hassan 2009; Elzahar & Hussainey 2012; Miihkinen 2012; Semper & Beltrán 2014; Rodríguez Domínguez & Noguera Gámez 2014; Al-shammari 2014). For example, Linsley & Shrives (2005 and 2006) use cross-sectional data of 79 firms in the UK. Similarly, Abraham & Cox (2007) use cross-sectional data from 71 UK firms in 2002. Furthermore, Rajab & Schachler (2009) investigate risk disclosure in a sample of 52 UK firms during three separate years (1998, 2001 and 2004) resulting in 156 observations. Hassan (2009) uses a cross-sectional data of 49 UAE listed firms in 2005. Elzahar & Hussainey (2012) use cross-sectional data from 72 UK listed firms. Miihkinen

¹⁹ It is challenging to improve the sample size of the present study while using manual content analysis because of the associated costs (e.g. time and efforts).

(2012) uses 198 observations in Finland. Semper & Beltrán (2014) and Rodríguez Domínguez & Noguera Gámez (2014) employ 234 and 99 observations in Spain respectively. Al-shammari (2014) employs a cross-sectional data of 109 Kuwaiti listed firms in 2012. Thus, the sample of the present study is an enhancement on the existing risk disclosure studies since the number of observations is much more than the vast majority of risk disclosure studies. In the Saudi context, Al-Maghzom, Hussainey, & Aly (2016a) and Al-Maghzom, Hussainey, & Aly (2016b) employ 60 observations to examine the effect of corporate governance on risk disclosure among Saudi listed banks. Alzead (2017) investigate risk disclosure in a sample of 88 Saudi listed firms during the period 2010 – 2014.

4.2.2. Risk disclosure sources

The present study depends on companies` annual reports as the source of disclosure. Knutson (1992, p.22) states that *“the annual report is the major reporting document and every other report is in some respect subsidiary or supplementary to it”*. There are further two reasons for relying on the annual reports: (i) Saudi firms are required by the Listing Rules (Article 27) and the Company Act (Article 89) to publish annual reports at the end of the fiscal year which contains financial statements and the board of directors` report. (ii) Saudi listed firms are also required to release and publish their annual reports on the Tadawul website. This implies that the researcher can access all the required data which helps in producing a dataset with the least possible missing values. Although most firms report a separate section on risk practices, the current study is based on risk information reported throughout the annual report. This process is in line with literature (e.g. Alzead, 2017; Elshandidy et al., 2013, 2014; Elshandidy & Shrivess, 2016; Elzahar & Hussainey, 2012; Linsley & Crumpton, 2006; Linsley & Shrivess, 2005; Ntim et al., 2013; Rajab & Schachler, 2009). The inclusion of the whole annual report is expected to increase the reliability of the results of the current study since it will not be limited to the risk reporting section only.

4.3. Descriptive statistics of the level of risk disclosure

The current study applies different statistical methods in order to answer the research questions and reach the research objectives. This study performs a descriptive analysis to answer the first research question. Specifically, descriptive statistics are used to investigate

the practices of risk reporting and explore the enhancement of risk disclosure for Saudi listed firms over the years 2012-2015. After performing content analysis, this piece of work identifies the average, standard deviation, minimum, and maximum of the total, financial, operational, and strategic risk disclosure. Additionally, this study illustrates the time-frame of risk sentences (forward-looking, or historical), the nature of risk sentences (qualitative, or quantitative), and the economic sign of risk sentences (positive, negative, or neutral) among Saudi listed firms.

4.4. Model of the impact of corporate governance mechanisms, ownership structure, and Islamic values on risk disclosure

This section investigates the constructed model that investigates the influence of corporate governance mechanisms, ownership structure, and Islamic values on the level of risk disclosure in Saudi listed firms. Table 4.2 contains definitions of the variables used in this model. Section 4.3.1 discusses the dependent variable. Section 4.3.2 discusses the explanatory variables.

The definitions of each dependent and independent variable included in the model are briefly explained in Table 4.2. The dependent variable is a log of the total number of risk sentences disclosed in the annual report. Using the natural logarithms of the number of risk sentences helps in reducing the effect of outliers in addition to enhancing the distribution of the variable. Using a simple log or square transformation helps in resolving the issue of outlier values (Frecka & Hopwood, 1983). The definitions and measurement of independent variables will be discussed in the sub-section 4.4.2.

Table 4.2: Definition of variables

Dependent Variables	Variable description	Variable measurement
LogRD	Total risk sentences	Log of the total number of total risk sentences
Independent Variables		
Corporate governance mechanisms		
BS	Board size	Log of the number of board members
ID	Independent directors	independent directors/total board members
NED	Non-executive directors	Non-executive directors/total board members
BIG4	Auditor type	1 if the auditor is one of the big4 and 0 otherwise
Ownership structure		
GOVOWN	Government ownership	Government-owned shares/ total shares
INSTOWN	Institutional ownership	Institutional-owned shares/ total shares
INSIDOWN	Insiders ownership (e.g. board members, managers, and employees)	Insiders-owned shares/ total shares
BLOCKOWN	Blockholders ownership	Major shareholders owned shares/ total shares
Islamic values		
IVI	Islamic values index	Total achieved scores/total scores
Control variables		
LogSales	Firm size	Log of total sales
ROE	Profitability	Return on Equity
LIQ	Liquidity	Working capital ratio
LVG	Firm risk	Total debt/(total assets)
LogPages	Total disclosure	Log of the total number of the annual report`s pages

4.4.1. The dependent variable: Risk disclosure index

Risk disclosure index is developed and used as the dependent variable in the first model which is specified in section 4.4.2. The current study employs a content analysis approach in order to construct the risk disclosure index. The index categorizes risk to three categories (financial risk, operational, and strategic risk) following Ntim et al. (2013) as discussed in subsection 2.6. The non-financial risk is divided into operational and strategic risk. The detailed content of the risk disclosure index is shown in appendix 2. Detailed explanations for the construction of the index are provided in the following subsections.

4.4.1.1. Content analysis

As stated in the previous section, this study uses content analysis for measuring the risk disclosure index. The objective of using content analysis is to be able to perform statistical

analysis (Neuendorf, 2002) in order to answer the research questions. Weber (1990) defines content analysis as the approach to categorize and quantify a written content (or text) into different groups based on selected criteria. Krippendorff (2004) states that content analysis methods are considered scientific techniques that have the potential to generate valid results through allowing the researcher to achieve new insights, a great understanding of specific phenomena, or recognition of practical actions. Content analysis is also defined by Bell & Bryman (2007) as a method to analyze texts throughout recognizing and classifying the content in different groups in a way that can be systematically repeated and provide the same results each time it is repeated. Riff, Lacy, & Fico, (2014, p.25) provide a comprehensive definition of content analysis which is:

Quantitative content analysis is the systematic and replicable examination of symbols of communication, which have been assigned numeric values according to valid measurement rules and the analysis of relationships involving those values using statistical methods, to describe the communication, draw inferences about its meaning, or infer from the communication to its context, both of production and consumption.

A conceptual framework is needed in order to perform the content analysis including the unit of analysis, type of text, codification mode and scheme, and validity and reliability tests (Weber, 1990). The unit code of content analysis can be the number of pages, lines, words, or sentences (Bowman, 1984). Milne & Adler (1999, p.243) states “*using sentences for both coding and measurement seems likely therefore to provide complete, reliable and meaningful data for further analysis*”. Additionally, using sentences has the advantages of categorizing the sentences to different categories such as forward-looking, historical, positive, negative, or neutral. Therefore, and following previous studies (e.g. Barakat & Hussainey, 2013; Linsley & Crumpton, 2006; Linsley & Shrives, 2005, 2006; Muzahhem, 2011; Ntim et al., 2013; Rajab & Schachler, 2009), the current study uses the number of sentences as a measure for the level of risk disclosure for the purpose of discovering the level of risk disclosure in the Saudi context. The current study also uses annual reports as the text of the content analysis. The reason for using annual reports is discussed in section 4.2.2 above.

The scoring mode of content analysis can be conducted manually or by using auto-coding software. Auto-coding is more effective (less effort and time). However, there are

several difficulties in employing the automated method. For instance, most annual reports of the sample are scanned as a picture which makes it impossible for the auto-coding software to read. To overcome this issue, the current study tries an optical character recognition software to convert those pictures to texts²⁰. However, the accuracy of the optical character recognition software is substantially low since the annual reports are written in Arabic. Therefore, and following previous studies (e.g. Linsley & Shrives 2006; Rajab & Schachler 2009; Muzahhem 2011; Elzahar & Hussainey 2012; Al-shammari 2014; Abdallah et al. 2015; Lopes & Rodrigues 2007; Lajili & Zéghal 2005; Abraham & Cox 2007), the current study uses the manual approach to collect data due to the difficulties of using software in addition to the advantages of manual over automated scoring. The preference for employing manual coding is that human has the ability to identify the meaning of phrases and words within a context (Deumes, 2008). Another significant advantage is that the coder reads the content as the annual reports` readers would do (Abraham, Solomon, & Stevenson, 2007).

Following Linsley & Shrives (2006), Muzahhem (2011), and Rajab & Schachler (2009), the current study employs a scoring scheme which involves several steps. The first step is the building of a self-constructed risk disclosure index. Using the risk disclosure index enhances the researcher`s ability to recognize the extent of risk reporting and to compare risk disclosure practices among different firms (Cooke & Wallace, 1989). The index power relies on the choice of risk types (Marston & Shrives, 1991). The lack of inclusive guidance on risk types that should be included in the index motivates the current study to build an original risk disclosure index. Several existing risk disclosure indices produced by risk disclosure studies are reviewed extensively in order to construct a self-structured index with the most possible right items (e.g. Abdallah et al., 2015; Abraham & Cox, 2007; Al-shammari, 2014; Elzahar & Hussainey, 2012; Linsley & Crumpton, 2006; Linsley & Shrives, 2006; Muzahhem, 2011; Ntim et al., 2013; Rajab & Schachler, 2009). Additionally, a review of relevant risk disclosure regulations in the Saudi context such as the Saudi Accounting Standards, the Saudi Corporate Governance Code, and Registration and Listing Rules is made. Furthermore, a pilot study was conducted on 20 annual reports in order to review and identify possible risk items. After those extensive reviews, the

²⁰ The optical character recognition software is called *ABBYY Arabic OCR*.

current study believes that the self-constructed index does not ignore any relevant risk topic.

The second step of the coding scheme is reading the text (annual reports) and classifying risk sentences in accordance with the appropriate risk type within the risk disclosure index. The third step is grouping risk sentences to quantitative or qualitative categories depending on whether the risk sentence contains numbers or only words. Fourth, the coder investigates the time orientation of the risk sentence (forward-looking, historical). Finally, a check is made of the news type of the risk sentence and classifies it as positive, negative or neutral. Figure 4.1 illustrates the coding scheme and Table 4.3 indicates the disclosure checklist sheet. After conducting this process, the coder is able to generate the dependent variables listed in Table 4.2 in addition to examining the nature and practices of risk disclosure in Saudi Arabia.

Figure 4.1: Coding scheme

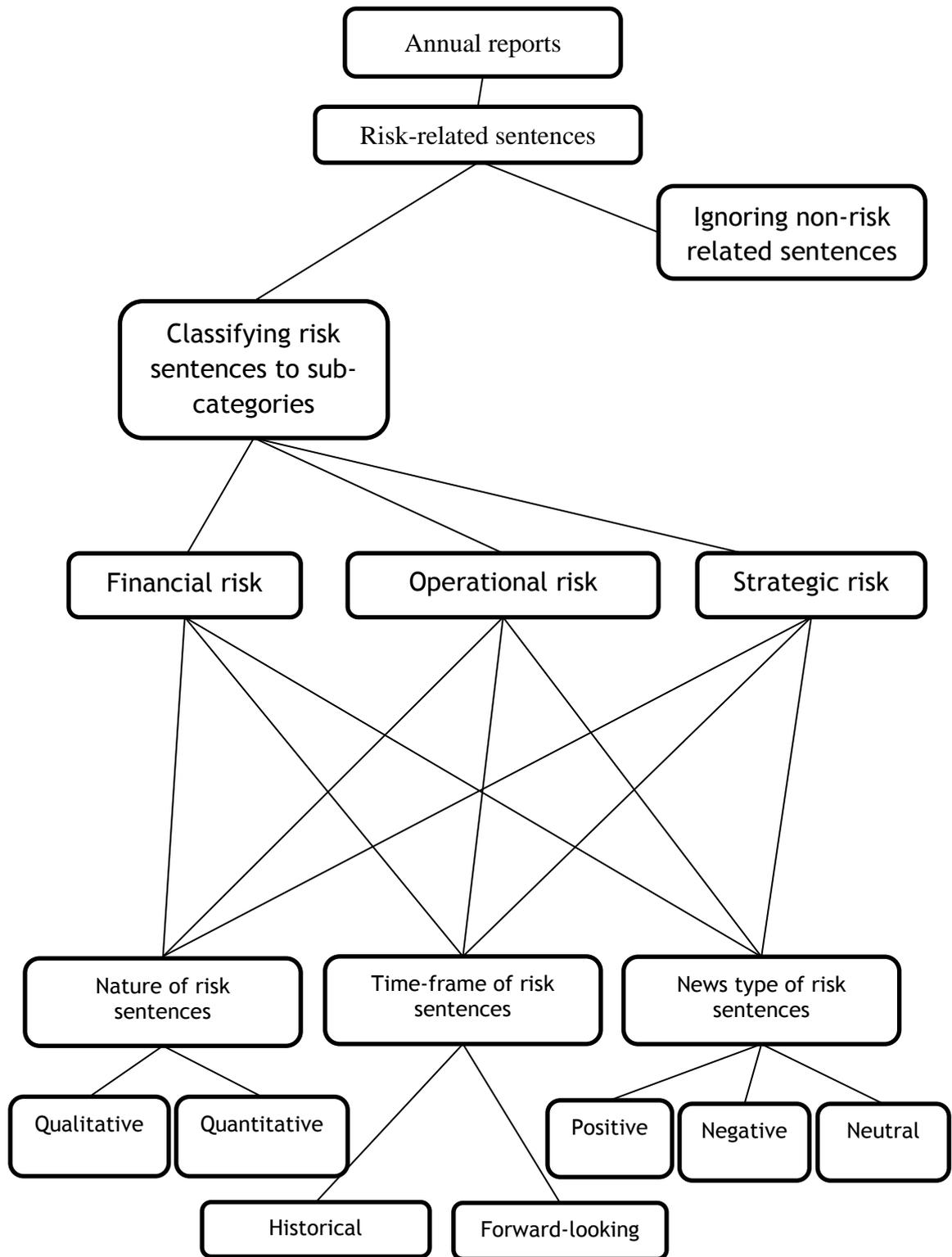


Table 4.3: Risk disclosure checklist sheet

Note: G denotes Good news, B denotes bad news, and N denotes neutral news

Firm:												Year:		
Category	Qualitative			Quantitative			Qualitative			Quantitative				
	forward-looking			forward-looking			Historical			Historical				
	G	B	N	G	B	N	G	B	N	G	B	N		
Financial risk														
....														
....														
....														
Operational risk														
...														
...														
...														
...														
...														
Strategic risk														
...														
...														
...														
...														
Total risk														

Subjectivity is considered a drawback of content analysis methods (Linsley & Shrives, 2006). The next sub-section discusses in details how the current study works in eliminating subjectivity and improving reliability and validity of the content analysis.

4.4.1.2. Reliability and validity of the content analysis

Subjectivity is considered a significant issue when conducting a manual content analysis. Marston & Shrives (1991) state that subjectivity can be mitigated by improving the reliability and validity of the content analysis. However, they argue that it is difficult to get rid of subjectivity completely. Reliability refers to whether different coders provide similar results (Beattie, McInnes, & Fearnley, 2004). Validity refers to whether the outcome of content analysis represents what the coder wanted them to represent (Weber,

1990). Following previous studies (e.g. Abraham & Cox, 2007; Linsley & Shrives, 2006; Muzahhem, 2011; Rajab & Schachler, 2009) the current study lists a set of decision rules in order to enhance the reliability of the content analysis. Appendix 4 explains the decision rules in details.

Prior to the main coding, the author reviewed several risk disclosure examples provided by previous studies. Additionally, a pilot study of 20 annual reports was coded in order to make the author more experienced in scoring which can enhance the reliability of content analysis results according to Weber (1990). Santhosh, Abraham & Cox (2007) state that the inter-coder reliability test is the most popular measurement of the reliability used in the literature. Scott's pi test is the test employed by most previous studies for the purpose of testing the inter-coder reliability of the annual reports (e.g. Abraham & Cox, 2007; Al-shammari, 2014; Beattie, McInnes, & Fearnley, 2004; Linsley & Shrives, 2006; Muzahhem, 2011). Scott's pi evaluates to what extent the two coders agree. In other words, Scott's pi measures the level of agreement between different coders. In order to calculate Scott's pi, the current study uses free online statistical software called "ReCal"²¹. According to Lombard, Snyder-Duch, & Bracken (2010), the outcome of ReCal software is apparently valid.

There is only one coder who gathers data and conducts scoring. The coder is the author of this thesis. In order to validate the reliability of the content analysis, a second coder who is an Assistant Professor in the field of accounting kindly volunteered to perform scoring for five annual reports²². The second coder is an expert in performing content analysis and has conducted several disclosure studies. The two coders scored one annual report independently. The Scott pi of the first report score was 66.5. To enhance the reliability, the two coders reread the text together and started discussing each score with emphasis on the disagreed scores. Furthermore, the decision rules were reviewed and modified. For instance, the two coders agreed to add a new rule which is that when a sentence contained both present and forward-looking information, it will be classified as forward-looking information. This is consistent with Rattanataipop (2013). Next, the two coders started coding four annual reports independently. The Scott's pi scores were 79.6, 84.5, 86.1, and

²¹ ReCal software can be reached using this link: <http://dfreelon.org/utills/recalfront/>

²² The author would like to thank Dr. Alaa Tawfiq for his volunteered assistance in conducting the reliability test.

83.7. According to Abraham & Cox (2007) and Beattie et al. (2004), a score of 75 is considered a reliable score. Hence, it could be argued that the results of the content analysis are reliable.

Validity concerns whether we are measuring the right thing. Sekaran (2000, p.208) defines validity as "*how well the results obtained from the use of a measuring instrument fit the theories around which the test is designed*". When a disclosure index is used to capture the level of disclosure, the usefulness of the index relies on the choice of the index's items (Marston & Shrives, 1991).

In order to construct a self-structured index with the most possible correct items, the present study follows three steps. First, an extensive review is made for many existing risk disclosure indices produced by previous risk disclosure studies (e.g. Abdallah et al., 2015; Abraham & Cox, 2007; Al-shammari, 2014; Elzahar & Hussainey, 2012; Linsley & Crumpton, 2006; Linsley & Shrives, 2006; Muzahhem, 2011; Ntim et al., 2013; Rajab & Schachler, 2009). Second, a review of relevant risk disclosure regulations in the Saudi context such as the Saudi Accounting Standards, the Saudi Corporate Governance Code, and Registration and Listing Rules is made. Third, a pilot study was conducted on 20 annual reports in order to review and identify possible risk items. These extensive reviews help the current study in arguing that the self-constructed index does not ignore any relevant risk item. The current study further adopts the same categorization of risk by Ntim et al. (2013) as discussed in section 2.3. Risk disclosure index is divided into three categories (financial risk, operational risk, and strategic risk). The content of the risk disclosure index is shown in appendix 2.

4.4.2. Explanatory variables

In this section, the explanatory variables are discussed in details. There are several independent variables employed in this study in order to examine their relationships with risk reporting. The choice of those variables is motivated by historical risk disclosure studies (e.g. Abdallah et al., 2015; Abraham & Cox, 2007; Al-Maghzom, 2016; Al-shammari, 2014; Alzead, 2017; Elzahar & Hussainey, 2012; Linsley & Crumpton, 2006; Linsley & Shrives, 2006; Muzahhem, 2011; Ntim et al., 2013; Rajab & Schachler, 2009). Thus, an extensive review of previous studies is made in order to select the variables that appeared to be relevant to risk disclosure.

However, the current study contributes to the literature by adding new variables that are perceived to have significant influences on risk disclosure as previously discussed in section 3.5. The new variables are the board's education, the existing of a risk committee, and the Islamic values' index. The explanatory variables are classified into three different groups: corporate governance mechanisms, ownership structure, and Islamic values.

4.4.2.1. Corporate governance mechanisms

i. Auditor type

The term "Big 4" refers to the four largest multinational companies that provide accountancy and professional services. Namely, the Big4 firms are PricewaterhouseCoopers (PwC), Deloitte Touche Tohmatsu, Ernst & Young, and KPMG. In the light of agency costs theory as discussed in 3.5.1.1, Big4 is expected to have a significant positive relationship with risk disclosure. Following previous studies (e.g. Al-shammari 2014; Ntim, Lindop, and Thomas 2013; Deumes and Knechel 2008; Neri 2010; and Lopes and Rodrigues 2007) auditor type is measured as a dummy variable which takes the value of 1 if the external auditor of the firm is one of the Big4, and 0 otherwise.

ii. Board size

As discussed in 3.5.1.2, agency theory suggests that a larger board impacts positively on disclosure, risk reporting, and performance because of the higher level of monitoring and the wider variety of expertise by the larger board (Bozec & Bozec, 2012; Elzahar & Hussainey, 2012; Singh et al., 2004). Thus, the current study expects a positive relationship between the size of the board and risk disclosure. Following previous studies (e.g. Al-Maghzom, Hussainey, & Aly 2016a; Elshandidy & Neri 2015; and Elzahar & Hussainey 2012) Board size is measured by the total number of directors on the board.

iii. Independent directors

In the light of agency theory as discussed in 3.5.1.3, independent directors are expected to play important roles in monitoring and controlling the managers' behaviors and hence, it is predicted that the more independent directors on the board, the higher the level of risk

disclosure (Lopes & Rodrigues, 2007). Thus, it is argued that the proportion of independent directors is positively associated with risk disclosure. The measurement of independent directors is the percentage of independent directors sitting on the board.

4.4.2.2. Ownership structure

i. Government ownership

According to resource dependence and capital need theories as discussed in 3.5.2.1, government ownership is expected to have a negative relationship with risk disclosure. Firms with government ownership have better access to several sources of finance which might discourage managers to disclose risk-related information. Following previous studies (e.g. Al-Bassam, Ntim, Opong, & Downs, 2016; Ntim & Soobaroyen, 2013; Ramly, 2013), government ownership is measured as the number of shares held by the government divided by the total number of ordinary shares.

ii. Institutional ownership

As it was argued in section 3.5.2.2, institutional ownership is expected to be positively related to risk disclosure. Institutions are considered a monitoring mechanism due to their experience (Donnelly & Mulcahy, 2008). Following prior literature (e.g. Chung & Zhang, 2011; Donnelly & Mulcahy, 2008; Ntim, Opong, Danbolt, & Thomas, 2012), institutional ownership is measured as the number of shares held by institutions divided by the total number of common shares.

iii. Inside ownership

Empirical studies find a significant negative relationship between inside ownership and voluntary disclosure (e.g. Guan, Sheu, & Chu, 2007; Huafang & Jianguo, 2007; Laidroo, 2009). As discussed in section 3.5.2.3, Shleifer & Vishny (1997) argue that managerial owners have the incentive to mitigate the level of disclosure in order to serve their best interest. Thus, the current study expects to find a negative association between inside ownership and risk disclosure. Inside ownership is defined as the number of shares held by executives and directors divided by the total number of common shares.

iv. Ownership concentration

According to agency theory, ownership concentration is expected to be negatively associated with risk disclosure. Companies with concentrated ownership do not experience a high degree of separation between ownership and control. Therefore, owners of concentrated firms may not depend on public disclosure to monitor managers since they have better access to internal information. The association between the presence of blockholders ownership and risk disclosure is suggested to be negative. Following prior literature (e.g. Chu & Cheah, 2010; Ramly, 2013), ownership concentration is defined as the number of shares held by major stockholders who own at minimum 5% of the total shares. The majority of stockholders can be institutions, government, or individuals.

4.4.2.3. Islamic values

To the best of the researcher's knowledge, there are two studies that quantify Islamic values (e.g. Albassam & Ntim, 2016; and Canepa & Ibnrubbian, 2014) in the extant literature. First, Canepa & Ibnrubbian (2014) measure Islamic values using a classification provided by a *Sharia* scholar (i.e. Al-Osimi) that ranks the degree of firms' *Sharia*-compliance. In *Sharia* perspectives, there are three types of firms in terms of the compliance with *Sharia*: (i) Halal firms (ii) mixed firms, and (iii) Haram firms (Alosimi, 2011). A firm is classified as Halal if the firm fully complies with the Islamic principles in terms of its investing and financing activities (Alosimi, 2011). A firm is classified as mixed if the firm partially complies with the Islamic principles in terms of its investing and financing activities (Alosimi, 2011). However, its non-*Sharia* compliant activities do not exceed a certain level. Alosimi (2011) explains the description of a mixed firm; the firm is considered mixed if it meets one of the following criteria (i) its Haram investing activities have not to exceed 33% of total assets, (ii) its Haram financing activities have not to exceed 33% of total assets, and (iii) its Haram revenue have not to exceed 5% of total revenue. A firm is classified as Haram when its non-*Sharia* compliant activities exceed the acceptable level stated above (Alosimi, 2011). According to the approach by Canepa & Ibnrubbian (2014), Halal firms score 1, while mixed and Haram firms score 0.5 and 0 respectively.

Another proxy for measuring Islamic values was proposed by Albassam & Ntim (2016). They construct an unweighted index which consists of 10 provisions as the following:

1. *Whether a 'Sharia' supervisory board/committee has been established.*
2. *Whether the firm provides an explicit/formal statement regarding its willingness to voluntarily apply/incorporate Islamic values into business operations and/or investment transactions.*
3. *Whether a narrative regarding the fact that the firm's funds and loans are on the basis of interest-free (riba) is disclosed.*
4. *Whether the firm discloses any Islamic and conventional finance separately on its financial accounts.*
5. *Whether a firm's directors provide a clear narrative as to whether the firms' transactions are consistent with Islamic law.*
6. *Whether a narrative regarding the appropriate calculation and payment of the Islamic religious tax (zakat) for the financial year is disclosed.*
7. *Whether there is a due amount of Zakat for previous years.*
8. *Whether the firm is classified as 'Nagi' (i.e., the firm's business transactions and/or investments are 'Sharia' compliant) by Sharia scholars.*
9. *Whether a narrative regarding the existence of a 'Sharia' review and monitoring unit that implements the Islamic values is disclosed.*
10. *Whether the firm has a code of ethics.*

The present study employs both measurements. The index proposed by Canepa & Ibnrubbian (2014) is used in the main model while the index proposed by Albassam & Ntim (2016) is used as a robustness check.

4.4.2.4. Firm characteristic variables

i. Firm size

According to the political cost and information asymmetry theories, the current research expects to find a significant positive relationship between firm size and risk

disclosure as has been discussed in subsection 3.5.4.1. This means that larger firms are expected to reveal more risk-related information. There are several measures of firm size employed in the literature. They are the log of total assets, the log of sales, and the log of market value. For instance, Elshandidy et al. (2013) use the log of market capitalization as a proxy for firm size. Al-shammari (2014), Elzahar & Hussainey (2012) and Ntim et al. (2013) use the log of total assets. Abraham & Cox (2007) use the log of revenue as a proxy for company size. However, the findings of the studies mentioned above are consistent in spite of the fact that they use different measurements of firm size. They find a positive relationship between firm size and risk disclosure. Since this study finds no significant differences in the results between various measures, the current study uses the log of sales to capture the impact of company size on risk reporting. The natural logarithms of sales reduce the effect of outliers and enhance the distribution of the variable. Using a simple log or square transformation helps in resolving the issue of outlier values (Frecka & Hopwood, 1983).

i. Profitability

In the light of the capital need and pecking order theories as discussed in chapter 3, this study predicts that profitable firms produce lower levels of risk-related information which suggests a negative association between profitability and risk disclosure. Lee (2007) explains that the profitability ratio can be used to assess a company's management, and its success in attaining earnings in order to supply the funds required for the development of the company, as well as returns for shareholders. Profitability is measured by return on assets ratio (ROA), return on equity ratio (ROE) or Tobin Q. The present study does not find any significant differences in the results between the uses of different profitability proxies. According to Van Horne & Wachowicz (2008), return on equity (ROE) is a suitable measurement that can be used to evaluate a company's profitability of investments. Therefore, and following Al-shammari (2014) and Elshandidy et al. (2013, 2014), the current study uses ROE as a proxy for firm profitability. ROE is calculated as follows:

$$\text{ROE} = \text{Net income} / \text{Book value of equity}$$

ii. Liquidity

Liquidity represents the financial ability of a firm to meet its short-term obligations. The current ratio is the most common proxy employed by the literature to gauge liquidity (e.g. Al-Dohaiman, 2008; Deesomsak, Paudyal, & Pescetto, 2004; Naem, 2012; Ozkan, 2001). The current ratio is calculated as:

$$\text{Current ratio} = \text{Current assets} / \text{Current liabilities}$$

As hypothesized in chapter 3, capital need theory suggests a negative relationship between liquidity and the level of risk reporting.

iii. Firm risk

Following previous studies (e.g. Al-shammari, 2014; Elshandidy et al., 2013; Elzahar & Hussainey, 2012; Madrigal et al., 2015; Linsley & Shrives, 2006; Muzahhem, 2011; Rajab & Schachler, 2009; Domínguez & Gámez, 2014; and Semper & Beltrán, 2014), the current study uses leverage as a proxy for firm's risk. It is believed that the higher the gearing ratio, the higher the firm riskiness. In accordance with agency cost and signaling theories, the current study expects to find a positive relationship between leverage and risk disclosure. There are two measures of leverage. They are the debt to assets ratio and the debt to equity ratio. Following Abraham & Cox (2007), Al-shammari (2014), Hassan (2009) and Muzahhem (2011) the current study uses total debt to total assets as a proxy for leverage.

iv. Industry type

There are several ways of testing the association between risk reporting and industry type in the risk disclosure literature. For instance, (Al-shammari, 2014; Domínguez & Gámez, 2014) investigates whether there is a significant difference between manufacturing and non-manufacturing firms by employing a dummy variable in the model that takes a value of 1 if it is a manufacturing company and 0 otherwise (e.g. Al-shammari 2014) or 2 for consumer goods and services (e.g. Rodríguez Domínguez & Noguera Gámez 2014). Other studies used the same method unless they distinguish between financial and non-financial firms rather than manufacturing and non-manufacturing companies (e.g. Hassan 2009; Abdallah et al. 2015). Likewise, Abraham & Cox (2007) and Beretta & Bozzolan

(2004) include all different industries in the statistical model in order to find the direction of the relationships between each sector and risk reporting.

Rajab & Schachler (2009), Hernández Madrigal et al. (2015), and Mohd Ali & Taylor (2014) employ one of the most meaningful ways of testing the relationship between risk reporting and industry type. They investigate whether there are significant differences in industries' means using a One-way ANOVA. Rajab & Schachler (2009) and Hernández Madrigal et al. (2015) find significant differences between industries in risk reporting among 52 UK and 32 Spanish listed firms. However, Mohd Ali & Taylor (2014) find no significant difference between industries in the disclosure of risk-related information. Similarly, the current study aims to conduct a One-way ANOVA test in order to investigate whether there are significant differences between sectors for Saudi listed firms. The results of the One-way ANOVA test are shown in section 5.7. Additionally, industry-specific dummy variables are added to model 1 in order to take into account the industry effects on risk disclosure practices.

Following the prior literature, the current study employs an ordinary least squares (OLS) regression model in order to explore the determinants of risk reporting among Saudi listed firms. The model contains several explanatory variables such as corporate governance mechanisms, ownership structure, and the Islamic values' index as specified above. This study uses an OLS model because it assumes all relations are linear. However, Petersen (2009) argues that the OLS model has the possibility to be biased because of the correlation between firms and the error term. Petersen (2009, p.475) says that "*The standard errors clustered by the firm are unbiased and produce correctly sized confidence intervals whether the firm effect is permanent or temporary*". Therefore, and following previous studies (e.g. Al-Bassam et al., 2016; Albassam & Ntim, 2016; Miihkinen, 2012; Zhang, Zhang, & Zhang, 2016), the present study uses the clustered standard error at the firm level in order to solve the problem of heteroscedasticity. Hence, the first regression equation to be estimated is:

Model 1

$$\begin{aligned} \text{LogRD}_{i,t} = & \alpha_0 + \beta_1 \text{BS}_{i,t} + \beta_2 \text{ID}_{i,t} + \beta_3 \text{NED}_{i,t} + \beta_4 \text{BIG4}_{i,t} + \beta_5 \text{EDUC}_{i,t} + \beta_6 \\ & \text{RMCOM}_{i,t} + \beta_7 \text{BLOCKOWN}_{i,t} + \beta_8 \text{GOVOWN}_{i,t} + \beta_9 \text{INSTOWN}_{i,t} + \beta_{10} \\ & \text{INSIDOWN}_{i,t} + \beta_{11} \text{IVI}_{i,t} + \sum_{i=1}^n \beta_i \text{CONTROLS}_{i,t} + \varepsilon_{i,t} \quad (\text{equation 1}) \end{aligned}$$

Where:

<i>LogRD</i>	Risk disclosure
<i>BS</i>	Board size
<i>ID</i>	Independent directors
<i>NED</i>	Non-executive directors
<i>BIG4</i>	Auditor type
<i>EDUC</i>	Board education
<i>RMCOM</i>	Risk management committee
<i>BLOCKOWN</i>	Block holder ownership
<i>GOVOWN</i>	Government ownership
<i>INSTOWN</i>	Institutional ownership
<i>INSIDOWN</i>	Inside ownership
<i>IVI</i>	Islamic value
<i>CONTROLS</i>	Control variables for firm size (<i>LogSales</i>), profitability (<i>ROE</i>), liquidity (<i>LIQ</i>), leverage (<i>LVG</i>), Error term or residual

4.5. Research model of the impact of Loss-Making Firms Procedures on risk disclosure

The current study employs the difference-in-difference (DID) approach in order to examine the impact of the enforcement of the Loss-Making Firms Procedures (LMFPs) on risk disclosure. DID approach is considered an effective technique for solving the endogeneity issue (Roberts & Whited, 2013). In order to perform DID, there have to be two elements: (i) an exogenous shock such as the introduction of new regulation, and (ii) two groups where one group is affected by the shock and the other is not (Roberts & Whited, 2013).

The enforcement of the Loss-Making Firms Procedures in mid-2014 is a shock that results in two groups: (i) a treatment group (i.e. loss-making firms), and (ii) a control group (i.e. other firms). The Procedures apply to 17 loss-making firms whereas 99 non-loss-making firms are not affected by such enforcement. Moreover, this study investigates the impact of the new procedures (LMFPs) on risk disclosure two years before the introduction of the procedures and two years afterward. To perform DID, the interaction term $LOSS_{i,t} * POST_{i,t}$ is used to find the changes in risk disclosure practices among loss-making firms after the enforcement of LMFPs. The variable $LOSS$ is a dummy variable takes 1 if the firm has cumulative losses, and 0 otherwise. The variable $POST$ is a dummy variable takes 1 if the time is after the enforcement of LMFPs, and 0 otherwise.

The specification of the DID model is as follows:

Model 2

$$LogRD_{i,t} = \alpha_0 + \beta_1 LOSS_{i,t} * POST_{i,t} + \beta_2 LOSS_{i,t} + \beta_3 POST_{i,t} + \sum_{i=1}^n \beta_i CONTROLS_{i,t} + \varepsilon_{it}$$

(equation 2)

Where:

$LogRD$ Risk disclosure

$LOSS$ Loss-making firms (i.e. a dummy variable takes 1 if the firm has cumulative losses, and 0 otherwise).

$POST$ The period after the enforcement of Loss-Making Firms Procedures (i.e. a dummy variable takes 1 if the time is after the enforcement of LMFPs, and 0 otherwise).

$LOSS_{i,t} * POST_{i,t}$ Loss-making firms after the enforcement of LMFPs.

$CONTROLS$ Control variables for firm size ($LogSales$), profitability (ROE), liquidity (LIQ), leverage (LVG), and error term.

4.6. Research model of the impact of risk disclosure on the cost of capital

The third research question investigates the impact of risk disclosure on a company's cost of capital. Table 4.4 contains definitions of the variables used in this model. Section 4.6.1 explains the dependent variable; section 4.6.2 explains the independent variables, and 4.6.3 explains the control variables.

Table 4.4: Definition of variables of Model 3

Dependent Variables	Variable description	Variable measurement
WAAC	Weighted average cost of capital	Weighted average cost of capital
Independent Variable		
LogRD	Risk-related sentences	Log of the number of risk sentences
Control variables		
LogSales	Firm size	Log of total sales
ROE	Profitability	Return on Equity
LVG	Leverage	Debt/total assets
GROWTH	Firm's growth	Market to book ratio

4.6.1. The dependent variable: Cost of capital

Existing literature (e.g. Bierman, 1993; Bruner & Hensel, 1998; Meier & Tarhan, 2007) support the proposition that the Weighted Average Cost of Capital (WACC) is one of the best measurements used to measure a company's cost of capital (Truong, Partington, & Peat, 2008). It represents the average rate of return a company should expect to pay its financiers. WACC is a preferred measure because it indicates a discounted rate reflecting a certain risk associated with the cash flows within a given company.

Several previous studies support the use of WACC as the measure of the cost of capital. For example, a survey of 127 companies conducted by Meier & Tarhan (2007) revealed that about 70% of all the respondents use WACC to discount their cash flows. A similar study involving 27 blue-chip companies revealed about 89% of the chief financing officers (CFOs) in these companies use WACC to value all interest-bearing liabilities relative to the company's cash flows (Bruner & Hensel, 1998). Bierman (1993) finds that 93% of Fortune 500 companies in the United States use WACC to measure the cost of capital. Another study conducted in Australia by Truong et al. (2008) find that WACC is the most preferred method in discounting cash flows. Recent studies by Bozec, Laurin, &

Meier (2014) and Pham, Suchard, & Zein (2012) also find that WACC is consistently used by most companies in assessing different components of its capital structure.

WACC measures each external financing relative to the company's entire capital structure. The capital structure normally consists of debt and equity; where debt reflects the external sources of capital and equity reflects stocks and shares.

Based on the empirical evidence provided in the above literature WACC is computed by the following formula:

$$WACC = \{(E/V)*R_e\} + \{(D/V)* R_d\} * \{1-T\}$$

Where E = equity in terms of its market value

D = debt in terms of its market value

$V = E + D$

R_e = Cost of equity

R_d = Cost of debt

T = Tax Rate

The following sections discuss further the cost of debt and cost of equity in addition to illustrating how these components are calculated. The discussion is based on the models advocated by existing literature and why those particular models are more ideal than others.

4.6.1.1. Cost of equity capital

Cost of Equity capital is the rate of return required by equity investors. The estimation of the cost of equity is challenging since it is not a directly observable variable. There are several financial models that have been proposed for estimating the cost of equity. The most popular models are the Gordon growth model (Gordon & Shapiro, 1956); Gordon model (Gordon, 1959); Capital Assets Pricing Model (Sharpe, 1964); and the Three-Factor Pricing Model (Fama & French, 1995).

These models take into consideration different elements of an investment to determine which elements should be used in calculating the rate of return. For example, the Capital

Assets Pricing model suggests that the riskiest investment should be priced the lowest. The low price of the riskiest investment is meant to induce and compensate the investor for investing.

There is no consensus on which is the best model to use (Fama & French, 1997). In this study, the Capital Assets Pricing Model (CAPM) is used to determine the cost of equity. This study chooses CAPM for several reasons. Firstly, CAPM appears to be one of the most used models by prior literature (Bozec et al., 2014). Secondly, CAPM is the model preferred by scholars in conducting similar studies. For instance, Pham et al. (2012), Bozec et al. (2014) and Khan (2016) employed CAPM in determining the relationship between corporate governance and the cost of capital. Finally, the available literature seems to suggest that most companies prefer the Capital Asset Pricing Model in estimating the cost of equity. According to a study conducted by Kester & Chang (1999), 73% of the respondents employ CAPM in estimating their cost of equity in the Asia-Pacific Region (i.e. Australia, Hong Kong, Indonesia, Malaysia, Philippines, and Singapore). A similar study conducted in Australia recently by Truong et al. (2008) reveals that 72% (53 respondents) use CAPM in estimating the cost of equity. In the United States, Graham & Harvey (2001) report that 74% of companies prefer CAPM in computing the cost of equity for the purpose of capital budgeting. In a more recent study, Berk & van Binsbergen (2017) find empirically that investors use CAPM to compute the discount rate. They further recommend investors to use CAPM as it is the most consistent with investors' behavior.

The cost of equity is computed as follows using the Capital Asset Pricing Model (CAPM):

$$R_e = R_f + \beta (R_m - R_f)$$

Where:

R_f = rate of return for risk-free security

β = Beta of the asset

R_m = expected rate of return at the broad market

Having determined the cost of equity, the next step is to determine the cost of debt capital.

4.6.1.2. Cost of debt capital

The cost of debt is the amount of interest a company pays in all its external debt. In calculating the cost of debt, there are several measurements that have been proposed. However, there is no consensus on the most suitable measure. There are three main measures used in calculating the cost of debt that includes credit rating, yield spread, and interest rate method.

The absence of an active debt market and credit rating entities in Saudi Arabia makes it impossible for this study to use the credit ratings or the yield spread methods. Hence, the present study relies on the interest rate method. Additionally, the use of interest rate method is in line with the existing literature (e.g. Byun, 2007; Fields, Fraser, & Subrahmanyam, 2012; Khan, 2016; Piot & Missonier-Piera, 2007; Pittman & Fortin, 2004; Ramly, 2013).

4.6.2. The independent variable: Risk disclosure

To answer the fourth main question of this thesis, which is the impact of risk communication on the cost of capital, the current study uses a risk disclosure index as the independent variable. Discussion of the risk disclosure index and the framework of the index have already been provided in section 4.4.1.

4.6.3. Control variables

4.6.3.1. Firm size

It is argued that there is an inverse relationship between the size of a company and its cost of capital. Larger companies are more stable and diversified and therefore have more reliable cash flows which reduce the cost of capital. This proposition is supported by empirical evidence provided by a study conducted by Botosan & Plumlee (2005). Also, Botosan (1997) argues that larger companies enjoy the benefit of high market valuation as well as a lower cost of external capital. In addition, Beiner, Drobetz, Schmid, & Zimmermann (2006) posit that larger companies also have better internal controls and governance structures which also work to lower the cost of capital. This is because the complex nature of its operation and the regulations imposed by external stakeholders require the company to have in place administrative and oversight structures which lead to

better governance. Larger companies have better corporate governance in place that provides more accountability and makes investors more likely to invest in these companies. Thus, this study predicts a negative relationship between firm size and the cost of capital.

As discussed in section 4.4.2.4, the current study uses the log of sales to capture the impact of company size on risk disclosure. The natural logarithms of sales reduce the effect of outliers and enhance the distribution of the variable.

4.6.3.2. Profitability

Profitability is another important factor in forming capital budgeting and corporate policies decision. Profitable companies tend to depend less on external sources of capital in comparison to less profitable companies for capital investments since they have surplus earnings (Myers & Majluf, 1984). However, when firms require additional financing, they prefer to borrow rather than raising any additional equity (Myers & Majluf, 1984). Myers (1984) clarifies that the primary reason that companies choose to issue debt is to exploit the information asymmetry where lenders have a lower level of information compared to managers and major shareholders. Debt financing also provides tax protection havens for profitable companies by reducing the amount of pre-tax profit that is subject to taxation (Modigliani & Miller, 1963). In addition, more profitable companies also prefer to borrow as a way of enhancing corporate governance. It is argued when the surplus cash is mitigated by paying off loans, there are less available funds that can be misappropriated by managers (Jensen, 1986). Also, if a company is exceptionally profitable, creditors offer it favorable terms which induce the company even further to consider debt-financing (Peterson & Rajan, 1994). Thus, this study suggests a negative relationship between profitability and the cost of capital.

As discussed above in section 4.4.2.4, the current study uses ROE as a proxy for firm profitability. ROE is calculated as follows:

$$\text{ROE} = \text{Net income} / \text{Book value of equity}$$

4.6.3.3. Leverage

There is increasing theoretical and empirical evidence to suggest a company's capital structure can impact its performance (Myers, 1984). It is believed that the higher the gearing ratio, the higher the probability that the firm might default in debt repayment (Hail, 2002). An over-levered company is more prone to financial difficulties like bankruptcy and limited access to more credit. Limited access to credit because of the high level of debt means that the company might not be in a position to pursue other investment opportunities in the future (Myers, 1977). The current study controls for leverage and predicts a positive relationship between leverage and the cost of capital.

As discussed in section 4.4.2.4, the current study uses total debt to total assets as a proxy for leverage.

4.6.3.4. Firm's Growth

Growth is a fundamental control variable in determining the impact of risk disclosure on the cost of capital. The faster a company grows the more potential it increases its shareholders' wealth in the future and therefore the more valuable it is (Klapper & Love, 2004). Firms with growth opportunities need to raise external fund. In doing so, firms need to enhance its internal controls mechanisms as well as instituting better corporate governance framework (Beiner et al., 2006). Based on these assertions, it is expected that the company's growth is negatively related to the cost of capital (Henry, 2008). Following Carlson, Fisher, & Giammarino (2004); Cooper (2006); and La & Liberatore (2014), the current study calculates firm growth as the market to book ratio.

Following prior studies, the current study employs an ordinary least squares (OLS) regression model in order to explore the impact of risk reporting on the cost of capital for Saudi listed firms. The explanatory variable and the dependent variable are risk disclosure and cost of capital, respectively, as discussed above in section 4.6.1 and section 4.6.2. This study uses an OLS model because it assumes all relations are linear. However, Petersen (2009) argues that the OLS model has the possibility to be biased because of the correlation between firms and the error term. Petersen (2009, p.475) says that "*The standard errors clustered by the firm are unbiased and produce correctly sized confidence intervals whether the firm effect is permanent or temporary*". Therefore, the present study

uses the clustered standard error at the firm level in order to solve the problem of heteroscedasticity. Hence, the second regression equation to be estimated is:

Model 3

$$WACC_{i,t} = \alpha_0 + \beta_1 LogRD_{i,t} + \sum_{i=1}^n \beta_i CONTROLS_{it} + \varepsilon_{it} \quad (\text{equation 3})$$

Where:

WACC Cost of capital

LogRD Risk disclosure

CONTROLS Control variables for firm size (*LogSales*), profitability (*ROE*), leverage (*LVG*), Firm's Growth (*GROW*), and Error term or residual

4.7. Chapter summary

This chapter reviewed the research methodology of the present study. The sample of this study contains 463 firm-year observations. The present study depends on companies' annual reports as the source of disclosure. This chapter discussed the construction of the risk disclosure index and the employment of content analysis. The index categorizes risk to three categories (financial risk, operational, and strategic risk). To perform the content analysis, this thesis conducts a coding scheme, reliability and validity tests. There are five groups of the independent variables. They are the corporate governance mechanisms, the ownership structure variables, the Islamic values index, and the control variables.

There are three empirical models to be conducted in the present study. The first model investigates the effect of corporate governance mechanisms, ownership structure, and Islamic values on risk reporting. The corporate governance mechanisms include auditor type, board size, independent directors, non-executive directors, board education, and the existence of a risk management committee. The ownership structure variables include government ownership, inside ownership, institutional ownership and block ownership. To measure the Islamic values, the present study built two Islamic values indices. The first index proposed by Canepa & Ibnrubbian (2014) which is used in the main model. The other index is proposed by Albassam & Ntim (2016) which is used to check the robustness of the results.

The second model examines the impact of the Loss-Making Firms Procedures (LMFPs) on risk disclosure. The Loss-Making Firms Procedures have been introduced by the Saudi Capital Market Authority in 2014. These procedures apply to firms with cumulative losses with the aim to rectify the performance of those firms²³. The third model investigates the impact of risk reporting on the cost of capital. The cost of capital is calculated as the Weighted Average Cost of Capital (WACC).

Extensive descriptive statistics results of the practices of risk disclosure in the Saudi context are provided in the following chapter.

²³ For example, Loss-making firms were required to create a plan and establish a new committee to implement the plan in order to mitigate firms' losses. The Loss-Making Firms Procedures are discussed thoroughly in section 3.6.

Chapter 5 THE RESULTS OF CONTENT ANALYSIS

5.1. Introduction

This chapter presents the results of the content analysis. Specifically, this chapter attempts to achieve four main objectives. First, this chapter presents descriptive statistics of risk disclosure in order to explore the practices of risk disclosure among Saudi listed firms. Second, it reviews the trend of risk reporting over the sample years 2012-2015. Third, it discusses the various attributes of risk disclosure (i.e. qualitative, quantitative, forward-looking, historical, good, bad, or neutral). Fourth, this chapter examines the industry effect on risk disclosure using a One Way ANOVA test.

The chapter is organized as follows. Section 5.2 presents the summary statistics for the different types of disclosed risk. Section 5.3 reviews the trend of risk disclosure and section 5.4 presents the various attributes of risk disclosure. Section 5.5 discusses the effect of industry on risk reporting and finally, section 5.6 presents a summary of the entire chapter.

5.2. Descriptive statistics of risk disclosure

Table 5.1 reports the summary statistics for risk reporting for Saudi Arabian listed firms. The results show that Saudi firms report about 24 risk-related sentences on average. This number is much lower than that reported in other studies elsewhere. For instance, Greco (2012) and Beretta & Bozzolan (2004) report that the average number of risk disclosure is 65 and 75 sentences respectively for Italian firms.

Muzahhem (2011) finds that UAE firms provide, on average, 97 risk sentences. Linsley & Shrivies (2006), and Rajab & Schachler (2009) report that the mean of risk disclosure is 78 and 95 sentences for UK listed firms respectively. Konishi & Ali (2007) find that Japanese firms provide 47 risk sentences on average. Therefore, risk disclosure in the Saudi context appeared to be smaller compared to other studies.

The low level of risk disclosure in Saudi Arabia can be mainly explained by the lack of enforcement. During the sample period, there were no mandatory requirements for Saudi listed firms to provide risk-related information in the annual reports. However, there have been several recent developments. For

instance, the Capital Market Authority (CMA) requires Saudi listed firms to comply with the requirement of the International Financial Reporting Standards (IFRS) from the beginning of 2017. The adoption of IFRS is expected to improve risk disclosure practices given that the IFRS requires the disclosure of risk. Bischof (2009) finds that the adoption of IFRS has improved the risk disclosure practices significantly in Europe. Another crucial development is the updated version of the Saudi Corporate Governance Code (SCGC). The updated version is issued on 13/02/2017. This updated version is the first version that asserts the importance of appointing a risk management committee. The existence of a risk management committee can possibly enhance the level of risk disclosure.

Table 5.1: Descriptive statistics of risk sentences

	Total RS	Financial RS	Operational RS	Strategic RS	Qualitative RS	Quantitative RS	forward-looking R	Historical RS	Positive R	Negative RS	Neutral RS	Number of pages
Mean	24.37	9.95	10.18	4.24	20.49	3.89	15.39	9.00	11.57	8.53	4.29	57.49
Median	23.00	9.00	9.00	3.00	20.00	3.00	14.00	8.00	10.00	7.00	4.00	54.00
Maximum	72.00	35.00	51.00	33.00	60.00	23.00	50.00	32.00	54.00	38.00	27.00	133.00
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.00
Std. Dev.	11.32	6.60	6.37	3.78	9.60	3.50	8.24	5.08	7.10	6.17	4.11	20.19
Obs.	463	463	463	463	463	463	463	463	463	463	463	463

Notes: RS stands for the number of risk sentences. The number of pages refers to the number of pages of firms' annual reports.

The minimum risk disclosure is zero as shown in Table 5.1 where a firm does not provide any risk-related sentences in its annual report. The maximum risk disclosure is 72 sentences. From the table, it can be seen that the greatest disclosure of risk category is the operational risk with 10.18 sentences and the financial risk with 9.98 sentences. However, the average of strategic risk is only 4.42 sentences. 35, 51, and 33 are the maximum sentences of financial, operational, and strategic risk disclosure respectively. The minimum risk disclosure for all risk categories is zero.

Looking at Table 5.1, Saudi firms disclose much more qualitative than the quantitative risk with 20.49 compared to 3.89 risk sentences. This is consistent with previous studies (e.g. Beretta & Bozzolan, 2004; Konishi & Ali, 2007; Lajili & Zéghal, 2005; Linsley & Shrives, 2006; Mokhtar & Mellett, 2013; Rajab & Schachler, 2009). The results of these studies are discussed in section 5.4.1.

As can be also seen from Table 5.1 above, it is apparent that the forward-looking risk disclosure is reported significantly more than the historical risk disclosure. Saudi listed firms provide more forward-looking risk-related information with an average of 15.39 sentences whereas the average of historical risk disclosure is only 9 sentences. This finding is consistent with Linsley & Shrives (2006) and Rajab & Schachler (2009) and it is in contrast to the results of studies by Konishi & Ali (2007) and Muzahhem (2011). More discussion is provided in section 5.4.2.

From Table 5.1 above, it can also be seen that Saudi firms report more positive risk than negative and neutral risk disclosure. The mean of positive risk disclosure is 11.57 sentences which is much greater than the average of negative and neutral risk disclosure of 8.53 and 4.29 sentences respectively. The results are contradictory to the findings of previous studies (e.g. Buckby, Gallery, & Ma, 2015; Elshandidy & Shrives, 2016; Linsley & Shrives, 2006; Maffei, Aria, Fiondella, Spanò, & Zagaria, 2014; Muzahhem, 2011; Rajab & Schachler, 2009) and consistent with the findings by Mokhtar & Mellett (2013)²⁴.

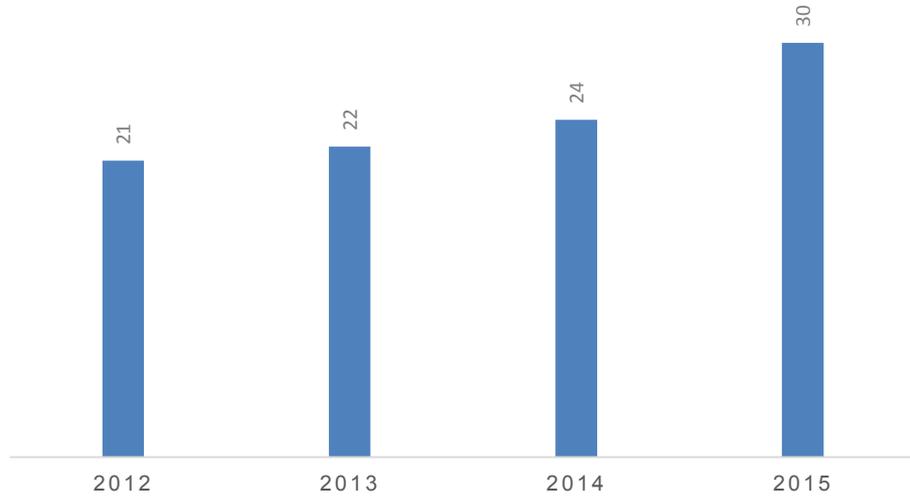
²⁴ Section 5.3.3 discusses those findings in details.

5.3. Trend of risk disclosure

Figure 5.1 reports the trends of risk disclosure. It shows that there has been a gradual increase in the average number of risk disclosure by Saudi listed firms over the period 2012 – 2015. This finding is in line with previous studies that report risk disclosure increases over the sample period for several countries including Portugal (e.g. Oliveira, Rodrigues, & Craig 2011) and UAE (e.g. Muzahhem, 2011). Saudi banks have also increased risk disclosure over the years (see Al-Maghzom, Hussainey, & Aly 2016b).

As can be seen from Figure 5.1 and Figure 5.2, the rise in the number of risk-related sentences is more pronounced in the year 2015 where risk disclosure grew from 24 in 2014 to 30 in 2015. The increase of risk disclosure in 2015 can be explained by the increased risk in the Saudi economy due to the dramatic decline in oil prices which led to a financial crisis in Saudi Arabia. As a response to the sharp decline in oil prices, the Saudi government applied a widespread austerity plan including the cut of subsidies to firms and households. This finding is in line with prior research. Gulko, Hyde, & Seppala (2017) find that UK firms reported significantly more risk disclosures with enhanced quality during the financial crisis in 2008 than the time when the economy was stable. Abraham & Shrivess (2014) argue that firms` directors disclose more risk information in the time of crisis in order to enhance the firms` reputation.

Figure 5.1: Trend of risk disclosure



What also stands out in Figure 5.2 is the general pattern of the rise of different risk disclosure categories. For instance, financial, operational, and strategic risk disclosure increase from 8.68, 8.74, and 3.74 sentences in 2012 to 12.39, 12.11, and 5.08 sentences in 2015 respectively.

Figure 5.2: Trend of risk disclosure; categories-wise

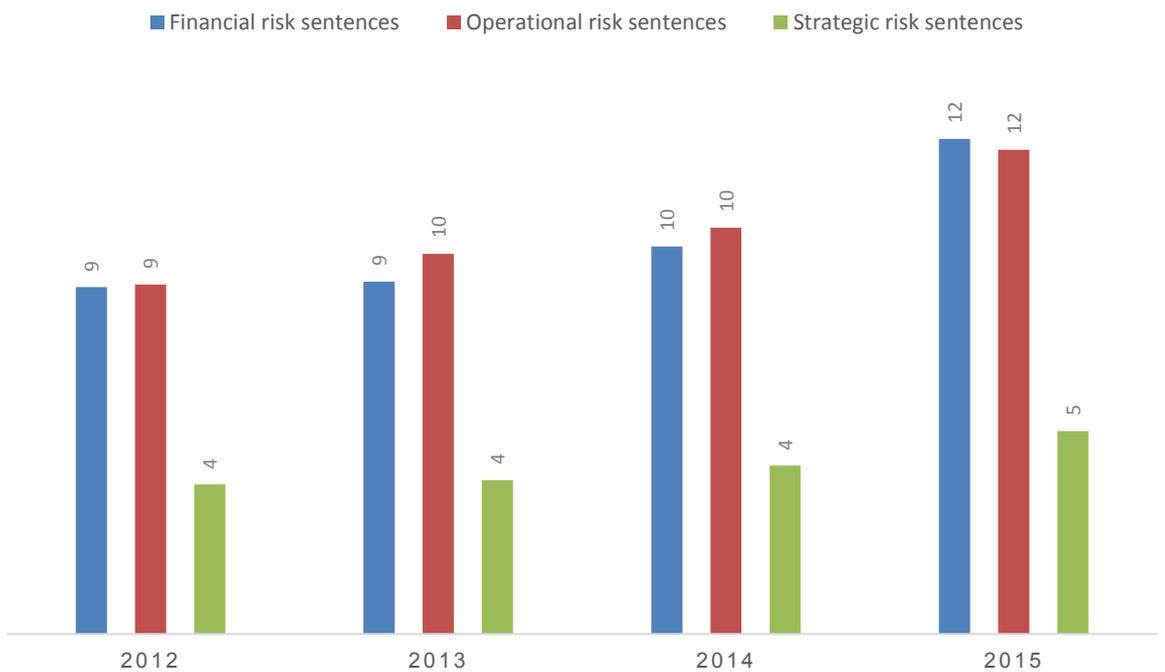
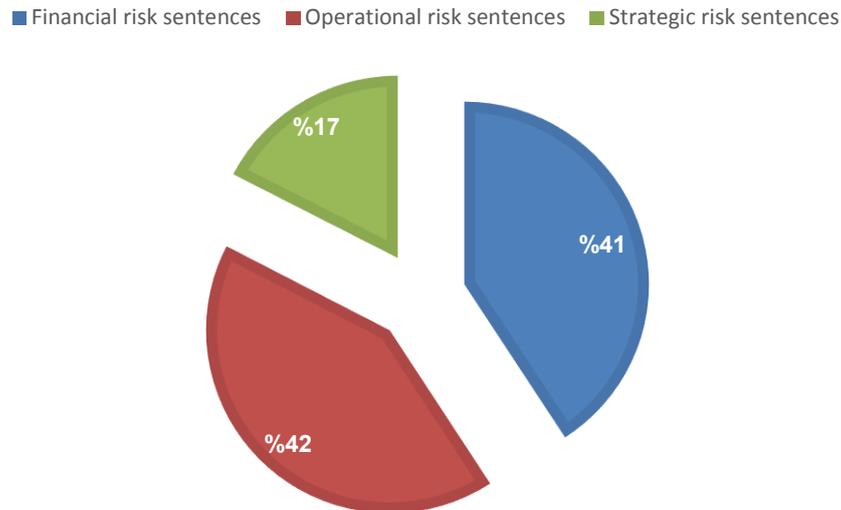


Figure 5.3 illustrates what types of risk Saudi listed firms mostly disclose. The percentages of financial, operational, and strategic risk disclosure are 40.81%, 41.78%, and 17.41%, respectively. Operational and financial risk disclosure appeared to be the most frequent disclosed risk while the strategic risk is significantly lower as can be seen from Table 5.2. This finding is consistent with prior studies by Lajili & Zéghal (2005), and Muzahhem (2011) where they find that the financial risk disclosure dominates over other categories in Canada, and the UAE, respectively.

Table 5.2: Difference in Means of Risk Categories

Mean of risk sentences					
Financial risk	Strategic risk	Difference in means	t-statistics	degree of freedom	p-value
9.95	4.24	5.70	16.547	462	0.000

The increased financial and operational risk disclosure and the lack of strategic risk disclosure can be explained by the verifiability of information. Firms have a high degree of impact on the financial and operational risk which motivates the firms' managers to disclose more on these categories given that the disclosed information is verifiable (Dobler, 2008). On the other hand, it is challenging for the managers to assume that the information related to the strategic risk is verifiable (Miihkinen, 2013) given that the strategic risks are less controllable by firms such as risks related to society, economy, or politics. In fact, risk assessment is subjective and it relies on the managerial discretion. Mohobbot (2005) argues that firms managers have less incentive to disclose information that might put them at intense criticisms and possible legal actions if their estimation goes wrong (cited by Muzahhem 2011).

Figure 5.3: Risk disclosure by categories

However, and in contrast to this study's findings, Linsley & Shrivess (2006), Amran, Bin, & Hassan (2008) and Greco (2012) discover that strategic risk disclosure is the most frequently disclosed risk among UK, Malaysian, and Italian firms, respectively. Nonetheless, the increase in strategic risk disclosure in other countries might be driven by country-specific factors. For instance, the reason for the domination of strategic risk disclosure in Malaysia is the requirements of Bursa Malaysia (Amran et al., 2008). Thus, regulatory authorities in Saudi Arabia are encouraged to require greater emphases of the disclosure of strategic risk-related information.

5.4. Risk disclosure by attributes

5.4.1 Nature of risk (qualitative or quantitative)

In line with previous studies (e.g. Beretta & Bozzolan, 2004; Lajili & Zéghal, 2005; Linsley & Shrivess, 2006; Mokhtar & Mellett, 2013; Muzahhem, 2011; Rajab & Schachler, 2009), this study finds that most disclosed risk is qualitative in nature. On average, firms disclose 20.49 qualitative sentences compared to 3.89 quantitative sentences. Qualitative disclosure represents 84.05% of total disclosure while quantitative disclosure accounts for only 15.95% as shown in Figure 5.4.

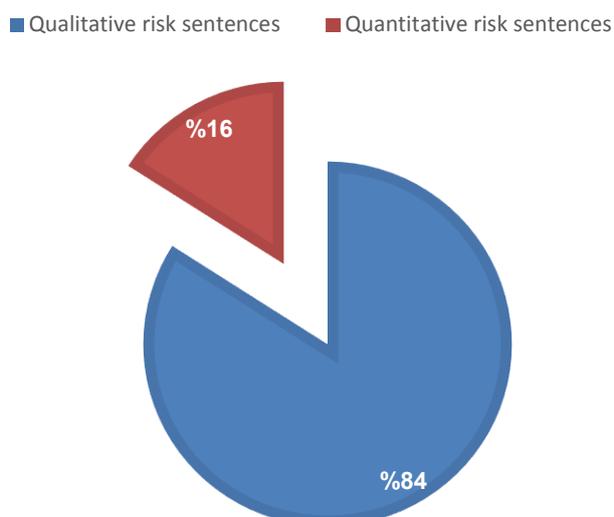
Figure 5.4: Risk sentences by nature of risk

Table 5.3 shows that the difference in means of the qualitative and quantitative risk disclosure is statistically significant. Saudi firms disclose more qualitative than quantitative risk.

Table 5.3: Difference in Means of the nature of risk

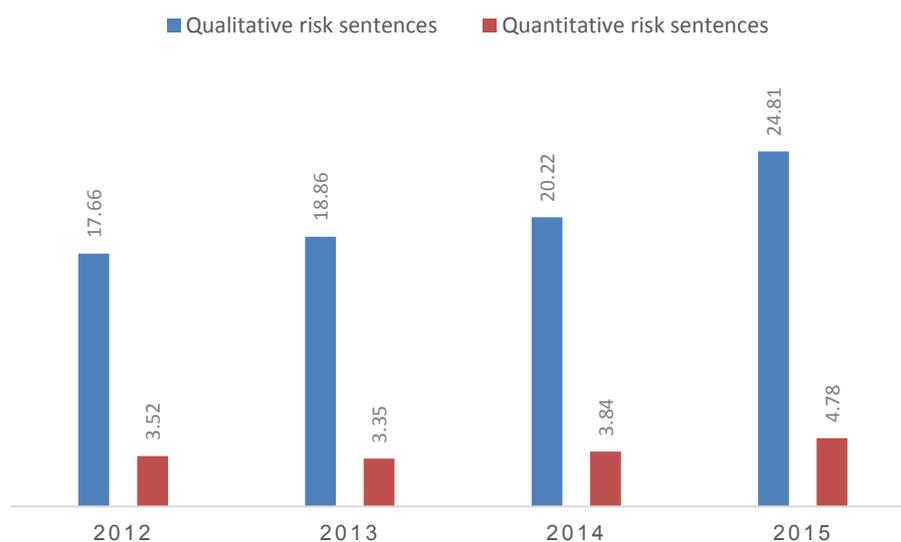
Mean of risk sentences		Difference in			p-
Qualitative	Quantitative	means	t-statistics	degree of freedom	value
20.49	3.89	16.60	39.846	462	0.000

Mokhtar & Mellett (2013) find that 65 percent of risk disclosure in the annual reports of Egyptian firms is qualitative in nature. The result of Muzahhem (2011) also shows that UAE firms disclose more qualitative risk disclosure with 70 percent compared to 30 percent quantitative risk disclosure. Linsley & Shrives (2006) and Rajab & Schachler (2009) report that the percentage of qualitative risk disclosure in the UK context is 94.7% and 89.07% respectively. In Japan, the proportion of qualitative risk disclosure is 63.35% (Konishi & Ali 2007). Beretta & Bozzolan (2004) find that 84.5 percent of risk disclosure in the annual reports of Italian firms is qualitative in nature. However, Maffei, Aria, Fiondella, Spanò, & Zagaria (2014) discover that Italian banks produce more quantitative risk disclosure than qualitative in contrast to the mainstream of research.

Linsley & Shrides (2006) argue that firms should disclose more quantitative risk-related information in order to help stakeholders to assess the risk engaged in by firms. Cabedo & Tirado (2004) argue that the disclosure of quantitative risk information has the potential to assist annual report readers in making better-informed decisions. However, Mohobbot (2005) argues that it is difficult to measure and quantify risks (cited by Muzahhem 2011). Also, Mohobbot (2005) argues that firms managers have less incentive to estimate, quantify, and disclose forward-looking information because it might put them at intense criticisms and possible legal actions if their estimation goes wrong. This can be a possible explanation of the lack of quantitative risk disclosure. Hence, the difficulty in measuring risk and the potential criticisms and legal actions could be the reasons why Saudi listed firms report less quantitative risk disclosure. The present study, therefore, recommends Saudi regulators to encourage the disclosure of quantitative risk information. The recent adoption of the IFRS and the updated version of the SCGC might help in increasing the disclosure of quantitative risk-related information.

As shown in Figure 5.5, qualitative and quantitative risk disclosures have been increasing over the period 2012 – 2015. Qualitative and quantitative risk disclosures increased from 17.66 and 3.52 in 2012 to 24.81 and 4.78 sentences in 2015 respectively.

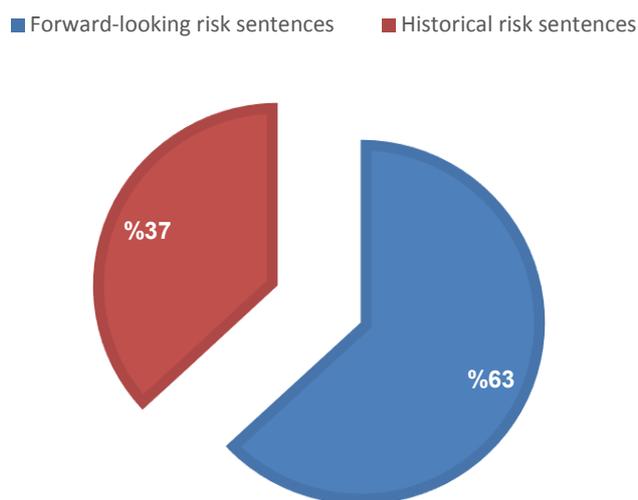
Figure 5.5: Trend of qualitative and quantitative



5.4.2. Time frame of risk disclosure (forward-looking or historical)

It can be seen from Figure 5.6 that 63% of risk disclosure is forward-looking while historical disclosure accounts for about 37%. On average, Saudi companies disclose 15 forward-looking risk sentences compared to 9 historical risk sentences.

Figure 5.6: Time frame of risk disclosure



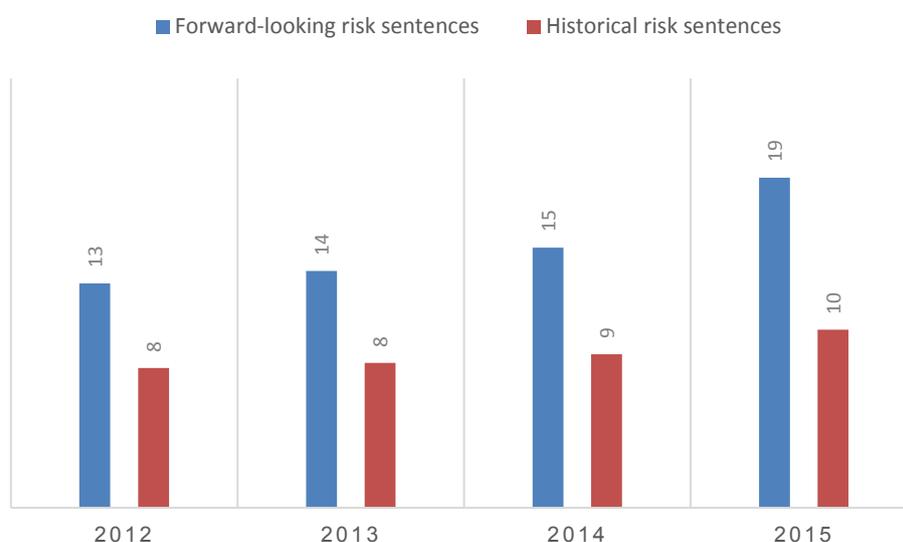
To compare these findings with previous studies, Linsley & Shrivess (2006) report that historical, forward-looking, and non-time disclosure were 25.98%, 35%, and 38.82% respectively in the UK context. Similarly, Rajab & Schachler (2009) find that historical, forward-looking, and non-time disclosure were 12.69%, 31.27%, and 56% respectively in the UK context.

Aljifri & Hussainey (2007) and Linsley & Shrivess (2005) argue that the disclosure of forward-looking information has the potential to assist investors in forecasting future cash flows which result in making better-informed investment decisions unlike the disclosure of historical information. However, it can be argued that forward-looking information has less reliability since it involves a high level of uncertainty in addition to the subjectivity issue associated with forward-looking information (Cabedo & Tirado, 2004). Therefore, financial reports preparers might have less incentive to report forward-looking information (Konishi & Ali, 2007). Also, the nature of forward-looking information is believed to be more valuable and can be exploited by competitors which might affect the competitive advantage of firms (Aljifri & Hussainey, 2007; ICAEW,

1999). The higher level of disclosure of forward-looking information by Saudi listed firms is a good sign and it may reflect the governance practices which will be investigated in the coming chapter²⁵.

As illustrated in Figure 5.7, there has been a steady growth in forward-looking and historical risk disclosure during 2012-2014. Forward-looking and historical risk disclosure increases from 13 and 8 in 2012 to 20 and 10 sentences in 2015 respectively.

Figure 5.7: forward-looking and historical risk disclosure



5.4.3. Economic sign (positive, negative, or neutral).

Figure 5.8 shows the economic sign of risk disclosure for Saudi listed firms. Positive and negative risk disclosure appeared to be the most frequent disclosed risk while the neutral risk is substantially less. The percentages of positive, negative, and neutral risk disclosures are 47%, 35%, and 18% respectively. The average numbers of positive, negative, and neutral risk sentences are 12, 9, and 4 respectively. Table 5.4 shows that the difference in means of the positive and negative risk disclosure is statistically significant.

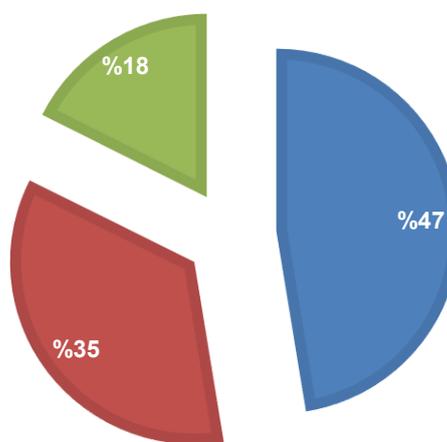
²⁵ The empirical results of the present study show that governance mechanisms play vital roles in enhancing risk disclosure practices.

Table 5.4: Difference in means of the economic sign of risk

Mean of risk sentences					
Positive risk	Negative risk	Difference in means	t-statistics	degree of freedom	p-value
12	9	3.03	7.446	461	0.000

Figure 5.8: Positive, negative, or neutral risk disclosure

■ Positive risk sentences ■ Negative risk sentences ■ Neutral risk sentences

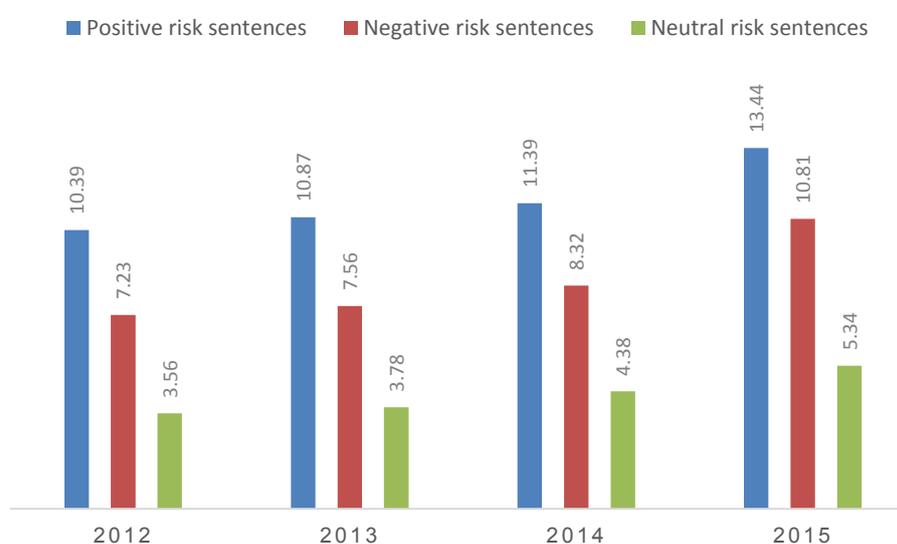


This finding is consistent with previous findings by Muzahhem (2011), Mohobbot (2005), and Beretta & Bozzolan (2004). Muzahhem (2011) and Mohobbot (2005) find that UAE and Japanese firms disclose more positive risk-related information respectively. According to a report by The Association of Chartered Certified Accountants (2014), analysts believe that most risk disclosure is biased toward positive tones. Kothari, Shu, & Wysocki (2009) argue that firms' managers have a higher tendency toward the disclosure of positive news while they are reluctant to disclose negative news. In the case of negative news, managers withhold and accumulate the news until they become certain (Kothari et al., 2009). Linsley & Shrivs (2006) suggest that managers would not reveal bad news since they prefer to signal a bright image of their risk management performance to the market with a view to avoiding reputation costs. Therefore, Ibrahim and Hussainey (2019) and Schrand & Elliott (1998) argue that the requirements of risk disclosure should concentrate on bad risk since companies have less incentive to disclose such information. For example, Basel Committee regulations and the German Accounting Standards (GAS 5) concentrate on the disclosure of bad risk-related information. To this end, the present study

recommends Saudi policymakers to encourage the disclosure of bad risks when introducing legislation. Regulators are mindful of the importance of rules and guidance on how to improve risk disclosure practices.

As shown in Figure 5.9, positive, negative, and neutral risk disclosure has been consistently increasing over the period 2012 – 2015. Good, bad, and neutral risk disclosure increased from 10.39, 7.23 and 3.56 in 2012 to 11.39, 8.32 and 4.38 sentences in 2014 respectively.

Figure 5.9: Trend of positive, negative, and neutral risk disclosure



5.5 Examining the industry effect

Firms in various sectors face different kinds of risks such as the degree of competition, regulation, and technological developments. These different environmental factors are expected to have significant impacts on firms' risks (Beretta & Bozzolan, 2004; Mostafa Hassan, 2009). It can be seen from Figure 5.10 that the telecommunication industry has the highest number of risk sentences with an average of 40 followed by the petrochemical industry with an average of 33. The lowest number of risk sentences was found in the real state and multi-investment industries with an average of 18 risk sentences. Similar results are found after controlling for total disclosure as illustrated in Figure 5.11 by dividing the number of risk sentences by the number of pages in the annual report. This procedure distinguishes between the level of general disclosure of the industry from the specific disclosure on risks.

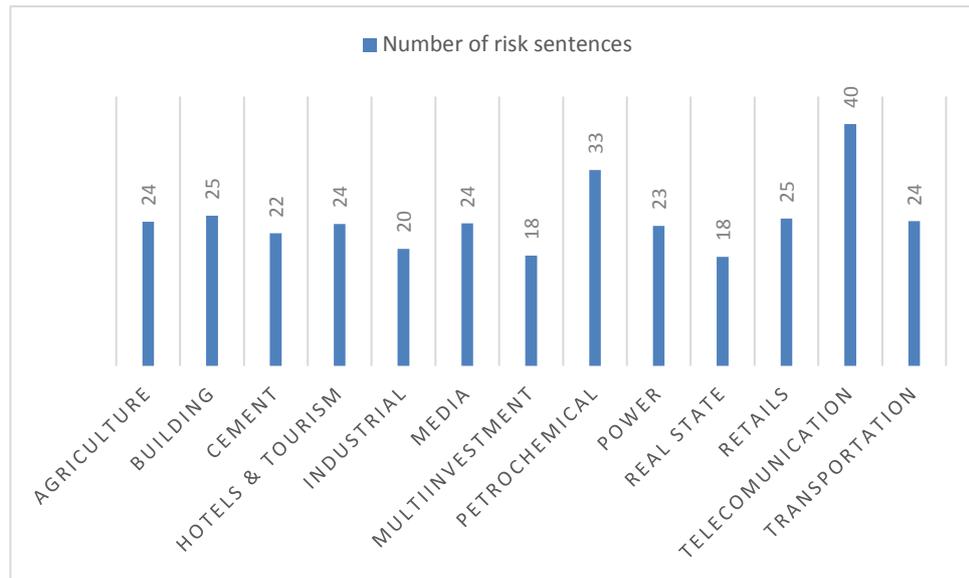
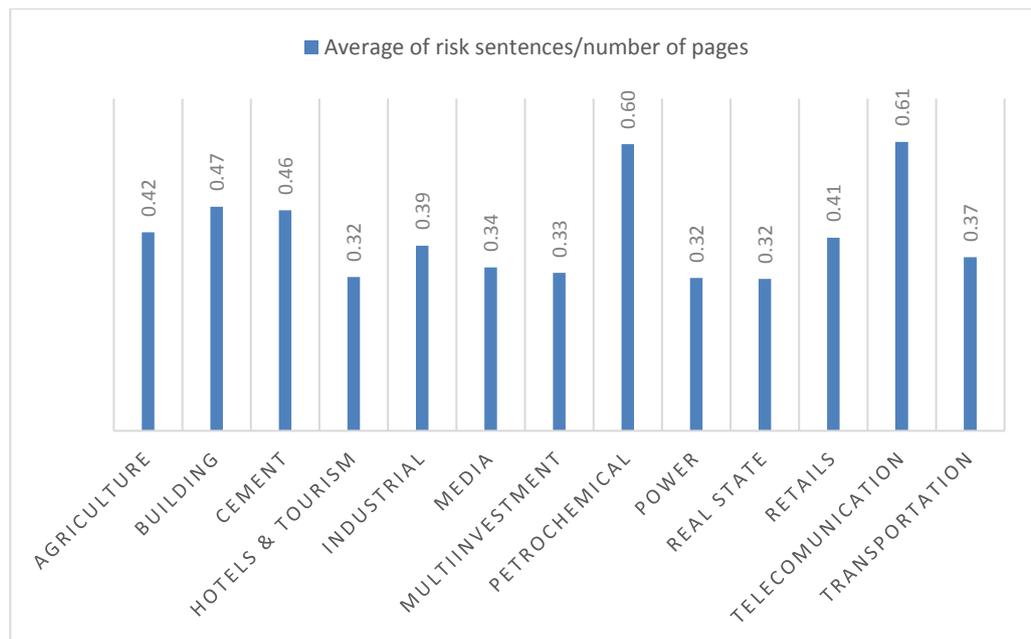
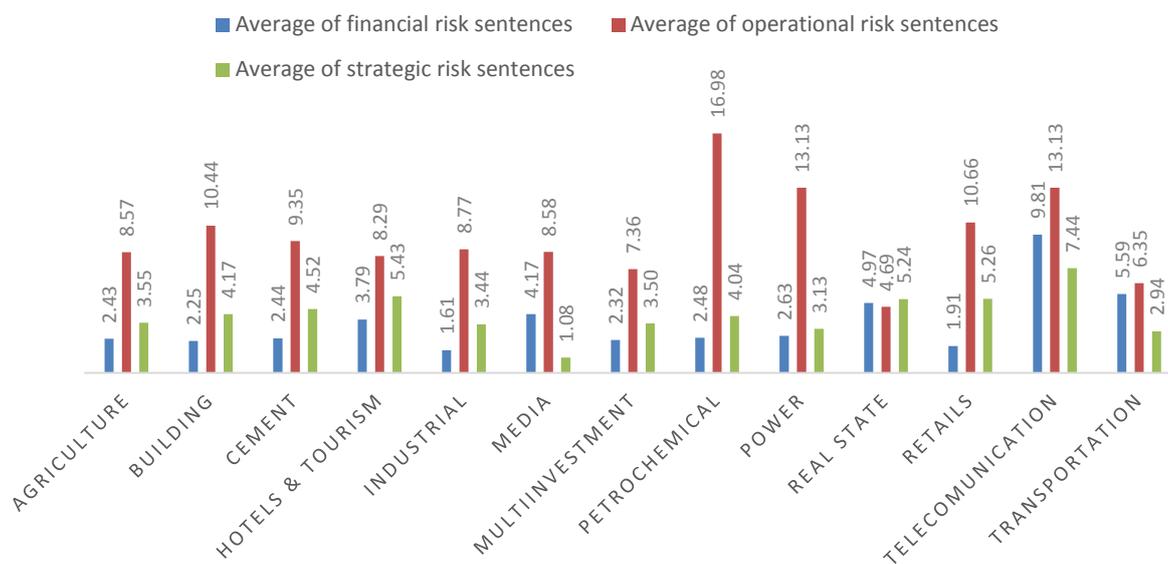
Figure 5.10: Average of risk disclosure; industry-wise**Figure 5.11: Average of risk sentences/number of pages**

Figure 5.12 and Table 5. illustrate the average number of financial, operational, and strategic risk sentences among different industries. The telecommunication industry appeared to have the highest number of financial risk disclosure with an average of 20 risk sentences. The petrochemical industry has the highest number of operational risk disclosure with an average of 17 risk sentences. The telecommunication industry appeared again to have the highest number of strategic risk disclosure with an average of 7 risk sentences.

From the above discussion, it can be noticed that petrochemical and telecommunication firms provide the highest level of risk disclosure. A possible explanation could be the fact that petrochemical and telecommunication firms are substantially larger. The average total assets for Saudi petrochemical and telecommunication firms are 42.5 billion Saudi Riyals compared to 14.5 billion Saudi Riyals for the whole sampled firms. There are two possible factors which encourage large companies to produce a higher level of risk-related information. First, the operations of large firms are wider and more complex resulting in a high level of risk which leads to more risk disclosure since they have more information to reveal (Abraham & Cox, 2007). Second, larger companies tend to have lower costs of preparing, auditing and publishing information which encourage them to produce a larger amount of risk-related information (Mostafa Hassan, 2009; Lopes & Rodrigues, 2007; Muzahhem, 2011).

Table 5.5: Risk disclosure categories; industry-wise

	Financial risk sentences	Operational risk sentences	Strategic risk sentences
Agriculture	11	9	4
Building	10	11	4
Cement	8	9	5
Hotels & Tourism	10	9	5
Industrial	7	9	3
Media	14	9	1
Multi-investment	7	8	4
Petrochemical	11	17	4
Power	7	14	3
Real state	8	5	5
retails	9	11	5
Telecommunication	20	13	7
Transportation	14	6	4

Figure 5.12: Risk disclosure categories; industry-wise

The twelfth hypothesis of the present study is that there are significant differences in the levels of risk disclosure between industries. To test this hypothesis, this study conducts a one-way ANOVA test to examine the industry effect. Table 5. reports the result of the one-way ANOVA test. The results show significant differences in the levels of risk disclosure between industries in the Saudi context. Therefore, the twelfth hypothesis cannot be rejected. This finding is consistent with the findings by previous studies (e.g. Madrigal, Guzmán, & Guzmán, 2015; Rajab & Schachler, 2009). Several theories could explain this finding. For instance, Political cost theory suggests that when a firm operates in an industry that concerns the public, media, and regulators; the firm might have the incentive to provide detailed risk information in order to deflect the unfavorable attention. Also, the institutional theory suggests that firms' managers may choose to imitate the disclosure practices similar to other companies in the same industry regardless of the importance of the information provided which may result in significant variation among different industries (Hassan, 2009). Further, proprietary costs theory suggests that companies may choose to not engage in voluntary disclosure since it might affect their competitiveness in the business. Verrecchia (2001) states that the proprietary costs of disclosure differ between industries. Hence, risk disclosure varies between industries.

Table 5.6: One-way ANOVA test

	N	Mean	Std. Deviation	Minimum	Maximum
Cement	52	22.15	9.28	9	50
Petrochemical	56	32.71	11.55	10	64
retails	53	24.60	9.81	11	59
Power	8	23.38	12.27	10	47
Agriculture	58	24.07	12.24	8	72
Telecommunication	16	40.38	6.23	32	59
Multi-investment	28	18.43	13.35	0	50
Industrial	57	19.56	9.79	3	51
Building	63	25.08	9.26	7	48
Real state	29	18.21	10.46	2	57
Transportation	17	24.18	4.95	15	38
Media	12	23.83	4.82	12	32
Hotels & Tourism	14	23.71	10.40	9	39
Total	463	24.37	11.32	0	72
F			9.249		
Sig.			0		

5.6 Chapter summary

This chapter discussed the level and practices of risk disclosure among Saudi listed firms in addition to shedding the lights on the trend of risk reporting over the sample period. The chapter also discussed the various attributes of risk disclosure (i.e. qualitative, quantitative, forward-looking, historical, good, bad, or neutral), and examined the industry effect on risk disclosure.

The main findings of the content analysis are as follow. The descriptive results show that Saudi firms report 24 risk-related sentences on average. This finding indicates that risk disclosure is limited in Saudi Arabia since it is much lower than the risk disclosure in several different contexts. The low level of risk disclosure in Saudi Arabia can be mainly explained by the lack of enforcement. During the sample period, there were no mandatory requirements for Saudi listed firms to provide risk-related information in the annual reports. However, the recent developments in the Saudi context such as the adoption of IFRS and the updated version of the Saudi Corporate Governance code are expected to enhance the practices of risk disclosure.

The results show that there has been a gradual increase in the average number of risk disclosure among Saudi listed firms over the period 2012–2015. This implies that corporate governance reforms in Saudi Arabia have helped in enhancing risk disclosure practices. It also suggests that the introduction of governance regulations enables the improvement of corporate governance practices, including risk disclosure, in spite of the weak legal system in emerging markets.

Operational and financial risk disclosure appeared to be the most frequent disclosed risk while the strategic risk is significantly lower. The lack of strategic risk disclosure can be explained by the ambiguity of information. Strategic risks are less controllable by firms such as risks related to society, economy, or politics. In fact, risk assessment is subjective and it relies on the managerial discretion. Therefore, firms' managers have less incentive to disclose information that might put them at intense criticisms and possible legal actions if their estimation goes wrong. To overcome this issue, it is worthwhile for regulatory authorities in Saudi Arabia to require greater emphases of the disclosure of strategic risk-related information. Amran, Bin, & Hassan (2008) find that strategic risk is the most disclosed types of risk among Malaysian firms as a result of the requirements of Bursa Malaysia.

This study also finds that most disclosed risk in the Saudi context is positive in nature. Firms' managers have a higher tendency toward the disclosure of positive news while they are reluctant to disclose negative news. In the case of negative news, managers withhold and accumulate the news until they become certain (Kothari et al., 2009). Linsley & Shrivies (2006) suggest that managers would not reveal bad news since they prefer to signal a bright image of their risk management performance to the market with a view to avoiding reputation costs. Therefore, regulators should concentrate on the enforcement of bad risk disclosure since companies have less incentive to disclose such information (Schrand & Elliott, 1998).

Saudi firms disclose a significantly lower level of quantitative risk. Mohobbot (2005) proposes that it is challenging to measure and quantify risks (cited by Muzahhem 2011). Also, he argues that firms' managers have less incentive to quantify risks with the view to avoiding intense criticisms and possible legal actions when their estimation goes wrong. Hence, the present study recommends Saudi regulators to encourage the disclosure of quantitative risk information. Linsley & Shrivies (2006) argue that firms should disclose

more quantitative risk-related information in order to help stakeholders to evaluate the risk engaged in by firms. Cabedo & Tirado (2004) argue that the disclosure of quantitative risk information has the potential to help annual report users in making better-informed decisions.

Using a one-way ANOVA test, the results show significant differences between industries in the Saudi context. This finding is expected since firms in various sectors face different kinds of risks (Beretta & Bozzolan, 2004; Mostafa Hassan, 2009). Hence, proper legislation should have two levels of disclosure: (i) general disclosures for all companies; and (ii) industry-specific disclosures where companies provide relevant information with regards to the firm's status in relation to its industry (Albassam, 2014).

Having discussed the level and practices of the disclosure of risk-related information of Saudi listed firms in this chapter, next chapter will present the determinants of corporate risk disclosure with particular attention to corporate governance mechanisms, ownership structure, Islamic values, and the Loss-Making Firms Procedures (LMFPs).

Chapter 6 EMPIRICAL RESULTS: THE IMPACT OF CORPORATE GOVERNANCE, ISLAMIC VALUES, AND THE LOSS-MAKING FIRMS PROCEDURES ON RISK DISCLOSURE

6.1. Introduction

The present chapter reviews descriptive statistics and correlation matrix, discusses the empirical results of the determinants of risk disclosure, and presents the robustness tests. This chapter seeks to achieve the following three objectives. First, it presents the descriptive statistics and correlation matrix of dependent and independent variables. Second, the chapter discusses the findings of the Ordinary Least Squares (OLS) estimation technique in investigating the effects of corporate governance, ownership structure, and Islamic values on risk disclosure in Saudi Arabia. Third, the chapter discusses the impact of introducing the Loss-Making Firms Procedures on risk disclosure using a difference-in-difference model. Fourth, it tests how robust the results are and investigates the presence of endogeneity problems.

This chapter is organized as follows. Section 6.2 discusses the descriptive statistics. Section 6.3 reviews the correlation matrix in order to detect the presence of multicollinearity issues. Section 6.4 discusses the results of the impacts of corporate governance mechanisms, ownership structure, and Islamic values on the practices of risk disclosure in Saudi Arabia. Section 6.5 presents the results of the impact of the Loss-Making Firms Procedures on risk disclosure using a difference-in-difference approach. Section 6.6 discusses the results of the robustness tests including a lagged structure model and a random effect model. Finally, section 6.7 presents the summary of the chapter.

6.2 Descriptive statistics

As reported in panel A of Table 6.1, the log of the number of risk sentences (LogRD) has an average of 1.33. There is a great variation in risk disclosure practices among Saudi listed firms where LogRD ranges from 0 to 1.86 with a standard deviation of 0.25. The distribution of risk disclosure seems to be consistent with the literature. For instance, Linsley & Shrives (2006) find that the mean of risk disclosure is 78 sentences and the standard deviation is 55 sentences among UK listed firms. Similarly, Lajili & Zéghal (2005) find the average risk management disclosure is 10.1 sentences and the standard deviation is 7.23 for Canadian listed firms. A detailed explanation of the level of risk

disclosure and comparison to relevant studies has been discussed extensively in the previous chapter. Panel B shows that Islamic values (IV) range between 0 and 0.44, with an average of 0.19. This finding is slightly lower than the findings by Albassam & Ntim (2016) where they report a figure of 0.29. This difference can be explained by the different samples of the two studies. More precisely, the exclusion of financial firms by this study results in lowering the Islamic values scores given that financial firms score higher than non-financial firms. Financial firms tend to establish a 'Shariah' supervisory board, provide a narrative regarding the existence of a 'Shariah' review and monitoring unit, and provide an explicit statement regarding its willingness to voluntarily incorporate Islamic values into business operations.

Table 6.1: Descriptive statistics of model 1 variables

Notes: The table displays the Descriptive statistics of model 1 variables. LogRD represents risk disclosure as log of the number of risk sentences, IV represents Islamic values, GOVOWN denotes government ownership, INSIDOWN denotes insiders ownership, INSTOWN denotes institutional ownership, BLKOWN represents block holders ownership, BS denotes board size, ID denotes the percentage of independent directors, NED denotes the percentage of non-executive directors, EDUC represents the education level of the board, RMCOM represents the existence of risk management committee, BIG4 represents the auditor type, LSALES denotes firm size as log of sales, ROE denotes profitability as return on equity, LVG represents leverage, LIQ represents liquidity, and LPAGES represents the log of the annual reports` number of pages.

Variables	Observations	Mean	Maximum	Minimum	Std. Dev.
<i>Panel A: Dependent variable</i>					
LogRD	463	1.33	1.86	0.00	0.25
<i>Panel B: Independent variables</i>					
IV	463	0.19	0.44	0.00	0.10
GOVOWN	463	0.08	0.84	0.00	0.18
INSIDOWN	463	0.16	0.96	0.00	0.20
INSTOWN	463	0.16	0.75	0.00	0.20
BLKOWN	463	0.36	0.95	0.00	0.24
BS	463	8.33	12.00	4.00	1.52
ID	463	0.49	1.00	0.00	0.17
NED	463	0.38	0.71	0.00	0.19
EDUC	463	0.54	1.00	0.00	0.50
RMCOM	463	0.03	1.00	0.00	0.18
BIG4	463	0.66	1.00	0.00	0.48
<i>Panel C: Control variables</i>					
LogSales	463	3.00	5.28	0	0.80
ROE	463	0.08	0.39	-0.10	0.58
LVG	463	0.23	0.88	0	0.19
LIQ	463	2.53	6.80	0.48	2.61
LogPages	463	1.73	2.12	1.23	0.15

Government ownership (GOVOWN), calculated as a percentage of the total number of outstanding shares, has a mean of 8% and ranges from 0 to 84%. This finding is in line with previous studies (e.g. Al-Janadi, Rahman, & Haj Omar, 2013). Panel B shows that insiders (INSIDOWN) own an average of 16% of the total outstanding shares. This result also is in line with the findings of relevant studies (e.g. Samaha, Dahawy, Hussainey, & Stapleton 2012).

Another finding reported in Table 6.1 is that the average institutional holding (INSTOWN) is 16% with a range between 0 and 75%. This finding is in line with previous studies. For example, Aggarwal, Erel, Ferreira, & Matos (2011) find that the means of institutional holding are 8%, 9% and 8% in Greece, New Zealand, and Hong Kong, respectively. On the contrary, Chung & Zhang (2011) note that institutional ownership represents, on average, 50% of the total shares for US companies. As shown in panel B, the mean of block ownership (BLKOWN) is 36%, with a floor of 0 and a cap of 95%. These findings are interesting as it appears that the proportion of block holders ownership in Saudi Arabia seems to be lower than other developing countries. For instance, Elghuweel (2015) and Khan (2016) find that the average block holder ownership is 55% both in the Omani and Pakistani contexts. Hence, the findings of the present study suggest that Saudi listed firms have more dispersed ownership structure.

As reported in panel B in Table 6.1, board size (BS) value has an average of 8.33, and a range from 4 to 12 members. This is consistent with previous studies. For instance, Al-Maghzom, Hussainey, & Aly (2016a) finds that the average board size of Saudi listed banks is 9.55 members. Albassam & Ntim (2016), Al-Nodel & Hussainey (2010), and Al-Janadi et al. (2013) report that the average board size of Saudi non-financial companies is 8.4, 7.9, and 8.4 respectively. It is also in line with other findings in the developed markets. As an example, Elzahar & Hussainey (2012) finds that the mean value of board size in the UK is 10.74.

From Table 6.1, it can be noted that the average percentage of independent directors (ID) sitting on the board is 49%. This finding is in line with other findings in the developing markets. For instance, Rozaini Mohd Haniffa & Cooke (2002) and Ntim, Lindop, & Thomas (2013) report that 45% and 47% of the Malaysian and South African firms' boards, respectively, are dominated by independent directors.

As reported in panel B of Table 6.1, the proportion of non-executive directors (NED) that sit on the board of Saudi listed firms is 38% on average. This finding is in line with the literature. For example, Haniffa & Cooke (2005) find that non-executive directors account for 43% of the board among Malaysian firms. It appears that the vast majority of board members among Saudi listed firms are either independent or non-executive directors. This is consistent with the best practices of corporate governance.

Looking also at panel B, board education (EDUC) has a mean of 54%. Francis, Hasan, & Wu (2014) and Martikainen, Miihkinen, Kinnunen, & Trober (2015) report that the average board education is 40% and 48% among US and Finnish listed firms respectively. Hence, this finding is consistent with the best practices of corporate governance given the vital roles that higher educated personnel plays as suggested by previous empirical studies (e.g. Francis, Hasan, & Wu, 2014; Jiang & Murphy, 2007; Martikainen, Miihkinen, Kinnunen, & Trober, 2015).

Surprisingly the average of the existence of a risk management committee (RMCOM) is only 3%. This low mean is in contrast to the finding by Muzahhem (2011) and Subramaniam, McManus, & Zhang (2009) where they report averages of 47% and 44% for UAE and Australian firms. However, the Capital Market Authority in Saudi Arabia has recently issued a new version of the Saudi Corporate Governance Code where it encourages the establishment of risk management committees on boards. Therefore, this figure is expected to increase in the near future. Further details are shown in subsection 3.4.1.6.

The auditor type (BIG4) is measured as a dummy variable that takes the value of 1 if the audit firm is one of the big 4 firms and zero otherwise. The average value is 66% for Saudi listed firms. To compare it with the literature, Ntim et al. (2013) find that the average value of auditor type is 87% for South African listed companies. Saudi listed firms seem to be relatively less reliant on Big4 audit firms. However, the reliance on Big4 audit firms by Saudi listed firms increased compared to the historical percentage which is 58% found by Al-Bassam, Ntim, Opong, & Downs (2016) during the period 2004 – 2010.

Regarding control variables, Table 6.1 shows that firm size (measured by the log of total sales, LogSales) has an average of 3 and ranges between 0 and 5.28. Profitability (ROE) has an average of 8% with a range between 39% and -10%. Another finding is that the average leverage (LVG) is 23% with a range between 0 and 88%. This finding is in line with the finding by Alzead (2017) where he finds that the average leverage for Saudi listed firms is 24%. Liquidity (LIQ) has a mean of 2.53 and ranges from 0.48 to 6.80. Total disclosure (measured by the log of a total number of pages, LogPages) has an average of 1.73 with a range between 1.23 and 2.12.

6.3. Correlation matrix

There are two reasons for employing the correlation matrix. First, employing the correlation matrix helps in examining the existence of multicollinearity problem between independent variables. According to Gujarati & Porter (2003) when the correlation coefficient between two variables exceeds 80%, this suggests the existence of the multicollinearity issue. Looking at Table 6.2, it is obvious that there is no concern of the multicollinearity issue since the highest correlation coefficient is the correlation between board size (BS) and non-executive directors (NED) which equals 0.52.

Second, the correlation matrix can be used to test whether the explanatory variables exhibit correlations with the dependent variable. One unanticipated finding is that Islamic values variable (IV) has a negative correlation with risk disclosure (LogRD) which equals 0.14. Although the correlation is low, it is significant at 1% level. This finding is contrary to what the current study hypothesized. However, this finding is in line with previous empirical work. For example, Al-Maghzom et al. (2016b) and Abdallah, Hassan, & McClelland (2015) find that Islamic banks disclose a significantly lower level of risk disclosure than non-Islamic banks in Saudi Arabia. Abdallah et al. (2015) justify this finding by referring to the more conservative principles that guide Islamic financial institutions which hinder the risk disclosure practices. Hence, Islamic firms provide less risk-related information.

The results of Table 6.2 indicate that risk disclosure is positively and significantly correlated with institutional ownership (INSTOWN), block holder ownership (BLKOWN), board size, non-executive directors, risk management committee (RMCOM), and auditor type (big4). On the other hand, inside ownership (INSIDOWN) is negatively and significantly correlated with risk disclosure. These findings suggest that firms with a risk management committee, higher institutional and block holder ownership, larger board size, higher proportion on non-executive directors, less Islamic, less inside ownership, and big 4 audited produce higher level of risk reporting.

Regarding control variables, firm size (LogSales), profitability (ROE), and total disclosure (i.e. measured as the number of the annual report pages, LogPages) have a

significant positive correlation with risk disclosure as can be seen in the table. This suggests that larger and profitable firms report more risk-related information.

Table 6.2: Correlation matrix of dependent and independent variables: Determinants of RD

Notes: The table displays the correlation matrix between the variables. LogRD represents risk disclosure as log of the number of risk sentences, IV represents Islamic values, GOVOWN denotes government ownership, INSIDOWN denotes insiders ownership, INSTOWN denotes institutional ownership, BLKOWN represents block holders ownership, BS denotes board size, ID denotes the percentage of independent directors, NED denotes the percentage of non-executive directors, EDUC represents the education level of the board, RMCOM represents the existence of risk management committee, BIG4 represents the auditor type, LSALES denotes firm size as log of sales, ROE denotes profitability as return on equity, LVG represents leverage, LIQ represents liquidity, and LPAGES represents the log of the annual reports` number of pages. ** Correlation is significant at the 0.01 level. * Correlation is significant at the 0.05 level.

	LogRD	IVI2	GOV	INSID%	INST	BLOCK	BS	ID	NED	EDUC	RMCOM	Auditor_type	LogSales	ROE	Leverage2	WC ratio	logpages
LogRD	1																
IV	-.139**	1															
GOVOWN	0.059	-.059	1														
INSIDOWN	-.117*	-.026	-.001	1													
INSTOWN	.180**	-.065	-.176**	0.084	1												
BLCKOWN	.147**	-.145**	.420**	.349**	.484**	1											
BS	.141**	-.168**	.177**	0.078	.194**	.226**	1										
ID	-.001	0.044	-.043	-.105*	-.163**	-.291**	.340**	1									
NED	.303**	-.177**	.314**	0.048	.288**	.376**	.521**	-.400**	1								
EDUC	0.074	-.133**	.139**	0.043	-.017	.107*	.259**	0.058	.156**	1							
RMCOM	.222**	-.039	.136**	-.001	0.082	.162**	.177**	-.027	.192**	0.037	1						
BIG4	.235**	-.164**	.168**	.177**	.298**	.411**	.245**	-.167**	.337**	.116*	.128**	1					
LogSales	.431**	-.271**	.318**	0.086	.235**	.462**	.286**	-.190**	.415**	0.065	.316**	.470**	1				
ROE	.244**	-.034	0.047	0.088	0.036	.136**	0.066	.118*	0.079	-.002	0.023	.144**	.200**	1			
LVG	0.001	-.170**	-.021	-.048	0.031	0.052	-.001	-.001	0.003	0.038	0.008	0.081	0.065	.181**	1		
LIQ	-.032	.095*	0.029	-.050	-.049	-.115*	-.056	0.013	-.033	-.067	-.085	-.154**	-.168**	0.037	-.079	1	
Logpages	.496**	-.133**	.200**	0.01	.098*	.300**	.330**	-.025-	.298**	.241**	.259**	.336**	.396**	.154**	0.004	-.186**	1

6.4. Regression analysis

The following subsections present the results for the determinants of risk disclosure in Saudi Arabian firms. As discussed in Section 4.3 of Chapter 4, Model 1 explores the impact of corporate governance, ownership structure, and Islamic values on risk disclosure.

The model is re-stated as:

$$\begin{aligned} \text{LogRD}_{i,t} = & \alpha_0 + \beta_1 \text{BS}_{i,t} + \beta_2 \text{ID}_{i,t} + \beta_3 \text{NED}_{i,t} + \beta_4 \text{BIG4}_{i,t} + \beta_5 \text{BLOCKOWN}_{i,t} + \beta_6 \\ & \text{GOVOWN}_{i,t} + \beta_7 \text{INSTOWN}_{i,t} + \beta_8 \text{INSIDOWN}_{i,t} + \beta_{10} \text{IVI}_{i,t} + \\ & \sum_{i=1}^n \beta_i \text{CONTROLS}_{i,t} + \varepsilon_{it} \quad (\text{equation 1}) \end{aligned}$$

Table 6.3 presents the results of the OLS regression where the log of the number of risk sentences is regressed against corporate governance, ownership structure, Islamic values, and firm characteristics. The present study uses the clustered standard error at the firm level in order to solve the problem of heteroscedasticity as discussed in section 4.5.3. The adjusted R² is 0.55 which suggests that 55% of the variation of risk disclosure in Saudi Arabia is explained by the independent variables listed in Table 6.3.

Table 6.3: The OLS regression: CG and IV on RD

Notes: The table shows the results for OLS regression results with clustered standard errors to correct for heteroscedasticity. The dependent variable for all models is LogRD which represents risk disclosure calculated as a log of the number of risk sentences. The independent variables are corporate governance variables (i.e. board size, the proportion of independent directors, the proportion of non-executive directors, board education, the existence of a risk committee, and audit type), ownership variables (government ownership, inside ownership, institutional ownership, and block ownership), Islamic values, and control variables (firm size, profitability, leverage, liquidity, and total disclosure). BS denotes board size, ID denotes the percentage of independent directors, NED denotes the percentage of non-executive directors, EDUC represents the education level of the board, RMCOM represents the existence of risk management committee, BIG4 represents the auditor type, GOVOWN denotes government ownership, INSIDOWN denotes insiders ownership, INSTOWN denotes institutional ownership, BLKOWN represents block holders ownership, IV represents Islamic values, LogSALES denotes firm size measured as log of sales, ROE denotes profitability measured as return on equity, LVG represents leverage calculated as total debt to total assets, LIQ represents liquidity measured as current ratio, and LPAGES represents the log of the annual reports' number of pages. The asterisks *, ** and *** denote the 10%, 5% and 1% level of significance respectively.

		Dependent variable: LogRD							
Variable	expected sign	1		2		3		4	
		Coeff.	t-Stat	Coeff	t-Stat	Coeff	t-Stat	Coeff	t-Stat
Panel A: Corporate governance variables									
BS	+	-0.060***	-6.374					-0.065***	-6.734
ID	+	0.048***	5.560					0.051***	5.751
NED	+	0.048***	5.844					0.052***	6.251
EDUC	+	0.010	0.576					0.024	1.406
RMCOM	+	0.057	1.076					0.056	1.083
BIG4	+	-0.016	-0.767					-0.010	-0.457
Panel B: Ownership variables									
GOVOWN	-			-0.129	-1.907			-0.254***	-3.784
INSIDOWN	-			-0.144***	-3.041			-0.127***	-2.812
INSTOWN	+			0.080	1.349			0.022	0.372
BLKOWN	-			-0.030	-0.508			0.066	1.138
Panel C: Islamic values variable									
IV	+					0.050	1.628	0.036	1.237
Panel C: Control variables									
LogSALES		0.061***	4.159	0.055***	3.811	0.049***	3.587	0.066***	4.449
ROE		0.058***	3.784	0.035**	2.297	0.054***	3.485	0.035**	2.301
LVG		-0.002	-1.089	-0.002	-0.750	-0.001	-0.579	-0.002	-0.915
LIQ		0.012***	3.512	0.011***	3.356	0.012***	3.428	0.012***	3.734
LOGPAGES		0.646***	9.393	0.683***	9.623	0.653***	9.335	0.682***	9.805
C		0	0.004	0.065	0.563	-0.072	-0.618	0.042	0.352
Industry fixed effect		Yes		Yes		Yes		Yes	
Year fixed effect		Yes		Yes		Yes		Yes	
Adjusted R-squared		0.498		0.521		0.474		0.550	
N		463		463		463		463	

6.4.1. Empirical findings on corporate governance mechanisms

The first hypothesis of the present study is that there is a significant and positive relationship between auditor type and risk disclosure. As can be seen in panel A of Table

6.3, the coefficient on auditor type (BIG 4) is negative in relation to the level of risk disclosure. Also, the relationship is statistically insignificant. Thus, the present study rejects the first hypothesis.

These results are in line with other empirical studies that find the association between auditor type and risk disclosure is insignificant (e.g. Al-shammari 2014; Deumes and Knechel 2008; and Neri 2010). For instance, Al-shammari (2014) reports an insignificant relationship between auditor type and risk disclosure among banks in the GCC. On the other hand, this study is in contrast to the finding of Ntim, Lindop, and Thomas (2013) and Lopes and Rodrigues (2007) where they find a significant positive relationship between auditor type and the level of risk disclosure in South Africa and Portugal respectively. Theoretically, Agency costs theory could explain the association between risk reporting and auditor type. Auditing is considered a monitoring mechanism that mitigates the agency costs between agents and shareholders and increases firm value (Watts & Zimmerman, 1983). It is also assumed that corporations with high agency costs tend to hire well-known audit firms in order to decrease agency costs (Inchausti, 1997). Large audit firms are expected to put pressure on their clients to reveal a high level of disclosure since the large auditors care more about their reputations (Watts & Zimmerman, 1986). However, recent auditing scandals (e.g. Arthur Andersen, Parmalat, etc.) do not support these theoretical assertions. Similarly, the empirical finding of the present study finds that the relationship between auditor type and risk disclosure is insignificant. In accordance with the present study's results, Alsaeed (2006) reports an insignificant relationship between audit firm size and voluntary corporate disclosure in the Saudi context. The insignificant relationship between auditor type and risk disclosure might be explained by the Saudi Corporate Governance Code (SCGC) for not addressing the role of audit firms in enhancing the level of disclosure in firms' annual reports.

As reported in panel A of Table 6.3, board size has a negative coefficient and is statistically significant at 1% level. This implies that companies with larger board size report less risk-related information. This finding is in line with H_{2b} hypothesis. Thus, the second hypothesis cannot be rejected. Several previous empirical studies such as Al-shammari (2014); Elshandidy et al. (2013); Muzahhem (2011); and Ntim et al. (2013) report a positive association between the level of risk disclosure and board size. These finding can be explained by agency theory. Agency theory suggests that a larger board

impacts positively on disclosure, risk reporting, and performance because of the higher level of monitoring and the wider variety of expertise by the larger board (Bozec & Bozec, 2012; Elzahar & Hussainey, 2012; Singh, Mathur, & Gleason, 2004). On the other hand, Jensen (1993) suggests that large board size might suffer from the deficiency of group cohesion, resulting in communication and cooperation difficulties, which might hinder the operation of the company. Beasley (1996) discovers that large boards are associated with fraudulent financial practices. Xie, Davidson III, & DaDalt (2003) argue that smaller boards are better at functioning and providing a higher level of financial reporting. The Saudi Corporate Governance Code requires the size of the board to be less than twelve directors. Given the results of the present study, the above discussions, and the requirement of the Saudi Corporate Governance Code (SCGC), the present study supports the view that smaller boards are more effective regarding risk disclosure in the Saudi context.

The third hypothesis of the present study is that there is a significant and positive relationship between independent directors and risk disclosure. As can be seen in panel A of Table 6.3, the proportion of independent directors shows a significant positive relationship with risk disclosure at a 1% level of significance. This implies that firms with a higher level of board independence disclose more risk-related information. This result is in line with the current study's expectations. Hence, the third hypothesis cannot be rejected at the 1% level of significance. This result broadly supports previous studies (e.g. Abraham and Cox 2007; Elshandidy et al. 2013; Muzahhem 2011; Ntim et al. 2013). Agency theory suggests that independent directors play an important role in monitoring and controlling the managers' behaviors and hence, it is expected that the more independent directors on the board, the higher the level of risk disclosure (Lopes & Rodrigues, 2007). Independent directors can mitigate managerial opportunistic behaviour which might, in turn, reduce the agency problem (Fama, 1980). Independent directors tend to put more pressure on executives to provide a higher level of disclosure and transparency since independent directors care more about their personal reputations (Lopes & Rodrigues, 2007). The Saudi Corporate Governance Code states that two members or one-third of the board directors shall be independent, at a minimum. Also, the Saudi Corporate Governance Code requires a sufficient number of independent directors to be present in the board sub-committees. The present study supports the view that independent directors have vital roles in promoting risk disclosure practices in Saudi Arabia.

The fourth hypothesis of the present study is that there is a significant and positive relationship between non-executive directors and risk disclosure. The proportion of non-executive directors has a significant positive relationship with risk disclosure at a 1% level of significance as can be seen in panel A of Table 6.3. Firms with a larger number of non-executive directors tend to reveal more risk disclosure. The results provide strong support to not reject the fourth hypothesis at the 1% level of significance. One of the mechanisms that can mitigate the agency cost is by reducing the proportion of executive directors (Abraham & Cox, 2007; Al-Janadi et al., 2013; Solomon, 2007). Decreasing the proportion of executive directors is important since it can mitigate the issue of information asymmetry, which in turn, has the potential to improve the board effectiveness (Abraham & Cox, 2007; Fama & Jensen, 1983). Non-executive directors with various experience and knowledge are more capable of enhancing the level of risk disclosure (Ntim & Soobaroyen, 2013). In this case, non-executive directors provide the necessary checks and balances required to make the board of directors more effective. This finding is in line with the finding by Abraham & Cox (2007); and Elshandidy, Fraser, & Hussainey, (2013) where they report a positive relationship between non-executive directors and risk disclosure in the UK. Similarly, Ntim et al. (2013) report a significant positive relationship among South African firms. The Saudi Corporate Governance Code requires the majority of board members to be non-executives. The present study supports the view that non-executive directors play important roles in promoting risk disclosure practices in Saudi Arabia.

The fifth hypothesis of the present study is that there is a significant and positive relationship between board education and risk disclosure. As can be seen in panel A of Table 6.3, board education demonstrates a positive but insignificant relationship with risk disclosure. However, previous empirical studies find that the relationship is positive and significant. For instance, Martikainen et al. (2015) find that boards with a higher level of education, provide more risk-related information and the result is statistically significant. Jiang & Murphy (2007) find that firms with business professor executives perform significantly better than their peers with no academics. Francis et al. (2014) report that the presence of academics on boards is significantly and positively related to stock prices informativeness. It is argued that board members with a higher level of education play a vital role in monitoring, consulting, and implicating corporate governance rules (Francis, Hasan, & Wu, 2014). Martikainen, Miihkinen, Kinnunen, & Trober (2015) argue that

directors with a higher level of education have more ability to report more risk-related information since they are more able to provide critical judgments regarding the content of disclosed information. However, board members might have the experience that may equate to a higher level of education which could be a possible explanation why higher-educated directors do not exhibit a significant and positive relationship with the level of risk disclosure. Another possible explanation is the lack of independence. As can be seen from Table 6.2, the correlation between board education and board independence is 0.058 which is weak. Less independent directors are perceived to be less effective monitors which less likely results in a higher level of risk disclosure. This finding does not support the upper echelons theory which claims that organizational outputs are partially predicted by managerial background characteristics.

The sixth hypothesis of the present study is that there is a significant and positive relationship between risk management committee and risk disclosure. As can be seen in panel A of Table 6.3, the existence of a risk management committee has a positive relationship with risk disclosure. However, the relationship is insignificant. Hence, the sixth hypothesis is rejected. Neri (2010) argues that the existence of a risk committee on the board of director would be viewed as a sign of proper risk management and risk reporting. Risk reporting is considered a fundamental task of risk management systems. Agency theory can explain the positive relationship between the existence of a risk management committee and risk disclosure. The Saudi Corporate Governance Code states that the chairperson and majority of the risk management committee members shall be non-executive directors. The major responsibility of non-executive directors is monitoring the board actions with a view to protecting shareholders' interests. Empirically, Al-Hadi (2015) finds that the existence of a risk committee is significantly and positively related to market risk disclosure in the Gulf Cooperation Council Countries. Similarly, Hassan et al. (2008) report a significant positive relationship between the existence of a risk committee and financial instruments disclosure among Malaysian listed firms.

The present study could not confirm that the risk management committee plays a vital positive role in risk disclosure practices in Saudi Arabia. However, what remains

unclear is whether or not the finding of the present study is a true representation given the small number of firms that have risk committees of the current study`s sample²⁶.

To sum up, the findings of the impact of corporate governance mechanisms on risk disclosure reveal that board size is negatively and significantly related to risk disclosure. Large board size might suffer from the deficiency of group cohesion, resulting in lower level of risk disclosure. Independent and non-executive directors are positively and significantly related to risk disclosure. Independent directors tend to put more pressure on executives to provide a higher level of disclosure and transparency. However, auditor type, board education, and risk management committee have no statistically significant relationships with risk reporting.

6.4.2. Empirical findings on ownership structure

Regarding the ownership structure, the seventh hypothesis of the present study is that there is a significant and negative relationship between government ownership and risk disclosure. As can be seen from panel B, the coefficient on government ownership is negative and statistically significant at the 1% level, suggesting that there is a negative association between government ownership and risk disclosure. This result is in line with the current study's expectation. Hence, the seventh hypothesis cannot be rejected at the 1% level of significance.

This finding is in line with previous studies. For instance, Alzead (2017) find a significant negative relationship between risk disclosure and government ownership in Saudi Arabia. Samaha, Dahawy, Hussainey, & Stapleton (2012) also discover a significant negative association between corporate governance voluntary disclosure and state holdings among Egyptian listed firms. Al-Janadi, Rahman, & Haj Omar (2013) report a significant negative association between voluntary disclosure and state ownership in Saudi Arabia. Ghazali & Weetman (2006) argue that government ownership has the potential to encourage firms to reveal less information. Capital need theory can explain the negative association between government ownership and risk disclosure. Firms with a higher level of government ownership may lose the incentive to disclose more risk-related information

²⁶ Only 4% of the sample`s firms establish risk committees (five firms out of 122 firms).

since they do not have the need for attracting capital. These firms enjoy easy access to various forms of capital (Ghazali & Weetman, 2006).

The eighth hypothesis of the present study is that there is a significant and positive relationship between institutional ownership and risk disclosure. Table 6.3 illustrates that institutional ownership has a positive, but insignificant, relationship with risk disclosure. This finding is different from what the present study has hypothesized where institutional ownership is assumed to be significantly associated with risk disclosure. Thus, the eighth hypothesis is rejected. This finding is in contrast to the findings of previous studies (e.g. Guan et al., 2007; Healy et al., 1999; Khan, 2016; Laidroo, 2009; Ntim et al., 2012). It is argued that institutional investors have a higher ability for monitoring companies since they have the required resources such as efficiency, experience, and robust employment of voting rights (Donnelly & Mulcahy, 2008). They are motivated to protect their investment which, in turn, encourages them to monitor management in order to mitigate the agency conflict between owners and executives (Haniffa & Hudaib, 2006). Hence, firms are encouraged to reveal more risk-related information to fulfill the pressure imposed by institutional investors. However, the findings of the present study show that institutional investors in Saudi Arabia do not have a significant influence on risk reporting. Nevertheless, this finding is in line with the results of Albassam (2014). In fact, Albassam (2014) reports, in a qualitative study, that the institutional investment in Saudi listed firms concentrates on short-term investments. Myopic institutional investors would not put more pressure on management to disclose more risk-related information.

The ninth hypothesis of the present study is that there is a significant and negative relationship between inside ownership and risk disclosure. As can be seen from panel A, the relationship between inside ownership and risk disclosure is negative and statistically significant at 1% level. This suggests that there is a negative association between inside ownership and risk disclosure. Hence, the ninth hypothesis cannot be rejected at the 1% level of significance. This finding broadly supports the findings of previous empirical findings (e.g. Eng & Mak, 2003 and Ghazali & Weetman, 2006). Ghazali & Weetman (2006) find that Malaysian listed firms with higher inside ownership reveal less voluntary disclosure. Similarly, Eng & Mak, (2003) find a significant and negative relationship between inside ownership and voluntary disclosure in Singapore. Shleifer & Vishny (1997) argue that if directors' ownership is large, they might have incentives to maximize their

own interest by lowering the level of transparency. In the same vein, firms with a lower level of inside ownership are expected to disclose more risk-related information in order to assure outsiders that they are working in the best interest of them (Mokhtar, 2010). Thus, the level of monitoring by outside investors can be reduced if managers provide more risk-related information.

Table 6.4 reports that block ownership has a positive, but insignificant, relationship with risk disclosures. However, the tenth hypothesis of the present study is that there is a significant and negative relationship between block ownership and risk disclosure. Thus, the tenth hypothesis is rejected. The findings of the present study is different from the findings of previous studies (e.g. Deumes & Knechel, 2008; Ntim et al., 2013). Deumes and Knechel (2008) discover a negative relationship between ownership concentration and internal control disclosure in Netherland. Ntim, Lindop, and Thomas (2013) find a significant negative association between risk reporting and ownership concentration among South African firms. Nevertheless, Konishi and Ali (2007) and Mohobbot (2005) find no significant relationship between risk reporting and ownership concentration which is in line with the findings of the present study. Additionally, Alzead (2017) finds that the relationship between block ownership and risk reporting is insignificant among Saudi listed firms. The result indicates that concentrated ownership might play a limited role in influencing the practices of risk reporting in Saudi Arabia (Alzead, 2017). Firms with dispersed ownership experience higher degree of agency problem because of the separation between ownership and control which motivates shareholders to put more pressure on managers to reveal a higher level of risk disclosure (Muzahhem, 2011). Companies with concentrated ownership do not experience a separation between ownership and control. In fact, block owners do not depend on public disclosure to monitor managers since they have access to internal information. Hence, firms with concentrated ownership would experience a lower degree of agency problem because of the less degree of separation between ownership and control given the monitoring ability of by block shareholders. However, principle-principle problem between controlling shareholders and minority shareholders would arise (Young, Peng, Ahlstrom, Bruton & Jiang, 2008) which might result in lowering the level of risk disclosure since block owners do not depend on public disclosure.

In summary, the findings of the impact of ownership structure on risk disclosure reveal that government ownership have significant and negative relationship with risk disclosure. Firms with a higher level of government ownership may lose the incentive to disclose more risk-related information since they do not have the need for attracting capital. In the same vein, inside ownership is negatively and significantly related to risk disclosure. When directors' ownership is large, they might have incentives to maximize their own interest by lowering the level of transparency. The present study also finds that institutional ownership and block ownership have no statistically significant relationships with risk reporting.

6.4.3. Empirical findings on Islamic values

The eleventh hypothesis of the present study is that there is a significant and positive relationship between Islamic values and risk disclosure. As discussed previously in section 3.4.3, the present study uses two proxies for measuring Islamic values. The result shown in Table 6.3 is the result of using the Islamic values' index suggested by Canepa & Ibnrubbian (2014). As can be seen from Table 6.3, this Islamic values' (IV) proxy is found to be insignificantly related to risk disclosure. Although the coefficient is positive as expected, the result is statistically insignificant. Using the other proxy suggested by Albassam & Ntim (2016), the present study finds the coefficient is negative (-0.016) and insignificant where the t-statistics equals -0.153. This result is puzzling and in contrast to the current study's expectation. Hence, the eleventh hypothesis is rejected.

These findings are also in contrast with previous empirical findings. For instance, Albassam & Ntim (2016) study the effect of Islamic values on corporate governance disclosure using a sample of 76 Saudi listed firms over seven years. They find a robust significant and positive influence of Islamic values over corporate governance disclosure. It is predicted that Islamic corporations would manage their activities in compliance with the principles of *Sharia* in order to be honest and fair (Hussain, 1999) cited by (Aribi & Gao, 2011). Thus, Islamic corporations are expected to make transparent, true, fair, and timely disclosure to stakeholders (Albassam & Ntim, 2016) including the disclosure of risk-related information as discussed in section 3.4.3. However, Al-Maghzom et al. (2016b) and Abdallah, Hassan, & McClelland (2015) find that Islamic banks disclose a significantly lower level of risk disclosure than non-Islamic banks in Saudi Arabia and the Gulf Cooperation Council respectively. Abdallah et al. (2015) justify this result by

referring to the more conservative principles that guide Islamic financial institutions which hinder the risk disclosure practices.

The possible justifications for the insignificant relationship between Islamic values and risk disclosure as found in this thesis are as follows. First, the empirical results of previous studies on the association between Islamic values and risk disclosure are contradictory as the above discussion suggests. Second, Abu-Tapanjeh (2009) compares the OECD principles with the Islamic principles and discovers that both are similar in relation to transparency and disclosure. The empirical results of the present study support this view. Third, an interviewee by Bindabel (2017) argues that the limited disclosure among Islamic firms can be explained by the lack of awareness by these firms' officials of the Islamic exhortation on the necessity of disclosure.

6.4.4. Empirical findings on control variables

Regarding the control variables, the coefficient on firm size (LogSales) is positively and statistically significant at 1% level as can be seen in Panel C. This suggests that firm size has a significant relationship with risk disclosure. Larger firms are disclosing more risk-related information.

This finding is also in line with previous findings of other studies (e.g. Abdallah, Hassan, & McClelland, 2015; Al-shammari, 2014; Alzead, 2017; Amran, Bin, & Hassan, 2008; Elshandidy et al., 2013; Elshandidy, Fraser, & Hussainey, 2014; Linsley & Shrivess, 2005; Miihkinen, 2012; Mohobbot, 2005; and Ntim et al., 2013). Political cost theory suggests that some firms with higher concern by the public, media, and regulators are receiving high pressure (Watts & Zimmerman, 1986) and, therefore, the firms' managers decide to reveal voluntary information in order to deflect the unfavorable attention (Linsley & Shrivess, 2000). Since large firms have a larger amount of stakeholders and shareholders, the political cost is expected to be higher in larger firms (Watts & Zimmerman, 1986). Hence, larger firms disclose more risk-related information in order to deflect the undesirable attention.

As can also be noted in panel C of Table 6.3, profitability (ROE) is found to be significantly and positively related to risk disclosure. This positive relationship is significant at 5% level. This result is in line with the current study's expectation.

The result also supports the empirical evidence by previous studies (e.g. Deumes & Knechel, 2008; Ntim et al., 2013). According to signaling theory, it could be assumed that managers of highly profitable firms have the incentive to disclose more information as a good signal with a view to attracting investors. High profitable firms' directors would be willing to disclose more detailed risk-related information in order to signal to the market that they are professionals at managing their firms' risks (Konishi & Ali, 2007; Shrives & Linsley, 2003).

The coefficient on liquidity (LIQ) is positive and statistically significant at 1% level, suggesting that there is a positive association between liquidity and risk disclosure. This finding is in contrast to what the present study has expected where liquidity is assumed to be negatively associated with risk disclosure. According to capital need theory, it is expected that when a firm experiences a shortage of liquidity, managers would be willing to disclose more risk-related information in order to attract investors and meet their needs by a higher level of transparency. However, the result of the present study does not support this view where the coefficient on liquidity (LIQ) is positive and statistically significant at 1% level. This finding can be interpreted using signaling theory where firms' directors have more incentive to reveal more risk-related information when their liquidity ratios are high in order to signal to outsiders that they are capable of managing liquidity risks (Elzahar & Hussainey, 2012). This finding of the present study confirms the findings by Elshandidy et al. (2013); and Marshall & Weetman (2007) where they note the relationship between liquidity and risk disclosure is significantly positive. However, Alzead (2017) and Elzahar & Hussainey (2012) find the relationship is insignificant in the Saudi and UK context respectively.

Table 6.3 illustrates that firm risk (measured by leverage, LVG) has an insignificant relationship with risk disclosures. This result is consistent with that of Alzead (2017) who finds that the relationship is insignificant in the Saudi context. Several other previous studies find the relationship is also insignificant (e.g. Abraham & Cox, 2007; Al-shammari, 2014; Amran et al., 2008; Konishi & Ali, 2007; Linsley & Shrives, 2005; Lopes & Rodrigues, 2007; Rajab & Schachler, 2009).

The current study employs the number of pages variable (LogPages, measured by the log of a total number of pages in the annual report) in order to control for total disclosure. This study argues that firms may disclose more about risk because they are in general good

at disclosure. Hence, adding this variable to the model has the potential to control for this effect. Thus, the present study succeeds to isolate the effect of the natural habits of firms with regards to disclosure practices from the specific disclosure on risks. This is considered a significant improvement over previous works in risk disclosure studies. As can be seen from panel C, the coefficient on LogPages is positive and statistically significant at 1% level, suggesting that there is a significant positive association between total disclosure and risk disclosure.

6.5. Robustness Check

It is argued that empirical results can be seriously influenced by endogeneity (Larcker & Rusticus, 2010), which happens if one or several variables are related to the error term (Wooldridge, 2015). The causes of endogeneity can be due to errors with the measurements, omitting of some variables, or simultaneity (Larcker & Rusticus, 2010). These causes of endogeneity are discussed as follows. First, measurement errors are considered the main cause of endogeneity (Börsch-Supan & Köke, 2002; Larcker & Rusticus, 2010). The present study constructs a risk disclosure index following a careful procedure that has been discussed in section 4.4.1 in order to eliminate the issue of measurement errors. For instance, the current study employs a scoring scheme and performs validity and reliability tests. Second, the omission of control variables is also considered another cause of endogeneity. To eliminate this issue, the present study employs several control variables. Third, simultaneity is another major cause of endogeneity. Simultaneity arises when the independent variable is simultaneously affected by the dependent variable and/or a vital control variable is not included in the model (Ntim, Opong, & Danbolt, 2012; Wooldridge, 2015). In the case of the present study, it can be argued that firms with good risk disclosure practices are more likely to have better corporate governance framework. Hence, it is likely that the causality direction of risk disclosure and corporate governance can go either way. It can be also argued that risk disclosure and corporate governance variables are determined simultaneously by an omitted variable. To mitigate the problem of simultaneity, this thesis uses panel data, a difference-in-difference model, a lagged structure model, and a random effect model.

This study uses relevant statistical approaches and econometric models to address the problem of endogeneity. First, panel data is used rather than cross-sectional or time-series data to deal with the problem of simultaneity (Börsch-Supan & Köke, 2002).

Second, the current study also uses a difference-in-difference approach as discussed in section 6.6. It examines the impact of the enforcement of the Loss-Making Firms Procedures (LMFPs) on risk disclosure. The findings of the difference-in-difference model support the robustness of the results. Third, a one-year lag between the dependent variable and the independent variables is used in order to address the issues of omitted variables and simultaneity (Ntim, Opong, & Danbolt, 2012). Employing lagged independent variables is a useful technique to address reverse causality. The reason is that the independent variables (corporate governance mechanisms) may affect risk disclosure in the next period. However, it is not theoretically possible that the dependent variable (i.e. risk disclosure) affects the independent variable of the previous year. Hence, the present study employs the following model:

$$\begin{aligned} \text{LogRD}_{i,t} = & \alpha_0 + \beta_1 \text{BS}_{i,t-1} + \beta_2 \text{ID}_{i,t-1} + \beta_3 \text{NED}_{i,t-1} + \beta_4 \text{BIG4}_{i,t-1} + \beta_5 \text{BLOCKOWN}_{i,t-1} \\ & + \beta_6 \text{GOVOWN}_{i,t-1} + \beta_7 \text{INSTOWN}_{i,t-1} + \beta_8 \text{INSIDOWN}_{i,t-1} + \beta_{10} \text{IVI}_{i,t-1} + \\ & \sum_{i=1}^n \beta_i \text{CONTROLS}_{i,t-1} + \varepsilon_{i,t-1} \quad (\text{equation 4}) \end{aligned}$$

Except for the one year lag of corporate governance, ownership structure, Islamic values, and control variables, all variables are the same as defined in equation 1 in section 4.4. As a result of the use of lagged structure, the present study excludes the first year (2012) which results in reducing the sample from 463 to 340 firm-year observation.

Table 6.4 presents the results of the lagged structure as well as the results of the main regression model (un-lagged). As can be seen from the table, adjusted R² is 0.51 for the lagged model and 0.49 for the un-lagged model suggesting that the results are similar.

Table 6.4: Lagged structure: The impact of corporate governance on risk disclosure

Notes: The table shows results for lagged-structure and un-lagged structure. The dependent variable for all models is LogRD which represents risk disclosure calculated as a log of the number of risk sentences. The independent variables are corporate governance variables (i.e. board size, the proportion of independent directors, the proportion of non-executive directors, board education, the existence of a risk committee, and audit type), ownership variables (government ownership, inside ownership, institutional ownership, and block ownership), Islamic values, and control variables (firm size, profitability, leverage, liquidity, and total disclosure). BS denotes board size, ID denotes the percentage of independent directors, NED denotes the percentage of non-executive directors, EDUC represents the education level of the board, RMCOM represents the existence of risk management committee, BIG4 represents the auditor type, GOVOWN denotes government ownership, INSIDOWN denotes insiders ownership, INSTOWN denotes institutional ownership, BLKOWN represents block holders ownership, IV represents Islamic values, LogSALES denotes firm size measured as log of sales, ROE denotes profitability measured as return on equity, LVG represents leverage calculated as total debt to total assets, LIQ represents liquidity measured as current ratio, and LPAGES represents the log of the annual reports` number of pages. The asterisks *, ** and *** denote the 10%, 5% and 1% level of significance respectively.

Dependent variable: LogRD					
		Un-lagged structure		Lagged-structure	
Variable	expected sign	Coefficient	t-Statistic	Coefficient	t-Statistic
Panel A: Board and audit firm variables					
BS	+	-0.065***	-6.734	-0.035***	-3.356
ID	+	0.051***	5.751	0.020**	2.067
NED	+	0.052***	6.251	0.018**	2.048
EDUC	+	0.024	1.406	0.042**	2.177
RMCOM	+	0.056	1.083	0.054	0.872
BIG4	+	-0.010	-0.457	0.004	0.147
Panel B: Ownership variables					
GOVOWN	-	-0.254***	-3.784	-0.174**	-2.336
INSIDOWN	-	-0.127***	-2.812	-0.081	-1.605
INSTOWN	+	0.022	0.372	0.110*	1.678
BLKOWN	-	0.066	1.138	0.022	0.343
Panel C: Islamic values variable					
IV	+	0.036	1.237	0.007	0.2
Panel C: Control variables					
LOGSALES		0.066***	4.449	0.073***	4.342
ROE		0.035**	2.301	0.050***	3.696
LVG		-0.002	-0.915	-0.004**	-2.017
LIQ		0.012***	3.734	0.007**	1.965
LOGPAGES		0.682***	9.805	0.501***	6.564
C		0.042	0.352	0.346***	2.621
Industry fixed effect			Yes		Yes
Year fixed effect			Yes		Yes
Adjusted R-squared			0.49		0.512
Observations:			463		340

The results of the lagged model are consistent with the main model. For instance, government ownership, block ownership, board size, board independence, non-executive directors, risk management, auditor type, Islamic values, firm size, profitability, liquidity, and total disclosure have similar magnitude and levels of significance in both models.

However, the level of significance for inside ownership is changed from the 1% level in the un-lagged model to become insignificant in the lagged model. The magnitude of institutional ownership increases from 0.022 to 0.11 and the level of significance becomes significant at the 10% level in the lagged model. Board education becomes statistically significant at the 5% level in the lagged-model. These findings suggest that institutional holders and higher-educated directors take longer time to influence the level of risk disclosure. Institutional holders are encouraged to protect their investment which, in turn, motivates them to monitor management in order to mitigate the agency conflict between owners and executives (Haniffa & Hudaib, 2006). However, the effects of Institutional holders on risk disclosure in the Saudi context are found to be delayed by one year. Similarly, the higher the education level of the board, the higher the level of risk disclosure which is in line with this study's expectations and consistent with previous empirical studies. However, the effect of board education on risk disclosure is also found to be delayed by one year in the Saudi context.

Regarding firm risk, the level of significance for leverage becomes significant at the 5% level. This finding is consistent with the findings by Ntim, Lindop, and Thomas (2013) and Miihkinen (2012) where they find a negative association between leverage and risk reporting. Mohobbot (2005) argues that some firms may not choose to disclose detailed risk-related information since they do not want to draw attention to their risks, so investors do not consider them high risky firms. In other words, managers may prefer to hide the firms' risk (i.e. Enron, Global Crossing, etc.). However, the impact of firm risk on risk disclosure is found to be delayed by one year among Saudi listed firms.

This study uses OLS as the main model to analyze the determinants of risk disclosure. However, Gujarati & Porter (2003) argue that OLS estimation might not capture the heterogeneous characteristics among different companies that do not change over time. To overcome this issue, it is recommended to test the existence of heterogeneity among firms by using fixed-effect or random effect models. Hausman test is employed in order to choose which of the two models is suitable. The first step for applying this test is to estimate OLS regression using the random effect model. The null hypothesis states that the random effect model is more suitable in taking control of the differences in attributes among firms. The alternative hypothesis would support the use of the fixed-effect model. The result of the Hausman test suggests that the null hypothesis cannot be rejected since

the coefficient is insignificant. Hence, the present study uses the random effect model in order to overcome the issue of heterogeneity among firms.

Table 6.5 presents the results of the main model using OLS in addition to the results generated by the random effect model. As can be seen from the table, adjusted R^2 is 0.50 for the random effect model and 0.49 for the OLS model suggesting that the results are similar.

The results of the random effect model are consistent with the main model. The coefficients of corporate governance variables, Islamic values, and control variables have similar magnitudes and levels of significance. The only exceptions are inside ownership and firm risk. The coefficient of inside ownership drops and becomes insignificant in the random effect model. Firm risk becomes significant at the 5% level whereas it was insignificant in the OLS model.

Table 6.5: Random effect model: The impact of corporate governance on risk disclosure

The table displays the results of the random effect model. The dependent variable for all models is LogRD which represents risk disclosure calculated as a log of the number of risk sentences. The independent variables are corporate governance variables (i.e. board size, the proportion of independent directors, the proportion of non-executive directors, board education, the existence of a risk committee, and audit type), ownership variables (government ownership, inside ownership, institutional ownership, and block ownership), Islamic values, and control variables (firm size, profitability, leverage, liquidity, and total disclosure). BS denotes board size, ID denotes the percentage of independent directors, NED denotes the percentage of non-executive directors, EDUC represents the education level of the board, RMCOM represents the existence of risk management committee, BIG4 represents the auditor type, GOVOWN denotes government ownership, INSIDOWN denotes insiders ownership, INSTOWN denotes institutional ownership, BLKOWN represents block holders ownership, IV represents Islamic values, LogSALES denotes firm size measured as log of sales, ROE denotes profitability measured as return on equity, LVG represents leverage calculated as total debt to total assets, LIQ represents liquidity measured as current ratio, and LPAGES represents the log of the annual reports` number of pages. The asterisks *, ** and *** denote the 10%, 5% and 1% level of significance respectively.

Dependent variable: LogRD					
		OLS		Random-effect	
Variable	Expected sign	Coefficient	t-Statistic	Coefficient	t-Statistic
Panel A: Ownership and board variables					
BS	+	-0.065***	-6.734	-0.07***	-3.74
ID	+	0.051***	5.751	0.059***	5.068
NED	+	0.052***	6.251	0.06***	3.974
EDUC	+	0.024	1.406	0.019	0.864
RMCOM	+	0.056	1.083	0.034	0.494
BIG4	+	-0.01	-0.457	-0.009	-0.41
Panel B: Ownership variables					
GOVOWN	-	-0.254***	-3.784	-0.277***	-7.04
INSIDOWN	-	-0.127***	-2.812	-0.078	-1.194
INSTOWN	+	0.022	0.372	-0.023	-0.831
BLKOWN	-	0.066	1.138	0.067	0.84
Panel C: Islamic values variable					
IV	+	0.036	1.237	0.027	1.039
Panel C: Control variables					
LOGSALES		0.066***	4.449	0.068***	3.522
ROE		0.035**	2.301	0.035***	3.888
LVG		-0.002	-0.915	-0.002**	-2.025
LIQ		0.012***	3.734	0.008***	2.646
LOGPAGES		0.682***	9.805	0.701***	7.327
C		0.042	0.352	0.019	0.128
Industry fixed effect			Yes		Yes
Year fixed effect			Yes		Yes
Adjusted R-squared			0.49		0.498
Total panel observations:			463		463

Overall, and after performing several robustness tests, the results of the present study can be described as robust. More precisely, the results of the OLS model, the difference-in-difference model, the lagged structure model, and the random-effect model suggest that corporate governance mechanisms have significant impacts on risk disclosure

in Saudi Arabia. Additionally, all models suggest that the impact of Islamic values on risk disclosure is insignificant.

6.6. Additional analysis: The impact of the Loss-Making Firms Procedures on risk disclosure

6.6.1. Difference-in-difference model

The current study employs the difference-in-difference (DID) approach in order to examine the impact of the enforcement of the Loss-Making Firms Procedures (LMFPs) on risk disclosure and solve the problem of endogeneity²⁷.

In mid-2014, the Saudi Capital Market Authority introduces new procedures that apply only to one group of firms. The procedures are called the Loss-Making Firms Procedures (LMFPs). The procedures apply only to firms with cumulative losses. The enforcement of the procedures results in two groups: (i) a treatment group (i.e. loss-making firms), and (ii) a control group (i.e. other firms). The procedures apply to 17 loss-making firms whereas 99 non-loss-making firms are not affected by such enforcement. Most importantly, since the period of this study is 2012-2015, this enables this study to investigate the impact of the new procedures (LMFPs) on risk disclosure two years before the introduction of the procedures and two years afterward.

As discussed in Section 4.4 of Chapter 4, Model 2 explores the impact of the enforcement of the Loss-Making Firms Procedures on risk disclosure. The model is re-stated as:

(equation 2)

$$\text{LogRD}_{i,t} = \alpha_0 + \beta_1 \text{LOSS}_{i,t} * \text{POST}_{i,t} + \beta_2 \text{LOSS}_{i,t} + \beta_3 \text{POST}_{i,t} + \sum_{i=1}^n \beta_i \text{CONTROLS}_{it} + \varepsilon_{it}$$

Where:

LogRD Risk disclosure

LOSS Loss-making firms (i.e. a dummy variable takes 1 if the firm has cumulative losses, and 0 otherwise).

POST The period after the enforcement of Loss-Making Firms Procedures (i.e.

²⁷ The problem of endogeneity is discussed in the previous section.

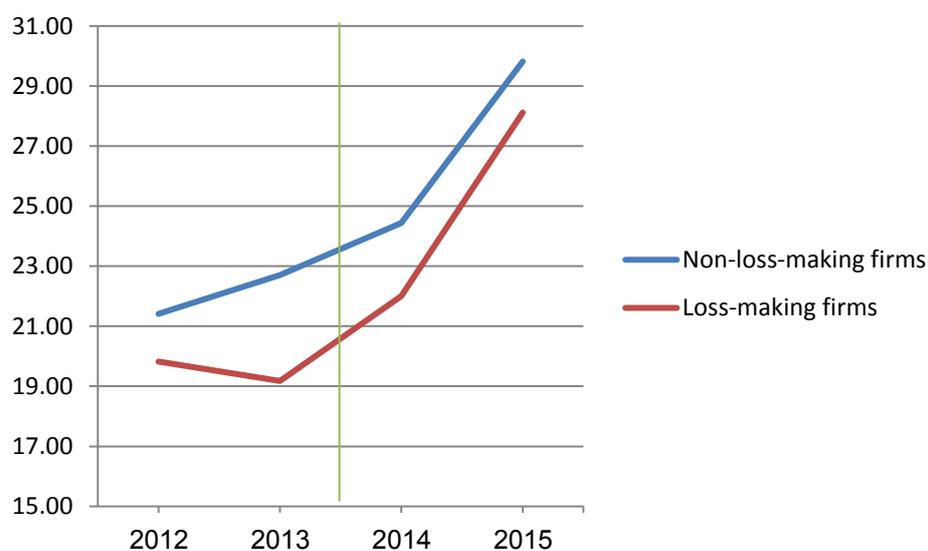
a dummy variable takes 1 if the time is after the enforcement of LMFPs, and 0 otherwise).

$LOSS_{i,t} * POST_{i,t}$ Loss-making firms after the enforcement of LMFPs.

CONTROLS Control variables for firm size (*LogSales*), profitability (*ROE*), liquidity (*LIQ*), leverage (*LVG*), and error term.

As can be seen from Figure 6.1 and Table 6.6, the number of risk sentences disclosed by loss-making-firms increased sharply after the introduction of LMFPs. The number of risk sentences disclosed by loss-making-firms increased from 19.18 in 2013 to 22 and 28.12 in 2014 and 2015 respectively. The risk disclosure gap between loss-making and non-loss making firms decreases from 3.52 risk sentences in 2013 to become 1.7 in 2015. This descriptive finding suggests that the introduction of LMFPs has a significant role in enhancing the practices of risk disclosure.

Figure 6.1: Risk disclosure comparison between Loss-making and Non-loss-making firms



Looking at risk disclosure practices for loss-making firms, it can be noticed that risk disclosure was decreasing before the introduction of LMFPs and reversed to be gradually increasing afterward. This finding also supports the robustness of the results where the enforcement of corporate governance mechanisms leads to a higher level of risk disclosure.

Table 6.6: Average number of risk sentences

Year	Non-loss-making firms	Loss-making firms
2012	21.41	19.82
2013	22.70	19.18
2014	24.44	22.00
2015	29.82	28.12

Table 6.7 presents the results of the DID model with a view to confirming the robustness of the impact of corporate governance on risk disclosure. Hypothetically, the variable *LOSS*POST* has to be significantly positive in order to confirm the robustness of the results of the present study. As defined above, *LOSS*POST* represents the risk disclosure practices of loss-making firms after the enforcement of LMFPs. Table 6.7 shows that the coefficient of *LOSS*POST* is positively and significantly related to risk disclosure. This indicates that loss-making firms reveal significantly more risk-related information after the introduction of LMFPs in comparison with non-loss-making firms. The result is statistically significant at the 5% level. Therefore, the thirteenth hypothesis cannot be rejected at the 5% level of significance. Further, this finding supports the robustness of the presents study`s results after solving the problem of endogeneity. Also, the results suggest that the enforcement of Loss-Making Firms Procedures play an important role in enhancing risk disclosure practices for Saudi listed firms. Hence other capital markets regulators are encouraged to apply the same procedures.

Table 6.7: Difference-in-difference model

Notes: The table shows the results of the difference-in-difference model. The dependent variable for all models is LogRD which represents risk disclosure calculated as a log of the number of risk sentences. The independent variables are as follows: LOSS*POST represents the loss-making firms after the introduction of the LMFPs, LOSS represents the loss-making firms, POST represents the period after the introduction of the LMFPs, LogSALES denotes firm size measured as log of sales, ROE denotes profitability measured as return on equity, LVG represents leverage calculated as total debt to total assets, LIQ represents liquidity measured as current ratio, and LogPAGES represents the log of the annual reports' number of pages. The asterisks *, ** and *** denote the 10%, 5% and 1% level of significance respectively.

		Dependent variable: LogRD					
		1		2		3	
Variable	expected sign	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
LOSS*POST	+					0.052**	2.016
LOSS	-	-0.003	-0.147			-0.030*	-1.707
POST	+			0.084***	2.660	0.108***	22.285
Control variables:							
LogSALES		0.041***	2.983	0.046***	3.874	0.045***	3.640
ROE		0.058***	8.061	0.053***	7.008	0.053***	8.520
LVG		-0.002**	-2.146	-0.002***	-4.217	-0.002**	-1.987
LIQ		0.012***	3.543	0.011***	3.279	0.010**	2.331
LogPAGES		0.695***	10.106	0.662***	11.981	0.671***	17.876
C		0.002	0.019	-0.022	-0.297	-0.014**	-0.203
Industry fixed effect		Yes		Yes		Yes	
Year fixed effect		Yes		Yes		Yes	
Adjusted R-squared		0.446		0.461		0.49	
N		463		463		463	

Possible explanations of this finding could also be derived from pecking order and capital need theories. Pecking order theory states that firms prefer to finance their operations by retained profits, debts, and lastly by issuing equity (Donaldson, 1961; Myers & Majluf, 1984). This implies that loss-making firms are in need to issue debt and/or equity due to the scarce internal financing. Hence, loss-making firms' managers may have incentives to disclose more risk-related information in order to raise capital. Similarly, capital need theory states that firms are motivated to disclose voluntarily since they need to raise capital at a lower cost (Abd-Elsalam & Weetman, 2003; Craven & Marston, 1999; Rajab, 2009). Hence, when a firm is committing losses, the firm might need to issue debt and/or equity in order to finance the operations. As a result, the firm's directors would have the incentive to disclose more risk-related information with a view to attracting investors and raise capital at the lowest possible cost. Another possible explanation the positive impact of LMFPs on risk disclosure can be derived from the political cost theory. Once the procedures are enforced, managers of loss-making firms might disclose more

risk-related information in order to deflect the undesirable attention after the introduction of the LMFPs. As pointed out in section 3.6, there were higher attentions paid to loss-making firms after the introduction of the LMFPs measured by the level of interest of the phrase “Loss-Making Firms” generated by *Google Trends* as can be seen in Figure 3.1. Cooke (1989) argues that firms’ managers tend to disclose more information in order to mitigate the political cost. Managers of such firms would like to reveal voluntary information with a view to deflecting the unfavorable attention (Linsley & Shrides, 2000). Hence, managers of loss-making firms might have the incentive to disclose more risk-related information in order to deflect the unfavourable attention.

The present study expects that loss-making firms (*LOSS*) reveal a lower level of risk disclosure since they are expected to have poor corporate governance practices. Hence, this variable is expected to be negatively related to risk reporting. As can be seen from Column 3 of Table 6.7, the variable (*LOSS*) has a negative relationship with risk disclosure. This negative relationship is significant at the 10% level. The variable (*POST*) is expected to have a positive relationship with risk disclosure since there was a gradual uptrend of risk disclosure in Saudi Arabia as previously discussed in section 5.3. Consistent with this expectation, the coefficient on *POST* is positive and statistically significant at 1% level. The results of control variables are similar with the results of the main model except that the firm risk variable (*LVG*) is found to be significant at the 5% level whereas it was insignificant in the main model.

6.6.2. Placebo test

The results of the DID model depend on the premise that there is no prominent shock in 2014, other than the introduction of the LMFPs. From the investigation of the political economy of Saudi Arabia through media coverage and previous empirical research, no such economy-wide shock is found. However, it is possible that the results are simply a reflection of the continuation of the pre-existing trend (Koirala, Marshall, Neupane, & Thapa, 2018). To address this, the current study uses placebo-controlled trials that have been heavily used in medical research. The placebo-controlled trials are better explained by Chiodo, Tolle, & Bevan (2000):

The placebo-controlled clinical trial has a long history of being the standard for clinical investigations of new drugs. By blindly and randomly allocating similar patients to

a control group that receives a placebo and an experimental group, investigators can ensure that any possible placebo effect will be minimized in the final statistical analysis.

To conduct the Placebo test, two false shocks have been assumed. The year 2012 and 2015 are chosen to have false shocks. The interaction coefficients of these two shocks have to be insignificant in order to confirm the results of the DID model. The results of the two false shocks are, indeed, insignificant as can be seen in Table 6.8. Specifically, the variables *LOSS*POST2012* and *LOSS*POST2015* are insignificant. This finding confirms the robustness of the results of the DID model.

Table 6.8: Placebo test

Notes: The table shows the results for the difference-in-difference model using two false shocks. False shock 1 is where POST2012 represents the period after the year 2012. False shock 2 model is where POST2015 represents the period after the year 2015. The dependent variable for all models is LogRD which represents risk disclosure calculated as a log of the number of risk sentences. LOSS*POST2012 represents the loss-making firms after the year 2012, LOSS*POST2015 represents the loss-making firms after the year 2015, LOSS represents the loss-making firms, LogSALES denotes firm size measured as log of sales, ROE denotes profitability measured as return on equity, LVG represents leverage calculated as total debt to total assets, LIQ represents liquidity measured as current ratio, and LogPAGES represents the log of the annual reports` number of pages. The asterisks *, ** and *** denote the 10%, 5% and 1% level of significance respectively.

Dependent variable: LogRD				
Variable	False shock 1		False shock 2	
	Coefficient	t-Statistic	Coefficient	t-Statistic
Panel A: Loss-making firms procedures				
LOSS*POST2012	0.000	-0.004		
LOSS	-0.003	-0.059		
POST2012	0.069***	3.103		
LOSS*POST2015			0.071	1.541
LOSS			-0.021	-0.683
POST2015			0.093***	5.337
Panel B: Control variables				
LOGSALES	0.042***	2.908	0.044***	3.296
ROE	0.057***	3.527	0.054***	3.165
LVG	-0.002	-0.93	-0.002	-0.901
LIQ	0.012***	3.347	0.010***	2.929
LOGPAGES	0.694***	9.742	0.683***	10.177
C	-0.075	-0.657	-0.019	-0.18
Industry fixed effect	Yes		Yes	
Year fixed effect	Yes		Yes	
Adjusted R-squared	0.444		0.488	
Observations	463		463	

6.7. Chapter summary

This chapter presented the empirical results on the impact of corporate governance and Islamic values on risk disclosure. The main findings are as follows. Table 6.9

illustrates the summary of hypotheses on the determinants of risk disclosure. Overall, the regression analysis shows that board independence, non-executive directors, firm size, profitability, liquidity, and total disclosure are positively and significantly related to risk disclosure. On the other hand, board size, government ownership, and inside ownership have significant and negative relationships with risk disclosure. However, auditor type, board education, risk management committee, institutional ownership, block ownership, Islamic values, and firm risk have no statistically significant relationships with risk reporting.

The results show that board size is negatively associated with risk disclosure. The present thesis supports the view that smaller boards are more efficient regarding risk disclosure in the Saudi context. Consistent with agency theory, the results also show positive relationships between independent and non-executive directors with risk disclosure. Independent and non-executive directors play important roles in motivating managers to disclose a higher level of risk-related information. Consistent with capital need theory, the findings reveal that there is a significant negative relationship between state ownership and risk disclosure. This study also discovers a significant and negative relationship between inside ownership and risk disclosure. Insiders might have incentives to maximize their own interest by lowering the level of transparency. To this end, it is worthwhile for Saudi policymakers to distinguish between firms with higher government and inside ownership and firms with lower government and inside ownerships when passing new legislation. For instance, the setting of specific thresholds for risk disclosure can be dependent on the level of state or inside ownership.

It is argued that the existence of a risk management committee on the board would be viewed as a sign of proper risk management and risk reporting (Neri, 2010). However, the results of the present study could not confirm such assertion among Saudi listed firms. Given that the recently updated version of the Saudi Corporate Governance Code recommends the establishment of a risk management committee, Saudi regulators are advised to require that all members of the risk management committee be independent²⁸ in addition to exhibiting the required experience and knowledge in relation to risk management to ensure the effectiveness of the risk management committee.

²⁸Currently, the Saudi Corporate Governance Code requires that all members of the risk management committee to be non-executive directors.

Table 6.9: Summary of hypotheses and findings: Determinants of risk disclosure

Note: H represents hypothesis.

Independent variable	Dependent variable: Risk disclosure				
	H. No	H. Sign	Sign of result	Statistical significance of result	Conclusion (H.)
Auditor type	1	+	-	Insignificant	Reject
Board size	2	+/-	-	Significant (1%)	Do not reject
Independent directors	3	+	+	Significant (1%)	Do not reject
Non-executive directors	4	+	+	Significant (1%)	Do not reject
Board education	5	+	+	Insignificant	Reject
Risk management committee	6	+	+	Insignificant	Reject
Government ownership	7	-	-	Significant (1%)	Do not reject
Institutional ownership	8	+	+	Insignificant	Reject
Inside ownership	9	-	-	Significant (1%)	Do not reject
Block ownership	10	-	+	Insignificant	Reject
Islamic values	11	+	+	Insignificant	Reject
Industry type	12			Significant	Do not reject
Loss-Making Firms Procedures	13	+	+	Significant (5%)	Do not reject

The present study does not find a positive relationship between Islamic values and risk disclosure. This finding contradicts with the established Islamic literature that encourages disclosure practices as discussed in section 3.4.3. However, several possible justifications for the insignificant relationship between Islamic values and risk disclosure as found in this thesis are as follows. First, the empirical results of previous studies on the association between Islamic values and risk disclosure are contradictory. Second, Abu-Tapanjeh (2009) discovers that the OECD principles and Islamic principles are similar in relation to transparency and disclosure. Third, an expert argues that the limited disclosure among Islamic firms can be explained by the lack of awareness by these firms' managers of the Islamic exhortation on the importance of disclosure (Bindabel, 2017).

The current study uses relevant statistical approaches and econometric models to increase the robustness of the results and to eliminate the problem of endogeneity. The present study uses a difference-in-difference approach to examine the impact of the enforcement of the Loss-Making Firms Procedures (LMFPs) on risk disclosure. Further, this thesis uses a lagged structure model and a random effect model to ensure the robustness of the results. The results of these models reveal that corporate governance mechanisms have significant impacts on risk disclosure in Saudi Arabia. Additionally, all models suggest that the impact of Islamic values on risk disclosure is insignificant. Thus, the results of the present study can be described as robust.

Having discussed the determinants of corporate risk disclosure with particular attention to corporate governance mechanisms, ownership structure, Islamic values, and the Loss-Making Firms Procedures (LMFPs), next chapter will discuss the impact of risk disclosure on the cost of capital to provide an insight into the implications of corporate risk disclosure.

Chapter 7 EMPIRICAL RESULTS: THE IMPACT OF RISK DISCLOSURE ON THE COST OF CAPITAL

7.1. Introduction

The present chapter discusses the empirical results of the impact of risk disclosure on the cost of capital among Saudi listed firms. This chapter seeks to achieve the following three objectives. First, it presents the descriptive statistics and correlation matrix of dependent and independent variables. Second, the chapter reviews the empirical results of the impact of risk disclosure on the cost of capital using the Ordinary Least Squares (OLS) estimation technique. Third, it tests how robust the results are and investigates the presence of endogeneity problems.

This chapter is organized as follows. Section 7.2 discusses the descriptive statistics. Section 7.3 reviews the correlation matrix in order to detect the presence of multicollinearity issue. Section 7.4 discusses the results of the impact of risk disclosure on the cost of capital in Saudi Arabia. Section 7.5 discusses the robustness tests such as a lagged structure model and a random effect model. Lastly, section 7.6 presents a summary of the chapter.

7.2. Descriptive statistics

As reported in panel A of Table 7.1, the average of the cost of capital is 5% with a standard deviation of 2.56%. Panel B shows that the log of the number of risk sentences (LogRD) has an average of 1.33. There is a great variation in risk disclosure practices among Saudi listed firms where LogRD ranges from 0 to 1.86 with a standard deviation of 0.25. A detailed explanation of the level of risk disclosure and comparison to relevant studies has been discussed extensively in section 5.2.

Table 7.1: Descriptive statistics of model 3 variables

Notes: The table displays the Descriptive statistics of model 3 variables. COC denotes the cost of capital, LogRD represents risk disclosure as a log of the number of risk sentences, LogSALES denotes firm size as a log of sales, ROE denotes profitability as return on equity, LVG represents leverage, and GROWTH represents firms' growth.

Variable	Observations	Mean	Median	Maximum	Minimum	Std. Dev.
<i>Panel A: Dependent variable</i>						
COC	463	0.0506	0.0478	0.1952	-0.0168	0.0256
<i>Panel B: Independent variable</i>						
LogRD	463	1.3317	1.3617	1.8573	0.0000	0.2463
<i>Panel C: Control variables</i>						
LogSALES	463	2.9996	3.0199	5.28	0	0.80
ROE	463	0.0769	0.0989	0.39	-0.10	0.58
LVG	463	0.2306	0.3087	0.88	0	0.19
GROWTH	463	2.9284	2.2900	27.77	-6.46	2.55

Panel C displays the descriptive statistics of control variables. Firm size (measured by the log of total sales, LOGSALES) has an average of 3 and ranges between 5.28 and 0. Profitability (ROE) has an average of 8% with a range between 39% and -10%. Another finding is that the average leverage (LVG) is 23% with a range between 0 and 88%. This finding is in line with the finding by Alzead (2017) where he finds that the leverage among Saudi listed firms is 24%. Firms' growth has a mean of 2.93 with a standard deviation of 2.55.

7.3. Correlation matrix

As previously discussed in section 6.3, there are two reasons for employing the correlation matrix. First, employing the correlation matrix helps in examining the existence of multicollinearity problem between independent variables. Looking at Table 7.2, it is obvious that there is no concern of the multicollinearity issue since the highest correlation coefficient is the correlation between LogSales and LogRD which equals 0.43.

Table 7.2: Correlation matrix: Risk disclosure and cost of capital model

Notes: The table displays the correlation matrix between the variables. COC denotes the cost of capital, LRD represents risk disclosure as a log of the number of risk sentences, LogSALES denotes firm size as a log of sales, ROE denotes profitability as return on equity, LVG represents leverage, and GROWTH represents firms' growth. ** Correlation is significant at the 0.01 level. * Correlation is significant at the 0.05 level.

	COC	LRD	LogSales	ROE	LVG	GROWTH
COC	1					
LRD	-.132**	1				
LogSales	-.254**	.431**	1			
ROE	-.190**	.244**	.200**	1		
LVG	-.037	0.001	0.065	.181**	1	
GROWTH	0.046	0.041	-0.081	0.204**	-0.015	1.000

Second, the correlation matrix can be used to test whether the explanatory variables exhibit correlations with the dependent variable. As can be seen from Table 7.2, the Pearson correlation coefficient suggests a significant negative relationship between LogRD and COC. This result is significant at the 1% level and confirms the main hypothesis of this model. It suggests that risk-transparent firms enjoy lower costs of capital.

The results of Table 7.2 indicate that COC is negatively and significantly correlated to firm size and profitability. This indicates that larger and profitable firms have lower costs of capital. This finding is in line with the literature.

7.4. Regression analysis

This section presents the results for the impact of risk disclosure on the cost of capital in Saudi Arabian listed firms. As discussed in Section 4.5 of Chapter 4, Model 3 explores the relationship between risk disclosure and cost of capital. The model is re-stated as:

$$WACC_{i,t} = \alpha_0 + \beta_1 \text{LogRD}_{i,t} + \sum_{i=1}^n \beta_i \text{CONTROLS}_{i,t} + \varepsilon_{it} \quad (\text{equation 3})$$

Table 7.3 presents the results of the OLS regression where the cost of capital (COC) is regressed against the log of the number of risk sentences (LogRD) and control variables. The present study uses the clustered standard error at the firm level in order to solve the problem of heteroscedasticity as discussed in section 4.5.3. The adjusted R² is

0.51 which suggests that 51% of the variation of cost of capital in Saudi Arabia is explained by the independent variables listed in Table 7.3.

Table 7.3: The OLS regression: Risk disclosure and cost of capital

Notes: The table shows the results for OLS regression results with clustered standard errors to correct for heteroscedasticity. The dependent variable for all models is WACC represents the cost of capital measured by the weighted average cost of capital. LogRD represents risk disclosure calculated as a log of the number of risk sentences, LogSALES denotes firm size as a log of sales, ROE denotes profitability as return on equity, LVG represents leverage, and GROWTH represents firms' growth. The asterisks *, ** and *** denote the 10%, 5% and 1% level of significance respectively.

Dependent variable: WACC					
Variable	expected sign	1		2	
		Coefficient	t-Statistic	Coefficient	t-Statistic
LogRD	-	-0.013***	-3.484	-0.009**	-2.228
Control variables:					
LogSALES				-0.007***	-5.774
ROE				-0.005***	-3.045
LVG				0	-1.485
GROWTH				-0.001	-1.543
C		0.033***	6.447	0.084***	13.232
Industry fixed effect		Yes		Yes	
Year fixed effect		Yes		Yes	
Adjusted R-squared		0.477		0.509	
Observations		463		463	

The fourteenth hypothesis of the present study is that there is a significant and negative relationship between risk disclosure and cost of capital. As can be seen in Table 7.3, Model 1 is where the cost of capital is regressed against risk disclosure (one independent variable). Model 2 adds a list of control variables that affect the cost of capital. Model 1 and 2 show that risk disclosure is negatively and significantly associated with the cost of capital. The results demonstrate that firms that report more risk disclosure have a lower cost of capital. The present study, therefore, cannot reject the fourteenth hypothesis. An increase by 1% risk disclosure decreases the cost of capital by 0.009%²⁹. According to this finding, Saudi listed firms are encouraged to disclose more risk-related information due to the potential rewards in the lower required rate of return by investors and creditors. Botosan (1997), Diamond and Verrecchia (1991), Healy and Palepu (2001), and Kim and Verrecchia (1994) argue that a higher level of disclosure leads to less

²⁹ The unit of risk disclosure is presented in percentage, instead of the number of sentences, because the variable is log-transformed.

uncertainty and, in turn, low estimation risk which results in lowering the cost of capital. This implies that investors demand compensation for the additional risk when there is a high level of uncertainty regarding the “true” parameters resulting from the lack of information (Botosan, 1997). Any mitigation in information asymmetry would result in lowering the agency cost and the cost of equity by providing fair opportunities to small and large stockholders in obtaining information (Morris, 1987). When executives report a high level of information, the information risk is reduced which makes the investors demand a lower rate of return (lower cost of capital) (Healy & Palepu, 2001). Providing a managerial perspective on the risks faced by the firm has the potential to reduce the cost of capital by lowering the level of uncertainty. Diamond and Verrecchia (1991) claim that providing more information to the market would raise the incentives of investors to buy the firms` shares. Consequently, the stock liquidity would be increased resulting in less information asymmetry and, in turn, lower cost of equity (Diamond & Verrecchia, 1991).

Moreover, pecking order and capital need theories can also explain the negative association between risk reporting and cost of capital. Pecking order theory states that firms prioritize to finance their operations by retained profits, debts, and lastly issuing equity (Myers and Majluf 1984). This implies that firms` managers may have the incentive to engage in risk disclosure as they need to raise capital. In the same manner, capital need theory states that firms are encouraged to disclose voluntarily when they desire to raise capital at a lower cost (Abd-Elsalam & Weetman, 2003; Craven & Marston, 1999; Rajab, 2009). Hence, when firms are short of money, firms` directors would have the incentive to disclose more risk-related information in order to attract investors and raise capital at the lowest possible cost.

Regarding control variables, the coefficient on firm size (LogSales) is negative and statistically significant at the 1% level as can be seen from panel B. Larger companies are more stable and diversified and therefore have more reliable cash flows which reduce the cost of capital. This proposition is supported by empirical evidence provided by a study conducted by Botosan & Plumlee (2005). In addition, Beiner, Drobetz, Schmid, & Zimmermann (2006) posit that larger companies also have better internal controls and governance structures which also results in lowering the cost of capital. Profitability (ROE) is found to be significantly and negatively related to cost of capital at the 1% level. Profitable companies tend to depend less on external sources of capital in comparison to

less profitable companies for capital investments since they have surplus earnings (Myers & Majluf, 1984). The coefficient of leverage (LVG) is negative and insignificant. This finding suggests that there is no significant impact of leverage on the cost of capital in Saudi Arabia. The coefficient on firms' growth is also negative and insignificant, suggesting the absence of significant association between firms' growth and cost of capital.

7.5. Robustness check

The empirical results of the present study can be seriously influenced by endogeneity. The issue of endogeneity has been discussed in section 6.5. In the case of the present chapter, it can be argued that firms with a lower cost of capital are more likely to have better risk disclosure practices. Hence, it is likely that the causality direction of the cost of capital and risk disclosure can go either way. It can be also argued that the cost of capital and risk disclosure is determined simultaneously by an omitted variable. To mitigate the problem of simultaneity, this thesis uses panel data and a lagged structure model as explained below.

The present study uses relevant statistical approaches and econometric models to eliminate the problem of endogeneity and to increase the robustness of this chapter's findings. First, panel data is used rather than cross-sectional or time-series data to deal with the problem of simultaneity (Börsch-Supan & Köke, 2002). Second, the present study employs a lagged structure model. Third, the current study employs a random effect model in order to capture the heterogeneous characteristics among different firms that do not change over time.

To address the problem of endogeneity, a one-year lag between the dependent variable and the independent variables is used in order to address the issues of omitted variables and simultaneity (Ntim, Opong, & Danbolt, 2012). Employing lagged independent variables is a useful technique to address reverse causality. The reason is that the independent variable (risk disclosure) may affect the forward year cost of capital. However, it is not theoretically possible that the dependent variable (i.e. cost of capital) affects the independent variable of the previous year (risk disclosure). Hence, the present study employs the following model:

$$WACC_{i,t} = \alpha_0 + \beta_1 \text{LogRD}_{i,t-1} + \sum_{i=1}^n \beta_i \text{CONTROLS}_{i,t-1} + \varepsilon_{i,t-1} \quad (\text{equation 5})$$

Except for the one year lag of risk disclosure and control variables, all variables are the same as defined in equation 3 of section 4.5. As a result of the use of the lagged structure, the present study excludes the first year (2012) which results in reducing the sample from 463 to 340 firm-year observations.

Table 7.4 presents the results of the lagged structure as well as the results of the main regression model (un-lagged). As can be seen from the table, the results of the lagged model are consistent with the main model. For instance, risk disclosure demonstrates a significant negative relationship with the cost of capital with the same magnitude in both models. However, the level of significance increased from 5% in the un-lagged model to 1% in the lagged model. Regarding control variables, the results of the two models are similar with the exception of firms' growth variable where it becomes significant at the 1% level.

Table 7.4: Lagged model: The impact of risk disclosure on the cost of capital

Notes: The table displays the results of the lagged model where the independent variables are one year lagged (t-1). The dependent variable for all models is WACC represents the cost of capital measured by the weighted average cost of capital. LogRD represents risk disclosure as a log of the number of risk sentences, LogSALES denotes firm size as a log of sales, ROE denotes profitability as return on equity, LVG represents leverage, and GROWTH represents firms' growth. The asterisks *, ** and *** denote the 10%, 5% and 1% level of significance respectively.

Dependent variable: WACC					
Variable	expected sign	Un-lagged structure		Lagged-structure	
		Coefficient	t-Statistic	Coefficient	t-Statistic
Panel A: risk disclosure					
LogRD	-	-0.009**	-2.228	-0.009***	-2.951
Panel B: control variables					
LogSALES		-0.007***	-5.774	-0.009***	-5.990
ROE		-0.005***	-3.045	-0.006**	-2.454
LVG		-0.000	-1.485	-0.000	-0.680
GROWTH		-0.001	-1.543	-0.001***	-3.134
C		0.084***	13.232	0.090***	15.668
Industry fixed effect			Yes		Yes
Year fixed effect			Yes		Yes
Adjusted R-squared			0.509		0.362
Observations:			463		340

Since this study uses OLS as the main model to analyze the impact of risk disclosure on the cost of capital, Gujarati & Porter (2003) argue that OLS estimation might

not capture the heterogeneous characteristics among different companies that do not change over time. To overcome this issue, it is recommended to test the existence of heterogeneity among firms by using fixed-effect or random effect models. Hausman test is employed in order to choose which of the two models is suitable. The first step for applying this test is to estimate OLS regression using the random effect model. The null hypothesis states that the random effect model is more suitable in taking control of the differences in attributes among firms. The alternative hypothesis would support the use of a fixed-effect model. The result of the Hausman test suggests that the null hypothesis cannot be rejected since the coefficient is insignificant. Hence, the present study uses the random effect model in order to overcome the issue of heterogeneity among firms.

Table 7.5 presents the results of the main model using OLS in addition to the results generated by the random effect model. As can be seen from the table, adjusted R² is 0.58 for the random effect model and 0.51 for the OLS model suggesting that the results are similar.

Table 7.5: Random effect model: The impact of risk disclosure on the cost of capital

Notes: The table displays the results of the random effect model. The dependent variable for all models is WACC represents the cost of capital measured by the weighted average cost of capital. LogRD represents risk disclosure as a log of the number of risk sentences, LogSALES denotes firm size as a log of sales, ROE denotes profitability as return on equity, LVG represents leverage, and GROWTH represents firms' growth. The asterisks *, ** and *** denote the 10%, 5% and 1% level of significance respectively.

Dependent variable: WACC					
Variable	expected sign	OLS		Random-effect	
		Coefficient	t-Statistic	Coefficient	t-Statistic
LogRD	-	-0.009**	-2.228	-0.012***	-2.669
Control variables:					
LogSALES		-0.007***	-5.774	-0.007***	-4.356
ROE		-0.005***	-3.045	-0.001	-0.710
LVG		-0.000	-1.485	-0.000	-1.748
GROWTH		-0.001	-1.543	-0.001	-1.421
C		0.084***	13.232	0.052***	7.287
Industry fixed effect		Yes		Yes	
Year fixed effect		Yes		Yes	
Adjusted R-squared		0.509		0.583	
Observations		463		463	

The results of the random effect model confirm the findings of the main model. The coefficients of risk disclosure variable increased slightly from 0.009 to 0.012. The level of significance increased from 5% in the OLS model to 1% in the random-effect model. The

results of control variables have similar magnitudes and levels of significance with the exception of the profitability variable where it becomes insignificant.

Taken together the several robustness tests, the results of the present study can be described as robust. More precisely, the results of the OLS model, the lagged structure model, and the random-effect model suggest that risk disclosure has a significant and negative impact on the cost of capital in Saudi Arabia.

7.6. Chapter summary

This chapter discusses the empirical results of the impact of risk disclosure on the cost of capital among Saudi listed firms. The present chapter begins by reviewing the descriptive statistics and the correlation matrix. It then goes on to discuss the results of the impact of risk disclosure on the cost of capital in Saudi Arabia. A discussion on the robustness tests is then followed.

The current study uses several statistical approaches and econometric models in order to examine the impact of risk disclosure on the cost of capital. The present study uses an OLS model with a robust-standard error, a lagged structure model, and a random effect model. Consistent with the theoretical expectations, the results of these models show that risk disclosure is negatively and significantly associated with the cost of capital. An increase by 1% risk disclosure decreases the cost of capital by 0.009%. It is believed that the information risk is reduced when firms' managers report a high level of information, and hence, investors demand a lower rate of return (Healy & Palepu, 2001). Moreover, firms' managers may have the incentive to engage in risk disclosure as they need to raise capital at the lowest possible cost as suggested by pecking order and capital need theories. The results of the present study have the potential to convince firms' managers to boost the disclosure of risk-related information in order to benefit from the reduction in the cost of capital.

Chapter 8 CONCLUSION

8.1 Introduction

The main objective of this thesis was to investigate the practices of risk disclosure among Saudi listed firms. To achieve this objective, this thesis presents three main empirical chapters as follows: (i) the level, trend, and attributes of risk disclosure, (ii) the effects of corporate governance, ownership structure, Islamic values, and the Loss-Making Firms Procedures on risk disclosure, and (iii) the effect of risk disclosure on cost of capital. This chapter presents the conclusions of these empirical studies. Specifically, this chapter aims to achieve the following objectives. First, it presents a summary of the findings of this thesis. Second, it discusses the policy implications. Third, it highlights the contributions of the thesis. Fourth, it presents the limitations of this thesis. Fifth, it provides suggestions for future research avenues. Hence, the chapter is organized as follows. Section 8.2 presents a summary of the findings. Section 8.3 discusses policy implications and recommendations. Section 8.4 presents the contributions of the thesis. Section 8.5 presents the limitations of this thesis. Section 8.6 highlights the potential paths for future research.

8.2 Summary of findings

The present study sought to achieve four objectives. The first aim was to explore corporate risk disclosure level and practices within the annual report of Saudi listed firms over four years (2012 - 2015). Section 8.2.1 provides an overview of the findings on risk disclosure level and practices in Saudi Arabia. The second aim was to identify the main factors that drive risk disclosure practices with emphasis on corporate governance mechanisms, ownership structure, and Islamic values. Section 8.2.2 provides an overview of the findings on the impact of corporate governance, ownership structure, and Islamic values on risk disclosure. The third aim was to examine the impact of the introduction of the Loss-Making Firms Procedures (LMFPs) on risk disclosure. Section 8.2.3 represents a summary of the findings on the impact LMFPs on risk disclosure. The fourth aim of the present study was to examine whether the higher level of risk disclosure would result in lowering the cost of capital. Section 8.2.4 provides an overview of the findings on the impact of risk disclosure on the cost of capital.

8.2.1 The practices of risk disclosure in Saudi Arabia

Using the data of 122 Saudi listed firms for four years (2012 – 2015), this thesis has answered the research questions as follows. The first question was to determine the level, trend, and practices of the disclosure of risk-related information by Saudi listed firms. This section represents a summary of the findings of the content analysis on risk disclosure practices among Saudi listed firms. The main findings of the content analysis are as follow. The descriptive results show that Saudi listed firms report 24 risk-related sentences on average. This finding reveals that risk disclosure is limited in Saudi Arabia since it is much lower than the risk disclosure in several different contexts. For example, Greco (2012) and Beretta & Bozzolan (2004) find that the average number of risk disclosure is 65 and 75 sentences respectively for Italian firms in their studies. Muzahhem (2011) reports that UAE firms provide, on average, 97 risk sentences. Linsley & Shrives (2006), and Rajab & Schachler (2009) find that the mean of risk disclosure is 78 and 95 sentences for UK listed firms respectively. Konishi & Ali (2007) discover that Japanese firms provide 47 risk sentences on average. Therefore, risk disclosure in the Saudi context appeared to be limited in comparison to other countries.

The low level of risk disclosure in Saudi Arabia can be explained mainly by the lack of enforcement. There were no mandatory requirements for Saudi listed firms to provide risk-related information in the annual reports during the sample period. However, the recent developments in the Saudi context such as the updated version of the Saudi Corporate Governance Code and the adoption of IFRS are expected to enhance the practices of risk disclosure.

The results show that there has been a progressive increase in the average number of risk disclosure among Saudi listed firms over the years 2012 – 2015. The increase in the number of risk-related sentences is more pronounced in the year 2015 due to the increased risk in the Saudi economy resulting from the dramatic decline of oil prices which led to a financial crisis in Saudi Arabia. As a response to the dramatic decline of oil prices, the Saudi government applied a widespread austerity plan which includes the cut of subsidies to firms and households. This finding is compatible with prior research. Gulko, Hyde, & Seppala (2017) discover that UK firms provide significantly more risk disclosure with enhanced quality during the financial crisis in 2008 than the time when the economy is

stable. Abraham & Shrides (2014) suggest that firms' directors disclose more risk information in the time of crisis with a view to enhancing the firms' reputation.

Operational and financial risks are the most frequent disclosed risks while the strategic risk is significantly lower. The limited strategic risk disclosure can be explained by the ambiguity of information. Strategic risks are beyond the firms' control such as the risks related to society, economy, or politics. In fact, risk assessment relies on managerial discretion. Therefore, firms' managers have less incentive to disclose information that might put them at possible legal actions or intense criticisms if their estimation goes wrong (Mohobbot, 2005).

In line with previous studies (e.g. Beretta & Bozzolan, 2004; Lajili & Zéghal, 2005; Linsley & Shrides, 2006; Mokhtar & Mellett, 2013; Muzahhem, 2011; Rajab & Schachler, 2009), the present study finds that most disclosed risk is qualitative in nature. On average, Saudi firms disclose 20.49 qualitative sentences compared to 3.89 quantitative sentences. Linsley & Shrides (2006) argue that companies should disclose more quantitative risk-related information in order to help stakeholders to assess the risk engaged in by firms.

The present study finds that 63% of risk disclosure is future disclosure while historical disclosure accounts for about 37%. On average, Saudi companies disclose fifteen forward-looking risk sentences compared to nine historical risk sentences. Aljifri & Hussainey (2007) and Linsley & Shrides (2005) argue that the disclosure of forward-looking information has the potential to help investors in forecasting future cash flows which result in making better-informed investment decisions as opposed to the disclosure of historical information. The nature of forward-looking information is believed to be more valuable and can be exploited by competitors which might affect the competitive advantage of firms (Aljifri & Hussainey, 2007; ICAEW, 1999). However, it can be argued that forward-looking information is less reliable since it involves a high level of uncertainty in addition to the subjectivity issue associated with forward-looking information (Cabedo & Tirado, 2004).

This study also finds that the majority of risk disclosure in the Saudi context is positive in nature. The average numbers of positive and negative risk sentences are 12 and 9 respectively. Firms' directors have a higher tendency toward the disclosure of positive news while they are hesitated to disclose negative news. In the case of bad news, managers

withhold and accumulate the news until they become definite (Kothari et al., 2009). Linsley & Shrivies (2006) argue that managers would not disclose negative news since they prefer to signal a bright image of their risk management performance to the market in order to avoid reputation costs. Hence, regulators should pay more attention to the enforcement of bad risk disclosure since companies have less incentive to disclose such information (Schrand & Elliott, 1998).

The present study uses a one-way ANOVA test to examine the differences in risk disclosure between industries. The results show significant differences between industries in the Saudi context. This finding is expected given that firms in various sectors face different types of risks. These different environmental factors are expected to have significant effects on firms' risks (Beretta & Bozzolan, 2004; Mostafa Hassan, 2009). Moreover, firms' managers usually mimic the disclosure practices of other companies in the same industry regardless of the relevance of the provided information which may result in significant variation among different industries (Hassan, 2009).

8.2.2 The impact of corporate governance, ownership structure, and Islamic values on risk disclosure

The second question of the present study was to identify the main factors that drive risk disclosure practices with emphasis on corporate governance mechanisms, ownership structure, and Islamic values. This section presents a summary of the empirical results on the impact of corporate governance, ownership structure, and Islamic values on risk disclosure. The main findings are as follows. The results reveal that the relationship between auditor type and risk disclosure is statistically insignificant. This result is in line with other empirical studies that find the association is also insignificant (e.g. Al-shammari 2014; Deumes and Knechel 2008; and Neri 2010). This is incompatible with the theoretical assumption where large audit firms are believed to put pressure on firms' managers to reveal a high level of disclosure given that the large auditors care more about their reputations. The results also show that board size is negatively and significantly related to risk disclosure. Jensen (1993) argues that larger boards might suffer from the deficiency of group cohesion which results in communication and cooperation difficulties, which in turn, might hinder the operation of the company. For instance, Beasley (1996) discovers that large boards are associated with fraudulent financial practices.

The results also show a significant and positive relationship between the proportion of independent directors and risk disclosure. Agency theory proposes that independent directors play a vital role in monitoring and controlling the managers' behaviors which increases the level of risk disclosure (Lopes & Rodrigues, 2007). Non-executive directors are also found to be significantly and positively associated with risk disclosure. Knowledgeable and experienced non-executive directors are more capable of enhancing the level of risk disclosure (Ntim & Soobaroyen, 2013).

The findings also reveal that board education has a positive but insignificant relationship with risk disclosure. However, previous empirical studies find the relationship is significant. For instance, Martikainen et al. (2015) find a positive and significant relationship between board education and risk disclosure. They propose that directors with a higher level of education have higher abilities to report more risk-related information since they are more able to provide critical judgments regarding the content of disclosed information. However, the results of the present study do not confirm this assertion.

The results also show that the existence of a risk management committee is positively but insignificantly related to risk disclosure. Neri (2010) suggests that the existence of a risk committee on the board of director would be viewed as a sign of better risk management and risk reporting. However, the present study could not confirm that the risk management committee plays an important and positive role in risk disclosure practices in Saudi Arabia. Nevertheless, what is not yet clear is whether or not this finding study is a true representation given that only a few firms of the sample have risk committees.

The results also show that state ownership is negatively and significantly associated with risk disclosure. Capital need theory proposes that firms with a higher level of state ownership may lose the incentive to disclose more risk-related information given that they do not have the need for attracting capital. These companies enjoy easy access to various forms of capital (Ghazali & Weetman, 2006). The present study also finds a significant and negative relationship between inside ownership and risk disclosure. Shleifer & Vishny (1997) suggest that if directors' ownership is large, they might be motivated to maximize their own interest by lowering the level of transparency.

The findings also show that the relationship between institutional ownership and risk disclosure is insignificant. It is argued that institutional investors have a higher ability for monitoring companies given that they possess the required resources such as experience, efficiency, and robust employment of voting rights (Donnelly & Mulcahy, 2008). Nevertheless, this argument is not supported by the results of the present study. This is in line with the results of a qualitative study conducted by Albassam (2014) where he finds that the institutional investment in Saudi listed firms concentrates on short-term investments. The results also reveal that block ownership is insignificantly related to risk disclosure. Firms with concentrated ownership do not experience a separation between ownership and control. In fact, block owners do not depend on public disclosure since they have access to internal information. This finding indicates that concentrated ownership might play a limited role in influencing the disclosure of risk-related information in Saudi Arabia.

The present study does not find a positive relationship between Islamic values and risk disclosure. This finding is a bit puzzling because of the established Islamic literature that encourages disclosure practices. For instance, *Sharia* emphasizes that Muslims are obligated to be honest, truthful, and careful of others at any time especially the time of business transactions (Ayub, 2007). The Holy Prophet Muhammad encourages the disclosure of all attributes of traded commodities in which traders receive enough information about commodities and their prices in the market. However, the empirical results of previous studies on the relationship between Islamic values and risk disclosure are inconclusive. For example, Albassam & Ntim (2016) discover a significant and positive effect of Islamic values over corporate governance disclosure whereas Al-Maghzom et al. (2016b) and Abdallah, Hassan, & McClelland (2015) find a significant and negative effect of Islamic values over risk disclosure. Moreover, Abu-Tapanjeh (2009) compares the OECD principles with the Islamic principles and discovers that both are similar in relation to transparency and disclosure. The empirical results of the present study support this view.

The present study uses various statistical approaches and econometric models to increase the robustness of the results and to mitigate the problem of endogeneity. First, the current study uses a difference-in-difference approach. Details of the results of this model are presented in the subsequent section.

Second, the present study employs another approach to address the problem of endogeneity. A one-year lag between the dependent variable and the independent variables is used in order to address the issues of omitted variables and simultaneity (Ntim, Opong, & Danbolt, 2012). The results of the lagged model are compatible with the main model.

Third, the current study uses OLS as the main model to analyze the determinants of risk disclosure, hence, Gujarati & Porter (2003) argue that OLS estimation might not capture the heterogeneous characteristics among different companies that do not change over time. To overcome this issue, it is recommended to test the existence of heterogeneity among firms by a random effect model. The results of the random effect model are also compatible with the results of the main model. Thus, the results of the current study can be described as robust.

8.2.3. The impact of the Loss-Making Firms Procedures on risk disclosure

The third question was to examine the impact of the introduction of the Loss-Making Firms Procedures (LMFPs) on risk disclosure. This section presents a summary of the empirical results on the impact of LMFPs on risk disclosure. In mid-2014, the Saudi Capital Market Authority enforces new procedures that apply only to one group of firms. The procedures are named the Loss-Making Firms Procedures (LMFPs). The procedures apply only to firms with cumulative losses. The enforcement of the procedures results in two groups: (i) a treatment group (i.e. loss-making firms), and (ii) a control group (i.e. other firms). Since the period of this study is 2012-2015, this enables this study to examine the effect of the new procedures (LMFPs) on risk disclosure two years before the introduction of the procedures and two years afterward using the difference-in-difference model.

It is vital to study the effect of introducing the Loss-Making Firms Procedures on risk disclosure practices for two reasons. First, the results will evaluate the effectiveness of the procedures given that other capital markets regulators may apply the same procedures once they are proven to be effective³⁰. Second, the results will investigate the exogenous impact of corporate governance on risk disclosure given that the current empirical

³⁰ For instance, Abu Dhabi Global Market announces that they will introduce some precautionary procedures for loss-making firms (Almanshawi, 2018).

literature may suffer from endogeneity. Hence, this research question has major practical and theoretical contributions.

The results show that loss-making firms reveal significantly more risk-related information after the introduction of LMFPs in comparison with non-loss-making firms. This finding is statistically significant at the 5% level which supports the robustness of the presents study`s results.

8.2.4 The impact of risk disclosure on the cost of capital

The fourth question of the present study was to examine whether the higher level of risk disclosure would result in lowering the cost of capital. This section sheds some lights on the empirical results of the impact of risk disclosure on the cost of capital among Saudi listed firms. The results show that the relationship between risk disclosure and the cost of capital is negative and significant at the 5% level. Botosan (1997), Diamond and Verrecchia (1991), Healy and Palepu (2001), and Kim and Verrecchia (1994) argue that a higher level of disclosure leads to lower estimation risk through the mitigation of uncertainty which results in reducing the cost of capital. When information asymmetry prevails, risky companies would pay a higher rate of interest on debts and would have a lower valuation for their stocks. It is argued that the information risk is reduced when a high level of information is reported, and hence, investors can accept a lower rate of return (Healy & Palepu, 2001). Moreover, pecking order and capital need theories can also explain the negative association between risk reporting and cost of capital. When firms are in need of liquidity, they would have the incentive to disclose more risk-related information in order to attract investors and raise capital at the lowest possible cost.

The present study uses various statistical approaches and econometric models in order to increase the robustness of the results and to eliminate the problem of endogeneity. First, the present study uses a one-year lag between the dependent variable and the independent variables in order to address the issues of omitted variables and simultaneity (Ntim, Opong, & Danbolt, 2012). Employing lagged independent variables is a helpful technique for addressing reverse causality. The results of the lagged model are compatible with the results of the main model. Second, the present study uses a random effect model in order to capture the heterogeneous characteristics among different firms that do not

change over time. The results of the random effect model are also in line with the results of the main model. Thus, the results of the current study can be described as robust.

8.3 Policy implications

This section discusses the implications for policy-makers based on the findings of the present study. Investigating the practices of the current risk disclosure has the potential to help to improve the practices in the future. This potential improvement is expected to benefit financial reports` users (investors, creditors, suppliers, etc.) in assessing the level of risk engaged in by firms and how it is being managed.

As discussed in the findings, the level of risk disclosure demonstrates a progressive increase among Saudi listed firms over the years 2012 – 2015. This finding has the following implication. Corporate governance reforms in Saudi Arabia have helped in enhancing risk disclosure practices. This suggests that the introduction of governance regulations enables the improvement of corporate governance practices, including risk disclosure, in spite of the weak legal system in emerging markets. Moreover, the recent enhancement in the Saudi context such as the adoption of IFRS and the updated version of the Saudi Corporate Governance Code is expected to provide further enhancement of the practices of risk disclosure. Similarly, the introduction of the Loss-Making Firms Procedures in 2014 has a significant and positive impact on risk disclosure as can be seen from the results of the difference-in-difference model. This can be viewed as a wise move by the Capital Market Authority.

However, the disclosure of strategic risk is found to be limited. This can be explained by the vagueness of information. it is challenging for managers to assume that the information related to strategic risk is verifiable (Miihkinen, 2013) given that strategic risks are less controllable by firms such as risks related to society, economy, or politics. This explains why companies disclose more about the financial and operational risks given that they have a high degree of impact on these categories where the disclosed information can be verified (Dobler, 2008). To overcome this issue, regulatory authorities in Saudi Arabia are encouraged to require greater emphases of the disclosure of strategic risk-related information. Amran, Bin, & Hassan (2008) find that strategic risk is the most disclosed types of risk among Malaysian firms as a result of the requirements of Bursa Malaysia.

Similarly, Saudi firms disclose a significantly lower level of quantitative risk. Quantitative disclosure represents only 16% of total disclosure. Mohobbot (2005) proposes that it is challenging to measure and quantify risks (cited by Muzahhem 2011). Also, He argues that firms' managers have less incentive to provide quantitative risk disclosure in order to avoid intense criticisms and possible legal actions when their estimation goes wrong. Hence, the present study recommends Saudi regulators to encourage the disclosure of quantitative risk information. Linsley & Shrivess (2006) argue that firms should disclose more quantitative risk-related information in order to help stakeholders to evaluate the risk engaged in by firms. Cabedo & Tirado (2004) argue that the disclosure of quantitative risk information has the potential to help annual report users in making better-informed decisions.

As can be seen from the findings, Saudi listed firms disclose less bad-news risk. Linsley & Shrivess (2006) suggest that firms' managers would not reveal bad news since they prefer to signal a bright image of their risk management performance to the market in order to avoid the reputation costs. According to a report by The Association of Chartered Certified Accountants (2014), financial analysts believe that most disclosed risk is biased toward positive disclosure. Kothari, Shu, & Wysocki (2009) argue that firms' managers have a higher propensity toward the disclosure of good news while they are reluctant to disclose bad news. In the case of negative news, managers withhold and accumulate the news until they become certain (Kothari et al., 2009). Hence, Saudi policymakers are encouraged to pay more attention to the disclosure of bad risks when introducing legislation. Regulators are mindful of the necessity of rules and guidance on how to improve risk disclosure practices. Schrand & Elliott (1998) argue that the requirements of risk disclosure should concentrate on bad risk since firms are motivated to withhold such information.

As can be seen from the results, state and inside ownerships are found to be significantly and negatively related to risk disclosure. The business environment in Saudi Arabia is characterized by government ownership concentration where the Saudi government owns 42% of the total market value. Ghazali & Weetman (2006) suggests that government ownership has the potential to discourage firms from engaging in disclosure. Similarly, McConnell & Servaes (1990) argue that insiders might use inside information to maximize their own wealth which makes the outside owners worse off. Thus, when

insiders own a small proportion of shares, they might lose the incentive to promote financial performance, and in turn, they might provide limited disclosure to externals (Eng & Mak, 2003). Shleifer & Vishny (1997) argue that if directors' ownership is large, they might have incentives to maximize their own interest by lowering the level of transparency. Thus, it is worthwhile for Saudi policymakers to distinguish between firms with higher government and inside ownership and firms with lower government and inside ownerships when passing new legislation. For example, the setting of specific thresholds for risk disclosure can be dependent on the level of state or inside ownership.

As can be also seen from the findings, there are significant variations in the level of risk disclosure based on industry type. The environmental factors that vary between sectors are expected to have significant impacts on firms' risks (Beretta & Bozzolan, 2004; Mostafa Hassan, 2009). Hence, proper legislation should have two levels of disclosure: (i) general disclosures for all companies; and (ii) industry-specific disclosures where companies provide relevant information with regards to the firm's status in relation to its industry (Albassam, 2014).

It is argued that the existence of a risk management committee on the board would be viewed as a sign of proper risk management and risk reporting (Neri, 2010). Risk reporting is a fundamental task of risk management committees. Since the risk management committee is obligated by the law to manage risk and report appropriate disclosure to the owners, the level of risk disclosure is expected to be higher for firms that appoint a risk management committee (Hassan, Saleh, & Abd-Rahman, 2008). The recently updated version of the Saudi Corporate Governance Code recommends the establishment of a risk management committee. However, the results of the present study could not confirm that risk management committee plays a positive role in risk disclosure practices in Saudi Arabia. To ensure the effectiveness of the risk management committee, Saudi regulators are advised to require that all members of the risk management committee be independent in addition to exhibiting the required experience and knowledge in relation to risk management. It is also essential to ensure that all the risk committee members have complete independence. Albassam (2014) argues that the mechanism for appointing independent directors is not apparent in Saudi companies since large shareholders retain the power to appoint independent directors.

The present study finds that there is a negative and significant association between risk disclosure and cost of capital. This implies that Saudi listed firms with higher levels of risk disclosure enjoy a lower cost of capital than their counterparts. This is considered an essential implication for Saudi investors, regulatory authorities and any other interested agents on the importance of risk disclosure in relation to lowering the cost of capital. The results of the present study have the potential to convince firms' managers to promote the disclosure of risk-related information in order to benefit from the reduction in the cost of capital.

78.4 limitations

The present study discusses intensively the practices, determinants, and consequences of risk disclosure in Saudi Arabia. However, this study is not in isolation from having a number of limitations. The limitations are as follow. First, the sample of the present study is limited to listed firms. However, there are thousands of other companies that deserve to be included in this study given their significant contribution to the Saudi economy. The decision of excluding these firms is a result of the difficulties in obtaining data for non-listed firms.

Second, the present study relies on firms' annual reports as the source of disclosure. Although the annual report is considered the main reporting document where other reports are considered supplementary to it (Knutson 1992), other risk-related information can also be found in other resources such as press-releases, firms' conference proceedings, websites, and social networking. The exclusion of these documents might have a considerable impact on the results of the present study. However, this study depends merely on the annual reports due to the accessibility of all the required data which helps in producing a dataset with the least possible missing values. Saudi listed companies are requested by the Listing Rules (Article 27) and the Company Act (Article 89) to publish annual reports at the end of the fiscal year which contains financial statements and the board of directors' report. They are also requested to release their annual reports on the Tadawul website. This gives the researcher full access to the required data resulting in a balanced panel with the least possible missing values. Third, the current study uses content analysis in order to measure the level of risk disclosure. Although the content analysis is considered a scientific technique that has the potential to generate valid results (Krippendorff, 2004), subjectivity is a major drawback of this method (Linsley & Shrives,

2006). However, the present study performs validity and reliability tests in order to mitigate this limitation³¹.

Fourth, the generalisability of the results of the present study can be further improved by using larger dataset in spite of the fact that the sample size for the current study is relatively larger than most disclosure studies in the Saudi context (e.g. Al-Bassam, Ntim, Opong, & Downs, 2016; Al-Janadi, Rahman, & Omar, 2013; Al-Maghzom, 2016; Al-Moataz & Hussainey, 2012; Albassam & Ntim, 2016; Alsaeed, 2006; Alzead, 2017; Hussainey & Al-Nodel, 2008) and existing risk disclosure studies (e.g. Linsley & Shrives 2005; Linsley & Shrives 2006; Abraham & Cox 2007; Rajab & Schachler 2009; Hassan 2009; Elzahar & Hussainey 2012; Miihkinen 2012; Semper & Beltrán 2014; Rodríguez Domínguez & Noguera Gámez 2014; Al-shammari 2014). It is challenging to improve the sample size of the present study while using manual content analysis because of the associated costs (e.g. time and efforts) given that the researcher of the present study conducts the manual coding for more than 26,620 pages. Thus, the implementation of auto-coding software would enable this study to enhance the number of observations. Hence, the generalisability of the results can be further improved. The present study could not employ the automated method for two reasons: (i) most annual reports of the sample are scanned as a picture which makes it impossible for the auto-coding software to read, and (ii) the accuracy of optical character recognition software for recognizing texts is significantly low since the annual reports are written in Arabic³².

Fifth, although the present study employs various corporate governance variables, there are other corporate governance variables that have been omitted. For instance, the present study did not consider the board leadership structure (i.e. CEO duality). Moreover, the audit committee quality (i.e. the presence of committee members with financial expertise) is also ignored. The employment of those governance variables has the potential to improve the specification of the statistical models. It would also help in understanding the roles these variables play in reducing the agency costs and improving risk disclosure practices. However, these variables could not be examined because of the unavailability of data. Specifically, the Saudi Corporate Governance Code prohibits CEO duality. Also, the

³¹ The process of conducting the validity and reliability tests has been discussed extensively in section 4.4.1.3.

³² Further details are discussed in section 4.4.1.2.

vast majority of Saudi firms do not disclose the biographies of committees' members which make it difficult to identify their financial expertise.

Sixth, the present study measures the quantity of risk disclosure instead of measuring the quality of risk disclosure. This is in line with the vast majority of risk reporting studies where they consider the quantity of provided information as a proxy for disclosure quality (e.g. Linsley & Shrives 2006; Rajab & Schachler 2009; Muzahhem 2011; Elzahar & Hussainey 2012; Elshandidy et al. 2013; Elshandidy et al. 2014; Alshammari 2014; Abdallah et al. 2015; Lopes & Rodrigues 2007; Lajili & Zéghal 2005; Abraham & Cox 2007). However, Beretta & Bozzolan (2004) suggest that researchers should concentrate on exploring what and how firms disclose about risk rather than just counting the quantity of provided information. Hence, proposing a new robust method to capture the quality of risk disclosure instead of measuring the quantity would be perceived as a significant contribution in the field of risk disclosure.

8.5 Future research avenues

The previous section presents the limitations of the present study. These limitations propose new paths for further risk disclosure research. Hence, the future research avenues suggested by the present study are as follows. First, future studies can investigate the practices of risk disclosure among Saudi non-listed firms. Although most existing empirical works are performed on listed firms, non-listed firms should also be examined given their significant contribution to the Saudi economy. Also, it would be interesting to compare risk disclosure practices and determinants between listed and non-listed companies. Second, since the present study relies on the annual report as the resource of risk disclosure, other resources such as press-releases, firms' conference proceedings, websites, and social networking could be included. The comparison of risk disclosure practices and effects between different groups of resources would also be of interest.

Third, given the associated costs (e.g. time and effort) with manual coding, future studies can implement auto-coding software in order to improve the number of observations. As a result, the generalisability of their results can be further improved. Fourth, future studies can add other corporate governance variables such as CEO duality, board meetings, audit committee quality, etc. The addition of those governance mechanisms can improve the specification of the statistical models and extend our

knowledge in relation to the effects of these variables on risk disclosure. Fifth, future research can measure risk disclosure differently. Future efforts should be spent on the development of risk disclosure indices that consider the qualitative aspects of the disclosure. The development of such indices that capture the quality of risk disclosure instead of measuring the quantity would be considered a major contribution.

Sixth, since the present study concentrates on non-financial firms, further research could be carried out to investigate the practices and effects of risk disclosure among financial firms (e.g. bank and insurance). financial firms operate differently and they are exposed to different kinds of risk because of their diverse regulations (Linsley & Shrides 2005; 2006). The different rules for regulating financial firms can result in significant differences in risk disclosure practices between financial and non-financial firms. Hence, it would be interesting to compare the differences in risk disclosure practices and determinants between financial and non-financial companies.

Seventh, mixed models of research methodology (i.e. qualitative and quantitative) can be used simultaneously to overcome some drawbacks associated with the quantitative method. The use of a qualitative approach enables future studies to investigate risk disclosure phenomenon profoundly. Hence, employing qualitative and quantitative approaches is expected to provide in-depth explanations of the determinants and consequences of risk disclosure in Saudi Arabia.

Eighth, future research avenues can include the investigation of the effect of risk disclosure on several financial variables including but not limited to stock market volatility, and information asymmetry. It would be also interesting to investigate stock returns behavior, liquidity, and trading activity around the disclosure of risk-related information.

REFERENCES

- Abd-Elsalam, O. H., & Weetman, P. (2003). Introducing International Accounting Standards to an emerging capital market: relative familiarity and language effect in Egypt. *Journal of International Accounting, Auditing and Taxation*, 12(1), 63–84.
- Abdallah, A. A., Hassan, M. K., & McClelland, P. L. (2015). Islamic financial institutions, corporate governance, and corporate risk disclosure in Gulf Cooperation Council countries. *Journal of Multinational Financial Management*, 31, 63–82.
- Abraham, S., & Cox, P. (2007). Analysing the determinants of narrative risk information in UK FTSE 100 annual reports. *The British Accounting Review*, 39(3), 227–248.
- Abraham, S., & Shrivess, P. J. (2014). Improving the relevance of risk factor disclosure in corporate annual reports. *British Accounting Review*, 46(1), 91–107.
- Abraham, S., Solomon, A., & Stevenson, J. (2007). A ranking of risk disclosure in UK annual reports. Available at SSRN.
- Abu-Tapanjeh, A. M. (2009). Corporate governance from the Islamic perspective: A comparative analysis with OECD principles. *Critical Perspectives on Accounting*, 20(5), 556–567.
- Adams, J. (2009). *Risk* (6th ed.). London: UCL.
- Adams, R. B., & Ferreira, D. (2007). A theory of friendly boards. *Journal of Finance*, 62(1), 217–250.
- Aggarwal, R., Erel, I., Ferreira, M., & Matos, P. (2011). Does governance travel around the world? Evidence from institutional investors. *Journal of Financial Economics*, 100(1), 154–181.
- Aguilera, R. V., & Cuervo-Cazurra, A. (2009). Codes of good governance. *Corporate governance: an international review*, 17(3), 376–387.
- Ahmed, K., & Courtis, J. K. (1999). Associations Between Corporate Characteristics and Disclosure Levels in Annual Reports: A Meta-Analysis. *The British Accounting Review*, 31(1), 35–61.
- Akintoye, A. S., & MacLeod, M. J. (1997). Risk analysis and management in construction. *International Journal of Project Management*, 15(1), 31–38.
- Al-Abbas, M. (2009). Corporate governance and earnings management: An empirical study of the Saudi market. *Journal of American Academy of Business, Cambridge, Hollywood*, 15(1), 301–310.

- Al-Bassam, W. M., Ntim, C. G., Opong, K. K., & Downs, Y. (2016). Corporate Boards and Ownership Structure as Antecedents of Corporate Governance Disclosure in Saudi Arabian Publicly Listed Corporations. *Business and Society*, 44(0), 1–42.
- Al-Dohaiman, M. (2008). Capital structure in Saudi Arabian listed and unlisted companies (Doctoral thesis, University of Stirling, Stirling, United Kingdom).
- Al-Filali, I. Y., & Gallarotti, G. M. (2012). Smart Development: Saudi Arabia's Quest for a Knowledge Economy. *International Studies*, 49(1–2), 47–76.
- Al-Hadi, A. (2015). Three Essays on Market Risk Disclosures: Corporate Governance, Investment Efficiency and Implied Cost of Equity Capital: Evidence from Gulf Cooperation Council Countries (Doctoral thesis, Curtin university, Perth, Australia).
- Al-Janadi, Y., Rahman, R. A., & Haj Omar, N. (2013). Corporate Governance Mechanisms and Voluntary Disclosure in Saudi Arabia. *Research Journal of Finance and Accounting*, 4(4), 25–35.
- Al-Maghzom, A. (2016). The Determinants and Consequences of Risk Disclosure in Saudi Banks (Doctoral thesis, University of Gloucestershire, United Kingdom).
- Al-Maghzom, A., Hussainey, K., & Aly, D. (2016a). Corporate governance and risk disclosure: Evidence from Saudi Arabia. *Corporate Ownership and Control*, 13(2), 145–166.
- Al-Maghzom, A., Hussainey, K., & Aly, D. (2016b). The level of risk disclosure in listed banks: Evidence from Saudi Arabia. *Corporate Ownership & Control*, 14(1), 175–194.
- Al-Moataz, E., & Hussainey, K. (2012). Determinants of corporate governance disclosure in Saudi companies. *Journal of Economics and Management*, 1, 1–24.
- Al-Nodel, A., & Hussainey, K. (2010). Corporate Governance and Financing Decisions by Saudi Companies. *Journal of Modern Accounting and Auditing*, 6(8), 1–14.
- Al-Saati, A.-R. (2003). The Permissible Gharar (Risk) in Classical Islamic Jurisprudence. *JKAU: Islamic Economics*, 16(2), 3–19.
- Al-shammari, B. (2014). An Investigation of the Impact of Corporate Governance Mechanisms on Level of Corporate Risk Disclosure : Evidence from Kuwait. *International Journal of Business and Social Research*, 4(6), 51–70.
- Al-Shamrani, A. S. (2014). Islamic financial contracting forms in Saudi Arabia: Law and practice (Doctoral thesis, Brunel University, United Kingdom).
- Al-Razeen, A., & Karbhari, Y. (2004). Interaction between compulsory and voluntary disclosure in Saudi Arabian corporate annual reports. *Managerial Auditing Journal*, 19(3), 351–360.

- Albassam, W. (2014). *Corporate Governance , Voluntary Disclosure and Financial Performance : An Empirical Analysis of Saudi Listed Firms Using A Mixed-Methods Research Design* (Doctoral thesis, University of Glasgow, United Kingdom).
- Albassam, W. M., & Ntim, C. G. (2016). The effect of Islamic values on voluntary corporate governance disclosure: The case of Saudi listed firms. *Journal of Islamic Accounting and Business Research*, 8(2), 182–202.
- Aleshaikh, A. M. (2018). *Towards Legal Reform of Saudi Law of Directors ' Duties and of Enforcement by Derivative Action* (Doctoral thesis, University of Glasgow, United Kingdom).
- Aljifri, K., & Hussainey, K. (2007). The determinants of forward-looking information in annual reports of UAE companies. *Managerial Auditing Journal*, 22(9), 881–894.
- Almanshawi, A. (2018). Obaid Alzoabi: precautionary procedures for loss-making firms. *Emaratalyoun*.
- Alosimi, M. (2011). *Reading financial statements methodology*. Retrieved from <http://www.halal2.com>
- Alsaeed, K. (2006). The association between firm-specific characteristics and disclosure: The case of Saudi Arabia. *Managerial Auditing Journal*, 21(5), 476–496.
- Alves, S. (2012). Ownership Structure and Earnings Management : Evidence from Portugal Ownership Structure and Earnings Management : Evidence from Portugal. *Australian Accounting Business and Finance Journal*, 6(1), 57–74.
- Alzead, R., & Hussainey, K. (2017). Risk disclosure practice in Saudi non-financial listed companies. *Corporate Ownership and Control*, 14(4-1), 262–275
- Alzead, R. S. (2017). *The Determinants and Economic Consequences of Risk Disclosure : Evidence from Saudi Arabia* (Doctoral thesis, University of Portsmouth, United Kingdom).
- Amihud, Y., & Mendelson, H. (1986). Liquidity and stock returns. *Financial Analysts Journal*, 42(3), 43–48.
- Amran, A., Bin, A., & Hassan, B. (2008). Risk reporting: An exploratory study on risk management disclosure in Malaysian annual reports. *Managerial Auditing Journal*, 24(1), 39–57.
- Ansell, J., & Wharton, F. (1992). *Risk: Analysis, assessment and management*. Wiley.
- Aribi, Z., & Gao, S. S. (2011). "Narrative disclosure of corporate social responsibility in Islamic financial institutions. *Managerial Auditing Journal*, 27(2), 199–222.
- Arnold, G. (2007). *Essentials of corporate financial management*. Pearson Education.

- ASB. (1994). FRS 5: Reporting the Substance of Transactions. London: Accounting Standards Board.
- Audretsch, D. B., & Lehmann, E. (2006). Entrepreneurial access and absorption of knowledge spillovers: Strategic board and managerial composition for competitive advantage. *Journal of Small Business Management*, 44(2), 155–166.
- Ayub, M. (2007). *Understanding Islamic Finance*. John Wiley & Sons.
- Barakat, A., & Hussainey, K. (2013). Bank governance, regulation, supervision, and risk reporting: Evidence from operational risk disclosures in European banks. *International Review of Financial Analysis*, 30, 254–273.
- Barry, C. B., & Brown, S. J. (1985). Differential information and security market equilibrium. *Journal of Financial and Quantitative Analysis*, 20(4), 407–422.
- Barry, C. B., & Brown, S. J. (1986). Limited information as a source of risk. *The Journal of Portfolio Management*, 12(2), 66–72.
- Baydoun, N., Maguire, W., Ryan, N., & Willett, R. (2012). Corporate governance in five Arabian Gulf countries. *Managerial Auditing Journal*, 28(1), 7–22.
- Beasley, M. (1996). An empirical analysis of the relation between the board of director composition and financial statement fraud. *Accounting Review*, 443–465.
- Beattie, V., McInnes, B., & Fearnley, S. (2004). A methodology for analysing and evaluating narratives in annual reports: A comprehensive descriptive profile and metrics for disclosure quality attributes. *Accounting Forum*, 28(3), 205–236.
- Bebchuk, L. A., & Weisbach, M. S. (2010). The State of Corporate Governance Research. *Review of Financial Studies*, 23(3), 939–961.
- Beck, T. (2011). Finance and Oil: Is There a Resource Curse in Financial Development? *SSRN Electronic Journal*.
- Beiner, S., Drobetz, W., Schmid, M. M., & Zimmermann, H. (2006). An integrated framework of corporate governance and firm valuation. *European Financial Management*, 12(2), 249–283.
- Bell, E., & Bryman, A. (2007). The ethics of management research: an exploratory content analysis. *British Journal of Management*, 18(1), 63–77.
- Beretta, S., & Bozzolan, S. (2004). A framework for the analysis of firm risk communication. *The International Journal of Accounting*, 39(3), 265–288.
- Beretta, S., & Bozzolan, S. (2008). Quality versus Quantity : The Case of Forward-Looking Disclosure. *Disclosure*, *Journal of Accounting, Auditing and Finance*, 15(3), 333–375.

- Berk, J. B., & van Binsbergen, J. H. (2017). How Do Investors Compute the Discount Rate? They Use the CAPM. *Financial Analysts Journal*, 73(2), 25.
- Bierman, H. (1993). Capital budgeting in 1992: a survey. *Financial Management*, 22(3), 24.
- Bindabel, A. W. (2017). The Influence of Shariah (Islamic Principles) Corporate Governance on Cross-Border Merger and Acquisitions Involving Islamic Companies in the Gulf Countries Wardah (Doctoral thesis, De Montfort University, United Kingdom).
- Bischof, J. (2009). The effects of IFRS 7 adoption on bank disclosure in Europe. *Accounting in Europe*, 6(2), 167–194.
- Bloomfield, R. J., & Wilks, T. J. (2000). Disclosure effects in the laboratory: Liquidity, depth, and the cost of capital. *The Accounting Review*, 75(1), 13–41.
- Börsch-Supan, A., & Köke, J. (2002). An applied econometricians' view of empirical corporate governance studies. *German Economic Review*, 3(3), 295–326.
- Botosan, C. a. (1997). Disclosure level and the cost of equity capital. *Accounting Review*, 72(3), 323–349.
- Botosan, C. A. (2004). Discussion of a framework for the analysis of firm risk communication, 39, 289–295.
- Botosan, C. A., & Plumlee, M. A. (2005). Assessing alternative proxies for the expected risk premium. *The Accounting Review*, 80(1), 21–53.
- Bowman, E. . (1984). Content analysis of annual reports for corporate strategy and risk. *Interfaces*, 14, 61–71.
- Boytsun, A., Deloof, M., & Matthyssens, P. (2011). Social Norms, Social Cohesion, and Corporate Governance. *Corporate Governance: An International Review*, 19(1), 41–60.
- Bozec, R., & Bozec, Y. (2012). The use of governance indexes in the governance-performance relationship literature: International evidence. *Canadian Journal of Administrative Sciences*, 29(1), 79–98.
- Bozec, Y., Laurin, C., & Meier, I. (2014). The relation between excess control and cost of capital. *International Journal of Managerial Finance*, 10(1), 93–114.
- Brown, S. (1979). The effect of estimation risk on capital market equilibrium. *Journal of Financial and Quantitative Analysis*, 14(2), 215–220.
- Bruner, G. C., & Hensel, P. J. (1998). *Marketing Scales Handbook: A Compilation of Multi-Item Measures Volume II*, Chicago, IL: American Mark. Association.

- Buckby, S., Gallery, G., & Ma, J. (2015). An analysis of risk management disclosures: Australian evidence. *Managerial Auditing Journal*, 30(8/9), 812–869.
- Byun, H.-Y. (2007). The cost of debt capital and corporate governance practices. *Asia-Pacific Journal of Financial Studies*, 36(5), 765–806.
- Cabedo, J. D., & Tirado, J. M. (2004). The disclosure of risk in financial statements. *Accounting Forum*, 28(2), 181–200.
- Campbell, D. (2001). Voluntary Disclosure of Mission Statements in Corporate Annual Reports: Signaling What and To Whom? *Business & Society Review* (00453609), 106(1), 65.
- Canepa, A., & Ibnrubbian, A. (2014). Does faith move stock markets? Evidence from Saudi Arabia. *Quarterly Review of Economics and Finance*, 54(4), 538–550.
- Carlson, M., Fisher, A., & Giammarino, R. (2004). Corporate investment and asset price dynamics: implications for the cross-section of returns. *The Journal of Finance*, 59(6), 2577–2603.
- Chen, C., & Jaggi, B. (2000). Association between independent non-executive directors, family control and financial disclosures in Hong Kong. *Journal of Accounting and Public Policy*, 19(4), 285–310.
- Cheng, E. C. M., & Courtenay, S. M. (2006). Board composition, regulatory regime and voluntary disclosure. *The International Journal of Accounting*, 41(3), 262–289.
- Chiodo, G. T., Tolle, S. W., & Bevan, L. (2000). Placebo-controlled trials: good science or medical neglect? *The Western Journal of Medicine*, 172(4), 271–273.
- Choi, F. D. S. (1973). Financial Disclosure and Entry to the European Capital Market. *Journal of Accounting Research*, 11(2), 159–175.
- Chow, C. W. (1982). The demand for external auditing: Size, debt and ownership influences. *Accounting Review*, 272–291.
- Chu, E. Y., & Cheah, K. G. (2010). Does ownership structure matter? Evidence from Malaysian equity market.
- Chung, K. H., & Zhang, H. (2011). Corporate governance and institutional ownership. *Journal of Financial and Quantitative Analysis*, 46(1), 247–273.
- Clarkson, P., Guedes, J., & Thompson, R. (1996). On the diversification, observability, and measurement of estimation risk. *Journal of Financial and Quantitative Analysis*, 31(1), 69–84.
- CMA. (n.d.). Saudi Corporate Governance Code. Retrieved from <https://cma.org.sa/en/AboutCMA/Pages/AboutCMA.aspx>

- Coles, J. L., & Loewenstein, U. (1988). Equilibrium pricing and portfolio composition in the presence of uncertain parameters. *Journal of Financial Economics*, 22(2), 279–303.
- Coles, J. L., Loewenstein, U., & Suay, J. (1995). On equilibrium pricing under parameter uncertainty. *Journal of Financial and Quantitative Analysis*, 30(3), 347–364.
- Cooke, T. E. (1989). Disclosure in the Corporate Annual Reports of Swedish Companies. *Accounting and Business Research*, 19(4), 113–124.
- Cooke, T. E. (1993). Disclosure in Japanese corporate annual reports. *Journal of Business Finance & Accounting*, 20(4), 521–535.
- Cooke, T. E., & Wallace, R. S. O. (1989b). Global surveys of corporate disclosure practices and audit firms: a review essay. *Accounting and Business Research*, 20(77), 47–57.
- Cooper, I. (2006). Asset pricing implications of nonconvex adjustment costs and irreversibility of investment. *The Journal of Finance*, 61(1), 139–170.
- Copeland, T. E., & Galai, D. (1983). Information effects on the bid-ask spread. *The Journal of Finance*, 38(5), 1457–1469.
- Craven, B. M., & Marston, C. L. (1999). Financial reporting on the Internet by leading UK companies. *European Accounting Review*, 8(2), 321–333.
- Damodaran, A. (2007). *Strategic risk taking: a framework for risk management*. Pearson Prentice Hall.
- Darrough, M. N., & Stoughton, N. M. (1990). Financial disclosure policy in an entry game. *Journal of Accounting and Economics*, 12(1–3), 219–243.
- DeAngelo, L. E. (1981). Auditor size and audit quality. *Journal of Accounting and Economics*, 3(3), 183–199.
- Deesomsak, R., Paudyal, K., & Pescetto, G. (2004). The determinants of capital structure: evidence from the Asia Pacific region. *Journal of Multinational Financial Management*, 14(4), 387–405.
- Demsetz, H. (1968). The cost of transacting. *The Quarterly Journal of Economics*, 33–53.
- Depoers, F. (2000). A cost benefit study of voluntary disclosure: Some empirical evidence from French listed companies. *European Accounting Review*, 9(2), 245–263.
- Deumes, R. (2008). Corporate Risk Reporting: A Content Analysis of Narrative Risk Disclosures in Prospectuses. *Journal of Business Communication*, 45(2), 120–157.
- Deumes, R., & Knechel, W. R. (2008). Economic incentives for voluntary reporting on internal risk management and control systems. *Auditing: A Journal of Practice & Theory*, 27(1), 35–66.

- Diamond, D. W., & Verrecchia, R. E. (1991). Disclosure, liquidity, and the cost of capital. *The Journal of Finance*, 46(4), 1325–1359.
- Dictionary, C. (2002). Cambridge dictionaries online.
- Dillard, J. F., Rigsby, J. T., Goodman, C., Dillard, J. F., Rigsby, J. T., & Goodman, C. (2004). The making and remaking of organization context: Duality and the institutionalization process. *Accounting, Auditing & Accountability Journal*, 17(4), 506–542.
- Dobler, M. (2008). Incentives for risk reporting — A discretionary disclosure and cheap talk approach. *The International Journal of Accounting*, 43(2), 184–206.
- Doherty, N. (2000). Integrated risk management: Techniques and strategies for managing corporate risk. McGraw Hill Professional.
- Domínguez, L., & Gámez, L. (2014). Corporate reporting on risks: Evidence from Spanish companies. *Revista de Contabilidad*, 17(2), 116–129.
- Donaldson, G. (1961). Corporate debt capacity: A study of corporate debt policy and the determination of corporate debt capacity. Beard Books.
- Donnelly, R., & Mulcahy, M. (2008). Board structure, ownership, and voluntary disclosure in Ireland. *Corporate Governance: An International Review*, 16(5), 416–429.
- Dye, R. a. (1986). Proprietary and Nonproprietary Disclosures. *The Journal of Business*, 59(2), 331.
- Elghuweel, M. (2015). Empirical Essays on Corporate Governance and Corporate Decisions in Emerging Economies : The Case of Oman (Doctoral thesis, University of Glasgow, United Kingdom).
- Elmiger, G., & Kim, S. S. (2003). *RiskGrade your investments: measure your risk and create wealth*. John Wiley & Sons.
- Elshandidy, T. (2011). *Risk Reporting Incentives : A Cross-Country Study* (Doctoral thesis, University of Stirling, United Kingdom).
- Elshandidy, T., Fraser, I., & Hussainey, K. (2013). Aggregated, voluntary, and mandatory risk disclosure incentives: Evidence from UK FTSE all-share companies. *International Review of Financial Analysis*, 30, 320–333.
- Elshandidy, T., Fraser, I., & Hussainey, K. (2014). What drives mandatory and voluntary risk reporting variations across Germany, UK and US? *British Accounting Review*.

- Elshandidy, T., & Shrivess, P. J. (2016). Environmental Incentives for and Usefulness of Textual Risk Reporting: Evidence from Germany. *The International Journal of Accounting*, 51(4), 464–486.
- Elzahar, H., & Hussainey, K. (2012). Determinants of narrative risk disclosures in UK interim reports. *The Journal of Risk Finance*, 13(2), 133–147.
- Eng, L. L., & Mak, Y. T. (2003). Corporate governance and voluntary disclosure. *Journal of Accounting and Public Policy*, 22(4), 325–345.
- Fama, E. F., & French, K. R. (1995). Size and book-to-market factors in earnings and returns. *The Journal of Finance*, 50(1), 131–155.
- Fama, E. F., & French, K. R. (1997). Industry costs of equity. *Journal of Financial Economics*, 43(2), 153–193.
- Fama, E. (1980). Agency Problems and the Theory of the Firm. *Journal of Political Economy*, Vol. 88, No. 2, Pp.288-307.
- Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *The Journal of Law and Economics*, 26(2), 301–325.
- Fich, E.M. and A. Shivdasani, 2006, “Are Busy Boards Effective Monitors? *Journal of Finance* 61, 689-724.
- Fields, L. P., Fraser, D. R., & Subrahmanyam, A. (2012). Board quality and the cost of debt capital: The case of bank loans. *Journal of Banking & Finance*, 36(5), 1536–1547.
- Field, L., Lowry, M., & Mkrtychyan, A. (2013). Are busy boards detrimental?. *Journal of Financial Economics*, 109(1), 63-82.
- Filatotchev, I., & Boyd, B. (2009). Taking Stock of Corporate Governance Research While Looking to the Future. *Corporate Governance: An International Review*, 17(3), 257–265.
- Firth, M. (1979). The Impact of Size, Stock Market Listing, and Auditors on Voluntary Disclosure in Corporate Annual Reports. *Accounting and Business Research*, 9(36), 273–280.
- Firth, M. (1980). Raising Finance and Firms’ Corporate Reporting Policies. *Abacus*, 16(2), 100–115.
- Forbes, D. P., & Milliken, F. J. (1999). Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups. *Academy of Management Review*, 24(3), 489–505.
- Foster, G. (1978). *Financial Statement Analysis*, 2/e. Pearson Education India.

- Francis, B., Hasan, I., & Wu, Q. (2014). Professors in the Boardroom and Their Impact on Corporate Governance and Firm Performance. *Financial Management*, 94(2), 291–309.
- Frecka, T. J., & Hopwood, W. S. (1983). The effects of outliers on the cross-sectional distributional properties of financial ratios. *Accounting Review*, 115–128.
- Gertler, P. J., Martinez, S., Premand, P., Rawlings, L. B., & Vermeersch, C. M. J. (2011). *Impact Evaluation in Practice*. The World Bank.
- Ghazali, N. A. M., & Weetman, P. (2006). Perpetuating traditional influences: Voluntary disclosure in Malaysia following the economic crisis. *Journal of International Accounting, Auditing and Taxation*, 15(2), 226–248.
- Glosten, L. R., & Milgrom, P. R. (1985). Bid, ask and transaction prices in a specialist market with heterogeneously informed traders. *Journal of Financial Economics*, 14(1), 71–100.
- Gordon, M. J. (1959). Dividends, earnings, and stock prices. *The Review of Economics and Statistics*, 99–105.
- Gordon, M. J., & Shapiro, E. (1956). Capital equipment analysis: the required rate of profit. *Management Science*, 3(1), 102–110.
- Graham, J. R., & Harvey, C. R. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, 60(2–3), 187–243.
- Greco, G. (2012). The management's reaction to new mandatory risk disclosure: A longitudinal study on Italian listed companies. *Corporate Communications: An International Journal*, 17(2), 113–137.
- Guan, Y. D., Sheu, D. F., & Chu, Y. C. (2007). Ownership structure, board of directors, and information disclosure: Empirical evidence from Taiwan IC design companies. *Journal of American Academy of Business*, 11(2), 182–190.
- Gujarati, D. N., & Porter, D. C. (2003). *Basic Econometrics*. 4th. New York: McGraw-Hill.
- Gulko, N., Hyde, C., & Seppala, N. (2017). Disclosure of corporate risks and governance before, during and after the global financial crisis: Case study in the UK construction industry in 2006-2009. *International Journal of Disclosure and Governance*, 14(3), 207–223.
- Hail, L. (2002). The impact of voluntary corporate disclosures on the ex-ante cost of capital for Swiss firms. *European Accounting Review*, 11(4), 741–773.
- Hambrick, Donald C.; Mason, Phyllis A. (1984). Upper Echelons: The Organization as a Reflection of Its Top Managers. *The Academy of Management Review*. 9 (2): 193–206.

- Handa, P., & Linn, S. C. (1993). Arbitrage pricing with estimation risk. *Journal of Financial and Quantitative Analysis*, 28(1), 81–100.
- Haniffa, R., & Hudaib, M. (2006). Corporate governance structure and performance of Malaysian listed companies. *Journal of Business Finance & Accounting*, 33(7-8), 1034–1062.
- Haniffa, R., & Hudaib, M. (2007a). Exploring the Ethical Identity of Islamic Banks via Communication in Annual Reports. *Journal of Business Ethics*, 76(1), 97–116.
- Haniffa, R., & Hudaib, M. (2007b). Locating audit expectations gap within a cultural context: The case of Saudi Arabia. *Journal of International Accounting, Auditing and Taxation*, 16(2), 179–206.
- Haniffa, R. M., & Cooke, T. E. (2002). Culture, corporate governance and disclosure in Malaysian corporations. *Abacus*, 38(3), 317–349.
- Haniffa, R. M., & Cooke, T. E. (2005). The impact of culture and governance on corporate social reporting. *Journal of Accounting and Public Policy*, 24(5), 391–430.
- Hasher, L., Goldstein, D., & Toppino, T. (1977). Frequency and the conference of referential validity. *Journal of Verbal Learning and Verbal Behavior*, 16(1), 107–112.
- Hassan, M. (2009). Firm Characteristics and risk disclosure in the UAE. *Managerial Auditing Journal*, 24(7), 668–687.
- Hassan, M., Saleh, N., & Abd-Rahman, M. (2008). Determinants of Financial Instruments Disclosure Quality among Listed Firms in Malaysia. *SSRN Electronic Journal*
- Healy, P. M., Hutton, A. P., & Palepu, K. G. (1999). Stock performance and intermediation changes surrounding sustained increases in disclosure. *Contemporary Accounting Research*, 16(3), 485–520.
- Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, 31(1–3), 405–440.
- Henry, D. (2008). Corporate governance structure and the valuation of Australian firms: is there value in ticking the boxes? *Journal of Business Finance & Accounting*, 35(7-8), 912–942.
- Hernández Madrigal, M., Aibar Guzmán, B., & Aibar Guzmán, C. (2015). Determinants of corporate risk disclosure in large Spanish companies: a snapshot. *Contaduría Y Administración*, 60(4), 757–775.
- Hornby, A. S., & Wehmeier, S. (1995). Oxford advanced learner's dictionary (Vol. 1428). Oxford university press.

- Huafang, X., & Jianguo, Y. (2007). Ownership structure, board composition and corporate voluntary disclosure: Evidence from listed companies in China. *Managerial Auditing Journal*, 22(6), 604–619.
- Hussain, J. (1999). *Islamic Law and Society*. Elgar.
- Hussainey, K., & Al-Nodel, A. (2008). Corporate governance online reporting by Saudi listed companies. *Research in Accounting in Emerging Economics*, 8, 39–64.
- Hussainey, K., & Al-Najjar, B. (2012). Understanding the determinants of RiskMetrics/ISS Ratings of the quality of UK companies' corporate governance practice. *Canadian Journal of Administrative Sciences/Revue Canadienne Des Sciences de l'Administration*, 29(4), 366–377.
- Ibrahim, A. E. A., & Hussainey, K. (2019). Developing the narrative risk disclosure measurement. *International Review of Financial Analysis*, 64, 126-144.
- ICAEW. (1997). *Financial Reporting of Risk-Proposals for a Statement of Business Risk*. Financial Reporting Committee, Institute of Chartered Accountants in England and Wales London.
- ICAEW, N. (1999). *Surprises: The Case for Better Risk Reporting*. London: ICAEW.
- IFAC. (1999). *Enhancing shareholder wealth by better managing business risk* New. International Federation of Accountants.
- Inchausti, B. G. (1997). The influence of company characteristics and accounting regulation on information disclosed by Spanish firms. *European Accounting Review*, 6(1), 45–68.
- Jensen, M. C. (1986). Agency Costs of Free Cash Flow , Corporate Finance , and Takeovers Agency Costs of Free Cash Flow , Corporate Finance , and Takeovers. *American Economic Review*, 76(2), 323–329.
- Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance*, 48(3), 831–880.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm : Managerial Behavior , Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3(4), 305–360.
- Jia, J., Munro, L., & Buckby, S. (2016). Article information : “ richness ”) of risk management disclosure. Working paper, *Queensland University of Technology*.
- Jiang, B., & Murphy, P. J. (2007). Do business school professors make good executive managers? *The Academy of Management Perspectives*, 21(3), 29–50.
- Jorion, P. (1997). *Value at Risk: The New Benchmark in Controlling Market Risk*. Irwin, Chicago, 1, 997.

- Kamlam, R., & Robert, C. (2010). The global and the local: Arabian Gulf States and imagery in annual reports. *Accounting, Auditing & Accountability Journal*, 23(4), 449–481.
- Kantor, J., Roberts, C. B., & Salter, S. B. (1995). Financial reporting practices in selected Arab countries: An empirical study of Egypt, Saudi Arabia, and the United Arab Emirates. *International Studies of Management & Organization*, 25(3), 31–50.
- Kaplan, S., & Garrick, B. J. (1981). On the quantitative definition of risk. *Risk Analysis*, 1(1), 11–27.
- Kester, G. W., & Chang, R. P. (1999). Capital budgeting practices in the Asia-pacific region: Australia, Hong Kong, Indonesia, Malaysia, Philippines, and Singapore. *Financial Practice and Education*, 9(1), 25–33.
- Khan, M. Y. (2016). Corporate Governance and Cost of Capital : Evidence from Pakistani Listed Firms (Doctoral thesis, University of Glasgow, United Kingdom).
- Khelif, H., Ahmed, K., & Souissi, M. (2016). Ownership structure and voluntary disclosure: A synthesis of empirical studies. *Australian Journal of Management*, 42(3), 376–403.
- Kim, O., & Verrecchia, R. E. (1994). Market liquidity and volume around earnings announcements. *Journal of Accounting and Economics*, 17(1–2), 41–67.
- Klapper, L. F., & Love, I. (2004). Corporate governance, investor protection, and performance in emerging markets. *Journal of Corporate Finance*, 10(5), 703–728.
- Klein, R. W., & Bawa, V. S. (1976). The effect of estimation risk on optimal portfolio choice. *Journal of Financial Economics*, 3(3), 215–231.
- Knutson, P. (1992). Financial Reporting in the 1990's and Beyond: An Executive Summery. *Financial Analysts Journal*, 48(6), 21–23.
- Koirala, S., Marshall, A., Neupane, S., & Thapa, C. (2018). Corporate governance reform and risk-taking: Evidence from a quasi-natural experiment in an emerging market. *Journal of Corporate Finance*, (August), 1–22.
- Konishi, N., & Ali, M. M. (2007). Risk reporting of Japanese companies and its association with corporate characteristics. *International Journal of Accounting, Auditing and Performance Evaluation*, 4(3), 263–285.
- Kothari, S. P., Shu, S., & Wysocki, P. D. (2009). Do managers withhold bad news? *Journal of Accounting Research*, 47(1), 241–276.
- Krippendorff, K. (2004). Reliability in content analysis. *Human Communication Research*, 30(3), 411–433.
- Kyle, A. S. (1985). Continuous auctions and insider trading. *Econometrica: Journal of the Econometric Society*, 1315–1335.

- La, F., & Liberatore, G. (2014). Biopharmaceutical and chemical firms' R&D disclosure, and cost of equity: The impact of the regulatory regime. *European Management Journal*, 32(5), 806–820.
- Laidroo, L. (2009). Association between ownership structure and public announcements' disclosures. *Corporate Governance: An International Review*, 17(1), 13–34.
- Lajili, K., & Zéghal, D. (2005). A Content Analysis of Risk Management Disclosures in Canadian Annual Reports. *Canadian Journal of Administrative Sciences / Revue Canadienne Des Sciences de l'Administration*, 22(2), 125–142.
- Larcker, D. F., & Rusticus, T. O. (2010). On the use of instrumental variables in accounting research. *Journal of Accounting and Economics*, 49(3), 186–205.
- Lee, T. A. (2007). *Financial reporting and corporate governance*. John Wiley & Sons.
- Lev, B., & Penman, S. (1990). Voluntary forecast disclosure, nondisclosure, and stock prices. *Journal of Accounting Research*, 28(1), 49–76.
- Linsley, P. M., & Crumpton, M. (2006). Risk disclosure: an exploratory study of UK and Canadian banks. *Journal of Banking Regulation*, 7(3–4), 268–282.
- Linsley, P. M., & Shrivies, P. J. (2005). Examining risk reporting in UK public companies. *The Journal of Risk Finance*, 6(4), 292–305.
- Linsley, P. M., & Shrivies, P. J. (2006). Risk reporting: A study of risk disclosures in the annual reports of UK companies. *British Accounting Review*, 38(4), 387–404.
- Linsley, P., & Shrivies, P. (2000). Risk management and reporting risk in the UK. *Journal of Risk*, 3, 115–129.
- Lombard, M., Snyder-Duch, J., & Bracken, C. C. (2010). Intercoder reliability. Retrieved from http://matthewlombard.com/reliability/index_print.html
- Lopes, L. L. (1987). Between hope and fear: The psychology of risk. *Advances in Experimental Social Psychology*, 20(3), 255–295.
- Lopes, P. T., & Rodrigues, L. L. (2007). Accounting for financial instruments: An analysis of the determinants of disclosure in the Portuguese stock exchange. *International Journal of Accounting*, 42(1), 25–56.
- Maffei, M., Aria, M., Fiondella, C., Spanò, R., & Zagaria, C. (2014). (Un)useful risk disclosure: explanations from the Italian banks. *Managerial Auditing Journal*, 29(7), 621–648.
- Marshall, A., & Weetman, P. (2007). Modelling Transparency in Disclosure: The Case of Foreign Exchange Risk Management. *Journal of Business Finance & Accounting*, 34(5–6), 705–739.

- Marston, C. L., & Shrikes, P. J. (1991). The use of disclosure indices in accounting research: a review article. *The British Accounting Review*, 23(3), 195–210.
- Marston, C. L., & Shrikes, P. J. (1996). A review of the development and use of explanatory models in financial disclosure studies. *19th Annual European Accounting Association Congress, Norway*.
- Martikainen, M., Miihkinen, A., Kinnunen, J., & Trober, P. (2015). Board's Financial Incentives, Competence, and Firm Risk Disclosure Evidence from Finnish index listed companies, *16*(3), 333–357.
- McConnell, J. J., & Servaes, H. (1990). Additional evidence on equity ownership and corporate value. *Journal of Financial Economics*, 27(2), 595–612.
- Meek, G. K., Roberts, C. B., & Gray, S. J. (1995). Factors influencing voluntary annual report disclosures by US, UK and continental European multinational corporations. *Journal of International Business Studies*, 555–572.
- Meier, I., & Tarhan, V. (2007). Corporate investment decision practices and the hurdle rate premium puzzle. Available at SSRN 960161.
- Merton, R. C. (1987). A simple model of capital market equilibrium with incomplete information. *The Journal of Finance*, 42(3), 483–510.
- Miihkinen, A. (2012). What Drives Quality of Firm Risk Disclosure? *The International Journal of Accounting*, 47(4), 437–468.
- Miihkinen, A. (2013). The usefulness of firm risk disclosures under different firm riskiness, investor-interest, and market conditions: New evidence from Finland. *Advances in Accounting*, 29(2), 312–331.
- Milne, M. J., & Adler, R. W. (1999). Exploring the reliability of social and environmental disclosures content analysis. *Accounting, Auditing & Accountability Journal*, 12(2), 237–256.
- Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: a correction. *The American Economic Review*, 433–443.
- Mohd Ali, M., & Taylor, D. (2014). Content analysis of corporate risk disclosure in Malaysia. *4th Annual International Conference on Accounting and Finance*, 9, 25–34.
- Mohobbot, A. M. (2005). Corporate risk reporting practices in annual reports of Japanese companies. *国際会計研究学会年報*, 113–133.
- Mokhtar, E. S. (2010). Investigating Risk Reporting Practices in Egypt (Doctoral thesis, Cardiff University, United Kingdom).
- Mokhtar, E. S., & Mellett, H. (2013). Competition, corporate governance, ownership structure and risk reporting. *Managerial Auditing Journal*, 28(9), 838–865.

- Morris, R. D. (1987). Signalling, Agency Theory and Accounting Policy Choice. *Accounting and Business Research*, 18(69), 47–56.
- Muzahhem, A. (2011). An empirical analysis on the practice and determinants of risk disclosure in an emerging capital market: the case of United Arab Emirates, (Doctoral thesis, University of Portsmouth, United Kingdom).
- Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5(2), 147–175.
- Myers, S. C. (1984). The capital structure puzzle. *The Journal of Finance*, 39(3), 574–592.
- Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187–221.
- Naem, S. (2012). Financial structure of UK firms : The influence of credit ratings (Doctoral thesis, University of Glasgow, United Kingdom).
- Neri, L. (2010). The informative Capacity of risk disclosure: Evidence from Italian Stock market. Available at SSRN 1651504.
- Ness, K. E., & Mirza, a. M. (1991). Corporate social disclosure: A note on a test of agency theory. *The British Accounting Review*, 23(3), 211–217.
- Neuendorf, K. A. (2002). The content analysis guidebook. Sage.
- Ntim, C. G., Lindop, S., & Thomas, D. a. (2013). Corporate governance and risk reporting in South Africa: A study of corporate risk disclosures in the pre- and post-2007/2008 global financial crisis periods. *International Review of Financial Analysis*, 30, 363–383.
- Ntim, C. G., Opong, K. K., & Danbolt, J. (2012). The relative value relevance of shareholder versus stakeholder corporate governance disclosure policy reforms in South Africa. *Corporate Governance*, 20(1), 84–105.
- Ntim, C. G., Opong, K. K., Danbolt, J., & Thomas, D. A. (2012). Voluntary corporate governance disclosures by post-apartheid South African corporations. *Journal of Applied Accounting Research*, 13(2), 122–144.
- Ntim, C. G., & Soobaroyen, T. (2013). Black Economic Empowerment Disclosures by South African Listed Corporations: The Influence of Ownership and Board Characteristics. *Journal of Business Ethics*, 116(1), 121–138.
- Oliveira, J., Rodrigues, L. L., & Craig, R. (2011). Risk-related disclosures by non-finance companies: Portuguese practices and disclosure characteristics. *Managerial Auditing Journal*, 26(9), 817–839.

- Ozkan, A. (2001). Determinants of capital structure and adjustment to long run target: Evidence from UK company panel data. *Journal of Business Finance and Accounting*, 28(1–2), 175–198.
- Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies*, 22(1), 435–480.
- Peterson, M. A., & Rajan, R. G. (1994). The effect of credit market competition on lending relationships. National Bureau of Economic Research.
- Pham, P. K., Suchard, J.-A., & Zein, J. (2012). Corporate Governance and the Cost of Capital: Evidence from Australian Companies. *Journal of Applied Corporate Finance*, 24(3), 84–93.
- Piot, C., & Missonier-Piera, F. (2007). Corporate governance, audit quality and the cost of debt financing of French listed companies. *Communication Présentée Au 28ème Congrès de l'Association Francophone de Comptabilité, Poitiers*.
- Pittman, J. A., & Fortin, S. (2004). Auditor choice and the cost of debt capital for newly public firms. *Journal of Accounting and Economics*, 37(1), 113–136.
- Prencipe, A. (2004). Proprietary costs and determinants of voluntary segment disclosure: evidence from Italian listed companies. *European Accounting Review*, 13(2), 319–340.
- Rajab, B. (2009). Corporate Risk Disclosure: Its Determinants and its Impact on the Company's Cost of Capital (Doctoral Thesis, Edinburgh Napier University, United Kingdom).
- Rajab, B., & Schachler, M. H. (2009). Corporate risk disclosure by UK firms: trends and determinants. *World Review of Entrepreneurship, Management and Sustainable Development*, 5(3), 224.
- Ramly, Z. (2013). Corporate governance , shareholder monitoring and cost of debt in Malaysia. *International Journal of Social, Management, Economics and Business Engineering*, 7(4), 494–505.
- Rattanataipop, P. (2013). Risk Disclosures in the Annual Reports of UK Banks (Doctoral thesis, Newcastle University, United Kingdom).
- Riff, D., Lacy, S., & Fico, F. (2014). Analyzing media messages: Using quantitative content analysis in research. Routledge.
- Roberts, M. R., & Whited, T. M. (2013). Endogeneity in Empirical Corporate Finance. *Handbook of the Economics of Finance*, (PA), 493–572.
- Safieddine, A. (2009). Islamic financial institutions and corporate governance: New insights for agency theory. *Corporate Governance*, 17(2), 142–158.

- Samaha, K., Dahawy, K., Hussainey, K., & Stapleton, P. (2012). The extent of corporate governance disclosure and its determinants in a developing market: The case of Egypt. *Advances in Accounting*, 28(1), 168–178.
- Schadewitz, H. J., & Blevins, D. R. (1998). Major determinants of interim disclosures in an emerging market. *American Business Review*, 16(1), 41.
- Schrand, C. M., & Elliott, J. A. (1998). Risk and financial reporting: A summary of the discussion at the 1997 AAA/FASB conference. *Accounting Horizons*, 12(3), 271.
- Scott, W. R. (2014). *Financial accounting theory*. Pearson Education.
- Sekaran, U. (2000). *Research methods for business: A skill-building approach*. John Wiley & Sons.
- Semper, D. C., & Beltrán, J. M. T. (2014). Risk disclosure and cost of equity: The Spanish case. *Contaduría Y Administración*, 59(4), 105–135.
- Sengupta, P. (1998). Corporate disclosure quality and the cost of debt. *Accounting Review*, 73(4), 459–474.
- Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance*, 19(3), 425–442.
- Shleifer, A., & Vishny, R. W. (1997). A Survey of Corporate Governance. *Journal of Finance*, 52(2), 737–783.
- Shrives, P. J., & Linsley, P. M. (2003). Communicating Risk Management in Annual Reports. *International Account*, 20, 28–31.
- Singh, M., Mathur, I., & Gleason, K. C. (2004). Governance and Performance Implications of Diversification Strategies: Evidence from Large U.S. Firms. *The Financial Review*, 39, 489–526.
- SOCPA. (n.d.). Saudi Organization for Certified Public Accountants.
- Solomon, J. (2007). *Corporate governance and accountability*. John Wiley & Sons.
- Solomon, J. F., Solomon, A., Norton, S. D., & Joseph, N. L. (2000). A conceptual framework for corporate risk disclosure emerging from the agenda for corporate governance reform. *The British Accounting Review*, 32(4), 447–478.
- Spence, M. (1973). Job Market Signalling, 87(3), 355–374.
- Stanga, K. G. (1976). Disclosure in published annual reports. *Financial Management*, 5(4), 42–52.
- Stoneburner, G., Goguen, A. Y., & Feringa, A. (2002). *Risk management guide for information technology systems*. NIST Special Publication.

- Subramaniam, N., McManus, L., & Zhang, J. (2009). Corporate governance, firm characteristics and risk management committee formation in Australian companies. *Managerial Auditing Journal*, 24(4), 3160–339.
- The Association of Chartered Certified Accountants. (2014). Reporting risk. ACCA.
- Truong, G., Partington, G., & Peat, M. (2008). Cost-of-capital estimation and capital-budgeting practice in Australia. *Australian Journal of Management*, 33(1), 95–121.
- Van Horne, J. C., & Wachowicz, J. M. (2008). Fundamentals of financial management. Pearson Education.
- Verrecchia, R. E. (1983). Information quality and discretionary disclosure. *Journal of Accounting and Economics*, 5, 179–194.
- Verrecchia, R. E. (2001). Essays on disclosure. *Journal of Accounting and Economics*, 32(1–3), 97–180.
- Wagenhofer, A. (1990). Voluntary disclosure with a strategic opponent. *Journal of Accounting and Economics*, 12(4), 341–363.
- Watson, A., Shrive, P., & Marston, C. (2002). Voluntary Disclosure of Accounting Ratios in the UK. *The British Accounting Review*, 34(4), 289–313.
- Watts, R. L. (1977). Corporate financial statements, a product of the market and political processes. *Australian Journal of Management*, 1(12), 52–75.
- Watts, R. L., & Zimmerman, J. L. (1983). Agency Problems, Auditing, and the Theory of the Firm: Some Evidence. *The Journal of Law & Economics*, 26(3), 613–633.
- Watts, R. L., & Zimmerman, J. L. (1986). Positive accounting theory. Pearson.
- Weber, R. P. (1990). Basic Content Analysis. 2nd. Newbury Park, CA: Sage.
- Woods, M., & Reber, B. (2003). A comparison of UK and German reporting practice in respect of risk disclosures post GAS 5. *26th Annual Congress of the European Accounting Association. Sevilla, España.*
- Wooldridge, J. M. (2015). Introductory econometrics: A modern approach. Nelson Education.
- Xie, B., Davidson III, W. N., & DaDalt, P. J. (2003). Earnings management and corporate governance: the role of the board and the audit committee. *Journal of Corporate Finance*, 9(3), 295–316.
- Young, M. N., Peng, M. W., Ahlstrom, D., Bruton, G. D., & Jiang, Y. (2008). Corporate governance in emerging economies: A review of the principal–principal perspective. *Journal of management studies*, 45(1), 196–220.

Zhang, M., Zhang, W., & Zhang, S. (2016). National culture and firm investment efficiency : international evidence, *1625*(September), 1608–1625.

APPENDICES

Appendix 1: A List of the Names of the 122 Sampled Firms

No.	Company symbol	Company Full Name	Tadawul No.
1	SARCO	Saudi Arabia Refineries Co.	2030
2	Petro Rabigh	Rabigh Refining and Petrochemical Co.	2380
3	Bahri	National Shipping Company of Saudi Arabia	4030
4	Aldrees	Aldrees Petroleum and Transport Services Co.	4200
5	Takween	Takween Advanced Industries Co.	1201
6	MEPCO	Middle East Paper Co.	1202
7	BCI	Basic Chemical Industries Co.	1210
8	MAADEN	Saudi Arabian Mining Co.	1211
9	ASLAK	United Wire Factories Co.	1301
10	SSP	Saudi Steel Pipe Co.	1320
11	CHEMANOL	Methanol Chemicals Co.	2001
12	Petrochem	National Petrochemical Co.	2002
13	SABIC	Saudi Basic Industries Corp.	2010
14	SAFCO	Saudi Arabian Fertilizer Co.	2020
15	TASNEE	National Industrialization Co.	2060
16	NGC	National Gypsum Co.	2090
17	Zoujaj	The National Company for Glass Industries	2150
18	Alujain	Alujain Corp.	2170
19	FIPCO	Filing and Packing Materials Manufacturing Co.	2180
20	APC	Arabian Pipes Co.	2200
21	Nama Chemicals	Nama Chemicals Co.	2210
22	Maadaniyah	National Metal Manufacturing and Casting Co.	2220
23	Zamil Indust	Zamil Industrial Investment Co.	2240
24	SIIG	Saudi Industrial Investment Group	2250
25	Sahara	Sahara Petrochemical Co.	2260
26	YANSAB	Yanbu National Petrochemical Co.	2290
27	SPM	Saudi Paper Manufacturing Co.	2300
28	Sipchem	Saudi International Petrochemical Co.	2310
29	Advanced	Advanced Petrochemical Co.	2330
30	Saudi Kayan	Saudi Kayan Petrochemical Co.	2350
31	HCC	Hail Cement Co.	3001
32	Najran Cement	Najran Cement Co.	3002
33	City Cement	City Cement Co.	3003
34	Northern Cement	Northern Region Cement Co.	3004
35	UACC	Umm Al-Qura Cement Co.	3005
36	ACC	Arabian Cement Co.	3010

Appendix 1 (continued): A List of the Names of the 122 Sampled Firms

37	YSCC	Yamama Cement Co.	3020
38	SCC	Saudi Cement Co.	3030
39	QACCO	Qassim Cement Co.	3040
40	spcc	Southern Province Cement Co.	3050
41	YCC	Yanbu Cement Co.	3060
42	EPCCO	Eastern Province Cement Co.	3080
43	TCC	Tabuk Cement Co.	3090
44	Jouf Cement	Al Jouf Cement Co.	3091
45	Astra Indust	Astra Industrial Group	1212
46	Bawan	Bawan Co.	1302
47	ALKHODARI	Abdullah A. M. Al-Khodari Sons Co.	1330
48	Saudi Ceramics	Saudi Ceramic Co.	2040
49	SCC	Saudi Cable Co.	2110
50	ADC	Al-Ahsa Development Co.	2140
51	EIC	Electrical Industries Co.	1303
52	Amiantit	Saudi Arabian Amiantit Co.	2160
53	AL-BABTAIN	Al-Babtain Power and Telecommunication Co.	2320
54	SVCP	Saudi Vitriified Clay Pipes Co.	2360
55	MESC	Middle East Specialized Cables Co.	2370
56	SIECO	Saudi Industrial Export Co.	4140
57	SPPC	Saudi Printing and Packaging Co.	4270
58	Catering	Saudi Airlines Catering Co.	6004
59	SISCO	Saudi Industrial Services Co.	2190
60	SGS	Saudi Ground Services Co.	4031
61	SAPTCO	Saudi Public Transport Co.	4040
62	BATIC	Batic Investments and Logistics Co.	4110
63	Budget Saudi	United International Transportation Co.	4260
64	AlSorayai Group	Al Sorayai Trading and Industrial Group	1213
65	SIDC	Saudi Industrial Development Co.	2130
66	AlAbdullatif	Al Abdullatif Industrial Investment Co.	2340
67	Fitaihi Group	Fitaihi Holding Group	4180
68	ALTAYYAR	Altayyar Travel Group	1810
69	Al Hokair Group	Abdulmohsen Alhokair Group for Tourism and Development	1820
70	Dur	Dur Hospitality Co.	4010
71	TECO	Tourism Enterprise Co.	4170
72	Alkhaleej Trng	Alkhaleej Training and Education Co.	4290
73	Herfy Foods	Herfy Food Services Co.	6002
74	TAPRCO	Tihama Advertising and Public Relations Co.	4070
75	SRMG	Saudi Research and Marketing Group	4210
76	SHAKER	Al Hassan Ghazi Ibrahim Shaker Co.	1214
77	Extra	United Electronics Co.	4003

Appendix 1 (continued): A List of the Names of the 122 Sampled Firms

78	SACO	Saudi Company for Hardware	4008
79	SASCO	Saudi Automotive Services Co.	4050
80	Jarir	Jarir Marketing Co.	4190
81	AlHokair	Fawaz Abdulaziz Alhokair Co.	4240
82	A.Othaim Market	Abdullah Al Othaim Markets Co.	4001
83	Farm Superstores	Saudi Marketing Co.	4006
84	Anaam Holding	Anaam International Holding Group	4061
85	THIMAR	National Agricultural Marketing Co.	4160
86	Savola Group	Savola Group	2050
87	WAFRAH	Wafrah for Industry and Development Co.	2100
88	SADAFCO	Saudia Dairy and Foodstuff Co.	2270
89	Almarai	Almarai Co.	2280
90	H B	Halwani Bros. Co.	6001
91	NADEC	National Agricultural Development Co.	6010
92	GACO	Al Gassim Investment Holding Co.	6020
93	TADCO	Tabuk Agricultural Development Co.	6040
94	SFICO	Saudi Fisheries Co.	6050
95	Sharqiya Dev Co	Ash-Sharqiyah Development Co.	6060
96	ALJOUF	Al-Jouf Agricultural Development Co.	6070
97	JAZADCO	Jazan Energy and Development Co.	6090
98	Chemical	Saudi Chemical Co.	2230
99	Mouwasat	Mouwasat Medical Services Co.	4002
100	Dallah Health	Dallah Healthcare Co.	4004
101	Care	National Medical Care Co.	4005
102	Al Hammadi	Al Hammadi Company for Development and Investment	4007
103	SPIMACO	Saudi Pharmaceutical Industries and Medical Appliances Co.	2070
104	SAIC	Saudi Advanced Industries Co.	2120
105	Aseer	Aseer Trading, Tourism and Manufacturing Co.	4080
106	Al-baha	Al-Baha Investment and Development Co.	4130
107	Kingdom	Kingdom Holding Co.	4280
108	STC	Saudi Telecom Co.	7010
109	Etihad Etisalat	Etihad Etisalat Co.	7020
110	ZAIN KSA	Mobile Telecommunication Company Saudi Arabia	7030
111	Atheeb Telecom	Etihad Atheeb Telecommunication Co.	7040
112	GASCO	National Gas and Industrialization Co.	2080
113	Saudi Electric.	Saudi Electricity Co.	5110
114	SRECO	Saudi Real Estate Co.	4020
115	Taiba	Taiba Holding Co.	4090
116	ARDCO	Arriyadh Development Co.	4150

Appendix 1 (continued): A List of the Names of the 122 Sampled Firms

117	Emaar EC	Emaar The Economic City	4220
118	RED SEA	Red Sea International Co.	4230
119	Jabal Omar	Jabal Omar Development Co.	4250
120	Dar Al Arkan	Dar Alarkan Real Estate Development Co.	4300
121	KEC	Knowledge Economic City	4310
122	ALANDALUS	Alandalus Property Co.	4320

Appendix 2: Risk Disclosure Index

Category		Disclosure items
Financial	1	Interest rates
	2	Exchange rates
	3	Commodity prices
	4	Liquidity
	5	Credit/default
	6	Equity prices
	7	Financial derivatives/instrument
	8	Executive compensation/employee pension commitments
	9	Assets impairment
Operational	10	Business processes and procedures/operations
	11	Technology/information technology/innovation
	12	information security
	13	Health and safety
	14	Environment
	15	Reputation/goodwill/image/brand name
	16	Saudization
	17	Compliance
	18	legal
	19	Production/product development
	20	Marketing/customer satisfaction/boycott
	21	Sourcing/raw material
	22	Internal audit and control
	23	Human resources/employee/labour turnover/unrest
	24	Risk management
	25	business disruption
	26	Product/service failure
	27	Customers/suppliers` concentration
	28	Business ethics/corruption
29	Off balance sheet/contingent assets and liabilities	
Strategic	30	political stability in the region
	31	Competition/proprietary/copyright
	32	Regulation
	33	Taxation
	34	GDP growth/market demand/aggregate demand
	35	Unemployment rate
	36	Inflation rate
	37	terrorism
	38	Natural disasters
	39	Money supply

Appendix 2 (Continued): Risk Disclosure Index

Strategic	40	Oil price
	41	Public/budget deficit
	42	Government spending
	43	Government subsidy/energy prices discounts
	44	Changes in customer preferences
	45	research and development

Appendix 3: The presentation of accumulated losses in the financial statements.

Appendix 4: Disclosure decision rules

The current study adopts the decision rules developed by Linsley & Shrives (2006), Muzahhem (2011), Rajab & Schachler (2009) and Rattanataipop (2013) with some modifications. The decision rules are:

- The definition of RD applied by this study is the definition developed by Linsley & Shrives (2006), thus, a sentence is coded as a risk disclosure “if the reader is informed of any opportunity or prospect, or of any hazard, danger, harm, threat, or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity prospect, hazard, harm, threat or exposure”.
- Each risk sentence is grouped into the appropriate risk type within the disclosure checklist (see Table 4.3) in order to capture the number of risk sentences.
- A risk disclosure sentence is classified as:
 - “Quantitative” if the sentence consists of actual numbers, ratio, or percentage.
 - “Qualitative” if the sentence does not contain actual numbers, ratio, or percentage.
- A risk disclosure sentence is classified as:
 - “Good-news” if the risk sentence indicates a positive influence on the firm.
 - “Bad-news” if the risk sentence indicates a negative influence on the firm.
 - “Neutral” if the risk sentence does not indicate a positive or negative effect on the firm.
- A risk disclosure sentence is classified as:
 - “Forward-looking” if the risk sentence informs the reader about forward-looking risk information.
 - “Historical” if the risk sentence informs the reader about backward-looking or historical risk information.
- When a risk sentence contains both present and forward-looking information, it is classified as forward-looking information. This is consistent with Rattanataipop (2013).

- If the term “risk” is appearing in the text that does not necessarily mean it is a risk sentence. For instance, when a firm supplies risk management services.
- A sentence is coded as a risk sentence when the reader is informed about a specific risk. However, the “term” risk does not have to appear in the sentence.
- If a risk disclosure is tacit about its reference to risk, then it will not be coded as a risk sentence.
- If a risk sentence contains more than one risk type, then the sentence is coded to the risk type that most asserted in the sentence.
- In the case that a risk disclosure is repeated, the author codes it as a risk disclosure sentence each time it is repeated. The repetition of statements has significant effects on readers. This is derived from a psychological theory called the illusion of truth effect and developed by Hasher, Goldstein, & Toppino (1977).