



The Determinants and Economic Consequences of Risk Disclosure: Evidence from Saudi Arabia

The thesis is submitted in partial fulfilment of the requirements for the award of the degree of Doctor of Philosophy in Accounting and Financial Management at the University of Portsmouth.

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Abstract

This study makes a valuable contribution to the existing literature on corporate risk disclosure (RD) in emerging economies with a focus on the Saudi Arabian economy in the context of the Middle East. The vast majority of previous RD literature has placed emphasis on the context of developed nations. This study undertakes a detailed analysis of RD practices by adopting a quantitative approach for the collection and analysis of datasets using a sample of non-financial firms listed on the Saudi Stock Exchange (Tadawal) over the period 2010 to 2014. The measurement of risk reporting is thus based on a manual content analysis technique, regression analysis models are used to identify the factors that affect risk reporting, and the value of firms in the stock market were measured using the Tobin's Q valuation model. Regression analysis is used to examine the impact, if any, of risk reporting on the value of the firms in the sample. The data gathered shows that the average RD level among all the samples is 17%. The result of the examination of the effect of the corporate governance mechanisms on risk disclosure shows that, of board related characteristics, board size and independent directors are negatively related to a statistically significant degree. Auditor type is positively statistically significant at the 1% level, and governmental ownership is negatively associated with RD to a statistically significant degree at the 1% level. The result of the examination of the impact of RD on firm value shows that the relationship between RD and firm value (as measured by TQ) is found to be negatively statistically significant.

Keywords: Risk Disclosure, Risk measurement, Risk disclosure indices, Corporate Governance, Firm value, non-financial firms, Saudi Arabia

Declaration

‘Whilst registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions embodied in this thesis are the work of the named candidate and have not been submitted for any other academic award.’

Ramzi Alzead

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Abbreviations and Acronyms

ACMEET	Audit Committee Meetings
ACSIZE	Audit Committee Size
ADR	American Depository Receipt
AICPA	American Institute of Certified Public Accountants
ATYPE	Auditor Type
BOSHIP	Block Ownership
CMA	Capital Market Authority
CPA	Certified Public Accountant
CPE	Continuing Professional Education
FSIZE	Firm Size
FV	Firm Value
GAAP	Generally Accepted Accounting Principles
GAS	German Accounting Standards
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GOSHIP	Governmental Ownership
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IASC	International Accounting Standards Committee
ICAEW	Institute of Chartered Accountants of England and Wales
ICB	Industry Classification Benchmark
IFRS	International Financial Reporting Standards
IND	Independent Directors
IRM	Institute of Risk Management
KPI	Key Performance Indicator
LEVE	Leverage
LQ	Liquidity
MCI	Ministry of Commerce and Industry
MD&A	Management Discussion and Analysis
MENA	Middle East and North Africa Region
MST	Managerial Signalling Theory
NONEXE	Non-Executive Directors
OLS	Ordinary Least Square
OPEC	Organisation of Petroleum Exporting Countries

ORD	Operational Risk Disclosure
PCT	Political Cost Theory
RCSIZE	Remuneration Committee Size
RD	Risk Disclosure
RDI	Risk Disclosure Index
ROA	Return on Assets
ROE	Return on Equity
SAGIA	Saudi Arabia General Investment Authority
SALEGTH	Sales Growth
SAS	Saudi Accounting Standards
SAMA	Saudi Arabian Monetary Agency
SCA	Saudi Capital Authority
SCGC	Saudi Corporate Governance Code
SCGI	Saudi Corporate Governance Index
SOCPA	Saudi organisation for Certified Public Accountants
T&D	Transparency and Disclosure
TQ	Tobin's Q
WTO	World Trade Organisation

Dissemination

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Chapter 1: Introduction

1.1 Overview

Risk reporting is an important part of corporate disclosure practices, as it gives details of risks associated with investment options for a particular company. Most of the existing literature on risk disclosure (RD) places emphasis on case studies and systems adopted among developed nations. This study seeks to provide additional data to the literature pertaining to corporate disclosure of risks in emerging economies with emphasis placed on the Middle East, particularly on Saudi Arabia. Specifically, it integrates a detailed analysis of risk disclosure practices in non-financial listed firms in Saudi Arabia. The study takes the position that the integration of an analysis of risk disclosure practices in an emerging market for capital remains instrumental in the development of additional knowledge pertaining to risk disclosure.

Analysts maintain that developing stock markets have the highest potential for market variation in practice due to the existence of a vast environment in comparison to capital markets in developed nations. Capital markets in developed economies such as USA, Canada, Germany, etc. are characterised by high levels of efficiency maintained by the existence of strong regulatory frameworks together with the existence of financial reporting and corporate governance frameworks that are well-developed. According to the World Bank (Doing Business, 2012) developing capital markets however, tend to have poor regulatory frameworks compared with developed economies. This can lead to the development of a market characterised by poor regulation, compliance, enforcement and transparency, which limits the levels of efficiency experienced in that market. Richard & Welker (2001) state that in order to develop an efficient capital market, the markets need to incorporate comprehensive and transparent disclosures necessary for enhancing the operational processes.

With the establishment of the modern Kingdom of Saudi Arabia (KSA) in 1932, most of the economic activities centred on farming and commerce, which were enhanced by sustained growth

in the export of dates (Alrajhi et al., 2012). However, the region lacked the necessary infrastructure at the time that was necessary for influencing the level of growth as projected by the founder, King Abdulaziz bin Abdulrahman Al-Saud. The discovery of oil then changed the trading and economic scenario prevailing in the Kingdom (Alkhatlan & Javid, 2013). Following World War II, the Kingdom maintained a steady oil export business that influenced the provision of funds necessary in positively impacting on development in the region. The country's growth was enhanced through the development of a 5-year growth plan in 1970 that sought to encourage the production of goods locally that were previously imported (Taleb & Sharples, 2011). The process was enhanced through the development of an intricate infrastructure that impacted positively on the overall growth of the region.

During the same period, Aramco, the national oil company made numerous investments in their new production facilities. The process sought to prompt the exploration of new oil fields to maximise earnings derived from the oil sector for the economy (Alshahrani & Alsadiq, 2014). The petroleum sector now constitutes an integral and important part of Saudi Arabia's economy, as it has propelled the Kingdom into becoming the world's largest oil producer and exporter. Increased oil exploration has helped to massively enhance the level of infrastructural development, and this has led to continued diversification of the Saudi economy leading to the production and exportation of a wide range of goods globally (Kar et al., 2011).

The Saudi government continues to remain instrumental in ensuring effective industrial and economic development in the Kingdom. Through the Ministry of Economy and Planning, the Kingdom ensures that there is continuous development of short and long-term economic and social plans. Furthermore, the country's structure since then developed a process by means of which individual ministries oversee various sectors in the economy, thereby influencing economic growth and development (Royal Embassy of Saudi Arabia, 2015).

Since the formation of the private sector in the Kingdom, this sector has developed to become a vital component of the Saudi economy, which now accounts for 40% of the Kingdom's GDP (IMF, 2012). Increased foreign investment combined with favourable government policies may lead to continued growth of the sector (Niblock, 2015). The integration of Saudi Arabia in the World Trade organisation (WTO) in 2005 provided the Kingdom with an opportunity to enter new markets, which helped it to create more employment through the diversification of its trade relationships (Al Rajhi et al., 2015). Saudi Arabia has now developed into one of the most successful developing economies within the last three decades, and this quality provides for a viable case study. The selection of Saudi Arabia is therefore instrumental to the study due to its status as a developing economy. The economy accounts for 25% of the total gross domestic product (GDP) in the Arab world leading to the positioning of its economy among 20 of the world's largest economies (in 19th place) (Albassam, 2014; Alshehri & Solomon, 2012). Moreover, the increased growth of the Saudi economy has led to its recognition as the largest economy in the region demarcated as Middle East and North Africa (MENA).

Furthermore, the Saudi government has been instrumental in implementing favourable regulatory processes geared towards establishing the development of a viable investment climate. The government seeks to develop a strong economy necessary for encouraging an increase in domestic and foreign capital funds through making continued investments in the region. The World Bank identifies Saudi Arabia as the most viable investment location in the MENA region due to the provision of such favourable trade policies and regulations. In addition, the World Bank maintains that the growth of the market among emerging markets ranked 17th worldwide in 2012, and that it acknowledges the growth potential of the market. This is evidence of the government being instrumental in influencing additional foreign investment.

The Saudi market is a developing market, so this provides scope for the development of an even more intricate and informed regulatory framework. Both, the conceptual framework of accounting,

which was implemented in 1986, and the institution of the Saudi organisation for Certified Public Accountants (SOCPA) in 1992 were instrumental in supporting the development of the profession of accounting and auditing in Saudi Arabia. In addition, the process influences the issuance of a governance code in 2006. These factors can be considered to be necessary in enhancing the financial reporting practices adopted in the market, which are in turn vital in influencing the quality of accounting disclosure. Fama & French (1997) argue that emerging stock markets tend to be inefficient and risky, but that they may incorporate higher returns in comparison to the returns derived from developed markets. Hooke (1999: 447) argues that the majority of foreign economies located in developing countries are identified as being emerging markets, and are therefore considered to be experiencing faster expansion in comparison to the US economy.

1.2 Motivation for the Research

Since the global financial crisis during the latter years of the previous decade, uncertainties and risks in stock market investments have been growing in the Kingdom. Shareholders and regulators have therefore been placing increasing pressure on companies to disclose risk information and provide other necessary information to reduce uncertainty. The advantages and disadvantages of risk disclosure therefore have a critical role in determining the nature of risk disclosure practices. Consequently, the field of risk reporting is also becoming of increasing importance to investigators' decision in term of the potential risks associates with their investment (Bao and Datta, 2014).

The motivation behind pursuing this research is to examine this phenomenon and address the issues involved so as to encourage risk disclosure practices. This could make it easy for existing and potential shareholders and investors to interpret risk related information in order to reduce information asymmetry and improve market liquidity (Campbell et al., 2014). This research therefore commences with providing insight into the nature and type of risks, and the needs of users of annual reports for the purpose of determining the appropriate extent of risk disclosure and to guide managers in making suitable risk disclosure practices accordingly. Furthermore, it is noted

that there are differences in the scope and focus of accounting investigations, as only a very few number of studies have been conducted previously on risk disclosure practices among those firms that are regarded as non-financial listed firms in terms of determinants and consequences.

Also, no investigations have been found on the potential influences of risk reporting levels on non-financial firms' values. This study therefore attempts to fill this gap in the literature by examining the responses of firms in enhancing both the quantity and quality of risk disclosures made, that is, not only concerning compliance with rules and regulations, but also information useful for potential shareholders and investors. This study contends that quantity is a satisfactory proxy for the quality of risk disclosure. With this in mind, the study seeks to address the need to enhance risk disclosure practices in the Kingdom of Saudi Arabia.

Moreover, it is noted that there is a scarcity of studies on risk disclosure that have investigated the relationship between risk disclosure and firm value. Consequently, the study seeks to investigate the possible relationship between risk disclosure and firm value. This study therefore attempts to investigate the possible relationship between risk disclosure (as the dependent variable) and certain firm characteristics and corporate governance determinants in order to examine whether risk disclosure levels are influenced or affected by any of them. Since little is known about the practice of corporate risk disclosure in the Arab world generally, and specifically in countries within the GCC, this study, which is focused on the context of Saudi Arabia and on risk disclosure by non-financial listed firms, has the potential to be pioneering. The importance of this study is established further by the fact that Saudi Arabia is among the world's most rapidly emerging markets at 19th position. It accounts for 25% of the total GDP of Arab economies, it has the largest economy in the MENA region, and Saudi Arabia has been rapidly developing as a leading and successfully developing economy over the past few decades (Alshehri & Solomon 2012; Albasaam, 2014). These conditions of Saudi Arabia make this a potentially valuable study.

1.3 Research Objectives

This study seeks to undertake an in-depth exploratory process to reveal details of corporate risk disclosure levels and practices as expressed in the annual reports of non-financial firms listed on the stock exchange and operating in the Kingdom of Saudi Arabia. In this vein, the analysis undertaken by the study seeks to meet the following objectives:

1. To initiate an analysis of risk disclosure reporting requirements through conducting an investigation of risk disclosure practices. That to develop a viable measurement parameter pertaining to the practice of risk reporting within the annual reports of non-financial listed firms in Saudi Arabia.
2. To identify the key factors that affect risk disclosure reporting by investigating corporate governance mechanisms and specific characteristics of firms.
3. To conduct an investigation of the impact of risk disclosure practices on the value of Saudi Arabian firms.

1.4 Research questions

The three research questions below are formed in line with the above three research objectives. These questions are devised to address the gap found in the literature on risk disclosure and corporate governance.

Q1: What are the risk disclosure levels and practices of non-financial listed firms in Saudi Arabia?

For answering this first research question, a comprehensive risk disclosure index was adopted in this study (Appendix 3). This was developed by the researcher for giving an indication of the extent of risk disclosure practices as evident from within the annual reports of non-financial listed firms operating in the Kingdom of Saudi Arabia.

Q2: What are the corporate governance mechanisms that may affect the level of risk disclosure of non-financial listed firms in Saudi Arabia?

In answering this second research question, this study focuses on the influence of the most important corporate governance mechanisms, namely board size, independent directors, non-executive directors, size of audit committee, number of audit committee meetings, size of remuneration committee, type of auditor, block ownership, and governmental ownership. These are examined for their effect on risk disclosure practices. The data are mostly extracted from the annual reports of Saudi non-financial listed firms, but some of them are also collected from DataStream. The test for correlation is made using ordinary least square (OLS) regressions with the help of the SPSS program.

Q3: What are the economic consequences of risk disclosure of Saudi Arabian non-financial firms?

For answering this third research question, the study adopted the variable of firm value as the dependent variable, and all the variables are taken mostly from within the annual reports of firms besides also from the DataStream and Bloomberg sources. For aiding the analysis, the OLS regression model is adopted to enable direct measurement of how the level of risk disclosure may affect the market value of non-financial Saudi Arabian firms.

1.5 Summary of Research Methodology

The underlying research philosophy or paradigm that guided this study is positivism, which was applied using a quantitative approach and deductive research design, and which involved a content analysis of documents and regression analysis. The data for the study was obtained from within the annual reports of a sample of 88 non-financial listed firms based in the Kingdom of Saudi Arabia during the period from 2010 to 2014, and a total of 440 observations were made. The research methodology was applied in three areas of the study, as follows:

1. Examination of risk disclosure practices among non-financial listed firms operating in Saudi Arabia based on the developed risk disclosure index comprising of 11 categories.
2. Examination of the influence of corporate governance mechanisms on the practice of risk disclosure using an OLS regression model.
3. Investigation of risk disclosure practices by direct measurement of the OLS regression model in terms of its effects on the market value of firms indicated by the TQ.

The first area involves an examination of risk disclosure of Saudi Arabian non-financial listed firms based on the risk disclosure index. This index comprised of checklists of disclosure items that are included in companies' annual reports. Risk disclosure indices were then developed specifically for obtaining a measure of the level of risk disclosure observed in the annual reports of non-financial listed firms. The annual reports were then subjected to a content analysis of information pertaining to risk disclosure. This enabled the quantity of risk related information to be ascertained and then classified. A structured disclosure index was created for identifying and classifying the relevant risk disclosures, which consisted of 11 risk categories.

The second area involved utilising an Ordinary Least Square (OLS) based regression model for examining the relationship between risk disclosure and selected corporate governance mechanisms. The dependent variable in this model is 'risk disclosure score', which was calculated during the content analysis, and the independent variables are corporate governance determinants derived from the annual reports and from DataStream.

The third area involved investigating voluntary risk disclosure practices by measuring it directly using the OLS regression model with respect to how it affects the market value of the firms. The dependent variable in this case was the Tobin's Q ratio used as an estimate for firm value obtained from the Bloomberg Database.

1.6 Summary of Empirical Findings

The quantitative results of this empirical study are presented for each of the three stages, corresponding to each of the three areas identified above, in chapters 4, 5 and 6 respectively. A key finding in the first stage is that the average level of risk disclosure (RD) in the sample is 17%, a key finding in the second is that 43% of the variation of RD is explained by variation in the independent variables pertaining to corporate governance mechanisms, and a key finding in the third stage is that the relationship between RD and FV (firm value) is negative and statistically significant.

1.7 Contributions of the Study

The current study is expected to offer some contributions to risk disclosure literature in three main ways: literature review, analysis of corporate governance mechanisms on RD, and the central investigation of impact of RD on FV of non-financial listed firms operating in Saudi Arabia.

Firstly, this will be achieved through the analysis of previous studies, the majority of which relate experiences of varied limitations attributed to the existence of incomplete evidence by placing emphasis on specific financial disclosure items, such as market risk disclosure (Linsmeier et al., 2002), and voluntary risk disclosure (Beretta & Bozzolan, 2004; Abraham & Cox, 2007; Elzahar & Hussainey, 2012). However, many of these studies have only conducted a limited analysis of the influence of risk disclosure to the process (Elshandidy et al., 2013; Kruk, 2009; Mokhtar & Mellett, 2013). This study makes a contribution to the literature on risk reporting by adopting a comprehensive risk disclosure index (see Appendix 3) that was developed by the researcher for measuring risk disclosure practices within the annual reports of non-financial listed firms operating in Saudi Arabia. Furthermore, a survey of the current literature suggests that research on risk disclosure has focused heavily on developed countries (for example, Choi et al., 2013; Hunzike, 2013; Elshandidy et al., 2013). Other studies that have been conducted on Gulf Countries in the GCC (Gulf Cooperation Council) have focused heavily on financial listed firms (Hassan et al., 2009; Abdallah et al., 2015; Al- Maghzom et al., 2016). To the best of the researcher's knowledge,

there is no previous study that has investigated the economic consequences of risk disclosure within the annual reports of non-financial listed firms operating in Saudi Arabia.

Secondly, literature on corporate governance has largely sought to conduct an analysis of existent relationships between corporate governance mechanism and corporate performance. Numerous studies have suggested that there is a strong link between corporate governance mechanisms and the extent of risk disclosure made. However, there are already several studies in the literature focused on the influence of corporate governance mechanisms on general disclosure within developed capital markets (e.g., Abraham & Cox, 2007), and there are also limited studies that have sought to conduct an analysis pertaining to the influence of corporate governance mechanisms on risk disclosure practices in the context of emerging capital markets. Therefore, through undertaking the analysis, the study seeks to provide information that bridges the existent gap necessary for conducting a viable contribution to the existent literature pertaining to disclosure and corporate governance mechanisms by using the proposed risk disclosure index. The study places emphasis on the influence of the corporate governance mechanisms on risk disclosure practices, as no other study has examined corporate governance as a determinant of risk disclosure among non-financial listed firms in the context of Saudi Arabia.

Thirdly, to the best of the researcher's knowledge, there has been no previous study that has also investigated the effect of risk disclosure practices on the value of Saudi Arabian non-financial listed firms. In fact, the literature shows a lack of empirical research that has directly investigated the relationship between disclosure and firm value in general, and with risk disclosure specifically. The result of this study could therefore be especially helpful for investors and researchers alike in understanding the usefulness of the disclosure of information pertaining to risk in the annual reports of Saudi Arabian firms over the five-year period from 2010 to 2014.

1.8 Brief Background of Saudi Arabia

1.8.1 Founding and Ruling System

Saudi Arabia, with Riyadh as its capital city, is among the rapidly emerging countries in Asia. The modern Kingdom of Saudi Arabia (KSA) was founded in 1932 when King Abdul Aziz Ibn Saud's (1880-1953) conquests led to establishing KSA (Al-Angari, 2004; Al-Turaiqi, 2008). Saudi Arabia is the largest Arab country in the Middle East in terms of area of land, but 95% of this is desert (Ministry of Economy and Planning, 2007).

Since its founding, the Kingdom has been ruled by a monarchy comprising of the male descendants of King Ibn Saud. The monarchical ruling system in the Kingdom is highly centralised, as the ruling King's authority encompasses the governance and management of all relevant internal and external affairs. This includes all sensitive positions in the areas of politics and defence, including those of the minister of internal affairs, foreign affairs and the defence minister. These positions are restricted to the male descendants of King Abdul Aziz. In 1991, Saudi Arabia founded the Consultative Council. This council plays a limited role in the legislative system in the Kingdom. Although the Consultative Council functions as an advisory body to the King, any decisions made are implemented solely only when final approval is given by the King himself (Alghamdi, 2012).

1.8.2 The Saudi Petroleum Sector

Before its establishment in 1932, the Kingdom of Saudi Arabia was a poor country that depended primarily on its agricultural industry. Huge reserves of oil were discovered a few years later in 1938, which a decade later helped transform Saudi Arabia into the leading producer and exporter of crude oil in the world. The massive exploration of oil in more recent decades since the 1970s during the kingship of King Faisal brought about further major changes to Saudi Arabia in terms of people's social and economic lives, as well as to the political prominence of the Saudi Kingdom in the region and worldwide.

The Kingdom's economy is now heavily dependent on its petroleum exports as the major source of national income. This constitutes approximately 90% to 95% of the total national income, and 35% to 40% of the economy's GDP (Gross Domestic Product). According to the Ministry of Economy and Planning (2007), the Kingdom of Saudi Arabia possesses approximately 1 quarter of the world's known petroleum reserves. It is also projected to continue as the world's largest producer of crude oil for the foreseeable future (Falgi, 2009). The Kingdom manages a huge percentage of oil production among members of OPEC with 29% of the total output. This suggests that KSA also plays a major and influential role in determining oil prices in the whole world (OPEC, 2015). Furthermore, according to the Ministry of Petroleum and Mineral Resources, the Kingdom possesses massive reserves of crude oil, which may enable the country to continue producing and exporting oil for the next 100 years. These reserves are estimated to be approximately 266,578 billion barrels (Annual Statistical Bulletin).

1.8.3 Institutional Reforms

The Kingdom of Saudi Arabia has undergone many reforms to its social, business, legal and political systems. On 11 December 2005 for instance, following the implementation of various regulations, especially to its legal system, Saudi Arabia became a member of the World Trade organisation (WTO) (Ministry of Commerce and Industry, 2006). These various reforms ultimately led to the establishment of the Saudi Arabia General Investment Authority (SAGIA). The main objective of this authority is to improve conditions of the investment environment in the country to entice both local and foreign investors by removing impediments, and by dealing with any deficiencies (Falgi, 2009). Importantly, in 2015, it was announced that the largest Arab stock market called the Tadawul, which was then worth more than \$564 billion, was to open to foreign investors with more than \$5 billion in assets to help internationalise stock activities (Kerr, 2015). Overall, several developments have taken place gradually in the Kingdom's business environment that have contributed to reinforcing its economy, such as the Saudi Stock Exchange (Tadawul),

SAMA, and the accounting and auditing profession. Some however, consider these reforms to be taking place very slowly, and believe the Kingdom cannot cope with the changes that are already taking place in the global business environment (Saudi Journal of Accountancy, 2009).

Recently, Saudi Arabia implemented comprehensive monetary reforms in two important ways: Firstly, it achieved this in 2003 by establishing the Capital Market Authority (CMA), and secondly in 2006 by releasing the Saudi Corporate Governance Code (SCGC). The Saudi government has also been striving to re-structure and to consolidate the Saudi Stock Exchange (Tadawul). These kinds of reforms are usually undertaken to improve the methods used for managing listing corporations. This is achieved by encouraging greater board accountability, fairness, discipline, responsibility, transparency and independence to ensure that the necessary information is disclosed (Filatotchev & Boyd, 2009; Samaha et al., 2012).

1.8.4 Financial Reporting Regulations

Financial reporting regulations in Saudi Arabia are established and implemented by the Saudi government. Their purpose is to protect investors as well as other users of financial reports. The main institutions that issue its rules are the Ministry of Commerce and Industry (MCI), The Capital Market Authority (CMA), The Saudi Arabian Monetary Agency (SAMA), The Saudi Stock Exchange (Tadawul), and The Saudi Organisation for Certified Public Accountants (SOCPA). All these aforementioned organisations are regarded as the key government institutions for monitoring publicly trading Saudi companies. The regulation, supervision and registration of companies is among the most important of responsibilities of these bodies, as they ensure the compliance of Saudi companies with national regulations. The Ministry of Commerce and Industry performs a supervisory role in addition to monitoring devices indirectly, particularly to the Saudi CMA, to SAMA and the Tadawul.

The growth of the Saudi Capital Market was high between 1996 and 2005, as there was a huge increase in the number and volume of transactions, and in value trading. The number of listed firms

for instance, increased from 77 listed firms in 2005, to there being 145 firms in December 2010. At present, there are 171 listed firms in Saudi Arabia with a combined market capitalisation of around \$564bn, which represent almost half of the total Arab stock market capitalisation (SFG, 2009; Hearn et al., 2011; Tadawul, 2015).

1.9 Regulatory Bodies in Saudi Arabia

This section on regulatory bodies in Saudi Arabia provides a more detailed background of three important regulatory bodies mentioned above, namely SOCPA, CMA and Tadawul, based on their role in regulating reporting by financial institutions in the context of this study.

1.9.1. The Saudi organisation for Certified Public Accountants (SOCPA)

The establishment of the Saudi organisation for Certified Public Accountants (SOCPA) in 1991 by the Saudi government was considered to be instrumental in enhancing the profession of accounting and auditing. This step was considered instrumental in the adoption of viable processes regarded as vital in enhancing the status of the accounting profession through the improvement of its status in relation to international standards. The Saudi Accounting Standards (SASs) (with the exception of the income tax standards and zakat) were developed based on the International Accounting Standards (IASs) developed by the now defunct International Accounting Standards Committee (IASC), and also based on the U.S. Securities & Exchange Commission's Generally Accepted Accounting Principles (US GAAP).

Through the establishment of a professional accounting body, SOCPA sought to transfer to the International Financial Reporting Standards (IFRSs) developed by the International Accounting Standards Board (IASB). The adoption of these standards was considered to be instrumental for the market as they would influence mandatory adoption of the policies for all non-financial companies, beginning on the 1st of January, 2017. Through the initiation of the process, SOCPA integrated several amendments to the existent standards that placed emphasis on the analysis of additional risk disclosure requirements. The SOCPA is responsible for reviewing and developing the auditing

standards, and also for monitoring the performance of certified public accountants for their compliance with CPA standards and regulations. It also devises examination rules and courses, conducts research, organises conferences, supports researchers in conducting studies, and publishes journals and books. (SOCPA, 2006) The exact wording of these responsibilities is attached in Appendix A.

1.9.2 The Saudi Capital Market Authority (CMA)

The Capital Market Authority (CMA) was established in Saudi Arabia on 16th June, 2003 upon the implementation of the Capital Market Law. The CMA is managed by a board comprising of five members who are appointed by the Prime Minister, and who are not permitted to participate in any commercial activity or to involve themselves in any other profitable ventures of their own. The CMA has now developed into one of the fastest growing capital markets globally. The CMA identifies the main financial institutions regulating the country's financial market by issuing regulations for investors in Saudi Arabia. Furthermore, the aim of the CMA is to protect both investors and dealers from any illegal activities in the market (CMA, 2007). Corporate governance practice is one of the most important regulations issued by the CMA. This was introduced in 2006 as a recommended regulation, but in 2010, this regulation became compulsory.

The CMA has a responsibility of issuing necessary regulations and instructions, and in ensuring these are implemented properly. The duties of the CMA include regulating the Saudi Stock Market (Tadawul) for improving standards; enhancing security measures to protect the public from fraud and other unacceptable practices; improving the efficiency and transparency of the market; minimising associated risks, and monitoring all activities, transactions and companies. (CMA, 2015) The exact wording of these responsibilities is attached in Appendix A. Generally, the CMA plays an important role in both developing and regulating the Saudi Stock Exchange. It achieves this by developing the necessary regulations and instructions that make it possible for companies to

perform in a more efficient manner. It also operates to protect both internal and external investors for the purpose of maintaining security and stability in the market.

The main factor that bears an influence on the level of investment in Saudi Arabia concerns the provision of opportunities for foreigners and non-resident investors in the Saudi market through the provision of direct access to the market. In August 2008, both resident and non-resident foreigners were granted an opportunity by the CMA to buy Saudi shares indirectly through making swap arrangements (SFG, 2009). These swap arrangements involve a process where local Saudi brokerage firms approved and licensed by the CAM buy and hold shares, on behalf of their foreign customers. The profits, losses, or the dividends derived from those shares are then transferred to the foreign customer (Okaz, 2013). Through the success of the program, the CMA permitted direct foreign investment to the Saudi stock market since 1st Jun 2015.

1.9.3 The Saudi Stock Exchange (Tadawul)

According to Saudi Capital Market Law, the institution of the Saudi Stock Exchange is classified as a Joint Stock Company. Furthermore, the CMA recognises it as the sole body authorised to undertake the task of trading of securities in the Kingdom of Saudi Arabia. This arrangement necessitated the establishment of the Saudi Stock Exchange (Tadawul) by the government on 19th March 2007. Its establishment was considered necessary for influencing the development of a fully-fledged security market to control the provision of comprehensive and diverse financial services necessary for competing globally.

The Arabic term Tadawul refers to the exchange of stock in the capital market, and as an institution, it refers to the Saudi Stock Exchange. A stock exchange is considered necessary for acquiring significant growth in the economy. The Tadawul authority is self-regulated, and it is governed by a board comprising of nine members nominated by the SCA who are then appointed officially by the Saudi Prime Minister. Three of these members are appointed from specific government organisations, namely, the Ministry of Finance, the Ministry of Commerce and Industry, and from

SAMA. A further two are appointed from among listed companies, and the remaining four are appointed as being representatives of licensed brokerage firms (Saudi Stock Exchange Law, 2009).

Companies listed on the Saudi stock exchange began operating in the mid-1930s. The first joint stock company that was listed on the Saudi Stock Exchange was the Arab Automobile Company (Saudi Stock Exchange Law, 2009). The Saudi economy then expanded exponentially around 1975 due to rapid increases in the price of oil, and the process of Saudisation of the capital of foreign banks, under which shares were bought from foreign investors, resulted in an increased number of large companies and joint stock banks. The Saudi market at that time however, was informal and unorganised. During the decade of the 1980s, the government launched trading regulations, together with other essential systems. The government then attempted to regulate the market in 1984 by creating a committee incorporating the Ministry of Commerce and SAMA. This government body was responsible for regulating and controlling market activities before the CMA was formed in 2004.

The Saudi government's strategy to privatise many of its economic sectors considered as vital in recent years has led to many private and family companies becoming public. This in turn has led to a drastic increase in the number of listed companies, which were 81 in 2005 to 171 in 2015 (Tadawul, 2015). There are now 171 listed companies across a range of industries in the Saudi market with varying percentages of ownership. The Saudi market has now become more attractive to foreign investors due to it becoming more secure and stable than before.

The Tadawul is the only official body with the authority to trade in securities in Saudi Arabia. It is responsible for ensuring that activities in the market remain efficient and fair; for raising awareness, providing educational support, enhancing services for all stakeholders including customers, improving the capabilities and competencies of the Exchange, and issuing and enforcing standards. (Tadawul, 2015). The specific responsibilities are listed in Appendix A.

Notably, the Saudi market is not so active in regard to corporate risk disclosure, and it may consequently be suffering from a greater deficit of information relative to markets that are more established, such as those of Europe and the US. Although the Saudi stock market is large relative to the markets in other developing countries, recent studies suggest that, as is the case with most developing countries generally, this market is not efficient (Dahel, 1999; Onour, 2004), hence the need for standards and regulations.

1.10 Laws, Codes, and Standards

1.10.1 Company Law and Structure

Company Law, which originally derived from the British Companies' Law, is a very important piece of regulation, which also provided the basis for the early attempts to regulate Saudi companies. This law was enacted in 1965 by Royal Decree. It helped sustain a basic system for all companies in Saudi Arabia obliged to comply with its rules and instructions. In spite of the law since being altered to keep pace with changes in Saudi companies, this law is now considered to be outdated and therefore unable to cope with current developments and requirements (Al-ghamdi & Alangri, 2005).

The structure of a company has a large bearing in determining its legal position and system of organisation. Typically, each company specifies an initial number of essential regulations, pertaining for instance, to governing how directors to the board are to be elected, rules for termination and rights of shareholders. However, these regulations are not necessarily in accordance with Saudi Company Law. For instance, Article 66 of this Company Law stipulates that a company must be managed by a board of directors with a minimum of 3 members. It further specifies that these directors should be appointed during the company's annual general meeting, and that they should serve for a maximum of three years. Mallin et al. (2005) noted that such boards of directors have the form of unitary boards, which comprise of both executive and non-executive directors, as is the case in places like the UK and USA. In addition, the Company Law allows board members to

be reappointed several times. The only requirement for membership of a Board of Directors is to hold a minimum of ten thousand Saudi Riyals of market value as shares in the company. The law further stipulates that companies have a right to adopt an appropriate method of remuneration for awarding the board of directors, including compensation for their attendance, salary and other material components besides a portion of the profits. Furthermore, the law requires the board to declare their earnings made in the company in its annual report.

1.10.2 Accounting and Auditing Standards

Saudi Arabia implemented a set of national accounting and auditing standards in the year 1986. These standards were originally based on American standards by the banking sector and financial companies, but despite officially adopting such internationally recognised standards, most Saudi listed companies still adhere to Saudi National Accounting Standards (IFRSs, 2010). The responsibility for developing and reviewing accounting and auditing standards in the Kingdom of Saudi Arabia lies with the Accounting Standards Committee of the Saudi organisation for Certified Public Accountants (SOCPA). Recently, SOCPA tried to merge these national financial reporting standards with the international standards (IFRSs). Since then, many banks and other financial companies have been applying the international financial reporting standards. However, SOCPA has faced several obstacles that have hindered their adoption, although it has not publicly identified these hindrances (Alghamdi, 2012).

Nonetheless, national accounting standards play an important role in Saudi Arabia with respect to developing disclosure and improving procedures for conducting financial transactions. These comprise of 23 standards, which include disclosure requirements, the standard for revenues, and the standard for inventory. Notably, national auditing standards help to increase the ability of external auditors, and to improve the quality of the auditing. Of these standards, 17 are concerned with auditor competence, independence, audit plans, and with audit reports (Alghamdi, 2012).

1.10.3 Corporate Governance in Saudi Arabia

In 2004, the stock market in Saudi Arabia experienced a rapid increase in its share prices. This dramatic rise was due to a culmination of rapid market growth that was initiated in February 2006, which developed from a dramatic drop in existing share prices. The low share prices were considered detrimental, as the market had experienced numerous losses to a tune of over \$480bn by December 2006, which comprised 53% of the entire market value. The sudden crash necessitated the adoption of various measures geared towards influencing the adoption of the necessary regulatory processes through the improvement of corporate governance mechanisms implemented in Saudi firms (SFG, 2009; Tadawul, 2012). This process led to the introduction of the Saudi Corporate Governance Code (SCGC) in November 2006 by the CMA, as this was considered a direct solution to prevent a stock market crash, and it sought to restore the confidence of investors in the market through the integration of market frameworks that provide better protection to investors (Al-Abbas, 2009).

Issues relating to corporate governance can become critical in emerging markets because these markets usually lack many features that are found in well-established infrastructures of financial institutions, such as for dealing with corporate governance matters (McGee, 2010). By referring to corporate governance, it is expected that disclosures of all essential financial matters of relevance to the company, including its performance, financial position, management and ownership are made clearly and in a timely manner. Prior to 2005, when the CMA pointed out problems relating to company performance, corporate governance mechanisms were not considered to be necessary in Saudi Arabia. However, the 2006 market crisis in Saudi Arabia highlighted the presence of serious issues and weaknesses in financial reporting practices, especially in terms of a lack of transparency, insufficient disclosure, and inadequate accountability (Saudi Journal of Accountancy, 2006). Consequently, corporate governance has since received special support from the Saudi government.

Moreover, corporate governance is becoming a critical issue in the present-day Saudi business environment, and is being much debated to improve conditions.

Corporate governance mechanisms in Saudi Arabia include essential rules and standards, such as those that relate to board composition, shareholder rights, transparency and disclosure. They also regulate the management of joint stock companies that are listed on the Stock Exchange. This responsibility ensures that best practices are complied with, and that the rights of both shareholders and other stakeholders remain protected. These laws which govern the legal framework affecting corporate governance in the Kingdom come under three groups: (1) the company law system derived from British Company Law; (2) the SOCPA; and (3) the CMA (Alghamdi, 2012).

Corporate governance was first established by the CMA Board in 2006, and it was later revised in 2010 for the purpose of regulating and developing the Saudi capital market, as well as to improve the credibility and transparency of financial reporting practices. In spite of the code serving merely as a guideline rather than as a mandatory regulation prior to 2010, companies listed on the Saudi stock exchange were obliged to disclose the provisions that had been implemented. Those that had not disclosed these provisions are required to explain, and to give reasons for their non-compliance in their company's annual report. The code in question consists of five main parts (SCGC, 2006). The first pertains to preliminary provisions in which some key terms are defined. Examples of such terms are 'independent member', 'non-executive' and 'shareholders'. The second part of the code specifies shareholders' rights and of the General Assembly. The third part of the code is concerned with disclosure and transparency with respect to company policy. The fourth concerns the responsibilities of the board of directors and its functions, and the fifth part of the code mentions publications relevant to the implementation of the code.

1.11 Regulations and Risk Disclosure

1.11.1 Regulatory Role of the CMA

As part of managing the Saudi Corporate Governance Code, monitoring corporate governance practice, and regulating the Saudi Stock Market, an important role of the CMA, is to regulate and develop Saudi companies. It does this through developing suitable rules and regulations that could help to increase investment, ensure that transparency and disclosure standards are maintained, and to protect investors and dealers from any illegal market activities (CMA, 2007). Transparency and disclosure are in fact two of the most important areas dealt with by the CMA. This is more so now that Saudi Arabia has developed to become one of the largest of emerging economies in the world; has the largest stock market in the Middle East (Piesse et al., 2012), and the Saudi stock market now being the largest in the Arab world in terms of capitalisation.

1.11.2 Disclosure Act in Saudi Arabia

Article 42 of the Capital Market Law (2009) issued by the CMA states that a company's prospectus should contain information as stipulated in Appendix B (CMA, 2015). This includes information that identifies the issuer, nature of business, and all individuals involved in managing the company including board of directors and major shareholders; details of the securities, and an explanation of how the proceeds of an issue are to be disbursed and details of associated charges. It is also required for it to contain a clear statement on the financial position of the issuer, as well as other relevant financial information and three important financial statements: balance sheet, profit and loss account, and cash flow statement. This information should also include "any other information needed by an authority that it deems investors and their advisers will need to make decisions about investing in the securities to be issued" (CMA, 2015, p.50).

Article 45 of the Capital Market Law issued by the CMA reiterates the requirement for the four types of financial statements, i.e. balance sheet, profit and loss account, cash flow statement, and other relevant information. It further states in Section A that these must be submitted quarterly and annually, and that annual reports must be audited. Section B specifies further requirements for

inclusion in the annual report, such as an adequate description of the issuing company, its nature of business and activities, and details of its board of directors, major investors, shareholders, executive officers and senior staff. Companies are also required to disclose details of current developments and of future plans “that may have a significant effect on the business results or financial position”, and “any other information required by investors and their advisors to make a decision to invest” (CMA, 2015, p.51).

1.11.3 Listing Rules and Disclosure

Currently, SOCPA adheres to the guidelines stipulated by the US GAAP standards in relation to risk disclosure. These guidelines require the identification of the main requirements pertaining to risk disclosure as stipulated in the financial statement with respect to the following: 1) Nature of the business; 2) Accounting policies of significance; 3) Accounting changes and treatment; 4) contingencies; 5) commitments; and 6) subsequent events (SOCPA, 2002).

Since 2003, the CMA has tried to develop and to improve corporate governance regulations in Saudi Arabia. In this regard, the 2004 Tadawul’s Listing Rules were pivotal for reforming corporate governance regulations. Therefore, the Saudi Corporate Governance Index (SCGI), which examines the degree of compliance with corporate governance standards, utilises these rules. Part six of the regulations, titled ‘Continuing Obligations’, contains fifteen articles that deal with disclosure and transparency in corporate annual reports with the aim of reducing asymmetric information (Albassam, 2014).

Article 25a makes it clear that firms listed on the stock exchange must inform the CMA and its own shareholders immediately about any major changes in their operations. Such a notification is required to be put onto the Tadawul website no more than two hours prior to the first trading period in the stock market. The purpose of this requirement is to let concerned stakeholders know beforehand about any potential effects on the firm’s assets, liabilities or general business procedures.

Article 26d requires companies to make both their quarterly and annual financial results available on the stock market website immediately after gaining board approval. The CMA makes it clear that these financial results must be announced within fifteen days for quarterly results, and within 40 days in the case of annual results. Furthermore, it is necessary for the annual report to be approved by the Board of Directors, and for it to be signed by the authorised directors, the CEO and the CFO before it can be published and circulated to shareholders (as per Article 26a).

As per Article 27a, the listed firms are also required to publish their annual reports in key national newspapers besides making them available on the Tadawul website. Furthermore, the firms have to review their operations conducted during the previous financial year. The information has to include mention of factors that may help investors in assessing the company's current financial position and projecting its likely future position. The report of the Board of Directors is therefore required to contain the following pieces of information:

- (i) A description of the main activities of the company;
- (ii) A description of the key plans, decisions taken, future prospects and potential risks faced by the company;
- (iii) A summary of the assets, liabilities and business results of the company covering the last five financial years;
- (iv) An explanation for any major differences between operational results related to the present and previous financial years;
- (v) Information on the company's dividend policy;
- (vi) A detailed description of the loans and debt commitments of the company.

Given the importance of the ownership structure, and that it is closely related to agency problems, Article 27/10 instructs companies to make the report of the board public regarding the company's

ownership structure by naming those shareholders who own 5% or more as shares in the company. This rule applies equally to directors and managers, as well as to outsiders and their associates. Additionally, it is a requirement to reveal to shareholders about any relevant changes during the last financial year. In order to increase transparency in the contracts of the companies, and to avoid exploitation by insiders, Article 27/17 states that the report of the board must reveal any information on the interests of board directors, the CEO, the CFO, or of their relatives in the firm's commercial transactions and their business contracts. In order to show the importance of the board, Article 27/16 states that the report should disclose the number of board meetings held, and also identify those who attended each meeting.

According to Article 27/22, the report of the board must contain statements that affirm the following:

- (i) That a proper accounting system has been used;
- (ii) That the internal control system is well designed and has been correctly implemented;
- (iii) That there are no serious doubts regarding the ability of the company to continue and evolve; and
- (iv) That the reasons for any change in external auditors are provided.

According to Managerial Signalling Theory (MST), managers in the capacity of agents or insiders, are privy to more inside information compared to ordinary shareholders as the principals (Bebchuk & Weisbach, 2010). It is for this reason that Article 33 forbids agents to trade within a "reporting window". Specifically, the directors and executive managers of the company, and their associates, are not permitted to trade in any of the company's securities during the period (i) 10 days prior to the end of the financial quarter up until the date the quarterly results are announced, and (ii) 20 days prior to the end of the financial year up until the date when the company's annual results are announced. Furthermore, so as to control the remuneration packages awarded to executives and

directors of listed firms, as per Article 36, the company should allow the general assembly to vote on a written policy for remuneration or compensation (Albassam, 2014).

As the above mentioned articles have highlighted, in regard to disclosure and transparency in corporate annual reports and their importance in Saudi Arabia, it is important to contextualise these regulations. This is because they lay the foundations of the current study by setting out the rules and regulations that are influential in the disclosure in the Saudi banking industry.

1.12 Structure of the Thesis

The subsequent chapter of this thesis provides a detailed description and examination of the underlying conceptual and theoretical frameworks applied in this study. The first conceptual portion expounds on the nature of risk and risk reporting including risk disclosure categories, and the benefits of risk reporting. A range of theories have been examined that were believed to satisfactorily explain the phenomenon of risk disclosure. These theories are regulatory theory, and several management incentive theories of agency theory, signalling theory, political cost and positive accounting theory, and capital needs theory.

The next three chapters (3 to 5) review of previous literature, details of the theories and methodologies applied, and the results and findings on risk disclosure practices together with an analysis and discussion in three important areas relating to this study. The results and findings are presented as evidence from the annual reports of Saudi Arabian non-financial listed firms, and the areas covered are as follows: Chapter 3 is on risk disclosure reporting and measurements, Chapter 4 is on corporate governance influence on risk disclosure and Chapter 5 is on risk reporting consequences on firm value. Chapter 6 presents the conclusion of the study.

Chapter 2: Conceptual and Theoretical Frameworks

2.1 Overview

This chapter provides a detailed description and examination of the underlying conceptual and theoretical frameworks applied in this study.

The first conceptual portion expounds on the nature of risk and risk reporting including risk disclosure categories, and the benefits of risk reporting. This includes defining the term risk itself, which is necessary to understand the central concept of ‘risk disclosure’, the associated concept of uncertainty. The main risk disclosure categories identified are financial and non-financial risk disclosure. Each of these are then subdivided further to make it clear what is meant by risk disclosure and what it involves in the context of this study.

A range of theories are then examined that are believed to satisfactorily explain the phenomenon of risk disclosure. These theories are regulatory theory, which is concerned with dealing with market defects, and management incentive theories. The latter include agency theory, which considers the relationship between principals and agents; signalling theory, which tries to explain the phenomenon of information asymmetry; political cost and positive accounting theory, which focuses on political factors that can potentially affect the decision to make a voluntary disclosure, and capital needs theory, which focuses on the need to raise capital.

2.2 Conceptual Framework

2.2.1 Nature of Risk and Risk Disclosure

2.2.1.1 Identifying Risk and Risk Disclosure

The increasing complexity of business life in the present era has increased the risks that firms might face. In addition, there are different forms that risks can take, and the way managements deal with them varies from one company to another. The increase in risks faced by firms could possibly increase the demand for more disclosure in order to help investors make decisions and evaluate the future of the company. It is therefore critical for each firm to clearly identify the types of risks that

they might face. This could help it to conduct a more accurate assessment of its risks. Consequently, informative disclosure concerning these types of risks can be provided.

The main concept underlying risk is uncertainty (FRS 5, p. 9). Risks present the possibility of failing, whereas certainties do not represent risks, even if they are negative or involve losses. There is a direct correlation between risk and return on investment, as investors are willing to take high risks in their investments if those risks are combined with the probability of achieving high returns. Conversely, they may be dissatisfied with low returns on their investments, even if the risk is low. Hence, there is a continuing need for mechanisms to know the risks and the risk measurements. In this regard, the most urgent need is for full disclosure of risks within the annual reports of companies.

In the Oxford English Dictionary (2009), risk is defined as the chance of a hazard, bad consequences, loss or exposure to danger. This definition also defines risk in terms of possible negative effects, as a 'danger' or 'hazard'. Linsley & Shrives (2006) stated that firms inevitably face difficulties in dealing with any type of risk disclosure if they do not have a clear definition of risks that might be faced. This shows a need to be more explicit about exactly what is meant by the word 'risk'. A clearer definition could help managers have a clearer vision and understanding of risk categories and measurements, and to evaluate the impact of future outcomes.

According to Watson & Head (1998, p.192), the term 'risk' can be defined as 'a set of outcomes arising from a decision that can be assigned probabilities', whereas 'uncertainty' arises 'when probabilities cannot be assigned to the set of outcomes'. Abdullah & Hassan (2013) thus categorise risks more broadly as being good, bad, or uncertain, and Ryan (2012, p.269) defines the construct of 'risk disclosure' as a "random variation in firms' future economic performance, given currently available information." Notably, Accounting Standard Board (ASB, 1998) describes risk as "uncertainty as the amount of benefits. The term includes both potential for gain and exposure to

loss”. As can be seen from the above discussion, there are several definitions of the concept of risk. This variability leads academics and researchers to identify risk disclosure in various ways.

In the circumstances, it is essential that there is clarity on the adopted definition because applying different definitions can lead to a different analysis and obtaining different results. The risk-reporting practices of companies listed on the stock exchange depend on various factors. This includes cultural, historical, legal, economic and political backgrounds of financial markets and regulatory practices. According to Linsley & Shrivess (2006), risk disclosure must be able to inform external users (i.e. its readers) about any past or future opportunity or probability of any hazard, danger, harm, threat, or exposure that may have a direct impact on the company’s future.

Beretta & Bozzolan (2004) defined ‘risk disclosure’ as the communication of information related to companies’ strategies, characteristics, operations, and other external factors that have the potential to affect expected results. Other previously conducted research (e.g., Hassan, 2009; Miihkinen, 2012; Khalif & Hussainey, 2014) has adopted the definition of risk reporting as being the type of information included in annual reports, insofar as they represent managers’ estimates, judgements, and reliance on ‘market-based accounting policies’, such as impairment, derivative hedging, financial instruments, and fair value, along with non-financial information on corporate plans, internal control risks, and on economic, political, and financial risks.

2.2.1.2 Risk Disclosure Categories

Corporate management can potentially benefit by having a clear definition of ‘risk’. Indeed, having effective risk categories and measurements is considered to be a necessary practice in the corporate world. As the meaning of risk varies among firms, some suggested tools are available that may be helpful in identifying risk categories for each firm. These tools include interviews, questionnaires, and checklists (AICPA & CICA, 2000). By using one or more of these techniques, firms might categorise their own risks so as to deal with them more effectively. Such identification of

appropriate risk categories may be considered as an essential step because categorising risk inaccurately can make risk measurement and risk disclosure incorrect.

Generally, there are two main categories of risk disclosure as made in annual reports, namely financial and non-financial risk disclosure (Linsley & Shrives, 2006; Souabni, 2011). Financial risk disclosure refers to those risk disclosures that are linked directly to financial statements, and which have a direct effect on a firm's assets, liabilities and cash flows. In contrast, non-financial risk disclosure does not have a direct effect on a firm's assets, liabilities and cash flows (Cabedo & Tirado, 2004).

In particular, financial risks can be divided into different categories. For instance, Cabedo & Tirado (2004) categorise financial risk to include the following: market risk, credit risk, and operational risk. Market risk usually arises as a result of variations in exchange rates and interest rates, as well as from changes in stock prices and commodity prices. Credit risk arises from the drop of a firm's client value. Operational risk arises from both internal and external factors that may have a negative effect on the assets or liabilities of a firm. In terms of non-financial risk, there may be categories that include both business and strategic risk. Business risk is a type of risk that is related to the possibility of loss that may arise from a firm's competitive skills, whereas strategic risk may be related to changes in the economy within which a company operates. Linsley & Shrives (2006) adopted five types of risk for non-financial risk, namely operational, empowerment, technology, integrity and strategic risks. In contrast to Cabedo & Tirado (2004) and Linsley & Shrives (2006), Abraham & Cox (2007) categorise risks as financial and business risk.

As reported in previously conducted academic literature, some professional bodies and regulators have paid attention to risk reporting clarification issues, for instance, the Institute of Chartered Accountants of England and Wales (ICAEW) (1997) in the UK, and the American Institute of Certified Public Accountants (AICPA) (2000) and the Institute of Risk Management (IRM) (2002) in the US. The ICAEW (1997) claims that risks are usually derived from two basic types of factors

– external factors and internal factors. External factors lead to external risks or environmental risks, whereas internal factors lead to internal risks or process risks. Furthermore, external factors are driven by uncontrollable conditions and actions, information about which is not necessarily provided in financial statements. A further example is from the Institute of Risk Management (IRM, 2002), which provides a diagram of risk categories showing that risks faced by an organisation and its operations arise from factors that are internal and external to an organisation. The IRM further categorises risk into different types, including strategic, financial, operational, and hazards.

2.2.1.3 Benefits of Risk Reporting

Disclosing risk information in annual reports could potentially contribute to achieving numerous benefits for both preparers and users. First, it could achieve this by providing information about a management's risk strategy and tolerance that may then assist users in evaluating a company's financial position and performance, as well as in identifying the sustainability and fluctuation of earning and cash flows (CICA, 2006). Second, the existence of an enhanced risk management process is an underlying prerequisite to achieving improved risk reporting. Companies that acknowledge the importance of risk reporting are most likely to successfully develop and improve their risk management strategies, and this may result in maximising shareholder value (ICAEW, 1997). Third, providing high quality risk information could lead to devising a code of best practice of risk management policies and standardised risk measurement, which in turn may result in an enhancement in the awareness of companies in regard to risk management and measurement practices (CICA, 2006).

Fourth, the underlying objective of financial reporting is to provide information that is useful in assisting users of financial reports in making economic decisions through reporting information on the amount, timing, as well as uncertainty of prospective cash flows. Reporting forward-looking information about key factors that may impact prospective performance, cash flow, and financial position is important to investors and financial markets (ICAEW, 1997). Fifth, risk reporting

contributes to promoting accountability by permitting management to disclose useful information about their efforts to discharge their responsibilities, as well as supporting investor protection through helping investors confirm or amend their views about a company's risk profiles (ICAEW, 1997).

2.3 Theoretical Framework

Nowadays, companies tend to make corporate disclosure or risk in order to provide a comprehensive picture of financial and non-financial information pertaining to their company. This information, which is mainly directed to owners and external users can be mandatory, as required by accounting standards or law, or else voluntary, or as necessary in response to internal decision making or external pressures (Ali et al., 2007).

In explaining the importance of theories, Christensen & Demski (2003, p.6) state, "Theory refers to a set of knowledge that explains or purports to explain a set of phenomena. It is a coherent description or set of principles that illuminates or explains some particular set of phenomena." Several theories have been devised to explain managerial motivation to disclose more information. Notable among them are risk disclosure theories. These can be divided into two major categories: 1) regulatory theory, and 2) management incentives theories. The latter category includes Agency Theory, Signalling Theory, Political Costs Theory, and Capital Needs Theory. The subsequent sections provide details regarding these two categories.

2.3.1 Regulatory Theory

In the imperfect and incomplete world of business, the demand for accounting regulations indicates that such regulation is seen as an effective way for handling market defects (Fields et al., 2001). In addition, Ogus (2002) observes that certain imperfect market conditions require a set of mandated disclosure regulations, which prescribe a minimum of restricted disclosure requirements to protect investors.

Scott (2003) argues that as a reaction to the problem of information asymmetry, market failures drive regulatory bodies to establish accounting regulations in order to protect investors and improve capital market operations. Healy & Palepu (2001) show that these established regulations could reduce the information asymmetry problem between informed investors considered as sophisticated investors, and uninformed investors considered as unsophisticated investors, and that this also helps in the redistribution of wealth between them.

Importantly, Dobler (2008) discusses the major reasons behind managers who make insufficient voluntary risk disclosures. These reasons include unverified information and the threat of economic disadvantages. It is largely due to the existence of such factors that voluntary risk disclosure is discouraging, so regulators have been motivated to mandate risk disclosure in order to ensure that investors are adequately informed.

2.3.2 Management Incentive Theories

Core (2001) observes that mandatory disclosure can be a highly effective way of minimising the problem of information asymmetry arising between managers and investors. Firms that do not seek to obtain an external source of finance usually have little or no need for making voluntary risk disclosure. However, if firm experiences opportunities for achieving high growth levels, and if the requirements for making mandatory disclosure are sufficiently low and there is high information asymmetry, then managers may be motivated to make the disclose voluntarily (Core, 2001; Dye, 1986). Core (2001) further suggests that more research is required on the association between voluntary risk disclosure and managerial incentives. Relevant theories include Agency Theory, Signalling Theory, Political Costs Theory, and Capital Needs Theory. These theories examine the likelihood of managers disclosing more information in their annual reports for the purpose of reducing information asymmetry.

2.3.2.1 Agency Theory

Agency theory, which is a prominent management incentive theory among others, was first introduced by Alchian & Demsetz (1972). It is based on the idea that principals as owners, and agents as managers, can be considered separately, while recognising a relationship between them. (Jensen & Meckling, 1976) they claimed that this relationship is managed by a contract under the terms of which the agents perform services to principals; that firm activity is thus also governed by contracts and that this facilitates making voluntary exchanges (Arnold & de Lange, 2004). This theory is therefore potentially useful to explain why voluntary disclosures are made.

The separation between the two parties however, leads to the arising of conflicts of interest between the two parties of agents and principals. There are two potential types of conflict that may occur. One is a conflict between management and shareholders, and the second is a conflict between management, shareholders and bondholders. A management-shareholder conflict may arise when managers seek out their own interests at the expense of the goal of maximising the share of profits for shareholders. It is believed that this increases the agency cost of equity. The second type of conflict involving bondholders may arise in cases where debt exists in the firm's capital structure, as this influences managers and shareholders to want to expropriate the value of the firm, which results in an increase in the agency cost of debt (Haddad, 2005). These potential conflicts incur costs, and lead to several further problems arising that are called agency problems. Jensen & Meckling (1976) identify three types of agency costs: (1) Bonding expenditures of the agent, (2) Monitoring expenditures of the principals, and (3) Residual loss representing 'differences in wealth between the agent and principal'.

One of the main agency related problems of concern is information asymmetry. This arises potentially from the willingness of each agency party to conceal information from the other party. In this scenario, agency cost increases because management seeks to enhance its own interests instead of the interests of its shareholders. As described by Arnold and de Lange (2004),

information asymmetry occurs when agents (management) enjoy a competitive advantage with respect to information within the company relative to that of the principals (owners).

As advised by Demski (1974), managers should disclose more information about the company through its annual report in order to differentiate itself from other poorly managed companies. That is, disclosing more information is a possible way of mitigating the impact of agency problems (Marston, 1996). This decision of making a disclosure may however be problematic because agents may only be willing to disclose that information which serves their interests, and in so doing, they may ignore other relevant information which they think would place them in a disadvantaged position.

Linsley & Shrivies (2000) discuss the relationship between risk disclosure and agency theory. Their study indicates that the conflicts between agents and principals may be attributed to the level of information required to be disclosed. Principals may receive a limited amount of information about a firm's risk and on how managers can deal with them. Consequently, it is thought that this may encourage the principals to monitor the performance of management in order to ensure they act based on their interests. This could put some pressure on the management for them to disclose more risk information voluntarily, so as to satisfy the principals.

Some studies on risk disclosure, such as by Abraham & Cox (2007) and Vandemaele et al. (2009), examine agency cost empirically. Some researchers therefore consider firm size and ownership structure as a proxy for agency costs. They have shown evidence for the existence of a positive relationship between risk disclosure and these aforementioned variables.

2.3.2.2 Signalling Theory

The development of signalling theory took place in an attempt to explain the phenomenon of information asymmetry in labour markets by adopting a range of disciplines that includes information disclosure (Campbell et al., 2001). The problem of information asymmetry occurs

potentially when one party in a market has a greater amount of information than the other party (Watts & Zimmerman, 1986).

Signalling theory was applied by Spence (1973) to offer an explanation of the problem of information asymmetry between an employer and employee. The theory explains how employees with a high level of education may use this information to signal about their productivity in order to distinguish themselves from those employees with a lower level of education. That is, it intends to explain how information asymmetry between different parties in the market can be eliminated by the more informed party signalling to the less informed party (Morris, 1987). A signal in this sense means “an action taken by a high-type manager that would not be rational if that manager was low type” (Scott, 2003: 422).

With respect to voluntary disclosure, signalling theory predicts that in the presence of information asymmetry, investors may be unable to differentiate high quality companies from low quality companies. The former are considered as those with high quality investment projects, and the latter as those with low quality investment projects. According to Scott (2003), investors may consequently withdraw from the capital market, or else they may offer an average or low price for any security. That is, high quality companies tend to have greater incentives that encourages them to make a greater disclosure of more information to the capital market so that they can distinguish themselves from their lower quality competitors (Campbell et al., 2001). As a result, the higher quality companies often receive an above the average market valuation, whereas it can be very costly for lower quality companies to do the same signalling to the capital market (Clarkson et al., 1994). Deegan & Unerman (2006) describe this perspective as the ‘market for lemons perspective’.

Companies with a superior record of risk management performance thus have greater incentives for them to disclose more risk information so that they can gain advantages from reporting this additional information in terms of share price upward adjustments (Woods & Reber, 2003).

Linsley & Shrives (2005) take the position that as with agency theory, signalling theory is generally suitable for explaining managers' reactions toward voluntary risk disclosure. According to Shrives & Linsley (2003), managers may choose to disclose a greater amount of risk information than they would normally for signalling to the market about the abilities of their companies in managing risk as compared to other companies, and to thus demonstrate their skills in risk management. Consequently, such voluntary disclosure may turn out to be an incentive for other companies to opt for more voluntary risk information disclosure than they would otherwise.

Some studies in the literature on risk disclosure use several variables, such as profitability, liquidity, and leverage, as a proxy for signalling theory.

2.3.2.3 Political Cost Theory and Positive Accounting Theory

Watts & Zimmerman introduced a theory called Political Cost Theory (PCT) in 1978. This theory focuses on the factors that could potentially affect the decision of management to make voluntary disclosure of information for the purpose of avoiding political costs. They argue that managers in large companies are under the public eye, and are therefore under pressure to disclose more information so as to avoid political costs, such as taxes, new regulations, or any other costs imposed by the government.

In order to deal with the pressure that companies are often put under by politicians, companies usually implement certain strategies, such as media campaigns demonstrating environmental or social responsibility, adoption of appropriate accounting procedures to minimise reported earnings, and lobbying of the government for changes in the accounting standards (Watts and Zimmerman, 1978). In this manner, management can thereby reduce the likelihood of adverse political actions being made against them, and thus reduce their expected costs, including legal costs that would otherwise be incurred by taking a stance against those political actions.

Political cost theory has therefore been adopted in this study to help explain the possible reasons why management makes voluntary information disclosures (Milne, 2002). This theory has been

used by other researchers to explain the phenomenon of voluntary disclosure (Curuk, 1999). However, no direct relationship has been found between political costs and the extent of voluntary disclosure. Although some studies have found this relationship to be positive (Raffournier, 1995), others have also found the existence of such a relationship to be doubtful (Milne, 2002). Companies may still choose to increase the extent of their voluntary disclosure in order to mitigate against the enforceable role of regulatory bodies, and also to avoid potential pressure from interference by the government. Those companies are susceptible to such pressure that are vulnerable to political attacks (Leventis, 2001). Watts and Zimmerman (1986) thus suggest corporate disclosure can mitigate against government intervention.

Political costs theory is normally applied to explain the company size hypothesis. This hypothesis states that larger companies are more motivated to make more voluntary information disclosure than smaller companies in order to reduce their political costs because they are in the public eye more compared to smaller companies, for instance, due to their tax status (Al-Hatybat, 2005). Zimmerman (1983) thus concludes that being subject to higher tax rates, larger companies also incur higher political costs than smaller companies. However, some studies suggest these political costs may not only be dependent on company size, but rather that industry sensitivity may also be related to political costs. They suggest companies extend their voluntary disclosure in the oil and gas industries so as to mitigate expected future regulatory costs (Ghazali, 2004).

Some companies may have high public profiles for other reasons as well, which would make them prominent in the political field, as well as by the media and general public (Watts and Zimmerman, 1986). According to Healy and Palepu (2001), previous research supports the position that financial reporting disclosure choices of managers are associated with contracting, and with capital market considerations and political costs. Companies can overcome such attention or pressure by disclosing additional risk related information to safeguard themselves. Both firm size and firm performance have therefore been applied as proxies in this study in order to empirically test the political cost

theory. Shrives and Linsley (2003) further suggest that the argument of political costs could be given to interpret risk disclosure practices. They give an example of a railway company suffering from poor safety, which they say could buckle under pressure from the media or public. Companies experiencing this kind of pressure may therefore wish to disclose additional information on travelling risks and associated actions taken for reducing such risks so that they may counter this undesired attention.

2.3.2.4 Capital Needs Theory

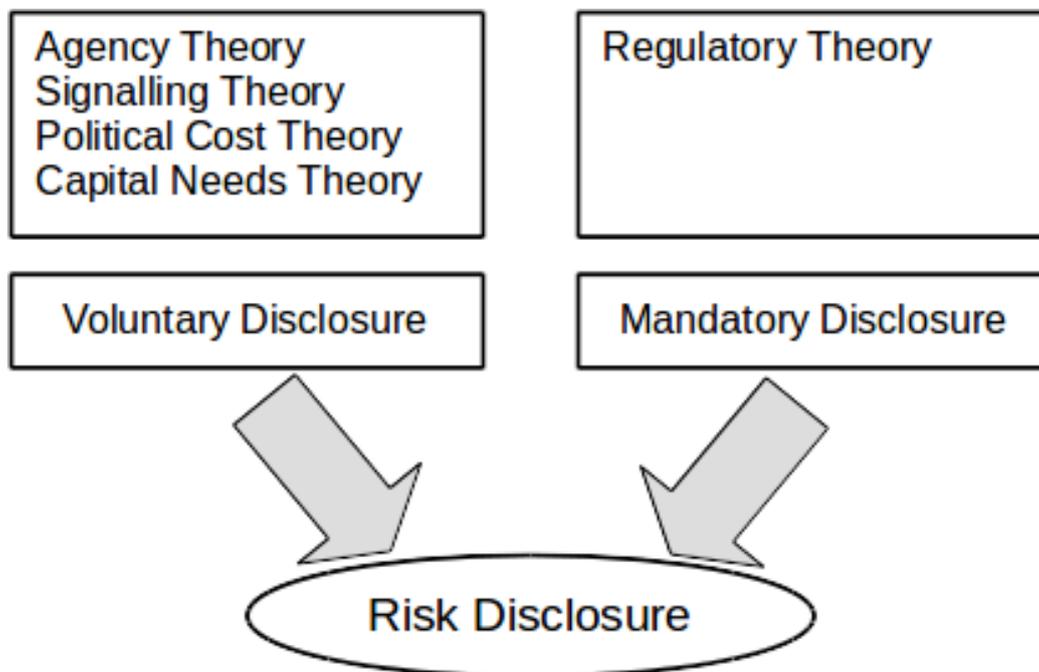
Companies tend to disclose information voluntarily with an aim to raise capital 'at the lowest possible cost' (Craven & Marston, 1999). The practice of making greater risk disclosure should in theory lead to making more efficient allocation of capital in the market, which could consequently help the stock market to evaluate and price the shares more appropriately. Furthermore, making more disclosure is expected to increase the number of providers of capital, and it increases the potential for companies to attract new shareholders, which can enable the companies to enjoy a healthy demand for shares in the liquidity market (Craven and Marston, 1999). It can also make it easier for new capital to be raised (Marston and Shrives, 1996).

Firms that are expected to make more valuable information available than what is required of them by law often tend to be those that go to the financial markets for raising capital (Chio (1973). Increased disclosure can lead to either of two possible outcomes for these firms: lower cost of capital, and reduced uncertainty related to risks with a certain aspect of security. "Directors who do object to keeping investors fully informed (including risk disclosures), need to consider quite seriously whether their companies should be listed" (ICAEW, 1999 p.46). The main purpose of floating on the stock exchange is to raise capital, so shareholders who risk their money as providers of capital should have the right to be kept completely informed about the company's financial position and activities in which they are investing.

In relation to risk disclosure, an information asymmetry problem may exist between a company and its external users. This could reduce the manager's chance to raise more capital in case of need.

Foster (1986) suggests that when companies try to raise capital at the lowest possible cost in capital markets, especially when facing competition from others on the type of security offered and on the terms of issue and future returns, certain risks and uncertainties arise. Further risks with respect to its securities may make investors ask for more information to help in evaluating the risks of existing and future cash flows, as well as the value of securities and for aiding in making suitable investment decisions. Consequently, managers may choose to disclose more voluntary disclosure information via their annual reports, thereby reducing the problem of information asymmetry and users' uncertainties, and attracting more capital relative to their competitors.

Figure 1: Risk disclosure theories



2.4 Chapter Summary

The conceptual framework covers the nature of risk and risk reporting, and its benefits. The increasing complexity of business life has led to an increase in risks faced by firms, which has in turn led to an increase in demand for disclosure of information to help investors make decisions.

The main concept underlying risk is uncertainty, and 'risk disclosure' refers to communicating information related to companies' strategies, characteristics, operations, and other external factors, as well as relevant non-financial information.

As regards types of risks, financial risk disclosures are those that are directly linked with financial statements, and which have a direct bearing on the assets, liabilities and cash flows of a firm, and non-financial RD's are those that do not have an effect on these. The financial risks can be further categorised as market risk, credit risk and operational risk. Market risk usually arises as a result of variations in exchange rates, interest rates, and changes in stock and commodity prices. Credit risk arises from the drop of a firm's client value, and operational risk from various internal and external factors that may have a negative effect on the firm's assets or liabilities. Non-financial risks include business risk, which are related to the possibility of loss arising from a firm's competitive skills, and strategic risk, which may be related to changes in the economy. Examples of non-financial risks are operational, empowerment, technology, integrity and strategic risks. In terms of source, risks may arise either externally or internally. External factors lead to external or environmental risks, whereas internal factors lead to internal or process risks.

The potential benefits of risk reporting include providing information about a management's risk strategy and tolerance, and identifying sustainability and fluctuation of cash flows. Consequently, risk reporting can assist users of the information in evaluating a company's financial position and performance, help companies improve the risk management strategies, lead to devising a code of best practice, and promote accountability.

The theoretical framework covers regulatory theory, and a range of management incentive theories. Regulations can be effective for handling market defects, protect investors, and improve capital market operations, which could potentially reduce the problem of information asymmetry between informed and uninformed investors. The management incentive theories examined for this purpose

are Agency Theory, Signalling Theory, Political Cost Theory, Positive Accounting Theory, and Capital Needs Theory.

Agency theory considers principals as owners, and agents as managers, separately while recognising their relationship, and recognises firm activity being governed by contracts, which facilitates voluntary exchanges. Management-Shareholder conflicts may arise when managers pursue their own interests at the expense of maximising profits for shareholders, and any conflict involving bondholders may arise if there are debts. Both types incur costs, such as bonding expenditures, monitoring expenditures, and residual loss. It can also lead to several agency problems, such as information asymmetry when one agency party conceals information from the other, as during the management-shareholder conflict scenario described above.

Signalling theory may explain information asymmetry between an employer and employee, and when highly educated employees signal about their productivity to screen themselves from other employees. As per signalling theory, investors may be unable to differentiate high quality from low quality companies, but the theory is usually suitable for explaining managers' reactions towards voluntary risk disclosure, as it can be an incentive for other companies to also opt for disclosing more voluntary information. With respect to the other theories, political cost theory focuses on factors that could potentially affect a management's decision to make voluntary disclosure in order that they may avoid political costs, and Capital Needs Theory suggests companies usually disclose information voluntarily with the goal of raising capital at the lowest possible cost.

Next chapter review of previous literature and methodologies applied, and the results and findings on risk disclosure practices together with an analysis and discussion

Chapter 3: Risk Disclosure Reporting and Measurements

3.1 Overview

This is the first of three empirical chapters that present an examination of previous literature and relevant theories, details the methodology applied with justification, and which present the results and findings on risk disclosure practices together with an analysis and discussion in three important areas relating to this study. The area in focus in this chapter is risk disclosure reporting and measurements.

The review of previous literature on risk disclosure reporting covers both mandatory and voluntary risk reporting practices, both financial and non-financial risk reporting, both quantity and quality of risk reporting, and proxies for measuring risk disclosure. The adopted research design involves the use of a risk disclosure index to provide a measurement of risk disclosure. The validity and reliability of this measure is also established. Detailed descriptive statistics are then presented, including by year and industry, as evidence from the annual reports of non-financial firms listed on the Saudi stock exchange.

3.2 Risk Disclosure Reporting: Literature

3.2.1 Mandatory and Voluntary Risk Reporting

Corporate risk disclosure can be both mandatory and voluntary. Mandatory risk disclosure refers to the risk reporting process that remains mandated by existing rules and formats developed by regulators considered to be instrumental for enhancing the level of transparency of financial reporting. The information required by corporate risk disclosure is considered as crucial for encouraging and restoring investor confidence in the market and companies. However, the lack of adoption of mandatory requirements pertaining to particular risk regulations or guidance on risk disclosure may encourage the adoption of a broader disclosure of risk by managers of information recommended by professional accounting bodies as guidance that may lead to making voluntary disclosure. Voluntary risk disclosure is considered to be risky reporting as compared to mandatory

risk reporting. Beattie et al., (2004) suggest that the relay of disclosure information in annual reports can take the form of either quantitative or qualitative, financial or non-financial, and historical or forward-looking information.

Requirements pertaining to mandatory risk disclosure reporting varies between different countries. The differences have necessitated the adoption of numerous studies pertaining to risk disclosure practices. For instance, the Financial Reporting Release (FRR) No. 48, was issued in 1997 by the Securities and Exchange Commission (SEC)¹ (Doyle et al., 2007; Ashbaugh-Skaife et al., 2007; Peters & Romi, 2012; Rice & Weber, 2012). Several studies have been carried out on risk disclosure by European corporations following the International Financial Reporting Standards (IFRSs) (Beretta & Bozalan, 2004; Linsley & Shrivess, 2006; Abraham & Cox, 2007; Lopes & Rodrigues, 2007; Deumes, 2008; Deumes & Knechel, 2008; Iatridis, 2008; Hill & Short, 2009; Rajab & Handley-Schachler, 2009; Vandemaele et al., 2009; Oliveira et al., 2011; Miihkinen, 2012; Hunzike, 2013; Elshandidy et al., 2013). Table 1 provides a summary of the mandatory requirements in a select number of developed countries.

Table 1: Mandatory risk reporting requirements in various countries

Country	Mandatory Risk Reporting requirements	Reference
USA	SEC 1997 Financial Reporting Release, No. 48 (FRR48)	SEC (1997)
UK	Companies ^{ss} Act 2006	ASB (2007)
Germany	The German Commercial Code (HGB), § 289(1), 315(1) in 1998, GAS 5	Kajuter et al. (2008)
Australia	Corporate Governance Code, AASB7	Taylor (2011)

According to Khlif & Hussainey (2014), the process of mandatory risk disclosure requires that firms adhere to the stipulations pertaining to risk reporting. The process expects that firms operating under the same mandatory risk-reporting requirements adopt the same policy for making risk disclosure. The process seeks to limit the level of variation identified pertaining to mandatory

disclosure among firms. The process further seeks to limit the level of influence of corporate characteristics on the risk reporting process.

The process for making voluntary risk disclosure provides for companies being given greater incentives to encourage the communication of information relating to risk disclosure. It is expected that this process provides for higher chances of gaining ‘political visibility’, and a high degree of financial risk. Therefore, by adopting a regular practice of making disclosures, the process seeks to influence the adoption of a regulated process that can lead to developing a balance between corporate characteristics and risk reporting. Ahmed & Courtis (1999) suggest that a disclosure regime (mandatory versus voluntary) is intended to develop a balance between the disclosure and corporate characteristics.

Lajili & Zegal (2005) regard firms analysing voluntary risk disclosure as undergoing a process that provides managers with additional freedom to incorporate the elements they seek for making voluntary disclosure. The researchers maintain that the majority of mandatory rules pertaining to risk disclosure adopted in Canada and the U.S. place emphasis on undertaking an analysis of the types of financial risks and commodity or market risks. The study identifies nonfinancial risks as being disclosed on a voluntary basis through the MD&A sections provided within the “materiality” and “significant risk exposure”. This process provides the management with an opportunity to exercise their preferred level of discretion pertaining to the selection of information to be publicly disclosed and which holds relevance to institutions external to the organisation.

3.2.2 Financial and Non-Financial Risk Reporting

According to Souabni (2011), the information provided in risk reporting may be divided into two main groups: financial risk information and non-financial risk information. Soubani (2011) argues that the quantification of financial risk is non-complex, but that non-financial risk may not be easily quantified. Financial risk disclosure describes a process whereby financial statements necessary for enhancing the financial analysis process are backed up. Financial risk disclosures describe risk

disclosures that involve developing a direct link to financial statements and which involve a direct effect on the assets, liabilities and cash flows of a firm. Lajili & Zeghal (2005) suggest that in some regions such as Canada, companies often develop a process that influences the disclosure of financial risks more than non-financial risks (Lajili & Zeghal, 2005). In contrast, Konishi & Ali (2007) reveal that Japanese firms provide more financial disclosures of non-financial risk related information. Linsley & Shrivs (2006) undertook a study on risk disclosure among UK firms and estimated the overall level of disclosure to be 26.7% whereas non-financial risk disclosure was estimated to be 73.3% of the overall disclosure.

In another study, Barakat & Hussainey (2013) investigate the direct and joint effects of bank governance, regulation and supervision on the quality of risk reporting information in the banking industry, as proxied for by Operational Risk Disclosure (ORD) quality in European banks. Al-Maghzom et al. (2015) examined both financial and non-financial risk disclosure practices in Saudi listed banks, further, Alzead & Hussainey (2017) examined both types of risk for non-financial listed firms. In contrast, this study contributes to existing risk literature by covering both financial and non-financial risk disclosure practices, but within Saudi non-financial listed firms.

3.2.3 Quantity and Quality of Risk Reporting

Linsley & Shrivs (2006) argue that companies should integrate processes that influence the quantification of the size of a risk, as it is necessary for enhancing the quality of risk reporting. The process ensures that readers have better and more access, as this is necessary for assessing the potential consequences of risks to the company. Cabedo & Tirado (2004) recommend financial and non-financial risks to be quantified in order to ensure that financial statements contain more information pertaining to corporate financial and economic situations. The process is crucial for provision of the desired information by users considered vital in making informed decision-making pertaining to investments in the company. Moreover, the quantification of risk disclosure related information enhances the level of credibility of those disclosures, which in turn enhances the

viability of the companies, thereby providing better chances of investment (Schrand & Elliott, 1998).

In contrast, Mohobbot (2005) argues that a quantification of risks entails various problems in the market, such as the difficulty of measuring certain risks, and ensuring that varied measurement processes remain applicable to specific risks. Rajgopal (1999) obtains similar findings relating to the effect that SEC quantitative market risk disclosures lead to a high possibility of unreliability due to the existence of numerous measurement problems. The process provides only three options for engaging in quantitative market risk reporting, namely 'tabular, sensitivity and VaR'. The process is considered to be detrimental, as it limits investors' ability to make favourable comparisons pertaining to varied firms in the market. Moreover, utilisation of the methods may influence the development of misleading disclosures, thus limiting the usefulness attached to the disclosure process.

Regardless, the developed norms pertaining to corporate disclosure studies usually place emphasis on the utilisation of quantities of corporate information disclosed as proxies, as necessary for enhancing the level of quality of corporate disclosure practices (Linsley & Shrives, 2005; Barako, Hancock, & Izan, 2006). In 1961, Cerf developed the philosophy that quantity signified high levels of quality. Krippendorff (1980) claimed that only in studies made within a specified category of disclosure can quantity signify the importance of that category. In relation to the development of viable analysis, Beattie et al. (2004) recommended the development of a disclosure index, readability scores, texture index and themes, which were considered vital in the development of the required representations of good disclosure practices. Hammond & Miles (2004) maintained that quality referred to the range of issues reported, as they were considered to be influential in the development of varied interpretations of quality pertaining to the operational definition of disclosure of information on corporate risks. The process led to the development of varied categories of and elements of risk disclosures, which remain observable and measurable.

3.2.4 Proxies for Measuring Risk Disclosure

3.2.4.1 Overview

The studies examined have relay on varied measures for disclosure, which researchers have subsequently used as a basis for their theoretical concepts thus rendering the direct measurement process complex. The adoption of a range of literature pertaining to disclosure influences the provision of numerous possible proxies that seek to measure the extent of disclosure. Empirical evidence in this area of literature integrates the various individual measures of risk disclosure including the disclosure index and the content analysis techniques used to provide a single measure (Marston & Shrivs, 1991; Jones & Shoemaker, 1994). Several studies have thus sought to integrate an analysis of all known measures of risk disclosure (Healy & Palepu, 2001; Beattie et al., 2004).

3.2.4.2 Content Analysis

Krippendorff (1980) maintains that content analysis has become a vital research technique that is now utilised in making valid inferences from data to their context that are also replicable. Krippendorff (1980) contend that content analysis remains valuable to researchers in the development of an informed understanding of the particular phenomena through the inclusion of conceptual content analysis and relational content analysis (Krippendorff, 1980). Conceptual content analysis has thus been utilised for determining the existence and/or the frequency of certain keywords, or of concepts within texts or sets of texts. Relational Content Analysis places great emphasis on identifying existing relationships among different concepts in a text (Beattie et al., 2004).

Content analysis can also be integrated in a manual or automatic process or through a combination of both methods. Some studies have sought to utilise a manual method for conducting Content Analysis (Beretta & Bozzolan, 2004; Linsley & Shrivs, 2006). The limitation favours the utilisation of automated content analysis in the majority of research processes (Abrahamson & Amir, 1996; Breton & Taffler, 2001; Kothari, Li, & Short, 2009; Elshandidy et al., 2013). However, several studies combine both methods of content analysis (e.g., Hussainey, et al., 2003; Beattie &

Thomson, 2007). Lajili & Zegal (2005) contend that the utilisation of content analysis for risk disclosure pertaining to non-financial types as the process influences the identification of the extent and volume of such disclosures. This study is using the manual content analysis to measure risk disclosure and using a sentence as a coding unit.

3.2.4.3 Disclosure Indices

Marston & Shrikes (1991) consider that disclosure indices refer to lists of selected items that may be disclosed in the reports of companies. Hassan & Marston (2010) define a 'disclosure index' as a research instrument utilised in the measurement of the extent of information reported in a disclosure through the analysis of an individual entity in relation to a selection of particular items of information. The disclosure index thus identifies an objective measure of disclosure, as opposed to a subjective one (Anis et al., 2012). This purportedly develops its basis on a set list of items that may be disclosed in the reports of firms (Marston & Shrikes, 1991).

A disclosure index integrates mandatory information items as well as voluntary information with the information listed in indices utilised in the identification of the required information pertaining to the reporting process including one or more disclosure means or tools that may include annual reports or analyst reports. The index items are applicable either to the overall disclosure means (such as annual reports), or to just a part of the annual report (such as a voluntary disclosure section). Additionally, the information may be focused on one sort of information pertaining to risk disclosure.

Earlier studies have identified a high level of variance experienced pertaining to the amount of variation in the construction of disclosure indices. The analysis maintains that the process can be considered to be different in terms of the degree of research involved in the construction process of the index. Additionally, the identified variances may be attributed to the adopted measurement approach; to the range of industries or countries, the type of information they cover, and context. Existing variances have influenced the adoption of studies that have sought to cover only the

section of mandatory disclosure (e.g., McChlery, Kouhy, Paisey, & Hussainey, 2015), whereas others have sought to solely investigate the section of voluntary disclosure (e.g., Cheung et al., 2010). Determination of the items as weighted values may be one of the most vital decisions adopted pertaining to the construction of the index. Accounting research recommends that both types of weighted and unweighted disclosure indices are used (Owusu-Ansah, 1998; Hassan, 2009; Mokhtar and Mellett, 2013).

In relation to the research, the present study adopts the unweighted disclosure index approach, as the study does not seek to place emphasis on any particular user group (Alsaeed, 2006; Naser et al., 2006). Rather, the study has sought to address all users of annual reports while working on the assumption that all users remain equally important (Oliveira et al., 2006).

3.3 Methodology

3.3.1 Research Design

This section details the research design adopted in this study for identifying the determinants of risk reporting.

3.3.1.1 Measurement of Risk Disclosure (Risk Disclosure Index)

Previous studies use both weighted and unweighted indices with the majority of studies utilising a weighted disclosure index (e.g., Barakat & Hussainey, 2013; Ismail et al., 2013), whereas other researchers use an unweighted disclosure index (e.g., Hassan, 2009; Mokhtar & Mellett, 2013). However, several researchers contend that both weighted and unweighted scores usually lead to obtaining similar results through the inclusion of a large number of items (Marston & Shrives, 1991). This study therefore adopted an unweighted disclosure index through the inclusion of all items, as this was considered to be vital (e.g., Hassan, 2009; Oliveira et al., 2011; Mokhtar & Mellett, 2013; Alzead & Hussainey, 2017). Using an unweighted disclosure index with a dichotomous scoring scheme could potentially cause a reduction in the level of subjectivity that is relatively more than in other scoring approaches (Beattie et al., 2004). The process may therefore be

instrumental in limiting the bias attached to the disclosure score, which may be crucial in the provision of detailed information pertaining to the process.

The study adopts a self-constructed unweighted risk disclosure index utilised in the measurement of risk disclosure in Saudi Arabian non-financial listed firms. The risk disclosure process incorporates the following sub-processes: 1) Risk-related requirements of the accounting standards, such as IAS 1, 21, 32, 36 and 39, and IFRS 7; 2) Saudi Arabia risk disclosure-related regulations and requirements; 3) Risk disclosure items that have been identified in the risk disclosure literature (e.g., Linsley & Shrides, 2006; Taylor, Tower, & Neilson, 2010); and 4) A comprehensive review of the annual reports of a random sample of 45 firms listed on the Saudi stock market during the period 2010 to 2014. The risk disclosure index thus comprises of 11 main categories and a total of 47 sub-items, and each sub-item is binary-coded (i.e., it is assigned a value of either 1 or 0).

3.3.1.2 Developing the Self-Constructed Disclosure Index for Measuring Risk Disclosure

A lack of stipulated regulations pertaining to risk disclosure limits the effective selection of risk disclosure items. The process causes a reduction in the degree of subjectivity, which incorporates certain steps. The initial step involves analysis of the risk-related requirements by accounting standards, which have been utilised in the assessment of the quantity of risk disclosure. The process incorporated IAS 21, 32, 36 and 39, and IFRS 7, as shown in Table 2. The second step integrates an analysis of the Saudi risk disclosure-related regulations and requirements. The developed regulations are as follows: 1) accounting related regulations and accounting standards (requirements of CMA and SOCPA1), and 2) review of the corporate governance code in Saudi Arabia.

Table 2: Risk-related requirements by accounting standards

Source of standard requirements for risk disclosure index items used in the literature	Studies that refer to the item
IAS 21 Effects of changes in foreign exchange rates IAS 21.47 encourages the disclosure of a foreign currency risk management policy.	Lajili & Zeghal (2005)
IAS 32 Financial instruments: Presentation This requires information on credit risk, liquidity risk, cash flow risk, market risk, currency, fair value, interest rates, and price.	Taylor, Tower, & Neilson (2010) Oliveira, Rodrigues, & Craig (2011)
IFRS 7 Financial risk disclosure principle The significance of financial instruments with respect to financial position and performance.	Lipunga (2014) Taylor, Tower, & Neilson (2010) Oliveira, Rodrigues, & Craig (2011) Hassan (2009)

In the third step, the study integrates a review of the amount of risk (e.g., Linsley & Shrides, 2006; Hassan, 2009; Taylor et al., 2010; Oliveira, et al., 2011; Mokhtar & Mellett, 2013; Alzead & Hussainey, 2017). This process affects the identification of risk-related items, which have been utilised in the assessment of the level of risk disclosure. This study seeks to integrate an effective assessment of comprehensive risk, which may influence the selection of risk disclosure item categories, and also identify financial risks faced by the firms. The fourth step involves the random selection of a sample of annual reports of 45 non-financial firms listed on the Saudi stock exchange. The process reads the annual reports to minimise the potential of bias. This process covers 11 categories that may influence the presentation of the risk disclosure index derived from the review of literature (e.g., Linsley & Shrides, 2006; Mokhtar & Mellett, 2013; Alzead & Hussainey, 2017). The process integrates an analysis of an existing sample of firms that may influence the development of existing variances pertaining to the risk sources and types that a firm face, including both financial and non-financial information.

The risk disclosure index is expressed as follows:

$$RD = \sum_{i=1}^n d_i$$

where $d = 1$ if the item is disclosed; $0 =$ if the item is not disclosed; $n =$ number of items; $i =$ firm

3.3.1.3 Sample Selection and Data Collection

The sample of the study comprises of non-financial listed firms in Saudi Arabia during the period from 2010 to 2014. The study examined 88 non-financial firms that were listed on the Saudi Stock Exchange (Tadawul), as of 31 December 2014, comprising of a total of 440 observations. The study utilises a sample based on the following criteria: (i) The availability of the firms' annual reports for all five years from 2010 to 2014 on Tadawul's website; (ii) The availability of the financial data of the firms and their stock market information over the five-year period; and (iii) The study excluded all financial firms based on the Industry Classification Benchmark (ICB) definition and classification of financial firms.

The sample period is chosen because in 2006 the Capital Market Authority (CMA) released the Saudi Corporate Governance Code (SCGC). Furthermore, after the issuance of the governance regulations, the CMA decided making some articles of the corporate governance regulations mandatory on all companies listed on (Tadawul) effective from January 2012 and 2013 (SCGC, 2010). Therefore, the study covers the period from 2010 to 2014 which allows to investigate the effect of corporate governance mechanism, before and after the mandatory application, on the extent of transparency in the risk disclosure. This will necessitate an analysis of the effect of the governance mechanism on extent of risk disclosure. Secondly, the study being undertaken depends on analysing risk reporting within annual reports using sentences as a coding unit, which have been commonly used on the literature (e.g., Mokhtar & Mellett, 2013; Barakat & Hussainey, 2013; Alzead & Hussainey, 2017). Milne and Adler (1999, p.243) support the use of the sentence as a coding and measurement unit because 'using sentences for both coding and measurement seems likely, therefore, to provide complete, reliable and meaningful data for further analysis'. However, the reasons for selecting annual reports as a main source of information for analysing data are as follows: 1) all firms are required to submit their annual reports on an annual basis, which is usually two to four months after the financial year end; 2) annual reports are official documents and are

considered to be a major source of communication for various users of accounting information; 3) the annual reports are comparable among different firms; and 4) annual reports are the basis for other sources of information, such as reports issued by analysts. Prior research (e.g., Lang & Lundholm, 1993; Botosan, 1997) indicates that disclosure scores in annual reports are correlated positively with other media of financial communications.

Saudi Arabia is chosen as the geographic focus of this study because it represents emerging economies well for several reasons: 1) The Saudi economy represents 25% of the total Arab GDP, and is considered to be one of the world's 20 largest economies (ranked at 19th place), and it is the largest economy in the MENA region; 2) The Saudi government has been implementing extensive steps aimed at improving its investment climate so as to make it more appealing for both domestic and foreign capital funds (according to The World Bank, Saudi Arabia is the easiest place to do business in the whole MENA region); 3) The Saudi stock market has the highest market capitalisation in the Arab region; is the largest emerging market, and is ranked at 17th worldwide in 2012; and 4) The issuance of the Saudi Corporate Governance Code (SCGC) in 2006 represented a major landmark in the development of accounting and governance requirements.

3.4 Self-Disclosure Index for Measuring Risk Disclosure

According to Weber (1998), a classification procedure ought to be valid and reliable, and these two qualities of a content analysis approach should be reviewed carefully. Validity concerns the extent to which a measuring instrument measures what it is intended to measure (Carmines & Zeller, 1991), and reliability concerns the consistency of the measurements (Colton & Covert, 2007: 65). Reliability allows different coders to code the same text in the same manner (Weber, 1990), i.e. consistently. In other words, if there is consistency, then the measurement is also more likely to be reproducible.

3.4.1 Validity

In order to achieve both face and content validity, and thereby measurement validity, two basic steps are recommended. The first step is to use the analytical analysis methodology to validate the risk index score, and the second step is to get some reviews for the coding scheme by some experts in the field of study (Neuendorf, 2002; Bryman & Bell, 2003). This study follows both of these steps for establishing face and content validity.

A measuring instrument can be validated by analytical analysis involving empirical evidence for support, as suggested by Shevlin (2004). This validity test deals with the extent to which the disclosure measurement is associated with theoretical expectations (Carmines & Zeller, 1991). Research conducted previously on disclosure (Botosan, 1997; Brown & Tucker, 2011) adopts an analytical analysis methodology for validating measures of disclosure. They suggested their measure of disclosure would be valid if associated with firm-specific characteristics.

Botosan (1997) for instance, developed a disclosure index for measuring the level of voluntary disclosure provided by firms in their annual reports. She claimed that her disclosure index is capable of measuring the level of voluntary disclosure when related to some characteristics of the firm identified in previous research, such as size or type of auditor. Her disclosure index is validated by examining the association between his index and the firm specific characteristics of size, exchange listing status, audit size and leverage.

In another study, Brown & Tucker (2011) measure change in narrative reporting by examining the rate of change in the frequency of specific words from within the MD&A narrative statements of an annual report. They claimed their measure of change was able to capture a considerable amount of new information when associated with factors identified in previous research as being determinants of voluntary disclosure. They validated their measure of change by empirically analysing the association between the measure and factors identified previously in research as being important determinants of voluntary risk disclosure. In the case of this study, these previously identified

factors were size, competitive environment, litigation environment, institutional ownership and type of auditor. Their measure is found to be associated with all the aforementioned factors except the last, and in their conclusion, they highlighted the validity of their results on the basis that the measure of change was able to capture considerable new information in narrative reporting.

In line with how Botosan (1997), and Brown & Tucker (2011), this study also empirically examines the association between the risk index score and certain factors identified in previous research as being determinates of risk disclosure. The factors selected in this case are firm size, profitability, auditor type and sales growth. As reported in the empirical analysis Section (5.5.3), this study confirmed the existence of associations between the score of change and the aforementioned determinants of voluntary risk disclosure.

In order to ensure the content validity of the risk disclosure index, it is reviewed independently by two expert researchers. After receiving the independent researchers' comments and suggestions, 24 items were deleted, so as to avoid repetitive and biased items. The final disclosure index comprised of 47 items. A disclosure index may be considered as valid if it is capable of measuring what it claims to measure (Field, 2009). The index used in this study relies on a measure that is capable of measuring what is intended to be measured. It is therefore claimed that the research instruments are valid. Table 3 presents the final disclosure checklists.

Table 3: Risk Disclosure Index

Category	Disclosure Items	Reference
Financial Risk Disclosure		
Risk management	1. Risk management disclosure	<ul style="list-style-type: none"> ▪ Saudi Corporate Governance Code (Article 10) ▪ Oliveira, Rodrigues, Craig (2011) ▪ Taylor, Tower, Neilson (2010) ▪ Saudi Governance Code 10 -B ▪ IAS 1 ▪ Mokhtar & Mellett (2013) ▪ Hassan (2009)
	2. Forecasting the risks the company may encounter	
Financial instruments	3. Financial instruments disclosures	<ul style="list-style-type: none"> ▪ IFRS7 ▪ Hassan (2009)
Liquidity risk	4. Liquidity risk disclosure	<ul style="list-style-type: none"> ▪ IFRS7 ▪ Oliveira, Rodrigues, Craig (2011) ▪ Taylor, Tower, Neilson (2010) ▪ Mokhtar & Mellett (2013)
Credit Risk	5. Credit risk disclosure	<ul style="list-style-type: none"> ▪ IFRS7 ▪ Oliveira, Rodrigues, Craig (2011) ▪ Taylor, Tower, Neilson (2010) ▪ Mokhtar & Mellett (2013)
Market Risk	6. Investments risk	<ul style="list-style-type: none"> ▪ IFRS7 ▪ IAS 21 ▪ IAS 32 ▪ Oliveira, Rodrigues, Craig (2011) ▪ Taylor, Tower, Neilson (2010)
	7. Financial markets risk	
	8. Foreign exchange rate risk (Currency risk)	
	9. Interest rate risk	
	10. Cash flow risk	
	11. Equity risk	
	12. Pricing risk or commodity price risk	
13. Fair value risk		
Non-Financial Risk Disclosure		
Operational risk	14. Risk of unexpected business interruption	<ul style="list-style-type: none"> ▪ Linsley - Shrives (2006) ▪ Annual reports*
	15. Marketing risk	
	16. Industrial risk (competition)	
	17. Customers' relations and satisfaction risk	
	18. Seasonality of demand risk	
	19. Loss of major customers risk	
	20. Efficiency and performance risk	
	21. Lack of natural resources risk (e.g. water)	
	22. Sourcing risk (Insufficient resources and raw material)	
	23. Risk of key supplies and not secure suppliers.	
24. Risk of Product or service development and failure		
Environmental risk	25. Risk of natural disasters	
	26. Risk of use of products that environmentally sensitive	
	27. Extreme weather conditions risk	
	28. Environment incidents risk	
Regulation and compliance risk	29. Risk of new laws and regulations related to the environment	
	30. Compliance to local law and regulations risk	
	31. Compliance to Saudisation law risk	
	32. Compliance to corporate governance disclosure requirements risk	
	33. Litigation risk	

	34. Risk of changing the current legal requirements	
	35. Any further discussion about other risk related to regulation and compliance	
Empowerment and employment risk	36. Human errors risk	
	37. Outsourcing risk	
	38. Risk of loss of key employees, or managers, or leaders	
	39. Employees and work environment risk	
	40. Recruiting of qualified and skilled professional	
Information and technology risk	41. Risk of technical and system failure	
	42. Risk of rapid development in technology	
Other type of risks	43. Risk of intellectual rights	
	44. Strategic Risk	
	45. Economic risk, internal or external	
	46. Governmental risk	
	47. Political risk	

3.4.2 Reliability

Krippendorff (2004) identified three types of reliability in the context of a semi-objective approach, namely stability, reproducibility and accuracy. Stability in this sense concerns the extent to which a coded text by a single coder leads to the same result repeatedly, reproducibility, also called inter-coder reliability, is the extent to which replicating coding procedures by multiple coders can give the same result, and accuracy to the extent to which coding procedures cause the same desired outcomes when assessing the coders' judgement relative to a standard or norm. Assessing these types of reliability requires adopting a range of procedures. For instance, 'test retest' procedures may be used for measuring stability, assessing proportion of coding errors between different coders for measuring reproducibility, and a predefined standard is necessary for measuring accuracy (Milne & Adler, 1999). Of the three forms of reliability, stability is arguably the weakest because a single coder does all the coding, and although accuracy is the strongest, it is usually difficult to measure because of a lack of predefined standards and norms (Weber, 1990). For these reasons, reproducibility is often used for assessing reliability.

Reliability however, can become a major concern if the scheme is human-scored (Marston & Shrives, 1991; Healy & Palepu, 2001). Even a computerised content analysis may have an issue of

reliability, as this depends on the reliability of the coding scheme and the risk disclosure index designed by the researcher (Sydserff & Weetman, 1999). Furthermore, as shown in the literature review, a content analysis may also be considered as not being reliable if it is only conducted once or is conducted only by a single person (Neuendorf, 2002; Hussainey et al., 2003). Reliability is therefore an important criterion by which the quality of research can be judged, and establishing reliability may not be easy, as it depends on training in conducting research, specification of the categories, and the complexity of the coding scheme (Bauer, 2000).

In order to ensure that the risk disclosure index was reliable, two independent researchers cooperated with the main researcher in scoring a selected firm randomly for a five year term of investigation. The three sets of scores were then compared. Minor differences that were noted in the compliance scores were found to be insignificant, as the researcher disclosure indices were agreed upon by all three researchers. A similar method was adopted by Marston & Shrives (1991) who claimed that index scores give to a firm can be considered as reliable if other researchers are able to replicate the procedure to obtain the same results. Table 4 presents samples of risk disclosure information contained in the annual reports of non-financial listed firms operating in Saudi Arabia.

Table 4: Samples of risk disclosure information in annual reports

Company	Risk Category	Example as per on Annual Reports	Industry	Year
Zamil Industrial Investment Co.	Financial risk	<p>Currency risk The risk that the value of financial instruments will fluctuate due to changes in foreign exchange rates. The consolidated balance sheet can be affected by movements in the exchange rate of Saudi Riyals against currencies of these foreign countries from investment in them.</p> <p>There are also transactional currency exposures that arise mainly from sales or purchases by foreign subsidiaries in currencies of the respective countries that are not pegged with the functional currency of the parent company.</p>	Building & Construction	2010
Yamama Cement Company	Financial risk	<p>Interest Rate Risks Interest risks of financial instruments changes due to the changes of the current interest value in the market, influenced on balance sheet, cash flows, the Company is not having essential assets charged by interest during the year ending 31 December 2011 or the previous year</p>	Cement	2012
Saudia Dairy and Foodstuff Co.	Non-Financial risk	<p>Operational risk Operational risk is “the risk of loss arising from systems failure, human error, fraud or external events. When controls fail to operate effectively, operational risks can cause damage to reputation, have legal or regulatory implications, or lead to financial loss. The Company cannot expect to eliminate all operational risks, but it endeavors to manage these risks through a control framework and by monitoring and responding to potential risks. Controls include effective segregation of duties, access, authorisation and reconciliation procedures, staff education and assessment processes, such as the use of internal audit.”</p>	consumer goods	2013
Aldrees Petroleum & Transport Services Co.	Non-Financial risk	<p>Reliance on Certain Important Computer Programs: Aldrees Management relies effectively on Enterprise Resource Planning (ERP) System, which provides integrated results for Aldrees operations and facilitates information flow among departments. Any malfunction, failure or dispute regarding the property rights of this System may adversely affect Aldrees operations</p>	Consumer Services	2014
	Financial risk	<p>Credit Risks Credit risks represent the inability of a party to meet its obligations, resulting in a financial loss incurred by the other party. The company policy stipulates that all customers desiring to deal on a deferred basis shall be verified in terms of credit. The financial instruments subject to credit risk concentrations primarily consist of balance at bank and with debtors. Bank deposits are lodged with many financial institutions of good credit rating. Aldrees has a policy based on establishing limits on deposits thereof with each financial institution.</p> <p>The Management believes there are no significant risks concerning the nonperformance of such institutions. Aldrees is not exposed to risk concentrations with respect to creditors in due to the capacity of its clients working in various industries and existing in multiple areas.</p>		

3.5 Analysis and Discussion

This section presents and discusses the results of the analysis, and the results based on the outcome of descriptive statistics of the risk disclosure index. This was adopted as the main tool for measuring risk disclosure information within non-financial listed firms operational in Saudi Arabia during the period from 2010 to 2014.

3.5.1 General Descriptive Statistics

Table 5, presents descriptive statistics for the risk disclosure score in percentage (%) for Saudi non-financial listed firms for the period from 2010 to 2014. Table 6 shows the percentage of the financial and non-financial risk disclosures as a proportion of the total disclosure.

In Table 5, the results indicate that the average risk disclosure level among all samples is 17%. Also, the highest risk disclosure level among all samples is 55%, and this score was recorded for Etihad Atheeb Telecommunication Company operating in the Telecommunication & Information Technology industry in the year 2014. Notably, the results show that there are some firms that did not make any risk disclosure. There were 10 such firms out of the total 440 observations. This finding is consistent with previous studies (Hassan, 2009; Dobler et al., 2011; Ali & Taylor, 2014; Alzead & Hussainey, 2017). Table 6 shows that non-financial listed companies in Saudi Arabia disclose more information about financial risk disclosure and its related risk types by 63%, and the non-financial risk disclosure score was 37% for companies included in the sample.

However, these presented results could lead to supposing that companies are disclosing the financial risk information to signal their abilities in assessing and managing the financial risks to stakeholders and market. The literature supports this finding, as financial risk disclosure is the most common type of risk (Abraham & Cox, 2007; Dobler et al., 2011; Ali & Taylor, 2014; Al-Shammeri, 2014; Abdallah et al., 2015; Alzead & Hussainey, 2017). Nevertheless, some managers may prefer not to disclose more information about non-financial risks because they believe that such information will not be useful for their investors.

Table 5: Descriptive statistics for the risk disclosure score

	N	Minimum	Maximum	Mean	Std. Deviation
RD	440	.00	.55	.1740	.08634

Table 6: Financial and non-financial risk disclosures as a proportion of total disclosure

Risk Category	Average
Financial Risk Disclosure	63%
Non-Financial Risk Disclosure	37%

Table 7, shows that the most reported risk disclosure sub-categories are Market risk at 23% followed by operational risk at 17%. At the other hand, the least reported risk disclosure sub-categories of disclosed risk information in the sample of companies are Environmental risk at 2%, and Information and technology risk at 2%. Furthermore, Table 7 indicates that the most reported risk disclosure item is credit risk disclosure at 8% (379 times) followed by liquidity risk disclosure at 8% (362 times). Notably, both of these items are under financial risk disclosure, which further supports the previous discussion. At the other end, the least reported risk items disclosed in the form of risk disclosure information in the sample of companies are ‘Risk of use of products that are environmentally sensitive’ (3 times) and ‘Risk of intellectual rights’ (5 times).

Table 7: Reported risk disclosure categories and items

Category	Disclosure Items	Total score	%
	Financial Risk Disclosure	2995	63%
Risk management	1. Risk management disclosure	350	13%
	2. Forecasting risks the company may encounter	272	
Financial instruments	3. Financial instruments disclosures	233	5%
Liquidity risk	4. Liquidity risk disclosure	362	8%
Credit Risk	5. Credit risk disclosure	376	8%
Market Risk	6. Investments risk	48	23%
	7. Financial markets risk	42	
	8. Foreign exchange rate risk (Currency risk)	377	
	9. Interest rate risk	344	
	10. Cash flow risk	34	
	11. Equity risk	52	
	12. Pricing risk or commodity price risk	158	
	13. Fair value risk	336	
	Non-Financial Risk Disclosure	1759	37%
Operational risk	14. Risk of unexpected business interruption	99	17%
	15. Marketing risk	38	
	16. Industrial risk (competition).	245	
	17. Customers' relations and satisfaction risk	21	
	18. Seasonality of demand risk	22	
	19. Loss of major customers risk	46	
	20. Efficiency and performance risk	106	
	21. Lack of natural resources risk (e.g. water)	10	
	22. Sourcing risk. (Insufficient resources and raw material)	105	
	23. Risk of key supplies and not secure suppliers	76	
	24. Risk of Product or service development and failure	36	
Environmental risk	25. Risk of natural disasters	13	2%
	26. Risk of use of products that environmentally sensitive	3	
	27. Extreme weather conditions risk	11	
	28. Environment incidents risk	40	
	29. Risk of new laws and regulations related to the environment	31	
Regulation and compliance risk	30. Compliance to local law and regulations risk	34	4%
	31. Compliance to Saudisation law risk	22	
	32. Compliance to corporate governance disclosure requirements risk	9	
	33. Litigation risk	5	
	34. Risk of changing the current legal requirements	86	
	35. Any further discussion about other risk related to regulation and compliance	57	
Empowerment and employment risk	36. Human errors risk	20	5%
	37. Outsourcing risk	30	
	38. Risk of loss of key employees, or managers, or leaders	78	
	39. Employees and work environment risk	49	
	40. Recruiting of qualified and skilled professional	48	

Category	Disclosure Items	Total score	%
Information and technology risk	41. Risk of technical and system failure	37	2%
	42. Risk of rapid development in technology	49	
Other type of risks	43. Risk of intellectual rights	5	7%
	44. Strategic Risk	44	
	45. Economic risk, internal or external	162	
	46. Governmental risk	41	
	47. Political risk	81	
TOTAL		4754	100%

3.5.2 Descriptive Statistics by Year

Figure 1 shows the trend of the risk disclosure score over the sample period (2010-2014), and Table 8 presents descriptive statistics of the risk disclosure score for the same sample period separately. The average risk disclosure in 2010 was 20% with a range of 62% as maximum and 0% as minimum. In 2011, a small enhancement was reached by 3% to make the average of the risk disclosure 23%. In 2012, the average risk disclosure increased to 25% with a range of 66% as maximum and 0% as minimum. In 2013, the risk disclosure score reached 27% and kept steady in the subsequent year (2014) with a range of 69% as maximum and 0% as minimum.

Figure 257: Average risk disclosure over period of study

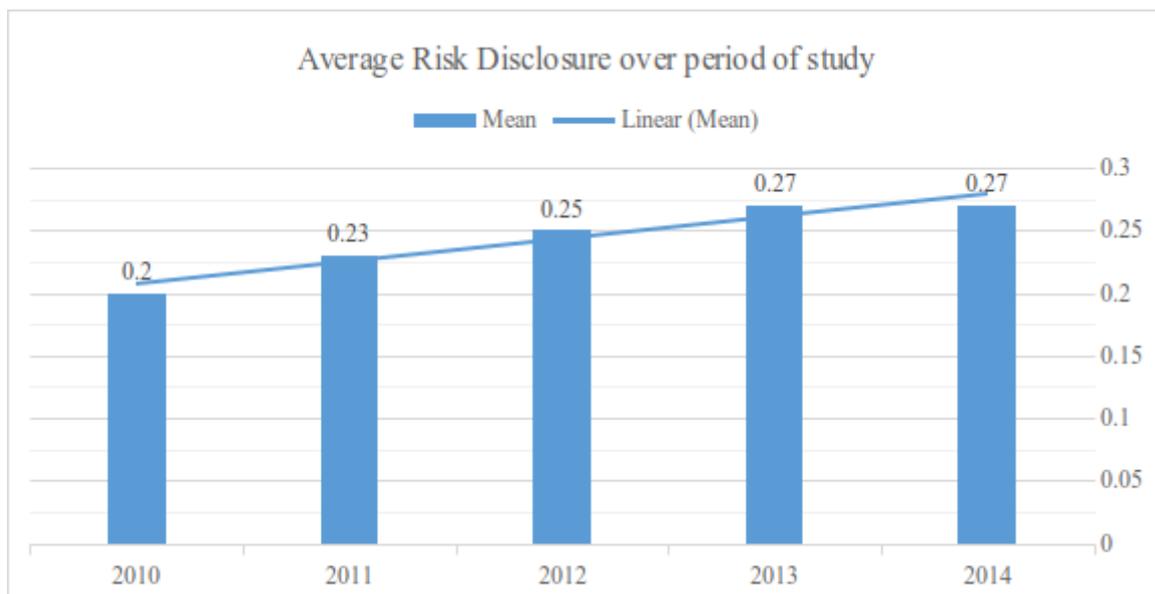


Table 8: Descriptive statistics of risk disclosure score for sample period 2010-2014

Year	N	Minimum	Maximum	Mean	Std. Deviation
2010	88	.00	.62	.20	.10985
2011	88	.00	.62	.23	.11262
2012	88	.00	.66	.25	.10529
2013	88	.00	.69	.27	.11593
2014	88	.00	.69	.27	.11593
Overall	440	.00	.55	.17	.08634

Overall, the results show that most companies experienced an increase in their risk reporting activity over the sample period. This indicates there was an upward trend in the average amount of risk disclosure being made by the firms in the sample of non-financial listed firms over the period 2010-2014.

3.5.3 Descriptive Statistics by Industry

Figure 2 and Table 9 show the results of the average risk disclosures over all industries in the sample including the standard deviations. Figure 2 also shows the trend of risk disclosure scores, including mean, minimum and maximum among all industries in the sample. The results show that the range of risk disclosure information among all industries is 18% to 44%. The telecommunication industry has the highest score of 44%, and the consumer goods industry has the lowest score among all industries of 18%. However, it has been argued that the technology industries, including the telecommunication industry, are facing rapid changes in their new products and services, which could be leading its firms to face unexpected financial or non-financial risks. Consequently, that would increase the pressure for managers to disclose more risk information annually (Amran et al., 2009).

Figure 3: Descriptive statistics by industry

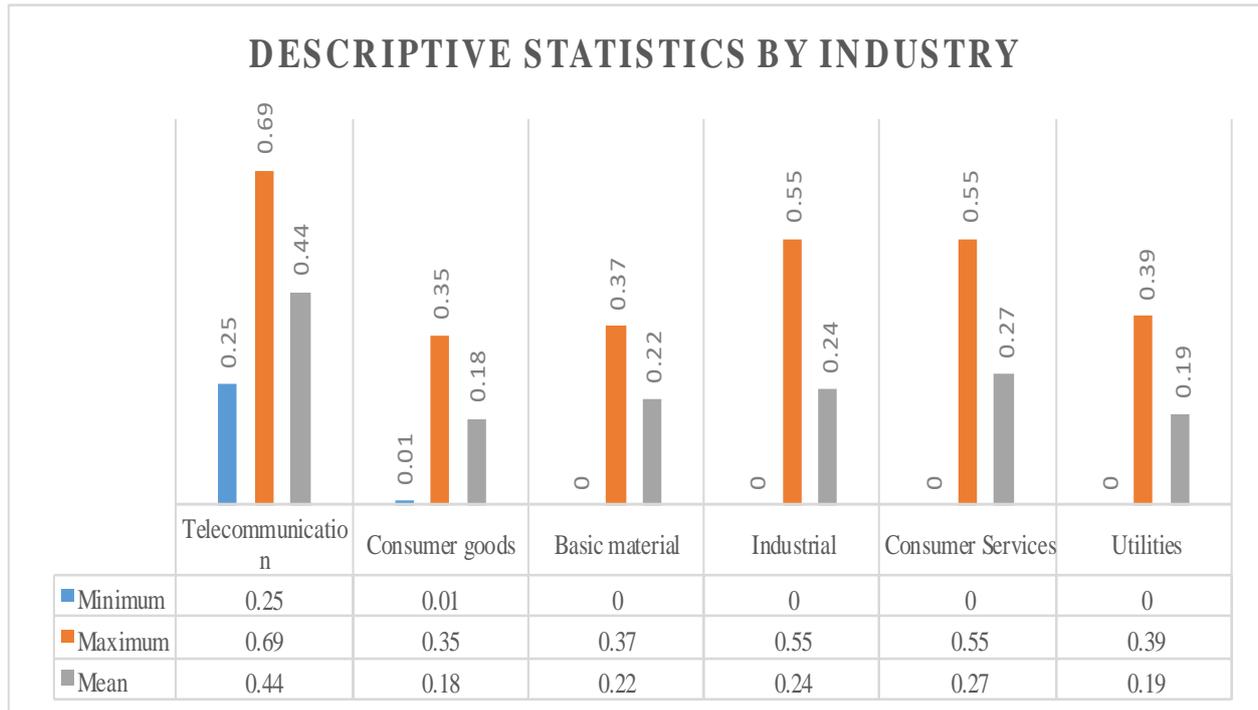


Table 9: Average risk disclosures over all industries in the sample

Industry	N	Minimum	Maximum	Mean	Std. Deviation
Telecommunication	20	.25	.69	.44	.15507
Consumer goods	70	.01	.35	.18	.08257
Basic material	70	.00	.37	.22	.06475
Industrial	180	.00	.55	.24	.09970
Consumer Services	90	.00	.55	.27	.10152
Utilities	10	.00	.39	.19	.19225
Overall	440	.00	.55	.17	.08634

3.6 Chapter Summary

Corporate risk disclosure can be distinguished into mandatory and voluntary disclosure. Mandatory risk reporting is stipulated by rules developed by regulators for enhancing transparency in financial reporting, which helps in uniformity of reporting and limiting variation and influence of corporate characteristics on the process. Voluntary risk disclosure allows for making more and broader disclosures of risk related information by managers, as recommended by professional accounting bodies, usually in response to greater incentives. Another division of risk is between financial and

non-financial risk. Financial risk disclosure pertains to financial statements and disclosures that have a direct effect on assets, liabilities and cash flows.

This also raises the issue of appropriate quantification of risk disclosure, as some claim it enhances credibility and chances of investment (Schrand & Elliott, 1998), but others claim it makes it difficult to measure certain risks (Mohobbot, 2005). The task of measuring risk disclosure has been undertaken by content analysis to make valid inferences from the data, and by developing disclosure indices, which take into account both mandatory and voluntary risk disclosure. An index also has an issue of selecting items and weighting them if not using an unweighted index.

This study adopted a self-constructed disclosure index by including all items considered as important. It is unweighted, as this reduces subjectivity and therefore also potential bias with the score, and it comprises of 12 main categories with 47 binary coded sub-items after establishing its validity and reliability by two independent researchers. It is based on: (1) Risk-related requirements of accounting standards, (2) Saudi risk disclosure-related regulations and requirements, (3) Risk disclosure items identified in previous studies, (4) Comprehensive review of annual reports of a random sample of 45 firms listed on the Saudi stock market during the period 2010-2014.

The sample in this study comprised of 88 non-financial listed firms and involved making 440 observations. Annual reports were chosen because they are official documents, a major source of accounting information; comparable among different firms, and they are the basis of other sources of information. Saudi Arabia was chosen because it is an emerging economy that is improving its investment climate, due to it having the highest market capitalisation in the Arab region, and the issuance of the SCGC in 2006.

The data gathered shows that the average RD level among all samples is 17%, the highest level is 55%, some (10 firms) did not make any risk disclosure at all, and of the majority that do, 63% of the information pertains to financial risk disclosure and related risks and the other 37% to non-

financial risk disclosure. The most reported RD sub-categories are market risk at 23% and operational risk at 17%, and the least reported ones are environmental risk, and information and technology risk, both at 2%. The trend for RD over the period of study shows that most companies experienced an increase in their risk reporting activity. By industry, the highest level of risk disclosure (44%) is being made by the telecommunication industry, and the lowest (18%) is by the consumer goods industry.

Chapter 4: Corporate Governance Influence on Risk Disclosure

4.1 Overview

In this stage of the study, an analysis is made of the effect of corporate governance mechanisms on risk disclosure practices. Several studies have placed emphasis on the effect of corporate governance on the general level of disclosure. However, there is limited literature that provides an adequate analysis of the effect of corporate governance on risk disclosure with specific emphasis on the influence of risk disclosure within emerging capital markets. The literature may influence the integration of an analysis of corporate governance and firm specific characteristics through an analysis of risk disclosure practices within Saudi Arabian non-financial firms.

The review of literature covers aspects of corporate governance and risk reporting. This includes defining corporate governance and examining its influence on risk disclosure. Various corporate governance mechanisms are then examined to develop the research hypotheses. This is followed by identifying and examining certain firm specific characteristics of relevance to risk disclosure. The research methodology section introduces and details the underlying research philosophy, strategy, approach and design. The results and findings are then presented.

4.2 Corporate Governance and Risk Reporting

4.2.1 Corporate Governance Definition

Corporate governance has developed into one of most vital elements influencing corporate structure in the last twenty years. Corporate governance places emphasis on the maintenance of the effectiveness of management structures through an analysis of the sufficiency and reliability attached to the corporate reporting process together with the effectiveness attached to risk management systems.

Solomon & Solomon (2004) point out that corporate governance involves a system of checks and balances pertaining to internal and external companies, as this ensures that the companies maintain high levels of accountability to all stakeholders. Furthermore, the process ensures that companies

act in a socially responsible manner within all areas of their business activities. The key elements integrated in the corporate governance process include the structure of the board of directors, the ownership structure, and the audit committee.

4.2.2 Influence of Corporate Governance on Risk Disclosure

According to Kothari et al. (2009), risk disclosure can be used as tool for decreasing information asymmetry between shareholders and managers, and also to increase shareholders' confidence about the future of the firm. However, previous studies show that presenting risk information on financial statements have been found to be insufficient for readers (Cabedo & Tirado, 2004). The literature clearly shows how there is lack on studies on investigating the effect of corporate governance mechanisms on risk disclosure (Dobler et al. 2011). One of the main objectives of this research is to examine the risk disclosure practices within a developing market, namely Saudi Arabia. Empirically, this research aims to examine corporate governance mechanisms as main determinants of risk disclosure practices in non-financial firms listed in Saudi Arabia. Furthermore, this study covers a sufficient sample examined over a period of five years from 2010 to 2014.

Several previous studies on risk disclosure address the effect of corporate governance mechanisms on general voluntary disclosure with little attention being given to voluntary risk reporting. Focusing on Corporate Social Responsibility Disclosure Jizi et al. (2014) study the association between corporate governance and corporate social responsibility disclosure within the financial sector in the USA. The study examines the impact of the role of board of directors on the quality of the corporate social responsibility disclosure covering the period from 2009 to 2011. Also, the study used audit committee characteristics, board meeting frequency, and banks' profitability, size and risk as its control variables. The result indicates that the two variables of board independence and board size are both positively related to CSR disclosure. Another study that has examined the level of voluntary risk disclosure in general is that of Habbash et al. (2015) who examine main drivers of voluntary disclosure in Saudi Arabia using a disclosure checklist of 54 items to measure levels of

voluntary disclosure for a sample of 361 firm-year observations of companies listed in the Saudi Arabian market over the period from 2007 to 2011.

There are also many other studies that have examined the effects of corporate governance mechanisms on the level of risk disclosure, such as Elzahar & Hussainey (2012), Ntim et al. (2013), Elshandidy et al. (2013), Mokhtar & Mellett (2013), and Abdallah et al. (2015). However, most studies on corporate governance and risk disclosure have examined only individual aspects, such as management structure and external directors (Deumes & Knechel, 2008; Hill & Short, 2009; Taylor et al., 2010), or board size and foreign ownership (Mokhtar & Mellett, 2013; Abdallah et al., 2015). There are also studies, such as Mokhtar & Mellett (2013), who attempt to measure both mandatory and voluntary risk disclosure, and have examined the effect of corporate governance, and of ownership structure, on risk disclosure in a sample of companies in Egypt for a one year period during 2007.

Notably, the context of these aforementioned and other such studies has been developed countries (e.g., Oliveira et al., 2011; Elzahar & Hussainey, 2012), although some have attempted to draw cross-country comparisons involving developed countries (e.g., Dobler et al., 2011; Barakat & Hussainey, 2013). As an example, Barakat & Hussainey (2013) examine the associations among operational risk disclosures and bank governance, regulation and supervision over a sample of European banks. This study shows the existence of a significant association between risk reporting and some particular corporate governance mechanisms, such as board directors, executive ownership, outside non-governmental ownership, and audit committee meetings, and banking competition related regulations. In comparison, very few studies have been conducted in this field in the context of developing countries, and those that have been conducted have not explored characteristics related to corporate governance comprehensively (e.g., Mousa & Elamir, 2013; Abdallah & Hassan, 2013; Mokhtar & Mellett). As an example, Mousa & Elamir (2013) who investigate the determinants of risk disclosures on Bahraini stock market used a sample of 46 listed

companies. The study aims to investigate the association between risk disclosures and foreign ownership along with some other firm characteristics. They report that foreign ownership, leverage, beta of the company, and the percentage of free float and industry were insignificant risk disclosures. However, other variables, such as company size, company listing, issuance of shares, and profitability are significantly associated with risk disclosure.

Also notable, is that many of the studies on developed countries have been conducted on financial or mixed institutions (e.g., Lajili & Zeghal, 2005; Oliveira et al., 2011). Lajili & Zeghal (2005) for instance, investigate the extent of risk disclosure and risk management information contained in the annual reports of mixed institutions (financial and nonfinancial institutions) in Canada. The objective of the study was to examine risk disclosure characteristics (intensity, nature, volume, and location) and usefulness. The sample comprised of 300 companies and was obtained in the year 1999. On the other hand, studies on non-financial institutions are few (e.g., Dobler et al. 2011; Elzahar & Hussainey, 2012; Elshandidy et al., 2015). Importantly, no investigations have previously been conducted on nonfinancial institutions in developing markets, specifically, that of Saudi Arabia.

This study therefore places great emphasis on the influence of the most common effective corporate governance mechanisms (i.e. board size, independent directors, non-executive directors, audit committee size, audit committee meetings, remuneration committee size, auditor type, block ownership, and governmental ownership) on risk disclosure practices, as no other study has examined corporate governance as a determinant of risk disclosure among non-financial listed firms in the context of a developing country, namely Saudi Arabia.

In terms of longitudinal studies conducted over a time period longer than one year, there are a few such studies on risk disclosure in the context of developed economies (Hill & Short, 2009; Taylor et al., 2010; Elshandidy et al., 2015). As also noted by Al-Shammari (2014) and Abdallah et al. (2015), no such longitudinal studies have been found in the context of developing countries. Only in

a recently published article, Al-Maghzom et al. (2015) investigate the effect of corporate governance on risk reporting on financial institutions covering a period of five years from 2009 to 2013. Notably, this study also aims to investigate the risk practice over a period of 5 years.

In this regard, the present study is unique in examining the phenomenon of risk disclosure in four important ways. Firstly, it is conducted in the context of a developing country, and secondly, it was conducted over a long time period of five years from 2010 to 2014. Furthermore, it was noted that no studies have been conducted previously on non-financial institutions in developing countries, specifically in the context of Saudi Arabia, so the study is also pioneering in this regard. Fourthly, this study examines the most important aspects of the corporate governance mechanisms that have been widely used on the literature, which are: board size, independent directors, non-executive directors, audit committee size, audit committee meetings, remuneration committee size, auditor type, block ownership, and governmental ownership.

4.3 Hypotheses Development

This section of the study presents an analysis of the existing literature pertaining to risk disclosure in relation to formulation of the research hypotheses. The study maintains that the main hypotheses develop a direct relation to the impact of corporate governance mechanisms on risk reporting quantity. The study therefore adopts the use of firm-specific characteristics as control variables.

4.3.1 Corporate Governance Mechanisms

The subsequent section presents an analysis of literature pertaining to the effect of board characteristics on risk disclosure that may be useful in helping to form the hypotheses of this study. The study uses the following proxies for obtaining a measure of the characteristics of the board of director: board size, independent directors, on-executive directors, and duality of the role of chairman.

4.3.1.1 Board of Directors

(1) Board size and risk disclosure

There is limited empirical research that seeks to identify the influence of board size on risk disclosure. However, several studies have attempted an analysis of the process through the context of voluntary disclosure. In relation to agency theory, a large board of directors influences the processes of managerial monitoring activities and control (Healy & Palepu, 2001). The process may influence the disclosure of more risk information in an effort to influence a reduction in the existing information asymmetry problem (Chen & Jaggi, 2000). Several researchers take the position that an increase in the number of directors is important in influencing the organisation's ability to effectively monitor and control companies in processes whereby risk disclosure can be considered as one of the key elements. For instance, Elshandidy et al. (2013) identify the existence of a significant and positive relationship between total risk disclosure and board size. However, Cheng & Courtenay (2006) argue that the adoption of a large board may negatively influence the organisation's control and monitoring processes (Cheng & Courtenay, 2006). However, other researchers argue that an increase in the number of directors with a wider range and more comprehensive expertise and knowledge, including in the field of accounting expertise, influences the development of a motivated team of directors that places emphasis on risk disclosure to signal this information to shareholders (Elshandidy et al., 2013; Elzahar & Hussainey, 2012).

Earlier empirical research however, has obtained mixed results pertaining to the process. For instance, Hussainey & Al-Najjar (2011), Elshandidy et al. (2013), Mokhtar & Mellett (2013) and Jizi et al. (2014) all find there to be a significant positive relationship between board size and the level of mandatory and voluntary risk disclosure information contained in the annual reports they examined. On the other hand, Cheng & Courtenay (2006) and Elzahar & Hussainey (2012) find there to be no significant relationship between these two variables. Through an analysis of the

existing literature, the study developed the following hypothesis positing that there is a positive relationship between the variables of board size and the level of risk disclosure:

H1: There is a relationship between board size and the level of risk disclosure within the annual reports of Saudi Arabian non-financial firms.

(2) Independent directors and risk disclosure

An increasing amount of recent research is being conducted on corporate governance regulations and academic research through an analysis of the proportion of independent members on boards of directors (Chen et al., 2011). Theoretically, agency theory maintains that a board of directors should incorporate a blend of both corporate insiders as well as corporate outsiders with different propensities towards disclosure. The theory maintains that the recruitment of independent directors is crucial in causing a reduction in agency problems (Abraham & Cox, 2007). Agency theory maintains that the inclusion of a high number of independent members on these boards limits the capacity of managerial opportunism (Allegrini & Greco, 2013). Therefore, an integration of a larger number of independent directors may influence the level of disclosure made by the company.

Mahedo et al. (2012) reveal that the emphasis placed on the integration of independent directors is a relatively new thing in the Saudi context. In 2006, the government passed the Saudi Corporate Governance Code (SCGC) that stipulated that the majority of directors on boards should be non-executive members (as per Article 12). The SCGC expects that the number of independent members should not be any less than one or two thirds of the size of the board (Article 12).

Many studies suggest there is a positive correlation between the proportion of independent directors and corporate risk disclosure. Eng & Mak (2003) however, suggest that there is a negative relationship between voluntary disclosure and the proportion of independent directors. In regard to this, the Saudi corporate governance code encourages the provision of independent directors by

ensuring that at least one third of the board members are independent directors, as this is considered to be a desirable proportion.

H2: There is a positive association between the proportion of independent directors and the level of risk disclosure within the annual reports of Saudi Arabian non-financial firms.

(3) Non-Executive directors (NED) and risk disclosure

The inclusion of non-executive directors on the board has influenced a generation of numerous studies pertaining to corporate disclosure literature as one of the main corporate governance mechanisms considered as being vital for making risk disclosure (e.g., Abraham & Cox, 2007; Elshandidy et al., 2013; Barakat & Hussainey, 2013). Several studies including Barako et al. (2006) maintain that the existing proportion of non-executive directors may lead to reduced agency conflicts. The process is considered vital as it has a positive influence on reducing the problem of information asymmetry, which influences the development of a viable balance necessary for influencing the existing level of board effectiveness (Fama & Jensen, 1983; Abraham & Cox, 2007; Elshandidy et al., 2013). Moreover, Ntim et al. (2013) argue that the inclusion of non-executive directors with wide and more diversified expertise and knowledge is considered as being more motivating in ensuring that present efforts pertaining to risk disclosure to signal this information to shareholders.

Previous empirical observations have provided mixed results. For example, Chen & Jaggi (2000), Abraham & Cox (2007), O'Sullivan et al. (2008), Oliveira et al. (2011), Elzahar & Hussainey (2012), Elshandidy et al. (2013), and Ntim et al. (2013) identify the existence of a positive relationship between non-executive directors and risk disclosure made in annual reports. On the other hand, Barakat & Hussainey (2013) find there to be a non-significant association between the two variables. Following a review of existing literature and theory, the study developed the

following hypothesis, which suggests the existence of a positive relationship between the proportion of non-executive directors and the level of risk disclosure:

H3: There is a significant positive association between the proportion of non-executive directors and the level of risk disclosure contained within the annual reports of Saudi Arabian non-financial firms.

4.3.1.2 Internal Audit

(4) Audit committee size and risk disclosure

Audit committees are recognised as important organisational elements that influence the level of internal control and of corporate governance. The members of the committee are required to act on behalf of the board of directors through an integration of effective monitoring process for the betterment of its stakeholders' interests. Forker (1992) maintains that the existence of an audit committee develops into a viable monitoring tool necessary for causing a reduction in the problem of information asymmetry.

Ho & Wong (2001) suggest that an audit committee comprises of non-executive directors who remain instrumental in causing a reduction in the existing information asymmetry problem. Taylor (2011) suggests that agency theory maintains that the provision of high levels of independence of an audit committee garners increased interest from shareholders (owners) pertaining to the reduction of information asymmetry. Taylor identified the existence of two main roles of audit committees, namely: 1) to enhance the risk management process, and 2) to conduct an examination of existing corporate reports and disclosures prior to their consequent provision to their respective owners (shareholders). Taylor maintains that an institution's investors place immense pressure on audit committees to influence the provision of more information pertaining to risk disclosure. Therefore, agency theory provides an understanding of the impact of an audit committee on corporate disclosure (risk disclosure) practices and levels. Additionally, the increase in the number of

directors on the committee is more likely to reduce the information asymmetry problem by putting pressure on managers to disclose more information (Chen & Jaggi, 2000).

The theoretical argument develops its basis on the agency theory. Empirical evidence incorporates mixed results as some of the studies identified the existence of a positive association (Taylor, 2011) while other studies maintained that there lacked any significant association (Forker, 1992; Neri, 2010). Through the analysis of the existent theoretical justification and some empirical evidence, the study developed the following hypotheses:

H4: There is a positive association between the size of audit committee and the level of risk disclosure within the annual reports of Saudi Arabian non-financial firms.

(5) Audit committee meetings and risk disclosure

On one hand, according to Barua et al. (2010), audit committee diligence is an important tool for ensuring an effective corporate governance mechanism. On the other hand, Sharma et al. (2009) claim that audit committee meetings have been used widely in previous studies as proxies for audit committee diligence. It is claimed that frequent meetings of audit committees impact positively on supervisory roles to make them more effective (Felo et al., 2009), and it also helps to reduce the potential problem of information asymmetry between management and stockholders (Barako et al., 2006). Moreover, more frequent meetings can also help to deal with fraud risk (Chen et al., 2006), and audit committees that meet frequently tend to have more time for discussing how to improve the weaknesses present in the internal control systems of firms (Goh, 2009).

As with the foundations discussed earlier in connection with audit committee size, the mechanism can be improved as per agency theory. A positive relationship between frequency of audit committee meetings and firm disclosure has been found in studies by Karamanou & Vafeas (2005) and by Allegrini & Greco (2013). Based on these research findings, it may be expected that a high

frequency of audit committee meetings makes the corporate governance mechanism effective.

Hence, the following hypothesis has been formed:

H5: There is a positive association between the number of audit committee meeting and the level of risk disclosure within the annual reports of Saudi Arabian non-financial firms.

(6) Remuneration committee size and risk disclosure

It was noted in the literature review that Liu & Taylor (2008) report the possibility of committee members exerting pressure on firms to disclose more information within their annual reports concerning remuneration for its directors and executives. However, the factor of remuneration committee size has not been examined adequately in previous studies. In one study that did examine this relationship for a possible association, not significant relationship was found (Anis et al., 2012). Notably, this study examined a possible effect of remuneration committee size on both disclosure quality and quantity. This position is supported by a more recent study by Kanapathippillai et al. (2016), the effectiveness of remuneration committees was examined in terms of its impact on voluntary disclosure of information related to remuneration. It was found that the remuneration committee does have an influence on disclosures related to remuneration information. The Saudi governance code (2010) requires remuneration committees to consist of a minimum of three members. With this in mind, the following hypothesis has been formed:

H6: There is a positive association between remuneration committee size and the level of risk disclosure within the annual reports of Saudi Arabian non-financial firms.

4.3.1.3 External Audit

(7) Auditor type and risk disclosure

Auditors are instrumental in the adoption of company decisions pertaining to the level of risk disclosure the company seeks to make to the public (Firth, 1979). The situation necessitates the hiring of an independent auditor for signing agreements, even in the absence of similar stipulations

in an existing organisational agreement (Healy & Palepu, 2001). The process is geared towards ensuring that the financial statements of firms adhere to existing regulations and accounting standards requirements. Furthermore, many researchers maintain that external auditors influence a firm's financial reporting quality and strategy, as external auditors affect disclosure practices within a company (Hail, 2002).

According to agency cost theory, an audit process develops into an instrumental monitoring aspect that influences the analysis of a firm's value and causes a reduction in issues associated with lack of providing the required level of information between principals and agents (Watts & Zimmerman, 1983). Furthermore, the findings from most studies suggest that companies who hire large audit firms tend to have high levels of agency conflicts, and they seek to reduce the existing level of conflict through the recruitment of external firms (Inchausti, 1997). However, in the wake of the biggest financial scandals (such as Enron), this has consequently led to the dismissal of large audit firms (e.g. Arthur Andersen). Therefore, in order to develop a strong brand image in the market, audit firms may be motivated to provide quality services in comparison to small audit firms, which provides the firms with the necessary power for influencing the disclosure practices of their clients (Watt & Zimmerman, 1986).

Previous studies have identified the influence of type of auditor on disclosure policy and its level in annual reports. Dumontier & Raffournier (1998) for instance, suggest large audit firms influence the adoption of IASs as they seek to maintain their level of independence, which enhances their reputation and leads to the development of the organisation's competitive advantage in the market through the application of the IASs. Furthermore, agency theory maintains that large audit firms have a higher chance of providing more assurance to shareholders, which may affect the identification of a reduction in existing monitoring costs (Wallace et al., 1994). Based on an analysis of the theory and previous literature, the following hypothesis suggests there exists a positive correlation between auditor type and the level of risk disclosure:

Previous studies have identified the influence of type of auditor on disclosure policy and level in annual reports. Dumontier & Raffournier (1998) maintain that large audit firms influence the adoption of IASs as they seek to maintain their level of independence, which enhances their reputation and leading to the development of the organisation's competitive advantage in the market through the application of the IASs. Additionally, the agency theory maintains that large audit firms have a higher chance of providing more assurance to shareholders, which may influence the identification of a reduction in the existent monitoring related costs (Wallace et al., 1994). Through the analysis of the theory and literature, the following hypothesis suggests there exists a positive correlation between auditor type and the level of risk disclosure:

H7: There is a significant positive relationship between auditor type and the level of risk disclosure within the annual reports of Saudi Arabian non-financial firms.

4.3.1.4 Ownership Structure

This section seeks to integrate an analysis of the existing literature pertaining to the effect of ownership structure on risk disclosure, which may influence the formulation of the hypotheses.

(8) Block ownership and corporate risk disclosure

The existing and established ownership structure has high degree of influence on corporate governance and financial disclosure processes adopted by a firm (Beattie et al., 2001). The directors have a role of preparing the annual report for shareholders, which shows that ownership can be directly involved in the process of risk disclosure (Abraham & Cox, 2007). The existing literature pertaining to risk disclosure covers varied aspects of ownership structure as explanatory variables of disclosure practices. The process has affected the division of ownership structure into several categories including block, foreign, institutional, governmental, and family ownership (Ntim et al., 2013).

Many modern firms attempt to separate ownership from control (Fama & Jensen, 1983). Agency theory stipulates that the key shareholders (principals) have high levels of power and provide incentives necessary for monitoring the behaviour of managers (agents). Additionally, the principals are provided with full access to internal information, which delimits the agency cost arising from shareholder/manager conflicts. The process leads to a decrease in demand pertaining to the existing level of disclosure (Jensen & Meckling, 1976; Rhodes & Soobaroyen, 2010).

Signalling theory seeks to provide an analysis of the existing relationship between disclosure and ownership structure. The theory maintains that disclosure has a high possibility of remaining in control of the companies. In addition, it maintains that outsiders may be actively involved in the process in order to secure their economic interests, as agents provide the impression that the company seeks to work in the best interests of investors (Muzahem, 2011). Several studies including Greco (2012) and Mohobot (2005) take the position of agency and signalling theories that the majority of firms do have a high possibility of providing more information about risk in their annual reports in an effort to ensure that company processes are geared towards meeting the needs of its shareholders.

Past studies have identified the existence of inconsistencies in findings pertaining to the importance placed on the relationship between block ownership and risk disclosure. Deumes & Knechel (2008), Reverte (2009), Khan et al. (2013), Mokhtar & Mellett (2013), Ntim et al. (2013) and Al-Najjar & Abed (2014) identify the existence of a negative relationship between risk disclosure and blockholder ownership. However, Konishi & Ali (2007), O'Sullivan et al. (2008), and Oliveira et al. (2011) have found there to be no relationship between the two variables of blockholder ownership and risk disclosure. The study maintains that blockholders motivate managers to influence the provision of the required information that may influence growth of share prices and the cost of capital, and consequently lead to a reduction in agency costs experienced in the monitoring process (Elzahar et al., 2015). The study therefore maintains that firms with block ownership are expected

to be actively engaged in the practice of low risk disclosures. The following hypothesis is thus formed:

H8: There is a significant negative relationship between block ownership and the level of risk disclosure within the annual reports of Saudi Arabian non-financial firms.

(9) Government ownership and corporate risk disclosure

Government ownership is largely affected by the provided incentives pertaining to provided management quality together with the potential for asset stripping or for misappropriation. Therefore, the role of the government in the capacity of a major shareholder of firms that they own materially, which maintains that the risk disclosure process may enhance the provision of access to the required resources necessary in enhancing the existing level of performance (Pfeffer & Salancik, 1978; Branco & Rodrigues, 2006). Moreover, the process may be vital for reducing agency costs for the benefit of other shareholders (Ntim et al., 2013).

An empirical analysis conducted by Eng & Mak (2003), Ntim et al. (2011), and Ntim et al. (2013) shows that there is a positive relationship between the two variables of government ownership and voluntary disclosure. However, Barakat & Hussainey (2013), and Naser et al. (2002) suggest that no such association exists between the two variables. Similarly, research by Dam & Scholtens (2012) also supports the existence of a negative relationship between government ownership and voluntary disclosure. These researchers take the position that government-owned firms disclose more risk information in comparison to privately owned firms. Based on an analysis of existing theories and previously conducted literature, this study has developed the following hypothesis that suggests the existence of a positive association between government ownership and the level of risk disclosure:

H9: There is a significant positive relationship between government ownership and the level of risk disclosure within the annual reports of Saudi Arabian non-financial firms.

Table 10: Definition and measurement of common corporate governance mechanisms

Category	Definition	Measurement
Board of Directors' Characteristics	Board size	The total number of directors on board
	Independent directors	Number of independent directors in the firm board of directors
	Non-executive directors	Number of non-executive directors in the firm board of directors
Ownership Structure	Block ownership	Percentage of shares held by shareholders with at least 5% of the total company shareholdings
	Governmental ownership	Percentage of shares owned by the government
External Audit	Auditor type	A dummy variable equal to 1 if the firm is audited by a big-four audit firm* or 0 otherwise
Internal Audit	Audit committee size	Number of audit committee members
	Audit committee meeting	Number of audit committee meetings
	Remuneration committee size	Number of remuneration committee members
*PricewaterhouseCoopers, Deloitte & Touche, Ernst & Young and KPMG		

4.3.2 Firm-Specific Characteristics and Risk Disclosure

Firms characteristics, as are listed in Table 11 along with the identification of the basic processes geared towards influencing the quantification of the characteristics. The quantification process is vital in the testing of the relevance of the identified characteristics with respect to the likelihood and degree of risk disclosure.

Table 11: Definitions and measurements of specific corporate characteristics

Definition	Measurement
Firm size	A natural logarithm of the value of firm's total assets at the end of the year
Profitability	The profitability as measured by return on equity
Liquidity	Firm's current ratio
Leverage (risk level)	Percentage of total liabilities to total assets
Sales growth	Measured of the firm's sales growth ratio at 3 years

4.3.2.1 Risk Level (Leverage) and Risk Disclosure

Risk level (or leverage) is a measure of external finance in relation to a firm's capital. This is another factor that may motivate managers to disclose more information pertaining to risk disclosure, as well as to minimise the problem of information asymmetry, in this case between firms and their investors on one hand, and their long-term creditors on the other (Patton and Zelenka, 1997). In previous literature, leverage has been examined for its impact on a firm's capital structure

and choice of accounting policies (Dhaliwal, 1980). The higher that a firm's debts may be, the greater could be volatility of earnings, and therefore a greater cash flow may be required to meet fixed interest charges, and hence the greater could be the probability of default risk (Dhingra, 1982).

Several previous studies have examined the possible association between accounting determined risk measures, such as leverage, and risk determined measures, such as Beta value, as a measure of systematic risk (Abdelghany, 2005). Notably, leverage can also be considered as a possible measure of risk itself (Linsley & Shrives, 2006). In theory, potential conflicts between stockholders and debtholders place highly leveraged firms under close monitoring by debtholders (Ahmed & Nicholas, 1994). The debtholders may then demand more information, including risk information, to assist them in assessing the firm's ability to discharge its obligations (Craswell & Taylor, 1992), and to determine whether the managers breach any debt covenants (Wallace et al., 1994).

Agency theory thus predicts that firms with high leverage enjoy greater incentives for disclosing more information voluntarily relative to firms that have lesser leverage, so as to highlight their capability in successfully monitoring and managing different risks (Linsley et al., 2006). Disclosing more information thus reduces the potential conflict between shareholders and debtholders (Depoers, 2000), besides reducing agency costs and information asymmetry (Chavent et al., 2006). Lakhali (2007) in contrast, posits that firms with large debts are more likely to provide their debtholders with more information privately, which means that there is reduced need for additional information in their annual reports.

4.3.2.2 Company Size and Risk Disclosure

An increase in the size of a firm increases the level of complexity and diversity associated with existing organisational operations and activities. Large companies identify high risk levels that influence the provision of higher information asymmetry between principles and agencies (Deumes & Knechel, 2008). Watts & Zimmerman (1983) maintain that larger firms have the highest capability of disclosing more risk information, as it may lead to a reduction in agency costs, and

also in terms of information asymmetry between shareholders and managers. Furthermore, the actions undertaken by large companies may garner more attention from the public, which may lead to an increase in the extent of public scrutiny (Amran, Bin, & Hassan, 2009).

Several studies have used company size as a proxy for political cost. For instance, Watts & Zimmerman (1986) suggest that political cost has a direct positive correlation to company size that can lead to an increase in the number of shareholders and stakeholders, and which would garner increased attention from the public and media (Linsley & Shrides, 2000). Cooke (1989) argues that the lower the political cost, the higher is the likely incentive that managers are required to disclose more information. Furthermore, Linsley & Shrides (2006) maintain that large companies have higher expectations from stakeholders pertaining to the disclosure of more risk information, as well as in their ability to respond to their needs effectively.

Abraham, et al. (2007) however, contend that large companies adopt diverse operations that increase the level of complexity comparative to smaller companies. The process increases the level of pressure experienced by large companies in comparison to smaller companies, which necessitates the disclosure of more information, as the companies are then expected to provide additional information pertaining to the process. The process also leads to increased disclosure of information made by large companies geared towards meeting the stipulated needs of the stakeholders. However, Deumes & Knechel (2008) maintain that the existence of high inherent risk increases the level of weaknesses attached to the reporting on risks.

4.3.2.3 Liquidity and Risk Disclosure

Liquidity is potentially another important aspect that may influence organisational processes. The process influences the identification of change pertaining to a company's liquidity, which garners increased levels of attention from varied regulatory bodies, as well as shareholders and creditors. Therefore, companies that do not meet the stipulated short-term and long-term financial commitments may experience bankruptcy and loss of confidence from interested parties (Naser et

al., 2002). Accounting standards thus necessitate preparing a retrospective cash flow statement to be issued, which provides information pertaining to liquidity flows necessary in the evaluation of the ability of the company to generate liquidity, and to meet its needs (Cabedo & Tirado, 2004).

Capital Needs Theory may be applied to the context of a firm in order to examine the development of an understanding of an existing association between liquidity and risk disclosure. The process may influence the identification of new external sources (such as borrowing agreements) necessary in raising the required level of financial capital. The potential for liquidity problems may lead to an increase in the level of demand for disclosure of more information pertaining to risk information considered to be crucial in the assessment of companies' financial positions.

The analysis leads to suggesting that shareholders may act in their own interest geared towards influencing the level of wealth, which may depreciate the level of interest of debtholders. The existing level of conflict would necessitate the demand for additional information by debtholders pertaining to the company's risk information.

4.3.2.4 Firm Growth and Risk Disclosure

A firm's growth can potentially be a useful tool and provide an incentive for managers to disclose more information pertaining to risk disclosure (Khurana, Pereira & Martin, 2006). This growth may also reduce the problem of information asymmetry between a firm and financial institutions, which in turn may also improve the capability in obtaining external financial resources required for future needs. Some other firms however, may lack in their capability for gaining internal control and experiencing rapid growth, and this could potentially lead to an inherent risk conflict. It may however be possible for firms to avoid this risk, and to increase the incentive for management reporting any weaknesses in internal control.

In theory, business activities can have an impact on the growth of firms directly (Henry, 2008), which may then raise the need for external capital (Chung & Zhang, 2011). Firms with high growth may be expected to have a good reputation that can enhance their chances to have a better valuation

than they would otherwise (Henry, 2008). Agency theory also suggests a strong governance structure can be useful to firms to help them fulfil their external financing needs (Beiner et al., 2006). With these theories and findings in view, this study measures firm growth by year over a 3-year period in the form of sales growth (Beiner et al., 2006).

4.3.2.5 Profitability and Risk Disclosure

The majority of studies place emphasis on the effect of a firm profitability on voluntary disclosure through the identification of the existence of a positive relationship pertaining to general voluntary disclosure (Chavent et al., 2006). The premise is that companies with high profitability disclose more information pertaining to a firm's management and risk.

However, profitability may produce an important proxy for a company's performance, so the factor could therefore be crucial in attracting users of annual reports. Signalling theory suggests the existence of a relationship between disclosure and company performance variables, such as profitability. Additionally, managers may seek for making risk disclosures in their annual reports (Konishi & Ali, 2007). Moreover, research suggests that managers with better performance include a reflection in their annual reports indicating organisational growth, and that this attracts additional investment.

Companies that incorporate intricate risk management processes increase the level of profitability due to the provision of efficient risk management systems that influence the identification and management of risk in earlier stages of management. The process seeks to limit existing losses through causing an increase in the company's performance and profitability. Moreover, profitable companies tend to have more resources that influence investment processes in internal control and risk management systems (Deumes & Knechel, 2008). Thus, shareholders of profitable companies place little emphasis on the provision of information related to risks and their management.

4.4 Research Methodology

4.4.1 Research Philosophy

As pointed out by Anderson (2009), there are a number of research philosophies or paradigms including positivism and interpretivism. The positivist philosophy involves a scientific detachment that limits the distortion of potential of opinion and bias, which influences the development of high levels of objectivity pertaining to the process (Parsa, 2001). It also involves an analysis of the existing theory geared towards influencing the development of hypotheses capable of effective testing, which may lead to a consequent confirmation or rejection (Saunders et al., 2009). In contrast, the interpretivist philosophy places emphasis on the existence of variances necessary for enhancing the research process among people and objects of the natural sciences. The process therefore necessitates a social science approach for identifying the subjective meaning of social action (Saunders et al., 2009).

Table 12, identifies the existing variance between the two approaches. A paradigm is therefore characterised among other aspects, by a certain methodology that is adopted by researchers for acquiring or developing knowledge. A research paradigm is also concerned with two main concepts: the nature of the phenomenon under study, and the function or role of the researcher. Clarity on the research paradigm being followed assists researchers in conducting their studies more effectively. Research methods and philosophies are two major concepts that are consistent in a research paradigm.

In this research, the philosophy of positivism will be followed, as it examines the reality of an already existing phenomenon of risk disclosure reporting within annual reports of non-financial listed firms. This research also entails the use of existing theory in the development of a hypothesis that will then be tested, so that it can then be either rejected or confirmed (Saunders et al., 2009).

Table 12: Comparison of positivism and interpretivism

Panel A: Common terms used to describe the paradigms	
Positivism	Interpretivism
Quantitative	Qualitative
Objective	Subjective
Scientific	Humanist
Traditionalist	Phenomenological
Panel B: Features of the paradigms	
Positivism	Interpretivism
Large sample is involved	Used with small samples
Concerned with hypothesis testing	Helpful in generating theories
Produces precise, objective, and quantitative data	Produces 'rich' subjective and qualitative data
Produces results with high reliability but low validity	Produces findings with low reliability but high validity
Allows results to be generalised from the sample to the population	All findings can be generalised from one setting to another setting
Source: Collis & Hussey (2009, pp.58, 62).	

4.4.2 Research Strategy

Two main types of research strategies have been widely used in risk disclosure research: 'quantitative' and 'qualitative'. The quantitative strategy emphasises quantification in data collection, analysis, and hypothesis testing. Adherents of the positivist philosophy consider the quantitative strategy to be the most suitable research strategy (Crotty, 1998) because it involves following a methodical approach that leads to obtaining data that can be interpreted and tested objectively. Moreover, the nature of the research objectives for this study suggests the use of a quantitative strategy.

4.4.3 Research Approach

There are two main research approaches that can be taken in conducting research, namely deductive and inductive approaches. The deductive approach develops from a theoretical standpoint, which influences the development of the study hypotheses. The process leads to the designing of the research strategy required to test the hypotheses through an analysis of the collected data (Saunders et al., 2009). The inductive approach involves the collection and analysis of data, which influences the development of a theory influenced by the existing conclusions developed from the data analysis (Bryman & Bell, 2003). This study adopts the deductive approach because it is considered

to be the most relevant and applicable to the study, which requires the development of appropriate hypotheses through analysing an existing theory.

4.4.4 Research Design

This section details the research design of the study constructed to identify the determinants of risk reporting.

4.4.4.1 Measurement of Risk Disclosure

Risk disclosure (RD) measured using a disclosure index. The measurement of risk disclosure has been discussed in detail in Chapter 4 under 4.3.1.1 Measurement of Risk Disclosure (Risk disclosure index).

4.4.4.2 Independent and Control Variables Measurements

❖ Corporate governance mechanisms

1) Board size:

Board size variable (BSIZE) is the number of directors sitting on the board at the end of each year. This measure is consistent with Hussainey and Al-Najjar, (2011), and Elzahar and Hussainey (2012). Board size data is collected manually from annual reports.

2) Independent directors:

The independent directors (IND) is the proportion of independent directors on the firm's board of directors. This is consistent with Alergini and Greco (2013); Allini et al., (2014); Allini et al. (2016). Independent directors' data is collected manually from annual reports.

3) Non-Executive directors:

The non-executive directors' variable (NONEXE) is the proportion of non-executive directors relative to the board size. It measures board composition consistent with Abraham and Cox (2007), Elzhar and Hussainey (2012), Elshandidy et al (2013), and Allini et al (2014). Non-executive directors' data is collected manually from annual reports.

4) Audit committee size:

The audit committee size variable referred to as (ACSIZE), is measured as the total number of members on the audit committee. This is consistent with Elzahar and Hussainey (2012). The Audit committee size data is collected manually from annual reports.

5) Audit committee meetings:

The audit committee meetings variable (ACMEET), is measured as the number of audit committee meetings. This is consistent Alergini and Greco (2013); Allini et al. (2016). The Audit committee meetings data is collected manually from annual reports.

6) Remuneration committee size:

Number of remuneration committee members is the measurement for the remuneration committee members' variable (RCSIZE). Also, this variable data is collected manually from annual reports.

7) Auditor type:

The auditor type is the size of the audit firm (big audit firms vs. non-big audit firms). A dummy variable equal to 1 if a big-four audit firm audits a firm (PricewaterhouseCoopers, Deloitte & Touche, Ernst & Young, and KPMG), or 0 otherwise. We refer to this variable as (ATYPE), the auditor type data is collected manually from each firm's annual reports.

8) Block ownership:

The block ownership variable refers to as (BOSHIP), is measured as the percentage of ordinary share held by substantial shareholders ($\geq 5\%$). The block ownership data is collected from DataStream.

9) Government ownership:

This variable refers to as (GOSHIP) is measured as the percentage of shares held by government. data for this variable is collected from DataStream.

❖ **Control variables (firms' characteristics)**

In this study the control variables are company size, leverage, liquidity, sales growth, and profitability. This Study measures the firm size (FSIZE) by the natural logarithm of total assets similar to Abraham and Cox (2007), and Abdallah et al., (2015). Firms with higher levels of debt typically work to reduce information asymmetry by disclosing more information to their stakeholders (e.g. Abraham and Cox, 2007. leverage (LEVE) is a control variable that was measured as the percentage of total liabilities to total assets. Moreover, Liquidity (LQ) is a control variable measured as the firm's current ratio. Sales Growth (SALEGTH) measured as the firm's sales growth ratio at 3 years. The firm's sales growth ratio at 3 years= ((current year's net sales - net sales three years ago) / net sales two years ago) *100.

This study measured the firm profitability variable (ROE) by the natural logarithm of Return on Equity (ROE) which is defined as [Net profit after tax/Shareholders funds]*100%. Finally, all control variables are collected from DataStream database. Table 13 presents a summary of the measurements of the variables examined in this part of the study.

Table 13: Summary of definitions and measurements of variables

Definition	Acronym	Measurement
Risk Disclosure	RD	Measured using a disclosure index
Board Size	BSIZE	The total number of directors on board
Independent Directors	IND	Number of independent directors on the firm's board of directors
Non-Executive Directors	NONEXE	Number of non-executive directors on the firm's board of directors
Audit Committee Size	ACSIZE	Total number of members on the audit committee
Audit Committee Meetings	ACMEET	Number of audit committee meetings
Remuneration Committee Size	RCSIZE	Number of remuneration committee members
Auditor Type	ATYPE	A dummy variable equal to 1 if a big-four audit firm audits a firm (PricewaterhouseCoopers, Deloitte & Touche, Ernst & Young, and KPMG), or 0 otherwise.
Block Ownership	BOSHIP	Percentage of ordinary share held by substantial shareholders (>= 5%)
Governmental Ownership	GOSHIP	Percentage of shares held by government
Leverage	LEVE	Percentage of total liabilities to total assets
Firm Size	FSIZE	Natural logarithm of total assets
Liquidity	LQ	Firm's current ratio
Sales Growth	SALEGTH	The firm's sales growth ratio at 3 years= ((current year's net sales - net sales three years ago) / net sales two years ago) *100
Return on Equity	ROE	Profitability
This table gives the definitions and measurements of the variables.		

4.4.4.3 Empirical Model

The model specified below was developed to test the hypotheses relating to the relationship between risk disclosure and corporate governance variables. Risk disclosure may have changed from the preceding year because of the implementation of new accounting standards. Also, the study uses the industry and year fixed effect to control for variation in risk disclosure among industries.

$$RD = \beta_0 + \beta_1 BSIZE + \beta_2 IND + \beta_3 NONEXE + \beta_4 ACSIZE + \beta_5 ACMEET + \beta_6 RCSIZE + \beta_7 ATYPE + \beta_8 BOSHIP + \beta_9 GOSHIP + \beta_{10} LEVE + \beta_{11} FSIZE + \beta_{12} LQ + \beta_{13} SALEGTH + \beta_{14} ROE + \text{Year fixed Effect} + \text{Industry fixed effect} + \varepsilon$$

where... is...:

Rd	Risk disclosure score
β_0	The regression intercept
$\beta_1 \dots \beta_{11}$	The regression coefficients
ε	The error term

4.4.4.4 Sample Selection and Data Collection

The current study examines the relationship between risk disclosure reporting and firm value for non-financial listed firms in Saudi Arabia during the period from 2010 to 2014. The sample used in this part of the study is the same sample of 440 firm-year observations as that used in the previous part described in chapter 3 under 3.3.1.3 Sample Selection and Data Collection.

The criteria for sample selection, and the reasons for choosing the sample sources and period are the same as in the previous phase. However, the data was processed through a number of stages to ensure that useful information would be obtained and that it would be suitable to be used further in conducting the regression analysis. Firstly, the data were collected from different sources, namely annual reports, and from DataStream, and Bloomberg; descriptive statistical analysis was conducted for all the selected variables using SPSS so as to identify any incomplete information, missing values, mistyped observations, extreme values and outliers. While this analysis was being conducted, some values were identified as having been mistyped. These were double-checked using the company's relevant annual report so as to obtain the correct values.

Extreme values and outliers can result in obtaining unreliable output (Pallant, 2005). Some outliers were present in the data of the current study because the sample used comprises of different sized firms to facilitate generalising the findings. This causes variations in the distribution of the variables (Eisenberg, Sundgren, & Wells, 1998). These outliers can potentially lead to bias in the findings and possibly violate the OLS assumptions (Brown & Tucker, 2011). Values were considered as outliers if they were greater or smaller than 3 standard deviations from the mean (i.e. $\text{Mean} \pm 3\text{SD}$). That is, values higher than a score of 3 and those with a score of less than -3 were treated as outliers, and were therefore deleted from the data. This means that all the observations that represented extreme values and which were therefore deemed to affect the reliability of the results have been removed from being included in the analysis.

Given the above-mentioned precautions, it can be safely assumed that the transformation of the data is helpful in many particular cases, such as: 1) When there is a non-linear relationship between the dependent and independent variables, 2) In the event that the errors do not nearly form a normal distribution, or 3) Where a problem of heteroscedasticity exists (Cooke, 1998). In line with methods adopted in previous research on disclosure (Wang & Hussainey, 2013), firstly, the variable of firm size (FSIZE) has been transformed using the natural logarithm of the original values so as to improve their normality and linearity characteristics (Tabachnick & Fidell, 2007). Secondly, the study adopts the year-fixed effect as a means to address the possible effect of cross-sectional dependence or time effect, and the industry-fixed effect is used to control for any industry-specific characteristics that may also affect firm value.

4.5 Findings and Discussion from the Empirical Analysis

4.5.1 Descriptive analysis

Table 13 presents descriptive statistics of the dependent variable (RD) and other independent and control variables used in the model.

Table 14: Descriptive statistics of the dependent and control variables

	N	Minimum	Maximum	Mean	Std. Deviation
RD*	440	.00	.55	.1740	.08634
BFSIZE	440	4.00	13.00	8.2500	1.55865
IND	440	.20	1.00	.4969	.17782
NONEXE	440	.00	1.17	.5123	.25543
ACSIZE	440	.00	6.00	3.3568	.67324
ACMEET	440	.00	21.00	5.1818	2.50714
RCSIZE	440	.00	6.00	3.3477	.87979
ATYPE	440	.00	1.00	.6795	.46718
BOSHIP	440	.00	84.00	15.6659	18.67196
GOSHIP	440	.00	84.00	9.6091	19.00802
LEVE	440	.00	1.26	.2356	.20300
FBSIZE	440	10.89	19.64	14.6554	1.70050
LQ	440	.06	46.53	2.5010	3.30705
SALEGTH	440	-30.46	99.45	9.6981	16.44601
ROE	440	-205.63	60.20	10.1087	23.12865

RD: Risk disclosure score; *BFSIZE*: Board size; *IND*: Independent directors; *NONEXE*: Non-executive directors; *ACSIZE*: Audit committee size; *ACMEET*: Audit committee meetings; *RCSIZE*: Remuneration committee size; *ATYPE*: Auditor type; *BOSHIP*: Block ownership; *GOSHIP*: Governmental ownership; *LEVE*: Leverage; *FBSIZE*: Firm size; *LQ*: Liquidity; *SALEGTH*: Sales growth; *ROE*: Profitability.

*Dependent Variable: RD (Risk Disclosure)

4.5.1.1 Risk Disclosure Score

Table 13 shows that the mean value of RD is 0.17. This indicates that 17% of the risk disclosure items in the prepared list is disclosed on average per annual report. The minimum value of zero, and the maximum value of 0.55, indicate that there are some annual reports that do not disclose any risk items at all, while there are others that disclose 55% of the list of risk items at most. This indicates

that the level of risk disclosure in Saudi Arabia is low. However, this may be expected for a developing country. In comparison with previous studies, Al-Maghzom (2015) reports a mean value of risk disclosure of 66% for a sample of Saudi banks, with a minimum value of 51% and a maximum value of 78%, which makes it higher than the value obtained in this study, and Al-Shammari (2014) in Kuwait reports an average of 20 sentences in each annual report. In studies on a developed economy, Linsley & Shrivies (2006) in the UK report an overall mean disclosure rate of 78 sentences per report, with a maximum value of 275 sentences, and a minimum value of 20 sentences, and Elzahar & Hussainey (2012) report an average level of 28 sentences in the UK.

4.5.1.2 Independent Variables of Board of Directors

Board size (BSIZE) has a mean value of 8.25. This indicates that the average number of members on the sample boards examined is about 8 members. The maximum value of 4 indicates that there are some boards with only 4 members, while the maximum value of 13 indicates that there are companies with a large number of board members, so the range of the board size variable is large. The mean board size reported by Elzahar & Hussainey (2012) for a sample of UK firms is 10.74, with a minimum value of 6, and a maximum value of 11 members, and the board size found by Ntim et al. (2013) in South Africa is 11 with a minimum value of 4 members, and a maximum value of 21. In another study on board size in Saudi Arabia, a mean value of 9.55 was reported by Al-Maghzom (2016) for a sample of Saudi Banks.

The mean value of the variable for number of **independent directors** (IND) on boards measured as the proportion of independent directors relative to the total number of board members is 0.50. This indicates that half of the boards in the sample consist of independent directors. This mean value is higher than the proportion of 47% found in a study by Ntim et al. (2013) for companies in South Africa, but lower than a mean value of 68% reported by Elzahar & Hussainey (2012) for companies in the UK. The mean value of independent directors (as a number not ratio) on boards reported by Al-Maghzom (2016) for a sample of Saudi Banks is 5.13.

The Table shows a minimum value for independent directors of 0.20 and a maximum value of 1.00, indicating that there are some boards where all its members (100%) are independent directors, and others with one-fifth (20%) of independent directors. In comparison, the maximum values found by Elzahar & Hussainey (2012) and Al- Maghzom (2016) are 92% and 80%, respectively.

The mean value of the variable for number of **non-executive directors** on boards (NONEXE), measured as the proportion of non-executive directors relative to the total number of board members, is 0.51. This indicates that about half of the boards in the sample consist of non-executive directors.

4.5.1.3 Independent Variables of Ownership Structure

With respect to the two ownership variables of **Block Ownership** (BOSHIP) and **Governmental Ownership** (GOSHIP), the mean values obtained for them in this study are 15.67% and 9.61% respectively.

4.5.1.4 Independent Variables Pertaining to Internal/External Audit

The table also shows that the mean value of the variable **Audi Committee Size** (ACSIZE) is 3.57, and that it has a minimum value of 0, and a maximum value of 6. This indicates there are some companies that do not have an audit committee, while others have audit committees with a maximum value of 6 members. This compares with a mean value of audit committee members found by Elzahar & Hussainey (2012) of 4.10, who obtained a minimum value of 2, and a maximum value of 7 members.

The mean value of the variable for **Audit Committee Meetings** (ACMEET) is 5.18. The minimum value is 0, and the maximum value is 21 times. This indicates the audit committees of the sample companies are held on average 5 times per year, although there are some committee meetings that are held as much as 21 times annually. The mean value of the number of audit committee meetings reported by Al- Maghzom (2016) for a sample of Saudi Banks is 5.36, the minimum value is 3, and

the maximum value is 11. The mean and minimum values are a little higher than those obtained in this study, but the maximum value is lower than that obtained in this study.

The mean value of the variable **Auditor Type** (ATYPE), which was used as a dummy variable, is 0.68, and it has a minimum value of 0, and a maximum value of 1. This indicates that 68% of the companies in the sample are audited by one of the four big auditors. In comparison, the mean value for this variable found by Ntim et al. (2013) is 0.87 (87%), which is higher than that obtained in this study, with a minimum value of 0 and a maximum value of 1.

4.5.1.5 Independent Variable of Remuneration Committee

The mean value of the variable for **Remuneration Committee Size** (RCSIZE) is 3.35, the minimum value is 0, and the maximum value is 6. This indicates the average number of members in a Remuneration Committee in the sample is 3, and that there are some companies that do not have this committee, while others have committees with up to 6 members as a maximum.

4.5.1.6 Control Variables (Firm Characteristics)

The remaining variables are for five firm characteristics that were included in the study as control variables, namely Leverage (LEVE), Firm Size (FSIZE), Liquidity (LQ), Sales Growth (SALEGTH), and Return on Equity (ROE). With respect to these variables for firm characteristics, the mean values obtained are 0.24 for LEVE, 14.65 for FSIZE, 2.50 for LQ, 9.70 for SALEGTH, and 10.11 for ROE respectively. These figures indicate that, on average, the sample companies are suffering a moderate level of leverage (24%), a high ratio of liquidity (2.5%), a rate of 9.70% of sales growth, and an average rate of profitability of 10%. In comparison, the mean values of liquidity, leverage and profitability ratios of a sample of UK companies examined by Elzahar & Hussainey (2012) are 1.39, 167.9, and 22.93 respectively, while the mean values of leverage, profitability and sales growth reported by Ntim et al. (2013) in a sample of companies in South Africa are 49.53%, 14.76% and 4.76% respectively.

4.5.2 Correlation Analysis

The table below (Table 15) presents the results of the Pearson Correlation Test.

Table 15: Results of the Pearson Correlation Test

	RD	BSIZE	IND	NONEXE	ACSIZE	ACMEET	RCSIZE	ATYPE	BOSHIP	GOSHIP	LEVE	FSIZE	LQ	SALEGTH	ROE	
RD	1	.058	-.225**	.103*	.033	.196**	-.016	.261**	-.019	.061	.204**	.218**	-.061	.214**	-.254**	
BSIZE		1	-.237**	.185**	.249**	.075	.319**	.251**	.029	.096*	.164**	.387**	-.080	.117*	.022	
IND			1	-.260**	-.212**	-.111*	-.276**	-.394**	-.094*	-.208**	-.149**	-.415**	.025	-.153**	-.113*	
NONEXE				1	.182**	.031	.081	.065	-.084	.205**	.063	.318**	-.087	.156**	-.160**	
ACSIZE					1	.149**	.275**	.140**	-.133**	.247**	.079	.274**	-.094*	.052	-.010	
ACMEET						1	.156**	.065	.027	.154**	.110*	.088	-.136**	.045	-.164**	
RCSIZE							1	.227**	-.100*	.298**	.139**	.379**	-.046	.081	.067	
ATYPE								1	.116*	.199**	.422**	.460**	-.088	.253**	.071	
BOSHIP									1	-.313**	.070	-.086	-.052	-.008	.065	
GOSHIP										1	.036	.559**	.027	.087	.072	
LEVE											1	.518**	-.143**	.273**	-.200**	
FSIZE												1	-.054	.317**	.068	
LQ													1	-.072	.058	
SALEGTH														1	-.044	
ROE															1	
	**.							Correlation is significant at the 0.01 level of significance								
	*.							Correlation is significant at the 0.05 level of significance								

In examining the correlation matrix between independent variables and dependent variables, there are two objectives. The first objective is to identify those independent variables that are correlated significantly with the dependent variable of RD (risk disclosure), and which may therefore be able to explain the variation in the dependent variable. The second objective is to use the correlation matrix as a simple and quick diagnostic tool for detecting collinearity between independent variables. The Pearson Correlation test was used in order to examine the possible relationship between RD and the various independent variables, and also for examining the interrelationship among the independent variables themselves. The Pearson correlation matrix is a useful tool for detecting multi-collinearity. A correlation coefficient greater than 0.80 indicates a high degree of correlation (Gujarati & Porter, 2009), and if a little less than 0.80, it may still indicate an acceptable degree of multi-collinearity. In Table 15, which presents the Pearson correlation matrix among the dependent and all other explanatory variables, all the coefficients are less than 0.80, which makes them relatively low. This indicates there is no multi-collinearity between the variables selected in this study.

With respect to the first objective of this study, the Pearson correlation matrix obtained from the correlational analysis between risk disclosure (as the dependent variable) and the selected independent variables indicates a significant positive relationship between risk disclosure and non-executive directors (NONEXE), audit committee meetings (ACMEET), auditor type (ATYPE), leverage (LEVE), firm size (FSIZE), and sales growth (SALEGTH). On the other hand, a significant negative correlation exists with other independent variables, namely independent directors (IND), and profitability as indicated by Return on Equity (ROE). This suggests that companies that make greater risk disclosure are companies with more non-executive directors, active audit committees in meetings, if one of the big-four audit firm audits a company's accounts, and in firms with high leverage, that are large in size, and have high sales growth. On the other

hand, companies that make less risk disclosure tend to be those companies with a high number of independent directors on their board, and companies with a low level of profitability.

With respect to the second objective of this study, the correlation coefficients in the Pearson correlation matrix obtained from the correlational analysis for detecting multi-collinearity shows that the most highly correlated independent variables reveal a significant positive relationship between firm size (FSIZE) and governmental ownership (GOSHIP) at 0.559. A significant positive relationship also exists between firm size (FSIZE) and leverage (LEVE) at 0.518. Furthermore, the Pearson correlation matrix presented in Table 15 shows that the highly correlated independent variables reveal negative associations between firm size (FSIZE) and independent directors (IND) at -0.415.

4.5.3 Regression Analysis

Table 16 presents the results of the multiple regression test conducted in this study.

Table 16: Results of the multiple regression test

Variable	Unstandardised Coefficients		t	Sig	Collinearity Statistics	Expected Direction
	B	Std. Error			VIF	
(Constant)	.084	.052	1.621	.106		
BFSIZE	-.006	.002	-2.665	.008	1.370	+/-
IND	-.069	.020	-3.383	.001	1.517	+
NONEXE	-.008	.013	-.578	.563	1.341	+
ACSIZE	-.005	.005	-1.076	.282	1.254	+
ACMEET	.002	.001	1.575	.116	1.375	+
RCSIZE	-.006	.004	-1.432	.153	1.459	+
ATYPE	.034	.008	4.211	.000	1.620	+
BOSHIP	.000	.000	-1.395	.164	1.471	-
GOSHIP	-.001	.000	-3.566	.000	2.128	+
LEVE	-.027	.022	-1.230	.220	2.348	Control variable
FBSIZE	.014	.004	3.935	.000	4.517	Control variable
LQ	.001	.001	1.588	.113	1.126	Control variable
SALENGTH	.000	.000	2.305	.022	1.251	Control variable
ROE	-.001	.000	-5.477	.000	1.529	Control variable
Fixed effect	Year & Industry		Dependent Variable: RD (Risk Disclosure)			
Adjusted R Square	.429					
R Square	.460					
F Value	15.135					
F Sig.	.000					
Observation	440					

Table 16 presents the results obtained from conducting a multiple regression analysis (OLS) using the first model in order to test the study hypotheses, and to discover the determinants of risk disclosure (RD). The overall model was shown to be statistically significant where the F value was found to be 15.13 (0.000) and the adjusted R² was found to be 43%. This indicates that the independent variables explain 43% of the variation of the risk disclosure variable. This ratio is higher than the percentage of 26% reported by Elzahar & Hussainey (2012) for a UK sample of non-financial companies, and it is also higher than the amount of 34% reported by Ibrahim et al. (2016) for a sample of Saudi non-financial companies. However, it is relatively lower than the result of 60% that was reported by Al-Maghzom (2015) in a study of a sample of Saudi Banks. Moreover, the highest VIF value is 4.52 for the independent variable of leverage (LEVE), which

indicates a low risk of the problem of multicollinearity between the independent variables. The individual results for the independent variables in the first model follow.

4.5.3.1 Independent Variables for Board Characteristics

The coefficient of **Board Size** (BSIZE) was found to be statistically significant at 1%, and its sign was negative, which indicates that the higher the board size, the lower is the level of risk disclosure information. This result confirms the results obtained in a set of previous studies that also support the benefit of having a small board size. For example, Coles et al. (2008) and Guest (2009) find that a large board size is negatively correlated with firm performance. The result is also consistent with the argument that large boards are poor at monitoring managers (Ntim et al. 2013), and the possibility of disputes arising is higher in companies with larger boards than in those with smaller boards. However, this result in this study contradicts with the result found by Ntim et al. (2013) in a sample of South African firms in which a positive significant relationship was found between board size and risk disclosure level. Moreover, in their study on a UK sample of nonfinancial firms, Elzahar & Hussainey (2012) hypothesize and report a significantly positive relationship between board size and the level of risk disclosure. The result of this study is also inconsistent with the Agency Theory argument which maintains that larger boards hold a diversified experience that could improve the effective role that boards of directors can play in improving transparency and disclosure (Singh et al. 2004; Elzahar & Hussainey, 2012). Based on this result, it can be concluded that the small boards in the Saudi business environment play a more effective role in increasing the level of risk disclosure than larger boards do.

The second coefficient of **board independence**, as measured by the ratio of independent directors on the board, is found to be negative and statistically significant (at the 1% level of significance). This result is contrary to this study's expectations. It indicates that the larger the board independence, the lower is the level of disclosure, which is inconsistent with the Agency Theory argument as well. Elzahar & Hussainey (2012) for instance, reported an insignificant relationship

between the two variables in the case of in the UK. However, Abraham & Cox (2007), Elshandidy et al. (2013) in the UK and Ntim et al. (2013) in South Africa found there to be a significant positive relationship between the two variables. Al-Maghzom et al. (2015) hypothesised a positive relationship between the two variables, but they found an insignificant relationship in their sample of Saudi Banks. Consequently, with respect to the second hypothesis of the study, the expectation of a positive relationship between the two variables is rejected.

For the third variable of **non-executive directors** on the board, the regression results pertaining to board independence, as measured by the ratio of nonexecutive directors on boards relative to all board members, show the association of this variable to be statistically insignificant. This indicates that this variable may be a determinant of RD level in Saudi Arabia. This finding is consistent with the results obtained by Elzahar & Hussainey (2012) for a UK sample who hypothesised a significant positive relationship between the two variables, as their results indicated a non-significant relationship. Also, Al-Maghzom et al. (2015) found the same result in a sample of Saudi banks. This confirms that non-executive directors may not play a significant role in improving disclosure levels in the Saudi economic Environment. This result is therefore inconsistent with the argument of Agency Theory that outsider directors are likely to provide independent advice to executive directors, and to play a more effective monitoring role (Fama & Jensen, 1983; Elzahar & Hussainey, 2012). Moreover, Abraham & Cox (2007) in the UK and Ntim et al. (2013) in South Africa obtained results that support this argument, where they found that non-executive directors do play a positive role in improving the risk disclosure level. However, the results of the study lead us to reject the third hypothesis of the study that expects a positive relationship between the two variables.

4.5.3.2 Independent Variables for Audit and Remuneration

The fourth coefficient of **audit committee size** (ACSIZE) is found to be statistically insignificant. This implies that the number of members on an audit committee may not affect the level of risk

disclosure in the Saudi business environment. This result is consistent with that of Mangena & Pike (2005), Elzahar & Hussainey (2012), and Al-Maghzom et al. (2015) who hypothesised that there is a positive relationship between *ACSIZE* and the level of risk disclosure, but found that the coefficient was statistically insignificant. This indicates that the size of an audit committee may not be a determinant of risk disclosure level in the Saudi business environment. Based on this result, the fourth hypothesis of the study that expects there to be a positive relationship between the two variables should be rejected.

For the fifth variable of frequency of **audit committee meeting** activities (*ACMEET*), as measured by number of annual meetings held by the audit committee, it is found that it does not play a role in improving the extent of disclosing risk information in the Saudi business environment. The coefficient of *ACMEET* is found to be statistically insignificant. This is inconsistent with the expectations of the study and the result of Al-Maghzom et al. (2015) in Saudi Arabia that audit committees with a higher frequency of meetings are likely to improve their level of risk disclosure information. However, the result of the study is inconsistent with the result obtained by Madawaki & Amran (2013) and by Soliman and Ragab (2014), who find a positive relationship between audit committee effectiveness and level of voluntary risk disclosure made. The result is inconsistent with several arguments that audit committee could play an effective monitoring role, which could improve the level of risk disclosure as well as its quality (Fama, 1980; Fama & Jensen, 1983; Barakat & Hussainey, 2013). This result leads us to reject the fifth hypothesis of the study that expects there to be a positive relationship between the two variables.

The size of a **remuneration committee** is also found to be insignificant, which is inconsistent with the study expectations that the larger the remuneration committee size, the greater is the extent of risk related information that is disclosed. This result does not agree with the argument that remuneration committee members may put pressure on firms to disclose more than the normal amount of information in their annual report about their remuneration for executives and directors

(Liu & Taylor, 2008). Anis et al. (2012) also found there to be no significant relationship between these two variables. Kanapathippillai et al. (2016), who examined the impact of a remuneration committee on the level of voluntary disclosure of remuneration information, reported that a remuneration committee has an influence on any disclosure related to remuneration information. However, the results of the study indicate there is an insignificant relationship between the two variables, and therefore the sixth hypothesis of the study is rejected.

With respect to the seventh variable, the regression results obtained for the **type of auditor** (ATYPE) indicate that this variable is statistically significant (at the 1% level of significance), and that it is positively correlated with the level of risk disclosure in Saudi Arabia. This implies that those firms that are audited by one of the Big4 auditors are more likely to provide higher levels of risk disclosure information compared to those firms that are audited by auditors other than the Big4 auditors. The result is therefore consistent with the arguments of Agency Theory that large audit firms are less likely to be associated with clients with less transparency (Jensen & Meckling, 1976), whereas the Big4 auditors are more likely to choose the clients to audit in the audit planning phase, and in order to save their reputation, they choose those with higher levels of disclosure and greater transparency. As Al-Shammari (2014) argued, auditor type could therefore be an explanatory variable for voluntary risk disclosure. Moreover, the result confirms the argument that the Big4 auditors exert a greater pressure on their clients to disclose more information, as compared to other auditors (Al-Maghzom, et al. 2015). Although this result of the study is consistent with that found by Ntim et al. (2013) in South Africa and by Mokhtar & Mellett (2013) in Egypt. Overall, the seventh hypothesis of the study is accepted that firms audited by any of the Big4 auditors are more likely to provide higher levels of risk disclosure related information.

4.5.3.3 Independent Variables for Ownership Structure

The result for the eighth variable of **block ownership** (BOSHIP) is found to be statistically insignificant, which indicates that block ownership may not play a role in determining the level of

risk disclosure in Saudi Arabia. This result is inconsistent with the results of several other studies, such as that found by Deumes & Knechel (2008), Reverte (2009), Khan et al. (2013), Mokhtar & Mellett (2013), Ntim et al. (2013), and Al-Najjar & Abed (2014). All of them reported a negative relationship between risk disclosure and ownership by blockholders. However, the results of the study do confirm the result obtained by Konishi & Ali (2007), O'Sullivan et al. (2008) and Oliveria et al. (2011) who also find there to be no significant relationship between the same two variables. This result is therefore inconsistent with the eighth hypothesis of the study that expects there to be a negative relationship between block ownership and level of risk disclosure. Consequently, on the basis of the result obtained, this eighth hypothesis is rejected.

For the ninth variable, the regression results on the influence of **governmental ownership** (GOSHIP) on the level of risk disclosure indicate a negative relationship that is statistically significant (at the 1% level of significance). The result indicates that the higher the ratio of governmental ownership out of the total of substantial shareholders, the lower is the level of the risk disclosure that is made. The result is inconsistent with the expectations of the study, which is that governmental ownership is likely to improve the risk disclosure level. The same result is also inconsistent with a large set of studies that hypothesise there to be a positive association between the two variables, such as Eng & Mak (2003), Said et al. (2009), AbuRaya (2012), Ntim et al. (2013) and Al-Janadi et al (2013). That is, they suggested that government ownership may perhaps promote good governance, social responsibility, transparency, and disclosure practices. However, Dam & Scholtens (2012) find a similar relationship to that found by this study. This result therefore leads us to reject the ninth hypothesis of the study.

4.5.3.4 Control Variables of Firm Characteristics

Regarding the five control variables of **firm characteristics**, 3 of them are found to be statistically significant, namely firm size (FSIZE), sales growth (SALEGTH), and return on equity (ROE). The

other two control variables of leverage (LEVE) and liquidity (LQ) are found to be statistically insignificant.

Firm size (FSIZE) is found to be statistically significant and positive, which indicates that larger firms tend to make higher disclosure of risk related information. This is consistent with the argument of Agency Theory that larger firms face higher agency costs that arise from a high level of information asymmetry, and which could be a driver for managers to provide more information (Watts & Zimmerman, 1983). This result agrees with that found by Elzahar & Hussainey (2012) in the UK. Previous studies, such as Hossain et al. (1995), Mangena & Pike (2005), Hassan et al. (2006), and Elzahar & Hussainey (2012) provide empirical evidence on the positive relationship between firm size and the level of risk disclosure. The result is also consistent with the view of Stakeholder Theory that large firms are followed by a large number of stakeholders, and that managers should satisfy the needs of those stakeholders. The theory argues that larger firms have a greater tendency to provide more information to satisfy the needs of its large number of followers, as large companies usually have sufficient resources to be able to afford the cost of making an additional disclosure of risk related information (Elzahar & Hussainey, 2012).

The result for sales growth (SALEGTH) is found to be statistically significant (at the 5% level of significance), and it is positive, which indicates that those firms with higher growth levels are more likely to disclose more risk related information. Elshandidy et al. (2013) argue that high-growth firms may have positive incentives to provide higher levels of risk disclosures so they can demonstrate their capability of managing risks effectively. However, they find there to be an insignificant relationship.

The results also indicate the existence of a negative relationship between profitability levels (ROE) and levels of risk disclosure. The relationship between ROE and level of risk disclosure is found to be statistically significant (at the 1% level of significance), and it is negative. The result is consistent with that obtained by Vandemele et al. (2009) who report a negative relationship between

firm profitability and risk disclosure. Elzahar & Hussainey (2012) hypothesise that the level of risk disclosure made by companies with higher profitability levels are greater than the risk disclosure levels of less profitable companies, i.e. more profitable firms tend to make more disclosure of risk related information. However, they find the relationship between the two variables as insignificant. This result of the study is inconsistent with the Agency Theory argument that highly profitable firms tend to make higher levels of risk disclosure (Elzahar & Hussainey, 2012).

With respect to the other two control variables of LEVE and LQ, the results indicate that firm leverage (LEVE) and liquidity (LQ) are statistically insignificant. Elzahar & Hussainey (2012) argue that firms with higher leverage levels provide more risk related information compared with those with less leverage ratios. However, they find an insignificant relationship between the two variables. The results of the study show an insignificant relationship for the variable of firm liquidity (LQ), which is consistent with the result found by Elzahar & Hussainey (2012). However, Wallace et al. (1994) find there to be a negative relationship between firm liquidity and the level of risk disclosure. Elshandidy et al. (2013) find that high-liquidity firms provide more risk related information. This is consistent with the position of Signalling Theory that managers provide a greater extent of information in order to send positive signals to their investors (Elzahar & Hussainey, 2012).

4.6 Chapter Summary

With the development of corporate governance, a system of checks and balances are now in place to ensure companies maintain high levels of accountability to all involved stakeholders, and that companies act in a socially responsible manner. Previous studies on the influence of corporate governance on levels of risk disclosure have mostly examined individual aspects of the phenomenon in the context of developed countries, although there are also some other longitudinal studies in the same context. It is noted that no studies have previously been conducted on non-financial institutions in developing countries, particularly involving firms in Saudi Arabia.

For development of the hypothesis, it was maintained that corporate governance mechanisms affect the extent of reporting of risk disclosure information. The corporate governance mechanisms examined were characteristics of board of directors in terms of board size, number of independent directors, number of non-executive directors, block ownership, governmental ownership, type of auditor, audit committee size, number of audit committee meetings, and remuneration committee size. These constituted the independent variables in the further analysis, and it was hypothesised that with the exception of block ownership, each of these impact positively on the level of risk disclosure within the annual reports of Saudi Arabia non-financial listed firms. For the exception, the hypothesis was that it is negatively associated with risk disclosure.

Five additional variables were included in the study as 'control variables', which are firm characteristics of size, leverage, sales growth, liquidity and profitability. The effect of each of these on risk disclosure were explored based on the results and findings of other studies, and also with reference to the theoretical framework of the study. Although some studies with findings to the contrary are noted, it is generally agreed that larger firms, more profitable firms, firms with greater liquidity, firms with high growth and firms with high leverage tend to have high levels of risk disclosure.

In order to test the above hypotheses, the study worked within a positivist paradigm, which involved adopting a deductive approach and conducting empirical analyses. The same RDI was used, as used in the first phase of the study. The descriptive statistics of all the variables are summarised in Table 14, in which the mean value of RD is 0.17 indicating that 17% of the risk disclosure items in the list prepared is disclosed on average in each annual report. Comparisons were drawn with the results and findings from the studies of others. This was followed by a correlation analysis and regression analysis. Notably, all the coefficients in the Pearson correlation matrix are less than 0.8 indicating they are low, and therefore that there is no multi-collinearity between the variables selected in the study. Furthermore, the highest positive correlations were

found for FSIZE with GOSHIP at 0.559, and for FSIZE with LEVE at 0.518. The highest negative correlation was found for FSIZE with IND at -0.415.

The regression analysis data (presented in Table 16) shows an overall statistically significant model with an F-value of 15.13, and an adjusted R^2 of 43%, which indicates that 43% of the variation of the RD variable is explained by the variations of all the independent variables in the model. Of the board related characteristics, BSIZE and IND are found to be statistically significant and negative, and NONEXE is statistically insignificant. For audit and remuneration related variables, all of them except for ATYPE are statistically insignificant, and ATYPE is statistically significant (at the 1% level of significance). With respect to ownership structure, BOSHIP is statistically insignificant, but GOSHIP is statistically significant (at the 1% level of significance), and is negatively associated. Of the control variables (firm characteristics), 3 of them are statistically significant, namely FSIZE, SALEGTH and ROE, whereas LEVE and LQ are statistically insignificant.

The next chapter is a review of previous literature, details of the theories and methodologies applied, and the results and findings on the economic consequences of risk disclosure reporting.

Chapter 5: Risk Reporting Consequences on Firm Value

5.1 Overview

This is the third of three empirical chapters that present an examination of previous literature and relevant theories, details the methodology applied with justification, and which present the results and findings on risk disclosure practices together with an analysis and discussion in three important areas relating to this study. The area in focus in this chapter is risk reporting consequences on firm value. The literature review begins with an examination of the theoretical basis of likely outcomes of disclosure as per agency theory and signalling theory. It then critically analyses those studies that have directly examined the impact of disclosure reporting on firm value. The hypotheses are then constructed based on the theoretical arguments ascertained, and further examination of corporate governance mechanisms and firm-specific characteristics as the control variables. The methodology section details the adopted approach and research design, and measurement of the RDI, firm value, independent and control variables, and presents the empirical model followed. A sample of the data collected and findings are then presented from the empirical analysis, which includes a correlation analysis and regression analysis.

5.2 Theoretical Basis of Likely Outcomes of Disclosure

It may be argued that accounting information can affect capital markets, as according to Barth et al. (2001: 79.), “accounting information is relevant if it has a predicted association with equity market values”. As explained by Elzahar et al. (2015), disclosure influences the value of firms either in terms of cost of capital, or by means of expected cash flow to their shareholders. The theoretical framework adopted in this study for explaining the possible relationship between risk disclosure and firm value is based on two theories, namely agency theory and signalling theory.

5.2.1 Agency Theory

Agency theory is based on the idea that a relationship exists between principals and agents in a business. ‘Principals’ refers to owners or shareholders, and agents to managements or controllers. It

assumes there is a complete separation between the two, as separation causes a conflict of interests and likely action, which reduces the confidence of shareholders. This scenario is described as information asymmetry between management and investors, as the latter do not usually have any access to internal information pertaining to the company, as managers do. Information disclosure is therefore one way of mitigating this problem of information asymmetry (Hassan et al., 2009).

According to agency theory, the information disclosure made by a firm can impact its value in two ways. One way is by reducing information asymmetry between management and investors, which reduces uncertainty relating to future performance. Healy & Palepu (1993) for instance, argue that good disclosure practices by management can increase the possibility of investors understanding the business activities. As this reduces uncertainty relating to future performance, this can have a beneficial impact on share price and thereby improve the firm's value (Hassan et al., 2009). The second way is by disclosure reducing benefits to management and controlling shareholders through reduced monitoring costs for controlling the firm. This reduction is thought to help increase expected cash flows to investors (Stulz, 1999), and thereby increase the firm's value.

5.2.2 Signalling Theory

According to Linsley & Shrivies (2005), signalling theory is particularly useful for explaining the likely outcomes of voluntary risk disclosure. Signalling theory suggests a company will attempt to signal some good news to its investors and other interested groups through making voluntary disclosures (Oliveira et al., 2006). That is, as per signalling theory, when a firm's performance is good, then directors will prefer to signal their firm's performance to their investors as well as others in the market by reporting relevant information, which would not be the case of a firm performing badly. In turn, making such disclosures gives the firm many advantages, such as improving its reputation, gaining in market valuation, and increasing the liquidity of its stocks. Moreover, disclosing information enables shareholders to assess important parameters more accurately relative to future expected stock returns, and it also reduces non-diversifiable risk of estimation and

uncertainty relative to future cash flows and expected profitability (Clarkson et al., 1996). In contrast, when firms remain silent, then investors and other external stakeholders often interpret this situation negatively as the firm possibly withholding information to disguise unacceptable performance (Hassan, 2009).

Previous researchers who have used signalling theory to explain the relationship between firm value and voluntary disclosure include Orens et al. (2009) and Al-Maghzom et al. (2016). If the disclosure is all inclusive, this usually indicates good corporate governance management and relatively few agency conflicts, which tend to lead to high market valuation for the firm (Sheu et al., 2010). The practice of making voluntary disclosure in annual reports also provides an early indication to the capital market that the firm's present net value and stock market value are likely to increase, And, according to research Al-Maghzom et al. 2016 on firms in Saudi Arabia, increasing the extent of level of risk voluntary disclosure leads to a positive influence for increasing the market value of a firm. Disclosure is thus beneficial for creating shareholder value (Gallego-Alvarez et al., 2010), and in providing valuable information to stock markets (Cormier et al., 2011), particularly in conveying a firm's true value to external investors (Merkley, 2014).

Increased voluntary disclosure has also been predicted to reduce uncertainty relating to estimating stock returns; raise stock liquidity by reducing the costs of transactions, increased demand for holding shares, and thereby improve future profitability (Merkley, 2014). Furthermore, it is thought that market value rises from reduced rate of return for company shareholders and capital costs. Other studies attribute increased market value to reduced agency conflicts that help increase cash flows to investors (Lambert et al., 2007). If firms also make augmented disclosure, shareholders are more willing to trade, and this enhances liquidation of shares with likely consequences of increased value for the firm (Easley & O'Hara, 2004). Elzahar et al. (2015) also suggest augmented disclosure is likely to enhance the market value of firms.

It should be noted that the likely beneficial consequences highlighted above are expected to arise in the case of all-inclusive, voluntary and augmented disclosures (Nekhili et al., 2016). It is also possible for firms to limit the extent of their disclosures to the level of mandatory disclosure, but this type of disclosure does not provide the same extent of transparency and other potentially valuable information, as in the other aforementioned types. Hussainey & Walker (2009) point out that mandatory disclosure is generally unsuccessful for capturing information that is value relevant.

5.3 Effect of Disclosure Reporting on Firm Value

As mentioned earlier, there is scarce literature available on the effect of risk reporting on firm value, and only a few have explored this in the context of developed countries (Uyar & Kilic, 2012; Elzahar et al., 2015), and one in a developing country (Hassan et al., 2009; Al-Maghzom et al. 2016). A substantial number of researchers have investigated the effects of disclosure in general, but it is the study of its impact on firm value that is limited.

Studies that have examined the relationship between disclosure and firm value directly are fewer still (Orens et al. 2009; Gordon et al. 2010; Al-Maghzom et al. 2016). One explanation for this is that this association may be seen as an inevitable consequence instead of as a hypothesis for testing. A few studies in which the firm's cost of capital has been treated as a mediating factor between disclosure and firm value, and in which the relationship was investigated empirically, were conducted by Botosan & Plumlee (2002) and Kim & Shi (2011). These two aforementioned studies lend support to there being a positive relationship between disclosure and firm value. Gordon et al. (2010) for instance, confirmed that high levels of voluntary disclosure are positively related with firm valuation with strong empirical evidence. Al-Maghzom et al. (2016) examined value-relevance of risk disclosure in Saudi listed banks. The results of the analysis verified that there is no association between risk disclosure and firm value, as measured by the market-to-book value at the end of the year. Nonetheless, the results came out from the accounting based measure

of return on assets (ROA) that indicate the existence of a significantly positive association between risk disclosure and firm value.

Other notable empirical studies on voluntary risk disclosure have investigated its effect on firm valuation through its potential in forecasting future earnings (Hussainey et al., 2003), on its role in limiting the occurrence of agency conflicts through diminishing information asymmetry (Rhodes & Soobaroyen, 2010). According to research by Sheu et al. (2010) on Taiwanese firms, the capital market is more likely to supply to firms with high valuations owing to their more inclusive disclosure policies. Patel et al. (2002) examined the relationship between Transparency and Disclosure (T&D) scores (obtained from Standard and Poor's dataset) and firm value. The results of their study indicate that firms with high T&D scores tend to have higher values compared to those with lower T&D scores. It may be noted however, that they did not take variables into account that could also affect firm value by controlling them, so this may have caused an omitted variable bias.

In another study, Beak et al. (2004) use the American Depository Receipt (ADR) listing as a proxy for representing disclosure quality for examining the relationship between disclosure quality and firm value. Their data also confirmed a positive relationship between disclosure quality (represented by the ADR listing) and firm value. Another study examined this relationship in the context of Internet disclosure reported by Latin American companies, and found the same positive association between risk disclosure and firm value (Da-Silva & Alves, 2004).

Notably, the relationship between disclosure and firm value is dependent on the type of disclosure, i.e. on whether it is voluntary or mandatory. Hassan et al. (2009) find there to be a negative relationship in the case of mandatory disclosure by Egyptian firms, and no significant relationship in the case of voluntary disclosure. This latter finding is contradictory, as many other studies have confirmed the relationship with voluntary disclosure to be positive (Plumlee et al., 2015; Clarkson et al., 2011), as pointed out earlier. A study on other specific types of disclosure has been conducted, for instance, by Elzahar et al. (2015). In their study, the disclosure was in the form of

Key Performance Indicators (KPI's), and they examine their direct impact on cost of capital and firm value. The relationship of KPI disclosure with firm value was found to be positive but weak, and its effect on cost of capital was significantly negative.

Besides type of disclosure, the measure used for estimating the value of a firm may also make a difference. Uyar & Kilic (2012) for instance, compared two measures of firm value, namely market to book value, and market capitalisation, to investigate the relationship with disclosure. Their study found a positive relationship for market to book value, but no significant relationship could be ascertained for market capitalisation. A regression model was used to compare the two sets of relationships.

The various studies mentioned above show that although a positive relationship is usually confirmed to exist between risk disclosure and firm value, studies also exist with results to the contrary and results showing no significant relationship. Many examples of the former category confirming a positive relationship have been mentioned earlier (Orens et al. 2009, Gordon et al., 2010; Anam et al., 2011 Al-Maghzom et al. 2016). The study by Hassan et al. (2009), which shows there to be no significant relationship, is a noteworthy exception, as it established the complex nature of the association between the variables. To reiterate, their study, which involved Egyptian firms, found this case of there being no significant relationship for voluntary disclosure, whereas the relationship was found to be significantly negative in the case of mandatory disclosure. That is, a difference was found for the two types of disclosure (voluntary and mandatory). Consequently, they recommended for further empirical studies to be conducted. Another such study investigated if there were any differences in the relationship between disclosure and firm value between different countries (Vafaei et al., 2011). Their study shows there to be no significant association between the two variables in the case of the UK and Hong Kong, and a negative association in the case of Australia and Singapore.

Due to the lack of studies in the field, the current study on investigating a possible direct relationship between voluntary risk disclosure and firm value in the context of Saudi Arabia as an emerging market may prove to be a valuable addition. In particular, it may shed light on the effect of risk disclosure by banks.

5.4 Development of Hypothesis

The theoretical arguments examined above for explaining the relationship between risk disclosure and firm value were based on Agency Theory and Signalling Theory. Both of them suggest a positive relationship exists between risk disclosure and firm value. In terms of studies however, both confirmatory and contradictory studies have been mentioned. That is, many studies have confirmed the existence of a strong positive relationship, such as Al-Maghzom et al. (2016), and Orens et al. (2009), particularly in the case of voluntary disclosure (Sheu et al., 2010; Anam et al., 2011; Nekhili et al., 2012). On the contrary, some other studies have reported the relationship to be negative, such as that of Hassan et al. (2009). The main hypothesis in this current study therefore suggests there to be a positive relationship between level of risk disclosure and firm value, and the null hypothesis to be tested is that there is no relationship between the two variables. These hypotheses have been worded as follows:

H1: There is a positive relationship between level of risk disclosure within the annual reports of Saudi Arabian non-financial listed firms and firm value.

5.4.1 Corporate Governance Mechanisms and Firm-Specific Characteristics (Control Variables)

This study aims to investigate the influence of risk disclosure level on a firm's value. Therefore, the independent variable in this phase of the study is risk disclosure (RD) score, and firm value is the dependent variable, as indicated by TQ (Tobin's Q ratio). The rest of the variables pertaining to corporate governance mechanisms and firm-specific characteristics are treated as control variables.

5.4.1.1 Board Characteristics and Firm Value

As per Agency Theory, **board size** (measured in this study by the variable BSIZE) is an important factor involved in monitoring management behaviour (Allegrini & Greco, 2013). The theory is based on the concept of 'expert power'. It hypothesises that firms with a large board size make more voluntary disclosure because there tend to be more diverse views, opinions and experiences if the board has many members, and this increases the supervisory capacity of the board (Gandia, 2008). The factor of board size can therefore be valuable in discovering resources that may influence the value of a firm positively (Dalton et al., 1999). This view is supported by previous studies, such as by Al-Maghzom et al. (2016), which established that there is a significant positive relationship between the two variables in the context of the banking industry. Elzahar (2013) also showed it is expected that certain factors impact in this way on firm value. However, another study by Upadhyay et al. (2014) has also found evidence of there being no significant relationship between corporate governance voluntary disclosure and firm value.

According to Gul & Leung (2004), if there is a high number of **independent directors** on a firm's boards, then this tends to lead to increased levels of corporate transparency because board monitoring is thought to be conducted more effectively. That is, independence is seen as an important mechanism for governance that is beneficial for firm value (Black & Kim, 2011). Upadhyay et al. (2014) for instance, find a positive relationship between independent directors and firm value indicated in terms of the TQ ratio. In the context of developed countries however, most studies show mixed results for relationship between number of independent directors and the financial performance of firms. A study on Saudi listed firms was conducted by Al-Moataz & Lakhali (2012), and also by Al-Moataz & Hussainey (2013). They investigate the relationship between the number of independent directors and good practices in corporate governance. However, the other studies show either a negative relationship between the two variables of independent

directors and firm performance, in the case of developed countries, or they find evidence of no significant relationship between the two, as is the case in a study by Al-Maghzom et al. (2016).

5.4.1.2 Auditors and Firm Value

It is often necessary for a firm to hire an independent auditor for signing agreements, even in the absence of similar stipulations in an existing organisational agreement (Healy & Palepu, 2001). The process is geared towards ensuring that the financial statements of a firm adhere to existing regulations and accounting standards requirements. According to Agency Cost Theory, an audit process develops into an instrumental monitoring aspect that influences the analysis of a firm's value and causes a reduction in issues associated with a lack of providing the required level of information between principals and agents (Watts & Zimmerman, 1983). Furthermore, the findings from most studies suggest that companies who hire large audit firms tend to have high levels of agency conflicts, and they seek to reduce the existing level of conflict through the recruitment of external firms (Inchausti, 1997). For instance, the financial scandal of Enron in 2001 led to the removal of a prominent large audit firm, namely Arthur Andersen, which used to be one of the five largest audit and accountancy partnerships in the world at the time (Investopedia, 2016). Therefore, in order to develop a strong brand image in the market, audit firms may be motivated to provide quality services in comparison to small audit firms, as this provides the firms with the necessary power to positively influence the disclosure practices of their clients (Watt & Zimmerman, 1986).

Auditor type may therefore have an influence on the value of a firm.

5.4.1.3 Ownership structure and Firm Value

This study adds two further variables as control variables in the analysis, namely **Block Ownership** (BOSHIP) and **Governmental Ownership** (GOSHIP). Generally, the theory outlined under the theoretical framework of this study suggests that companies with a high level of block ownership (BOSHIP), i.e. greater number of significant shareholders, tend to perform better than companies with a lower level of block ownership. However, this is contrary to the finding in a study by Chbib

(2015) who found a significantly negative association between the level of BOSHIP and firm value (FV), and also to the finding of Moshirian et al. (2014) who also established an association between the two variables but concluded that it was of a non-linear nature. In other studies in the literature that have examined this relationship between block ownership and firm value, evidence of there being no significant relationship between them has also been found (Haniffa & Hudaib, 2006).

With regard to government or state ownership (GOSHIP), a study by Yu (2013) shows evidence of a positive causal relationship with firm value in terms of profitability ratio. This study was conducted based on a sample of Chinese listed firms. In contrast, a study by Tran et al. (2014), which investigate its relationship with firm value in a sample of Vietnamese firms, reported a negative association, i.e. governmental ownership was shown to have a negative impact on the profitability of the firms, which was taken as an indication of firm value.

5.4.1.4 Firm Characteristics and Firm Value

The first of the control variables related to firm characteristics, namely **leverage** (LEVE), is thought to influence firm value. This influence may take place because tax deductibility on borrowing may cause a decrease in the cost of capital, thereby increasing firm value (Hodgson & Stevenson-Clarke, 2000). However, the presence of leverage usually indicates that there are some financial problems or that the cost of capital is very high (Henry, 2008). High leverage is therefore often found in firms with large investments and high growth in earnings (Murekefu & Ouma, 2012). Studies have shown this variable to be both positively and negatively associated with firm value. For instance, Al-Maghzom et al. (2016) find evidence of a significantly positive impact of leverage on firm value (FV), whereas Ammann et al. (2009) and Mangena et al. (2012) find evidence of a significantly negative impact of leverage (LEVE) on firm value in terms of firm performance. That is, the latter two studies have found that leverage may affect the value of a firm negatively.

Firm size (FSIZE) is another important variable in terms of its potential impact on firm value, which has been treated as another control variable in this study. Since larger firms have more

resources than smaller firms, and a larger quantity of assets that can be used as collateral (Baek et al., 2004), it is thought that they are more easily able to secure sources of external finance (Black et al., 2006), and that they are also more likely to employ managers who are relatively more skilled than in smaller firms. Consequently, larger firms are usually expected to have relatively greater value, particularly in terms of firm performance (Samaha et al., 2012).

Generally, previous studies report a positive relationship between firm size and firm value (Hassan et al., 2009). Among the studies with contrary findings is that of Ammann et al., (2009), which have found a negative association between the two variables, and which therefore suggest larger firms have lower values. The finding of a negative relationship may be explained by the possibility of smaller firms having greater potential to enhance their governing mechanisms (Klapper & Love, 2004).

Liquidity is another variable that could have an impact on firm value that has been treated as a control variable in this study. Those firms that have high levels of liquidity tend to have greater capability for investing compared to those with lower levels of liquidity, and this affects firm value. According to Signalling Theory, firms with high levels of liquidity give a signal of their favourable position to their investors, and liquidity can affect firm value, for instance, if management is influenced to pay higher dividends. In previous studies on the impact of firm liquidity on firm value, this relationship has been found to be significantly positive for firm value by means of influencing the level of investment and thereby affecting growth opportunities (Whited, 1992). On the contrary, a negative association between liquidity and firm value has also been found, for instance, by Al-Maghzom et al. (2016).

Another control variable in this study of **sales growth** (SALEGTH) is linked with the survival of firms because those firms that experience growth continually may have greater chances of surviving in the market. As Henry (2008) points out, this growth is indicative of a high level of business activity, which this makes them attractive and more likely to receive favourable valuation, although

this may also indicate an increased need for external capital (Chung & Zhang, 2011). Previous studies generally support this position by establishing empirically, a significantly positive relationship between firm growth and firm value, especially in terms of firm performance (Henry, 2008).

For the fifth control variable of **return on equity** (ROE) or profitability, it is thought that those firm that have high levels of profitability are exposed to higher levels of risk, and are consequently more likely to make greater risk disclosure related information available. For instance, Al-Maghzom et al. (2016) conclude in their study that profitability is significantly positively related with firm value, and Aljifri & Hussainey (2007) find that companies with high profitability provide more ‘forward-looking’ information than those with lower profitability.

5.5 Research Methodology

5.5.1 Research Philosophy, Strategy, and Approach

This part of the study applies the same research philosophy, strategy and approach as were applied in the second empirical stage – Refer to the methodology section in chapter 4, section 4.4 Research Methodology.

5.5.2 Research Design

This section details the analysis of the research design of the study seeking to identify the consequences of risk reporting.

5.5.2.1 Measurement of Firm Value

Firm value is treated as the dependent variable in this study, and in line with previous research (e.g., Ntim, Opong, & Thomas, 2012; Lins, 2003), the Tobin’s Q ratio is used as a measure of the value of a firm. Tobin’s Q is defined as “the ratio of the market value of the outstanding financial claims on the firm to the current replacement cost of the firm’s assets” (Lewellen & Badrinath, 1997). The idea is that the replacement cost is a logical measure of the alternative use-value of the assets (Hassan et al., 2009). If the Tobin’s Q value is greater than 1, this means that the company exceeds

its asset replacement costs, and thus the perceived value of a firm by its shareholders will increase due to more effective use of firm assets, and vice versa. The Tobin's Q ratio is a market-based measure, and as such, it reflects the current stock market value of the firm (Thomsen et al., 2006). It measures the extent to which the firm is expected to earn more than the average return on its invested capital (Abdullah & Page, 2009).

Some studies examined in the literature have used the return on assets ratio as a measure for firm value (e.g., Bauer et al., 2010). However, this measure has been criticised for several reasons. Firstly, the return on assets ratio depends on the estimated value of a firm's assets (based on historical costs) rather than on market values. Furthermore, the value of a firm's assets could be subject to change depending on changes in accounting policies, such as in case of changes in the method of calculating the depreciation of assets. Secondly, the methods of making estimations are flexible, so they may therefore give the chance for firm managers to manipulate the return on assets (Lev & Sunder, 1979). Thirdly, the return on asset ratio focuses entirely on backward orientation, as it depends on historical data.

5.5.2.2 Independent and Control Variables Measurements

Table 17 presents a listing of the ratios and variables used in this part of the study and a summary of their measurements. Risk disclosure RD is the independent variable, (RD) measured using a disclosure index. The measurement of risk disclosure has been discussed in detail in Chapter 3 under 3.3.1.1 Measurement of Risk Disclosure (Risk disclosure index).

However, the control variables are board size (BSIZE), independent directors (IND), auditor type (ATYPE), block ownership (BOSHIP), governmental ownership (GOSHIP), leverage (LEVE), firm size (FSIZE), liquidity (LQ), sales growth (SALEGTH), and profitability (ROE).

Table 17: List of Ratios and Variables and Summary of Their Measurements

Definition	Acronym	Measurement
Tobin's Q	TQ	Ratio of the market value of a firm to the replacement cost of the firm's assets, measured as: Market capitalisation + total liabilities + preferred equity + minority interest) / Total Assets.
Risk disclosure	RD	Measured using a disclosure index
Board Size	BSIZE	Total number of directors on board
Independent directors	IND	Number of independent directors on the firm's board of directors.
Auditor type	ATYPE	A dummy variable equal to 1 if a big-four audit firm audits a firm*, and 0 otherwise.
Block ownership	BOSHIP	Percentage of ordinary share held by substantial shareholders (>= 5%)
Governmental ownership	GOSHIP	Percentage of shares held by government
Leverage	LEVE	Percentage of total liabilities to total assets
Firm size	FSIZE	Natural logarithm of total assets
Liquidity	LQ	Firm's current ratio
Sales growth	SALEGTH	The firm's sales growth ratio at 2 years=((current year's net sales - net sales two years ago) / net sales two years ago) *100
Profitability	ROE	Return on Equity
This Tables provides the definitions and measurements of the variables.		
* PricewaterhouseCoopers, Deloitte & Touche, Ernst & Young, and KPMG		

5.5.2.3 Empirical Model

The following model has been developed to test the hypotheses related to the association between risk disclosure and firm value:

$$TQ = \beta_0 + \beta_1RD + \beta_2BSIZE + \beta_3IND + \beta_4ATYPE + \beta_5BOSHIP + \beta_6GOSHIP + \beta_7LEVE + \beta_8FSIZE + \beta_9LQ + \beta_{10}SALEGTH + \beta_{11}ROE + \text{Year Fixed Effect} + \text{Industry Fixed Effect} + \varepsilon$$

where β_0 is the regression intercept, $\beta_1 \dots \beta_{11}$ are the regression coefficients, and ε is the error term.

5.5.3 Sample Selection and Data Collection

The current study examines the association between risk disclosure reporting and the firm value for non-financial listed firms operating in Saudi Arabia during the period from 2010 to 2014. The

sample used in this current study is the same as that of chapter 3 (3.3.1.3 Sample Selection and Data Collation). It consists of 440 firm year observations.

5.6 Findings and Discussion from the Empirical Analysis

5.6.1 Descriptive Analysis

The table (Table 18) below presents a summary of the descriptive statistics obtained from applying the model in the second empirical analysis. Here, TQ is the dependent variable, RD is the independent variable, and the rest are control variables.

Table 18: Descriptive statistics of the second empirical analysis

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
TQ	440	.79	9.00	2.0427	1.33655
RD	440	.00	.55	.1740	.08634
BSIZE	440	4.00	13.00	8.2500	1.55865
IND	440	.20	1.00	.4969	.17782
ATYPE	440	.00	1.00	.6795	.46718
BOSHIP	440	.00	84.00	15.6659	18.67196
GOSHIP	440	.00	84.00	9.6091	19.00802
LEVE	440	.00	1.26	.2356	.20300
FSIZE	440	10.89	19.64	14.6554	1.70050
LQ	440	.06	46.53	2.5010	3.30705
SALEGTH	440	-30.46	99.45	9.6981	16.44601
ROE	440	-205.63	60.20	10.1087	23.12865
<i>RD</i> : Risk disclosure score; <i>TQ</i> : Tobin's Q; <i>BSIZE</i> : Board size; <i>IND</i> : Independent directors; <i>ATYPE</i> : Auditor type; <i>BOSHIP</i> : Block ownership; <i>GOSHIP</i> : Governmental ownership; <i>LEVE</i> : Leverage; <i>FSIZE</i> : Firm size; <i>LQ</i> : Liquidity; <i>SALEGTH</i> : Sales growth; <i>ROE</i> : Profitability.					
Dependent Variable: TQ (Tobin's Q)					

5.6.1.1 Tobin's Q

As per descriptive statistics in Table 17, the mean value of the **Tobin's Q** variable is 2.04, with a minimum value of 0.79, and a maximum value of 9. This mean value is higher than the values of

1.65, 1.94, 1.68, 1.44, and 1.73 obtained for a number of European countries in a study by Orens et al. (2009), but it is close to the value of 2.03 found by Villalonga & Amit (2006). In the context of Saudi Arabia, Al-Maghzom (2016) reports a mean value of 1.60 of market-to-book value (as a proxy for firm value) for a sample of banks.

5.6.1.2 Independent Variable (RD)

The table shows that the mean value of **RD** is 0.17, which indicates that 17% of the risk disclosure items in the prepared listed is disclosed on average in each annual report the minimum value of zero, and the maximum value of 0.55, indicate that there are some annual reports that do not disclose any risk items at all, while there are others that disclose 55% of the list of risk items at most. This suggests that there is a low level of risk disclosure in Saudi Arabia. However, this situation may be expected due to it being among the developing countries of the world. In comparison with previous studies, Al-Maghzom (2016) reports a mean value of risk disclosure of 66% for a sample of Saudi banks, with a minimum value of 51%, and a maximum value of 78%. Linsley & Shrivs (2006) in the UK report an overall mean disclosure rate of 78 sentences per report, with a maximum value of 275 sentences, and a minimum value of 20 sentences. Elzahar & Hussainey (2012) report an average level of 28 sentences in the UK, while Al-Shammari (2014) in Kuwait reports an average of 20 sentences in each annual report.

5.6.1.3 Control Variables Other than Firm Characteristics

The third mean value of **board size** is 8.25. This indicates that the average number of members on boards in the sample is about 8 members. The minimum value of 4 indicates that there are some boards with only 4 members, while the maximum value of 13 indicates that there are some companies with a large number of board members. The range of the board size variable (9) is therefore large. In comparison, the board size reported by Elzahar & Hussainey (2012) for a UK sample of companies is 10.74, with a minimum value of 6, and a maximum value of 11 members; the board size found by Ntim et al. (2013) in South Africa is 11 with a minimum value of 4

members, and a maximum value of 21, and the board size mean value reported by Al- Maghzom (2016) for a sample of Saudi Banks is 9.55.

The fourth mean value of the variable **board independence** (IND), measured as the proportion of independent directors to the total number of board members, is 0.50. This indicates that about half (50%) of the sample boards consist of independent directors. This mean value is a little higher than 47% found by Ntim et al. (2013) for a sample of firms in South Africa, but it is lower than a mean value of 68% reported by Elzahar & Hussainey (2012). The Table shows a minimum value of 0.20, and a maximum value of 1.00, which indicates there are some boards with 100% independent directors and others with 20% as a minimum value. The maximum values found by Ntim et al. (2013) and Elzahar & Hussainey (2012) are 95% and 92%, respectively. In the same economic context, the mean value of independent directors (as a number; not ratio) on boards reported by Al-Maghzom (2016) for a sample of Saudi Banks is 5.13.

The fifth mean value of the **audit type** variable (ATYPE), which was used as a dummy variable, is 0.68, with a minimum value of 0, and a maximum value of 1. This indicates that 68% of the sample of companies are audited by one of the four Big Auditors. In comparison, the mean value for this variable found by Ntim et al. (2013) is 87% with a minimum value of 0, and a maximum value of 1.

For the two **ownership** variables (BOSHIP and GOSHIP), the mean values of block ownership and governmental ownership are 15.67% and 9.61%, respectively.

5.6.1.4 Control Variables Pertaining to Firm Characteristics

For the variables representing firm characteristics, the mean values of **firm leverage** (LEVE), **firm size** (FSIZE), **firm liquidity** (LQ), **sales growth** (SALEGTH), and **return on equity** (ROE) are 0.24, 14.65, 2.50, 9.70 and 10.11 respectively. These figures indicate that the sample of companies, on average, are suffering a moderate level of leverage (24%), a high ratio of liquidity (2.5 %), a rate of 9.70% of sales growth, and an average rate of profitability of 10%. In comparison, the mean values of liquidity, leverage, profitability ratios of the UK sample of firms investigated by Elzahar

& Hussainey (2012) are 1.39, 167.9 and 22.93 respectively, and the mean values of leverage, profitability, and sales growth reported by Ntim et al. (2013) in the South Africa sample are 49.53%, 14.76% and 4.76% respectively.

5.6.2 Correlation Analysis

The table below (Table 19) presents the results of the correlation analysis of the data from the second empirical phase. It is presented in the form of a Pearson correlation matrix among the dependent and all selected explanatory variables.

Table 19: Results of the correlation analysis of the second empirical phase

	TQ	RD	BSIZE	IND	ATYPE	BOSHIP	GOSHIP	LEVE	FSIZE	LQ	SALEGTH	ROE
TQ	1	-.191**	-.196**	.182**	-.185**	.140**	.003	-.350**	-.410**	.036	-.136**	.171**
RD		1	.058	-.225**	.261**	-.019	.061	.204**	.218**	-.061	.214**	-.254**
BSIZE			1	-.237**	.251**	.029	.096*	.164**	.387**	-.080	.117*	.022
IND				1	-.394**	-.094*	-.208**	-.149**	-.415**	.025	-.153**	-.113*
ATYPE					1	.116*	.199**	.422**	.460**	-.088	.253**	.071
BOSHIP						1	-.313**	.070	-.086	-.052	-.008	.065
GOSHIP							1	.036	.559**	.027	.087	.072
LEVE								1	.518**	-.143**	.273**	-.200**
FSIZE									1	-.054	.317**	.068
LQ										1	-.072	.058
SALEGTH											1	-.044
ROE												1
** . Correlation is significant at the 0.01 level of significance												
* . Correlation is significant at the 0.05 level of significance												

There is a twofold purpose of constructing a correlation matrix between the dependent and the independent variables: (1) The first is to identify those independent variables that are correlated with the dependent variable to a significant degree, which is indicated by the Tobin's Q ratio to explain the variation in the dependent variable; (2) The second objective is to use the correlation matrix as a simple and quick diagnostic tool for detecting the presence of any collinearity between the independent variables. The Pearson correlation is used for examining if there are any associations between the dependent and the independent variables, and whether there are any associations among the independent variables. This Pearson correlation matrix is therefore a useful initial tool for detecting multi-collinearity. A high correlation is indicated in case of obtaining a correlation coefficient greater than 0.80, so a situation of multi-collinearity exists if these correlation coefficients are less than this value (Gujarati & Porter, 2009).

As shown in Table 19, the Pearson correlation coefficients among all the selected variables are less than 0.80, which is relatively low. This suggests that there is no variable that exhibits the problem of multi-collinearity.

The first objective is concerned with the possible correlation between TQ and the independent variables. The Pearson correlation matrix indicates a significant positive association between the variables of TQ and independent directors (IND), block ownership (BOSHIP) and profitability (ROE). However, a significantly negative correlation exists with risk disclosure (RD) and other control variables such as board size (BSIZE), auditor type (ATYPE), leverage (LEVE), firm size (FSIZE), and sales growth (SALEGTH).

Regarding the second objective, which is to use a correlation coefficient as a diagnostic tool for detecting collinearity, the correlation results for the most highly correlated control variables reveal a significantly positive association between firm size (FSIZE) with governmental ownership (GOSHIP) at .559**. Also, a significantly positive association

exists between firm size (FSIZE) and leverage (LEVE) at .518**. Furthermore, the table shows that the highly correlated control variables reveal negative associations between firm size (FSIZE) and independent directors (IND) at -.415**.

5.6.3 Regression Analysis

Table 20 presents the results of the multiple regression analysis conducted on the selected variables in the second model for testing the hypothesis of the study, and to discover risk disclosure consequences on firm value of non-financial listed firms.

Table 20: Results of the multiple regression analysis

variables	Unstandardized Coefficients		t	Sig	Collinearity Statistics	Expected Direction
	B	Std. Error			VIF	
(Constant)	5.440	.445	12.234	.000		
RD	-.707	.388	-1.820	.070	1.752	+
BSIZE	.026	.019	1.348	.179	1.271	Control variable
IND	.034	.172	.195	.845	1.333	Control variable
ATYPE	.094	.071	1.322	.187	1.616	Control variable
BOSHIP	.007	.002	4.089	.000	1.410	Control variable
GOSHIP	.016	.002	7.857	.000	2.202	Control variable
LEVE	-.273	.206	-1.329	.185	2.424	Control variable
FSIZE	-.287	.032	-9.025	.000	4.210	Control variable
LQ	.015	.008	1.852	.065	1.111	Control variable
SALEGTH	.004	.002	2.523	.012	1.237	Control variable
ROE	.005	.001	3.537	.000	1.549	Control variable
Fixed effect	Year & Industry		Dependent Variable: TQ (Firm value)			
Adjusted R Square	.424					
R Square	.453					
F Value	15.502					
F Sig.	.000					
Observation	440					

Given the F-value of 15.502 (0.000), the model is found to be statistically significant overall, and the adjusted R^2 value of 0.424 (42%) indicates that the variables account for 42% of the variation in the level of risk disclosure. This proportion is less than 67% reported by Al-Maghzom et al. (2016), but higher than 37.8% reported by Orens et al. (2009). The highest value of 4.21 for the control variable of firm size (FSIZE) (see VIF column) shows that the risk of multi-collinearity among the independent variables is low.

The results of the regression analysis for the second model of independent variables between RD and FV is negative and statistically significant. This indicates that the higher the level of RD (risk disclosure), the lower is the FV value (value of firm). This confirms the finding of Hassan et al. (2009) whose results indicated the same, i.e. that risk disclosure is negatively correlated with firm value. However, the results are contrary to those obtained by Orens et al. (2009) which indicate a significant but positive relationship between the two variables in a sample of European countries, and also to the findings of Al-Maghzom et al. (2016) who investigated this relationship in the context of financial firms in Saudi Arabia, and who also established a significant positive correlation.

With respect to the underlying theories examined, the results obtained in this study are consistent with the view that the relationship between risk disclosure and firm value are affected by a rational process involving trade-offs between the costs and benefits of making a disclosure (Hassan et al., 2009). In the case of noncompliance incurring little or no cost, the cost of compliance can be high, i.e. for making a disclosure. On the other hand, the result does not support the position of agency theory that disclosing risk information affects firm value (FV) by minimising the problem of information asymmetry that may exist between management and investors. Given the result that was obtained, it can therefore be concluded that making greater disclosure of risk related information does not reduce the problem of information asymmetry.

Furthermore, the result obtained in this study is also inconsistent with the argument of Signalling Theory. According to (Oliveira et al., 2006), Signalling Theory suggests a company will attempt to signal some good news to its investors and other interested groups through making voluntary disclosures. Since the results in this study indicate the opposite, as it shows a significant negative relationship between RD and firm value (FV), it means that non-financial firms on the stock marks do not use risk disclosure to signal their good news, although this result could be attributed to firm size (FSIZE). To explain this unexpected result, we could look at the relationship between firm value and the other control variables. In the regression analysis table (Table 20) It shows there is a strongly significant negative relationship between firm value (FV) and firm size (FSIZE), which suggests that large companies disclose less risk information compared to smaller companies, and that small companies tend to use risk disclosure to signal their ability to compete. Consequently, the first hypothesis of this study related in this chapter, which expected a positive relationship between RD and FV, is rejected.

With regard to the independent and control variables, six of them out of a total of 10 were found to be statistically significant, namely block ownership (BOSHIP), governmental ownership (GOSHIP), firm size (FSIZE), liquidity (LQ), sales growth (SALEGTH), and profitability (ROE). The other four, namely board of directors (BSIZE), the proportion of independent directors on the board (IND), auditor type (ATYPE), and leverage (LEVE) were found to be statistically insignificant.

5.7 Chapter Summary

This study adopts two theoretical frameworks to explain the relationship between RD and firm value (FV), namely agency theory, and signalling theory. According to agency theory, information disclosure can impact on a firm through reducing information asymmetry between management and investors, and by reducing benefits to management and controlling

shareholders through reduced monitoring costs for controlling the firm. The firm's value is then thought to increase from the increase in expected cash flows to investors. Signalling theory suggests a company attempts to signal good news by making voluntary disclosures, so directors tend to report relevant information only in the case of good firm performance. It is noted that previous literature is scarce on the effect of risk reporting on firm value, and that only a few have explored this, but in the context of developed countries with the exception of one study by Hassan et al. (2009) on a developing country. In this latter study, a negative relationship is reported for mandatory disclosure by Egyptian firms, and no significant relationship in the case of voluntary disclosure, which is contradictory to most other studies that report a positive relationship. Notably, it is necessary to distinguish between two types of disclosure, namely mandatory and voluntary disclosure, and also to use an appropriate measure for estimating firm value.

Although studies with findings to the contrary were noted, overall, it is shown that the relationship between RD and firm value (FV) is significant and positive. In line with this, the hypothesis thus formed is that this relationship is positive within the annual reports of non-financial listed firms in Saudi Arabia. With the focus on this relationship, RD is the independent variable, firm value is the dependent variable, as indicated by TQ, and the other variables are all treated as control variables. TQ (Tobin's Q) is a "ratio of the market value of the outstanding financial claims on the firm to the current replacement cost of the firm's assets" (Lewellen & Badrinath, 1997, p.78). The hypothesis was tested based on the empirical model presented in 5.5.2.3.

The values of the descriptive statistics show a mean value for TQ of 2.04, which is generally higher than its values reported in other studies, and the mean value for RD is 0.17, which indicates that 17% of the risk disclosure items in the prepared list is disclosed on average in each annual report. In terms of risk disclosure, the results show that the level of disclosure is

low in Saudi Arabia among the sample analysed. This sample is also characterised by an average of 8 members on boards, about half of whom are independent directors; that around 68% are audited by one of the four big auditors, and that the firms are suffering a moderate level of leverage, a high ratio of liquidity, an average rate of 9.7% growth in sales, and have an average rate of profitability of 10%.

The correlation analysis (data presented in Table 19) shows there is no problem of multicollinearity since the Pearson correlation coefficients are all less than 0.80. Furthermore, it shows a significantly positive correlation between TQ and IND, BOSHIP and ROE, and a significantly negative correlation between RD and BSIZE, ATYPE, LEVE, FSIZE and SALEGTH. The highest correlation exists between FSIZE and GOSHIP, and the most negative between FSIZE and IND.

The results of the regression analysis (data presented in Table 20) show an F-value of 15.502, which indicates the model is statistically significant overall, and an R^2 value of 0.424, which indicates that the control variables account for 42% of the variation in the level of risk disclosure. The important relationship between RD and FV (indicated by TQ) is found to be statistically significant and negative, which indicates that a high RD results in a low firm value and confirms the finding of Hassan et al. (2009). This finding is also consistent with Signalling Theory. The control variables that are either statistically significant or insignificant are listed in Table 21.

Chapter 6: Conclusion

6.1 Overview

The study investigated the phenomenon of corporate risk disclosure as made within the annual reports of non-financial listed firms operating in Saudi Arabia with respect to their determinants and consequences, and the goal of investigating the impact of RD (risk disclosure) on FV (firm value). To reiterate, the objectives of the research were as follows:

1. To initiate an analysis of risk reporting requirements through conducting an investigation of risk disclosure practices and their applicability to the Saudi environment.
2. To develop a viable measurement parameter pertaining to the practice of risk reporting within annual reports of Saudi Arabian non-financial listed firms.
3. To identify the key factors that affect risk disclosure reporting by investigating corporate governance mechanisms and specific characteristics of firms.
4. To conduct an investigation of the impact of risk disclosure practices on the value of Saudi Arabian firms.

The research was guided by the positivist paradigm, and involved content analysis of documents for information pertaining to RD, and correlation and regression analysis on the collected quantitative data. The sample comprised of 88 non-financial listed firms during the period 2010 to 2014, and a total of 440 observations were made.

1. Examination of risk disclosure practices among non-financial listed firms in Saudi Arabia based on the developed risk disclosure index comprising of 11 categories.
2. Examination of the influence of corporate governance mechanisms on risk disclosure practices using an OLS regression model.

3. Investigation of voluntary risk disclosure practices by direct measurement of the OLS regression model in terms of its effects on the market value of firms indicated by the TQ.

The self-constructed risk-disclosure index comprises of 11 categories and 47 items (Table 3). The corporate governance mechanisms examined in this study are board size, number of independent and non-executive directors, block ownership, governmental ownership, type of auditor, audit committee size, number of audit committee meetings, and remuneration committee size. In addition, five firm characteristics were considered, which were treated as control variables in the second stage. They are firm size (FSIZE), leverage (LEVE), sales growth (SALGTH), liquidity (LQ), and profitability (ROE). Finally, the adoption of TQ (Tobin's Q ratio) for representing FV, and as opposed to alternatively using the return on assets ratio, was on the basis that it is a market-based measure that reflects the current stock market value of the firm (Thomsen et al., 2006).

The remainder of this chapter presents a summary of the main findings in each of the three stages of the research, highlights the main contributions made by this study, and highlights and examines both its theoretical and practical implications. It then points out the limitations of the study, and suggestions are offered for further research. A summary of the chapter is presented at the end.

6.2 Main Findings

The main findings of the first stage of the research on Risk Disclosure (RD) practices, as presented in Chapter 3, are as follows:

- The average level of (RD) among all the samples is 17%, the maximum is 55%, and 10 firms did not make any RD at all.

- Of the firms in the sample that do provide RD, 63% of the information pertained to financial RD and 37% to non-financial RD. The categories most reported are market risk (23%) and operational risk (17%), and the least reported are environmental risk (2%) and information and technology risk (2%)
- The trend for RD over the five-year period of study (2010-2014) shows that most companies experienced an increase in their risk reporting activity.
- The highest extent of risk reporting is made in the telecommunications industry (44%), and the lowest is in the consumer goods industry (18%).

The subsequent Chapter 4 presented the results of the second stage of the study involving a correlation and regression analysis to investigate the influence of corporate governance mechanisms on disclosure practices. Here, RD is the dependent variable, the 5 firm characteristics are control variables (LEVE, FSIZE, LQ, SALEGTH and ROE), and the rest are independent variables. The main findings from this stage are:

- There is no multi-collinearity between the variables, as all the coefficients in the Pearson correlation matrix are less than 0.8. The highest positive correlations is for FSIZE with GOSHIP at 0.559, and the highest negative correlation is for FSIZE and IND at -0.415.
- The regression analysis on the OLS model shows an F-value of 15.13, and that 43% of the variation of RD is explained by the variations of all the independent variables (i.e. other than RD and firm characteristics).
- Of the board related characteristics, BSIZE and IND are statistically significant and negative, and NONEXE is statistically insignificant.

- Of the audit and remuneration related variables, all except ATYPE are statistically insignificant at the 1% level of significance.
- With respect to ownership structure, BOSHIP is statistically insignificant, but GOSHIP is statistically significant negatively at the 1% level of significance.
- Of the control variables (firm characteristics), 3 of them (FSIZE, SALENGTH and ROE) are statistically significant, and the other two (LEVE, LQ) are statistically insignificant.

Chapter 5 then presented the results of the third stage of the study involving a correlation and regression analysis to investigate risk reporting consequences on firm value. Here, FV is the dependent variable indicated by the TQ measure, the 5 firm characteristics are control variables (LEVE, FSIZE, LQ, SALENGTH and ROE), and RD is the independent variable.

The main findings from this stage are:

- The mean value of the TQ representing Firm Value (FV) is 2.04, and the mean value of RD of 0.17 indicates that 17% of the RD items are disclosed on average in firms' annual reports. This level of RD is low.
- There is an average of 8 members on boards, and about half of them are independent directors.
- 68% of the firms are audited by one of the four big auditors in the Kingdom.
- Firms suffer from a moderate extent of leverage, have a high ratio of liquidity, experience an average of 9.7% sales growth, and benefit from a profitability ratio of 10% on average.
- There is no multicollinearity between the variables, as all Pearson correlation coefficients are less than 0.8.

- The correlation analysis shows a significantly positive correlation between TQ and IND, BOSHIP and ROE, and a significantly negative correlation between RD and BSIZE, ATYPE, LEVE, FSIZE and SALEGTH.
- The highest positive correlation is between FSIZE and GOSHIP, and the highest negative correlation is between FSIZE and IND.
- The regression analysis shows an F-value of 15.502, so overall, the model is statistically significant, and the control variables (other than RD and TQ) account for 42% of the variation in extent of RD.
- The relationship between RD and FV is statistically significant negatively.
- Of the control variables, 6 (BOSHIP, GOSHIP, FSIZE, LQ, SALEGTH and ROE) are statistically significant, and 4 (BSIZE, IND, ATYPE and LEVE) are statistically insignificant.

In short, the key finding in the second stage of the study, which examined the effect of corporate governance mechanisms on RD, is that board size and independent directors are the most statistically significant board related characteristics, and they exhibit a negative relationship with RD. Type of auditor and governmental ownership are also statistically significant at the 1% level of significance, and are also negatively associated. The key finding in the third stage of the study, which examined the consequences of reporting RD on firm value, is that the relationship between RD and FV (firm value, as indicated by the TQ (Tobin's Q) ratio) is statistically significant and negative.

6.3 Contributions

It was noted that no investigations have been carried out previously on the potential influence of disclosure risk reporting on firm value. This gap in research was then filled by examining the responses of firm in enhancing the quantity of risk disclosure contained in annual reports.

This is determined by the need for compliance with rules and regulations, but it also contains information specifically for meeting the requirements of both existing and potential shareholders and other investors. The goal in doing this is to find ways of enhancing risk disclosure practices in the kingdom.

6.4 Implications

The study on determinants and consequences of risk disclosure in Saudi Arabia reveal several theoretical, practical and methodological implications, which may be of relevance and usefulness to academics, researchers, regulatory bodies, and also users of disclosure reporting information.

6.4.1 Theoretical Implications

The study makes a contribution to the literature on risk disclosure through its investigation on risk disclosure practices among non-financial listed firms in terms of determinants and consequences. It has analysed the phenomenon of risk disclosure from the perspective of a number of different theories, namely signalling theory, agency theory, asymmetry theory, and regularity theory. It has also examined risk disclosure in several ways; in terms of its levels, determinants, and the economic consequences for the particular context of Saudi Arabian non-financial listed firms. These implications could extend the literature on corporate governance and risk disclosure through the theoretical justification and empirical investigation in this study on the implications of the determinants as well as a number of theories on risk disclosure in non-financial firms.

According to signalling theory, large sized companies tend to rely more on external finance than smaller companies. This makes them more motivated in making risk disclosures for ensuring that a positive signal is given to their investors and creditors, and that they perceive the company as capable of managing risk. The results from this study substantiate signalling theory, as it found evidence of larger firms disclosing more risk related information compared

to smaller firms. A similar finding was made in a study by Shrikes & Linsley (2003). In their study, managers of larger companies were shown to prefer disclosing more risk information compared to those of smaller companies, and that they do this so as to signal the capability of their company to the market in managing risk, as well as to demonstrate their managerial capability in managing risk.

According to agency theory and information asymmetry theory, directors are motivated to provide higher levels of risk disclosure only if the ownership structure is widely dispersed so as to mitigate information asymmetries deriving from external pressure. This thesis makes a theoretical contribution by confirming this perspective, specifically that a governmental ownership structure bears a significant extent of influence on risk disclosure levels. Furthermore, this study reports that managers of Saudi non-financial listed firms that experience high sales growth provide more risk related information for establishing evidence of their performance to shareholders, and also to justify their giving of compensations to the owners of the firm. Agency theory also claims that in companies that experience rapid growth, managers tend to report more information in order to justify their granting of increased compensation. This observation therefore concurs with the position of agency theory.

The findings in this study also make a contribution to regularity theory. The pressure of making greater risk disclosure is also prompted by shareholders, as well as the need for making the risk reporting procedure stricter and for ensuring that there is confidence in the reporting process and in capital markets generally. The finding in this study that the risk disclosure level can be as low as 17% among Saudi Arabian non-financial listed firms indicates there is dissatisfaction by investors and other stakeholders over the making of risk disclosure. There is a need in Saudi Arabia therefore, for policy makers to develop the means for firms to engage in more risk disclosure. As argued by Healy & Palepu (2001), established

regulations can reduce the problem of information asymmetry existing between informed investors considered to be ‘sophisticated’, and uninformed investors considered to be ‘unsophisticated’, and in this way, it is thought that the wealth is redistributed between them. The regulators would need to ensure they encourage firms sufficiently so that the firms provide more and improved quality of risk related information in their annual reports.

6.4.2 Practical Implications

The results reported in this study may be useful to accounting and regulatory bodies in Saudi Arabia responsible for making non-financial listed companies provide risk related information and deal with any inadequacies in the practice of risk reporting. These are the potential practical implications of the study. Moreover, the regulatory bodies should be concerned about the needs of users of the information pertaining to risk disclosure. The CMA and SOCPA are thus expected to resolve any problems relating to risk reporting practices by Saudi firms.

The results of the study also contribute to the policy debate by means of the risk disclosure index. This index was self-constructed but based on risk related requirements as per the Saudi accounting standards; on requirements and regulations related to risk disclosure identified in the literature on risk disclosure, and on a comprehensive review of the annual reports of randomly selected non-financial listed firms. This risk disclosure index, which includes detailed items that are structured and classified, was thus based on reliable sources, and the firms are those that were listed on the Saudi stock market during the period of investigation from 2010 to 2014. There is potential therefore, for the results and findings to benefit both policy makers and regulators, particularly those responsible for monitoring and analysing risk disclosure and ensuring there is information transparency.

The results of the study show that non-financial firms in Saudi Arabia do tend to disclose information on financial risk disclosure, but for policy makers, the practical implications of

the study are that it is shown to be necessary to go beyond the main issue of financial risk to also producing requirements on non-financial risks. Furthermore, given that the current model of financial reporting has been heavily criticised, especially as most of the standards deal only with financial aspects, the findings could therefore benefit regulatory bodies if they choose to adopt and implement the risk disclosure index devised in this study as part of a new set of standards.

The results of the study may also be significant for users of annual reports. The importance of including information pertaining to risk disclosure in annual reports along with a discussion and analysis has been established in this study, but this is usually dependent on the performance of the firms. At present, any such additional voluntary discussion and analysis in annual reports of Saudi firms is not given assurance from independent parties and is not assessed by auditors. Providing assurance is important because it can be an indication for users of annual reports that the information pertaining to risk disclosure is consistent with firm performance. Although external auditors may be willing to give such assurance, it is also necessary for regulatory bodies to be involved by enforcing this practice.

For policy makers who devise corporate governance codes, the findings of this study and the risk disclosure index that was created could be useful for improving risk disclosure practices of non-financial listed firms in Saudi Arabia. This code focuses mainly on internal control risk and on aspects related to risk management, whereas this study identifies more risk related items in detail for better corporate governance, especially pertaining to risk management, employee errors, and for reducing the risk of fraud. This also makes the study useful for exploring those attributes of corporate governance that are influential on the level of risk reporting.

For existing and potential investors, as well as regulatory bodies and other stakeholders, there are practical implications of this study that could be of importance with respect to making

voluntary risk disclosure and understanding its consequences. The study could be informative for regulators with regard to present risk disclosure levels, and to inform them of its influence on the value of firms. After all, these regulatory bodies are expected to guide firms in adopting best practices in relation to making risk disclosure. Firms may also seek such guidance themselves, and some firms may set examples for others in the way they make risk related information available in their annual reports. In addition, the findings of the study may be useful since it provides insight into inadequacies related to risk disclosure in the context of Saudi non-financial listed firms, and it gives a more comprehensive picture of components and determinants of risk. For managers, the findings may convince them of the importance of making risk disclosures instead of withholding such information from shareholders, and may encourage greater transparency. Ultimately, it could have the potential to increase the value of the firm thereby making it more enticing for investors.

6.5 Limitations and Suggestions for Further Research

The study has limitations relating to the way the content analysis was conducted; in its reliance on annual reports for examining risk disclosure information; due to its focus on non-financial listed firms; due to its focus on the context of the economic environment of Saudi Arabia, and the use of Tobin's Q as a measure of firm value. Limitations are expected since a focus on a particular context and variables is out of necessity to investigate a certain phenomenon.

Firstly, the method of content analysis was used to provide a measure of the level or extent of risk disclosure by creating a unique risk disclosure index. Importantly, although this analysis was conducted objectively, it necessarily involved some subjectivity in relation to interpretation. However, this was minimised through establishing the validity and reliability of the index. Also, the phenomenon of risk disclosure exhibited within the annual reports of non-financial listed firms in Saudi Arabia was investigated quantitatively, so it did not

investigate the quality of this information. This may therefore be an area for further future research as well, i.e. undertaking a qualitative assessment of risk disclosure information.

Secondly, although annual reports were analysed for measuring risk disclosure because it is a major source of information pertaining to a company, and such disclosure is required and expected to be made in them, it is not the only source. Information relating to risk may also be contained in other documents, such as interim reports, conference proceedings, websites, social networking, press-releases, and other information rich company literature. It is possible that some companies disclose a significant amount of information through these materials as well, and that the risk related information contained in these other sources also affect the amount or type of detail of information on risk in the companies' annual reports. Collecting data from these other sources may therefore be useful in investigating risk disclosure information in the future more extensively; identifying which data sources are used and to what extent, and similarities and differences in utilising particular sources may also be examined.

Thirdly, another potentially valuable source of information on risk disclosure practices may be the combined influence of corporate governance and specific corporate characteristics relevant to risk disclosure practices made by both financial and non-financial institutions. This combined influence was not examined in this study, so it may be useful for further research to include this aspect, which may provide a more complete picture of the relationship between both corporate governance and firm specific characteristics, and of risk disclosure levels and the impact of the two on these levels in the context of Saudi Arabia.

Fourthly, the study uses several proxies for corporate governance mechanisms, but without taking into account other possible corporate governance mechanisms such as the percentage of audit committee directors with relevant financial expertise, CEO duality, and risk

committee characteristics. This could therefore be a limitation of this study, and investigating their role in reducing agency problems could provide avenues for further research.

Fifthly, the focus on the Saudi economic environment was a deliberate delimitation so that the risk disclosure practices peculiar to this environment could be studied in-depth and according to the regulatory framework implemented within it. By expanding this geographical and economic boundary, it may be worth investigating the phenomenon of risk disclosure in the gulf or Middle East region, or MENA region as a whole such as (Al-Hadi et al., 2016a and Al-Hadi et al., 2016b). There may be notable similarities or even differences between countries, and therefore lessons that could be learnt from them, such as on incentives, good practices, effective regulatory measures, major factors that encourage disclosure of risk related information and so on.

Sixthly, this study adopted the Tobin's Q ratio as a measure of firm value (FV). Although this is a common practice in disclosure studies, the use of this ratio has some limitations. In particular, as pointed out by Magena et al. (2012), a firm's market value may be associated closely with the economic status of the host country, which may be especially strong during a time of recession when the economic conditions are likely to affect the value of firms negatively. Alternative measures that could be used are the return on assets ratio and market capitalisation.

Seventhly, the technique of regression analysis is a widely used one because of its high degree of effectiveness in providing an indication of risk disclosure, firm value and corporate governance for investigating a possible relationship between the different variables encountered. For future extended research however, other statistical techniques, such as 2SLS or 3SLS may be used for testing the relationship between these variables.

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Appendices

Appendix A: Duties and Responsibilities of Regulatory Bodies

Responsibilities of SOCPA:

- “Reviewing and developing accounting and auditing standards.
- Monitoring the performance of certified public accountants to ensure compliance with CPA regulations and standards.
- Preparing and establishing SOCPA fellowship examination rules and managing CPE courses.
- Undertaking research in relation to the accounting and auditing profession.
- organising accounting conferences and attracting professional expertise and academics.
- Encouraging accounting researchers to conduct studies in the accounting and auditing profession by offering funding or reward incentives.
- Publishing accounting and auditing standards and current topics through the release of journals and books” (SOCPA, 2006).

Duties of the CMA:

- “To progress and regulate the Saudi Stock Market (Tadawul) and improve standards and transactions.
- To enhance security by protecting investors and the public from unfair, unsound and illegal practices, including fraud and manipulation.
- To improve the efficiency of the market and make transactions of securities more transparent.

- To diminish the risks associated with transactions through the creation of appropriate measures and standards.
- To monitor how committed Saudi listed companies are to disclosing the required information.
- To oversee all activities and transactions on the Saudi Market.
- To improve and oversee the issuance of securities and under-trading transactions” (CMA, 2015).

Responsibilities of the Saudi Stock Exchange:

- “To increase and ensure fair and efficient activities in the market.
- To ensure market integrity, quality and fairness.
- To support investor education and awareness efforts.
- To develop and enhance excellence of service for all customers, including brokers, issuers, investors, vendors, etc.
- To improve the Exchange’s capabilities and competencies.
- To issue and enforce professional standards for brokers and their agents” (Tadawul, 2015).

Appendix B: Disclosure Act Requirements In Saudi Arabia

As per Article 42:

- “Information needed by the Authority’s rules which describes the issuer, the nature of its business, the individuals overseeing its management, such as members of the board of directors, executive officers, senior staff and major shareholders”.
- “Information needed by the Authority’s rules which describe the securities to be issued, their number, price and related rights along with the preferences or privileges of the issuer’s other securities, should there be any. The description will explain how the issue proceeds are to be disbursed and the commissions charged by anyone associated with the issue”.
- “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”.
- “Any other information needed by the Authority that it deems investors and their advisers will need to make decisions about investing in the securities to be issued”.

As per Article 45:

- “A. Every issuer that offers securities to the public or trades securities on the exchange must submit quarterly and annual reports to the authority. Annual reports have to be audited according to the rules of the authority. These reports must contain:
 - 1. The balance sheet
 - 2. The profit and loss account
 - 3. The cash flow statement
 - Any other information required according to the rules of the authority”

- “B. In addition to the information required in paragraph (a) of this article, the annual report must contain: 1. A sufficient description of the issuing company, the nature of its business and its activities, as needed according to the rules of the Authority. 2. Information regarding the members of its board of directors, executive officers, senior staff and major investors or shareholders, as needed according to the rules of the Authority; 3. An evaluation of the issuing company’s management of current developments and any possible future plans that may have a significant effect on the business results or financial position of the company, as needed according to the rules of the Authority. 4. Any other information required by investors and their advisers to make a decision to invest in the issuer's securities, as needed according to the rules of the Authority”.
- All the information and data set out in paragraphs (a 1, 2, 3,) and (b 3) of this article are deemed confidential. Prior to disclosing such information and data to the Authority, the issuing company is forbidden to disclose such information to parties not bound by a confidentiality agreement to protect such information.” (For a comprehensive view of the disclosure act, please see chapter 7 of the capital market law attached in the appendix).

Appendix C: Risk Disclosure Index

Category	Disclosure Items	Reference
Financial Risk Disclosure		
Risk management	1. Risk management disclosure	<ul style="list-style-type: none"> ▪ Saudi Corporate Governance Code (Article 10) ▪ Oliveira, Rodrigues, Craig (2011) ▪ Taylor, Tower, Neilson (2010) ▪ Saudi Governance Code 10 -B ▪ IAS 1 ▪ Mokhtar & Mellett (2013) ▪ Hassan (2009)
	2. Forecasting the risks the company may encounter	
Financial instruments	3. Financial instruments disclosures	<ul style="list-style-type: none"> ▪ IFRS7 ▪ Hassan (2009)
Liquidity risk	4. Liquidity risk disclosure	<ul style="list-style-type: none"> ▪ IFRS7 ▪ Oliveira, Rodrigues, Craig (2011) ▪ Taylor, Tower, Neilson (2010) ▪ Mokhtar & Mellett (2013)
Credit Risk	5. Credit risk disclosure	<ul style="list-style-type: none"> ▪ IFRS7 ▪ Oliveira, Rodrigues, Craig (2011) ▪ Taylor, Tower, Neilson (2010) ▪ Mokhtar & Mellett (2013)
Market Risk	6. Investments risk	<ul style="list-style-type: none"> ▪ IFRS7 ▪ IAS 21 ▪ IAS 32 ▪ Oliveira, Rodrigues, Craig (2011) ▪ Taylor, Tower, Neilson (2010)
	7. Financial markets risk	
	8. Foreign exchange rate risk (Currency risk)	
	9. Interest rate risk	
	10. Cash flow risk	
	11. Equity risk	
	12. Pricing risk or commodity price risk	
13. Fair value risk		
Non-Financial Risk Disclosure		
Operational risk	14. Risk of unexpected business interruption	<ul style="list-style-type: none"> ▪ Linsley - Shrives (2006) ▪ Annual reports*
	15. Marketing risk	
	16. Industrial risk (competition)	
	17. Customers' relations and satisfaction risk	
	18. Seasonality of demand risk	
	19. Loss of major customers risk	
	20. Efficiency and performance risk	
	21. Lack of natural resources risk (e.g. water)	
	22. Sourcing risk (Insufficient resources and raw material)	
	23. Risk of key supplies and not secure suppliers.	
24. Risk of Product or service development and failure		
Environmental risk	25. Risk of natural disasters	
	26. Risk of use of products that environmentally sensitive	
	27. Extreme weather conditions risk	
	28. Environment incidents risk	
Regulation and compliance risk	29. Risk of new laws and regulations related to the environment	
	30. Compliance to local law and regulations risk	
	31. Compliance to Saudisation law risk	

	32.Compliance to corporate governance disclosure requirements risk
	33.Litigation risk
	34.Risk of changing the current legal requirements
	35.Any further discussion about other risk related to regulation and compliance
Empowerment and employment risk	36.Human errors risk
	37.Outsourcing risk
	38.Risk of loss of key employees, or managers, or leaders
	39.Employees and work environment risk
	40.Recruiting of qualified and skilled professional
Information and technology risk	41.Risk of technical and system failure
	42.Risk of rapid development in technology
Other type of risks	43.Risk of intellectual rights
	44.Strategic Risk
	45.Economic risk, internal or external
	46.Governmental risk
	47.Political risk

Appendix D: A List of the Names and Industries of the 88 Sampled Firms.

Code in Tadawul	Company name	Industry
2001	1. Methanol Chemicals Company	Basic material
2002	2. National Petrochemical Co.	Basic material
2010	3. Saudi Basic Industries Corp.	Basic material
2020	4. Saudi Arabia Fertilizers Co.	Basic material
2060	5. National Industrialization Co. - NIC	Basic material
2170	6. Alujain Corporation	Basic material
2210	7. Nama Chemicals Co.	Basic material
2250	8. Saudi Industrial Investment Group	Basic material
2260	9. Sahara Petrochemical Co.	Basic material
2290	10. Yanbu National Petrochemical Co.	Basic material
2310	11. Saudi International Petrochemical Co.	Basic material
2330	12. Advanced Petrochemical Co.	Basic material
2350	13. Saudi Kayan Petrochemical Company	Basic material
2380	14. Rabigh Refining and Petrochemical Company	Basic material
2050	15. Savola Group	consumer goods
2100	16. Wafrah for Industry & Development Co.	consumer goods
2270	17. Saudia Dairy and Foodstuff Co.	consumer goods
2280	18. Almarai Company	consumer goods
4061	19. Anaam International Holding Group Co.	consumer goods
6001	20. Halwani Bros	consumer goods
6002	21. Herfy Food Services Co.	consumer goods
6010	22. National Agriculture Development Co.	consumer goods
6020	23. Qassim Agricultural Co.	consumer goods
6040	24. Tabuk Agriculture Development Co.	consumer goods
6050	25. Saudi Fisheries Co.	consumer goods
6060	26. Ash-Sharqiyah Development Co.	consumer goods
6070	27. Al-Jouf Agricultural Development Co.	consumer goods
6090	28. Jazan Development Co.	consumer goods
4170	29. Tourism Enterprise Co.	Consumer Services
4010	30. Dur Hospitality Company	Consumer Services

4070	31. Tihama Advertising & Public Relations Co.	Consumer Services
4210	32. Saudi Research and Marketing Group	Consumer Services
4270	33. Saudi Printing and Packaging Company	Consumer Services
4001	34. Abdullah Al Othaim Markets Company	Consumer Services
4002	35. Mouwasat Medical Services Company.	Consumer Services
4050	36. Saudi Automotive Services Co.	Consumer Services
4160	37. National Agriculture Marketing Co.	Consumer Services
4180	38. Fitaihi Holding Group	Consumer Services
4190	39. Jarir Marketing Co.	Consumer Services
4200	40. Aldrees Petroleum & Transport Services Co.	Consumer Services
4240	41. Fawaz Abdulaziz AlHokair Company.	Consumer Services
4290	42. Alkhaleej Training and Education Company	Consumer Services
4030	43. The National Shipping Co. of Saudi Arabia	Consumer Services
4040	44. Saudi Public Transport Co.	Consumer Services
4110	45. Saudi Transport and Investment Company	Consumer Services
4260	46. United International Transportation Company Ltd.	Consumer Services
1320	47. Saudi Steel Pipe Company	Industrial
1330	48. Abdullah A. M. Al-Khodari Sons Company	Industrial
2040	49. Saudi Ceramic Co.	Industrial
2090	50. National Gypsum Company	Industrial
2110	51. Saudi Cable Company	Industrial
2130	52. Saudi Industrial Development Co.	Industrial
2160	53. Saudi Arabian Amiantit Co.	Industrial
2200	54. Arabian Pipes Company	Industrial
2240	55. Zamil Industrial Investment Co.	Industrial
2320	56. Al-Babtin Power & Telecommunication Co.	Industrial
2360	57. Saudi Vitrified Clay Pipes Co.	Industrial
2370	58. Middle East Specialized Cables Co.	Industrial
1310	59. Mohammad Al Mojil Group Company	Industrial
4230	60. Red Sea Housing Services Company	Industrial
3010	61. Arabian Cement Co.	Industrial
3020	62. Yamama Cement Company	Industrial
3030	63. Saudi Cement Company	Industrial
3040	64. The Qassim Cement Company	Industrial
3050	65. Southern Province Cement Co.	Industrial

3060	66. Yanbu Cement Co.	Industrial
3080	67. Eastern Province Cement Co.	Industrial
3090	68. Tabuk Cement Co.	Industrial
3091	69. Al Jouf Cement Company	Industrial
1210	70. Basic Chemical Industries Co.	Industrial
1211	71. Saudi Arabian Mining Company	Industrial
1212	72. Astra Industrial Group	Industrial
1213	73. Al Sorayai Trading and Industrial Group Company	Industrial
1214	74. Al Hassan Ghazi Ibrahim Shaker	Industrial
2070	75. Saudi Pharmaceutical Indust. & Med. Appliances Corp	Industrial
2150	76. The National Co. for Glass Industries	Industrial
2180	77. Filing and Packing Materials Manufacturing Co.	Industrial
2220	78. National Metal Manufacturing and Casting Co.	Industrial
2230	79. Saudi Chemical Company	Industrial
2300	80. Saudi Paper Manufacturing Co.	Industrial
2340	81. AlAbdullatif Industrial Investment Co.	Industrial
4140	82. Saudi Industrial Export Co.	Industrial
7010	83. Saudi Telecom	Telecommunication
7020	84. Etihad Etisalat Co.	Telecommunication
7030	85. Mobile Telecommunications Company Saudi Arabia	Telecommunication
7040	86. Etihad Atheeb Telecommunication Company	Telecommunication
2080	87. National Gas & Industrialization Co.	Utilities
5110	88. Saudi Electricity Company	Utilities