

AN EMPIRICAL INVESTIGATION OF AUDIT COMMITTEE EFFECTIVENESS AND RISK MANAGEMENT: EVIDENCE FROM SAUDI ARABIA

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ABSTRACT

This study examines the association between audit committee characteristics and the combination of risk management and audit committee activities by industrial Saudi listed firms. Since none of the sample firms has established a stand-alone risk management committee and the functions of monitoring and controlling risk activities are closer to the audit committee than board of directors, this study expects that audit committees with non-executive independent members, more members on the audit committee, financially expert audit committee members and diligence are more likely to combine the risk management and audit committee activities. The study utilizes a cross-sectional analysis of 102 firm-year observations during the 2007-2011 period. A pooled logistic regression analysis is used to estimate the associations proposed in the hypotheses. The study finds that only audit committee size is positively related to the combination of risk management and audit committee activities. This result suggests that the size of the audit committee do indeed proxy for its effectiveness in enhancing the quality of internal control and, thus, monitoring risk management activities. The result of this study contributes to the existing theory and empirical evidence of how the effectiveness of audit committee is related to monitoring and controlling risk management activities. This study offers policy-makers additional evidence to be used for setting up and/or enacting regulations in Saudi Arabia.

JEL: M40, M42

KEYWORDS: Audit Committee Effectiveness, Risk Management, Saudi Arabia

INTRODUCTION

There has been a notable increase in concern regarding corporate failures and scandals in the previous years. In particular, in the U.S. financial crisis and the unexpected collapse of many corporations and banks have led to the adverse outcome including the reduction of economic activity, loss of public confidence and volatile financial system (Ng, Chong and Ismail, 2012). According to Subramaniam, McManus and Zhang (2008) and Walker, Shenkir and Barton (2002), investors have become more focused on the importance of risk and uncertainty. In fact, excessive risk taking is deemed to be the justification behind internal control. In addition, in a competitive environment that shapes and drives changes in the market increases the dynamic competition among companies and urges the companies to undertake even more risks. For the above reasons among others, it has become critical to develop a continuous risk monitoring and assessment for corporate accountability (Brown *et al.*, 2009). Moreover, several governance initiatives have been brought forward with the aim of improving corporate governance with great stress on the role of risk management (Subramaniam, McManus and Zhang, 2008). Risk management has become more significant to the committees of the board and currently, the audit, finance and risk management committees primarily consider risk management on top of their list.

The risk management committee (RMC) is a unit that used to have a small role has not become significant in the company. Risk management activities are integrated to audit committee's responsibilities and functions. In the context of Saudi Arabia, the Code of Corporate Governance (2006) has not emphasized on risk management activities as part of the functions of the audit committee but instead it is included in the main functions of the board of directors. In the Saudi Code, companies have an option to whether or not establish sub-committees as their business nature dictates instead of mandating Saudi Companies to establish RMC. The scope of an audit committee is deemed to cover risk management and internal control in addition to making sure of integrity and transparency in the financial reporting process but this all depends on the corporate governance practices among the companies. Additionally, the audit committee takes part in several risk exercises including risk identification, evaluation, management and control. Despite the above, the trust placed on the audit committee in its protection of the shareholder's investments is besmirched by corporate failures and scandals. Moreover, the recurring business collapses significantly paints an adverse picture of the audit committee's effectiveness in overseeing and executing risk management initiatives (Bates and Leclerc, 2009). Based on Zaman's (2001) study, it is unreasonable to expect an audit committee to conduct extensive review as its members only possess limited resources when it comes to skills and time. But according to Burton (2008), risk is not just a description defined from the perspective of finance it is also related to politics, economy, regulation and market.

In this context, Bugalla *et al.* (2012) and others suggested that an audit committee should be independent from RMC in order to maintain the integrity and protect against fiduciary malfeasance. Given the dynamically complex environment, De Lacy (2005) urged for the establishment of an independent RMC—a contention supported by Brown *et al.* (2009) who stated that an audit committee may not be capable of overseeing the financial as well as the non-financial risks. Added to this, Daly and Bocchino (2006) contended that majority of audit committee members were uncomfortable with the burden of risk oversight. Therefore, researchers are convinced that an independent RMC is capable of reinforcing the internal control mechanism of the firm (Yatim, 2010). In Saudi context, none of the industrial sector firms has established an independent risk management committee. Rather they disclose via their annual reports that the risk management activities are combined with audit committee functions. Therefore, this procedure has been argued by this study to be better situation than the ambiguity in identifying the who's is responsible concerning risk management activities. And, these risk activities would be better monitored by audit committee members than if they have been controlled by board members.

Despite the advocacy and consensus of researches on the RMC benefits and an independent committee for risk oversight, the empirical findings in this regard have remained few and far between. To start with, Brown *et al.* (2009), reviewed risk management in biotechnology companies in Australia and Subramaniam *et al.* (2009) investigated association between RMC establishment and the firm's characteristics and board factors. Also, Yatim (2010) conducted a similar research in the Malaysian context while Bugalla *et al.* (2012) brought forward a model of governance and risk management for financial intermediaries. Apart from the above and a few others, the lack of research was attributed by Tufano (1996) to the lack of meaningful data on risk management practices. The lack of research dedicated to risk management and corporate governance is the motivation in the present study to examine factors that are deemed to result in the combination of risk management and audit committee functions in the context of Saudi industrial firms. This is especially true as the industrial sector is more susceptible to various kinds of risks in the country, region, and global business environments. In particular, this study investigates whether or not the combination of risk management and audit committee functions is related with the characteristics of audit committee. An audit committee having more independence, more members, experts and meetings are more likely to support the board of directors in overseeing the risk management activities and hence displaying its commitment in enhancing overall governance environment in the firm. The present study is an attempted extension to that of Yatim's (2009) study in a manner that it uses a different measurement of the risk management monitoring. Yatim (2009) has measured the extent of risk management monitoring as to the existence of a separate risk management.

Unlike this measurement, this study measures the extent of monitoring risk management as whether these activities are monitored and controlled by the audit committee as all industrial listed companies in Saudi Arabia have not established a stand-alone risk management committee. Therefore, this study contributes to risk management and audit committee literature. It examines the factors related to the combination of risk management and audit committee functions and highlights the audit committee's characteristics in Saudi industrial listed firms. It is carried out in an institutional environment where firms are mandated to establish audit committees and report internal control compliance but no mandates have been imposed regarding the establishment of other board committees like RMC which solely concentrates on risk management. The rest of the paper continues as follows. The next section briefly discusses the literature review and the hypotheses development. The third section describes the research design and methodology. The empirical results and discussions of the study are reported in the fourth section while in the final section, conclusions and implications are drawn.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Based on the viewpoint of risk-based approach, the establishment of RMC indicates to the firm's awareness of the importance of risk management and control (Hermanson, 2003; Selim and McNamee, 1999). The audit committee oversees risk management activities as its primary task and it monitors the financial performance of the firm and to ensure the financial reporting's reliability. The periodic review of the risk management, mitigation system, and managerial actions of the firm employed to manage its risks is significant in the task fulfillment. As the audit committee monitors the risk management activities, the internal control mechanism is supported. Therefore, in the context of effective corporate governance practices, the characteristics that contribute to audit committee effectiveness are likely to be positively related to the risk management committee monitoring (Yatim, 2009).

Audit Committee Independence

The independence of audit committee has the most compelling theoretical and empirical support and is the most critical attribute that indicates the effectiveness of the audit committee (Klein, 2002; Robinson and Owens-Jackson, 2009). The Saudi Code of Corporate Governance (2006) stipulates that audit committee members should comprise of non-executive independent directors to guarantee superior monitors of management. This contention is supported by the agency perspective, in a sense that independent audit committees offer higher monitoring of managerial discretions with the inclusion of management risk-taking activities. Additionally, independent audit committee members are more likely to consider their service on an audit committee through which reputational capital can be enhanced (Fama and Jensen, 1983a; Gilson, 1990). The reputational capital preservation motivates for higher quality monitoring. It is thus expected that an independent audit committee offers effective monitoring and assists in strengthening internal controls. Hence, consistent with the risk-based approach, an independent audit committee is deemed to effectively monitor risk management activities as it is advantageous to the audit committee; for instance, in going over the firm's risk assessment system. Recent empirical evidence provided by Yatim (2009) is also consistent with the relationship of the audit committee independence and RMC establishment. The preceding argument leads to the first hypothesis which tests the assertion that a more independent audit committee is likely to monitor risk management activities.

H₁: Ceteris paribus, there is a positive association between the proportion of non-executive directors on the audit committee and the monitoring of risk management activities.

Audit Committee Size

According to Kalbers and Fogarty (1993), the audit committee size is a proxy for its effectiveness. In this context, Pincus *et al.* (1989) contended that audit committee is an expensive monitoring mechanism and as

such, a large committee reflects the ample resources invested on this mechanism. The Saudi Code of Corporate Governance (2006) stipulates that audit committees of listed firms should consist of at least three members. This mandate is likely to be driven by an attempt to encourage firms to invest director resources to audit committees. The size of audit committee recommendation also matches the desire to maximize the organizational status of the committee (Braiotta, 2000). Recent empirical evidence (Yatim, 2009) reinforced the relationship between the size of audit committee and RMC establishment. Thus, it is expected that large sized audit committees are likely to effectively monitor risk management activities as this will improve their responsibility of oversight. The following hypothesis is therefore proposed:

H₂: Ceteris paribus, there is a positive association between audit committee size and the monitoring of risk management activities.

Audit Committee Financial Expertise

With regards to audit committee financial expertise, it has been considered by researchers (Carcello and Neal, 2003; and Lee *et al.*, 2004) as a proxy for the effectiveness of audit committee. According to Fama and Jensen (1983), audit committee members have invested a significant level of effort to develop their financial experience and as a result, they have a significant motivation to practice their monitoring role to maintain their reputation in the market. The Saudi Code of Corporate Governance (2006) mandates that at least one specialist in accounting and finance be a member of the audit committee. The members of the audit committee with this type of expertise and knowledge enables an in-depth understanding of issues and risks of auditing and the audit procedures to determine and tackle issues and risks (DeZoort and Salterio, 2001). Audit committee members with financial backgrounds are experienced and trained to comprehend and explain risk management activities and hence firms with at least one financially savvy director in the audit committees may urge for a more active engagement in risk management process. In light of the above argument, the following hypothesis is proposed:

H₃: Ceteris paribus, there is a positive association between audit committee members with accounting and finance qualifications and the monitoring of risk management activities.

Audit Committee Meetings

An audit committee that is active in terms of their meetings is more likely to impact management or board decisions (Abbott *et al.*, 2004; Arel *et al.*, 2006; Beasley *et al.*, 1999; DeZoort *et al.*, 2002; Hughes, 1999; Kalbers and Fogarty, 1993; Park, 1998; Robinson & Owens-Jackson, 2009). Several studies and governance practice guidelines also push for the diligence of the audit committees in doing their duties (Beasley, Carcello, and Hermanson, 1999; Horton *et al.*, 2000; Blue Ribbon Committee, 1999). Studies dedicated to audit committees consider the frequency of audit committee meetings in year as a proxy for the effectiveness of the committee. Previous literature also stated that an audit committee that holds frequent meetings may minimize the incident of financial reporting issues. Frequent meetings of the committee with external auditors and management, would enable the audit committee to keep abreast of the accounting and risk management issues, and is likely to tackle difficult issues regarding accounting and auditing in an effective manner (Raghunandan, Rama, and Scarbrough, 1998). Several studies and governance practice guidelines also urge for the diligence of audit committees in carrying out their duties (e.g. Beasley, Carcello, and Hermanson, 1999; Horton *et al.*, 2000; Blue Ribbon Committee, 1999). These frequent meetings as mentioned earlier, may lead to the addressing of challenging issues of accounting and auditing (Raghunandan, Rama, and Scarbrough, 1998). Yatim's (2009) empirical evidence supports the relationship of the audit committee meetings with the establishment of RMC. Accordingly, it is expected that more diligent audit committees are likely to monitor risk management activities. The above argument results in the following hypothesis:

H₃: Ceteris paribus, there is a positive association between audit committee meetings and

and the monitoring of risk management activities

RESEARCH DESIGN AND METHODOLOGY

Sample and Data

To test the hypothesized variables, we hand-collected audit committee data from the annual reports of the industrial listed companies in Saudi Stock Exchange (*Tadawul*) for the period of 2007-2011. The selection of the period from 2007 to 2011 ensures the availability of recent and complete data. In addition, the Code of Corporate Governance in Saudi was introduced in 2006. Further, the late of 2005 and beginning of 2007 represent economic solidity and boom as well as political stability. Samples selected for the five years are depicted in Table 1. For the other control variables, data are retrieved from annual reports and DATASTREAM. The audited annual financial statements reports published by each industrial company are downloaded from the companies’ websites, in addition to the hand-collected annual reports from the Saudi stock Exchange.

Table 1: Sample Selection Procedure

Sample Attributes	Number of Observations
Total industrial firms in Saudi Arabia, from 2007 to 2011	118
Observations discarded	(6)
Final sample	102

Model Specification

The economic model is used to develop a model of a RMC establishment. The variables proposed for inclusion in the model captures differences in the costs of agency relationships. Since the dependent variable is a dichotomous, non-metric scale measurement; a combination of RM & AC functions or otherwise, to estimate this model, Multivariate Analysis is applied using pooled cross-sectional logistic regression analysis. The functional equation of logistic regression model is utilized to determine the extent of the association of each of the independent variables on the RM_&_AC.

$$RM_ \& _ AC = \beta_0 + \beta_1 AC_IND + \beta_2 AC_SIZE + \beta_3 AC_EXPERT + \beta_4 AC_MEET + \beta_5 LASSET + \beta_6 LEV + \beta_7 FAGE + e \tag{1}$$

Where:

- RM_&_AC = the estimated conditional probability of the combination of RM & AC responsibilities is a function of audit committee characteristics and firm-related variables,
- AC_IND = the proportion of non-executive directors on audit committee,
- AC_SIZE = the number of directors served on audit committee,
- AC_EXPERT = the proportion of audit committee members with finance and accounting qualifications,
- AC_MEET = the number of meetings held by audit committees during the financial year,
- LASSET = log₁₀ of the total assets,
- LEV = total debt to total assets,
- FAGE = the number of years since the company is established,
- e = error term.

Since logistic regression is used to test the hypotheses, outliers are detected and handled, assumptions of multicollinearity and model specification tests such as Linktest and Box-Tidwell are met. We also control for the effect of three agency-related variables found by related literature for their potential confounding

effect on the likelihood of combining the functions of RM & AC. It is expected that the combination of RM & AC functions to be positively associated with firm size *LASSET*, firm leverage *LEV*, and the firm age *FAGE*. Firm size *LASSET* was identified by Wallace and Kreutshfeldt (1991) as among the firm characteristics that may impact the decision of the firm to establish internal control mechanism. Top management has the potential to lose direct control of the operation and risk-taking investments in large firms. This is supported by Yatim and Subramaniam *et al.* (2008) who highlighted a positive relationship between firm size and RMC establishment. The effect of leverage *LEV* is also controlled in the analysis as the risks associated with a high level of leverage may require firms to evaluate risks on a firm-wide basis. Firms with a high level of leverage are likely to demonstrate their commitment to the existing debt holders and to their future creditors that they have a better disclosure of their firms' risk exposures (Goodwin and Kent, 2006; Liebenberg and Hoyt, 2003). Thus, the ratio of total debts to total assets is used to control for the effect of leverage. As for firm age *FAGE*, Geroski (1995) indicates that firm age is a proxy of the firm's business experience. Therefore, firm age is associated with positive firm's growth in terms of monitoring and control. Audit committee members in old-aged companies enhance the quality of financial reporting by identifying and mitigating management risk activities which, in turn, contributes to the combination of RM & AC functions.

EMPIRICAL RESULTS AND DISCUSSIONS

Table 2 depicts the mean, standard deviation, minimum and maximum of each variable in the sample data set.

Table 2: Descriptive Statistics (N = 102)

Panel A: Continuous Variables				
Variables	Mean	Std.Deviation	Minimum	Maximum
AC_INDE	0.34	0.321	0	1
AC_SIZE	3.11	0.855	0	5
AC_EXPERT	0.09	0.156	0	1
AC_MEET	3.32	1.764	0	7
Control variables				
FSIZE	24445681	63369846	1025345	332783648
LEV	32.09	20.948	0	69
FAGE	22.31	16.688	1	57
Panel B: Dichotomous Variables				
Variable	A combined function (%)		Not combined (%)	
A combination function of AC & RM	36 (35)		66 (65)	

This table shows the descriptive statistics of the variables

Panel A of Table 2 shows that there is a significant range of variation among the considered sample of this study. It shows that the range of *AC_INDE* is from 1 to 0 with an average of 0.34 and a standard deviation of 0.321. The average number of *AC_SIZE* is 3.11 and it ranges from 5 to 0 with a standard deviation of 0.855. *AC_EXPERT* of firms in the sample ranges from 1 to 0 with a mean of 0.09 and a standard deviation of 0.156. The maximum number of *AC_MEET* is 7 and the minimum is 0 with a mean of 3.32 and a standard deviation of 1.764. The mean of *FSIZE* is S.R 24445681 with a maximum of S.R 332783648 and a minimum of S.R 1025345 and a standard deviation of 63369846. The *LEV* ranges from 69 to 0 with an average of 32.09 and a standard deviation of 20.948. The mean of *FAGE* is 22.31 with a range between 57 to 1 and a standard deviation of 16.688. In addition, Panel B of Table 4.1 illustrates that 66 firms (about 65 percent) in the sample combine the risk management function with the audit committee function.

Table 3: Correlation Matrix for Variables Used in the Study (N = 102 Firms)

	AC_INDE	AC_SIZE	AC_EXPERT	AC_MEET	FSIZE	LEV	FAGE
AC_INDE	1						
AC_SIZE	0.186	1					
AC_EXPERT	-0.039	-0.087	1				
AC_MEET	0.462**	0.033	0.270**	1			
FSIZE	-0.083	-0.384**	0.309**	0.238*	1		
LEV	0.109	-0.038	0.149	0.009	0.551**	1	
FAGE	-0.014	0.136	-0.158	0.038	-0.156	-0.489**	1

** Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed)

Table 3 illustrates the correlation among variables. The correlation matrix confirms that no multicollinearity exists between the variables as none of the variables correlates above 0.80 or 0.90. All variables have a correlation of less than 0.551 (Myers, 1990). It is worth mentioning that the correlation matrix has been considered as a limited analysis because it ignores the interrelationships among the variables. Table 4.3 shows the pooled logistic regression used to evaluate the level of association of the hypothesized variables on the propensity of combining the functions of risk management and audit committee. The *p*-value associated the chi-square with 7 degrees of freedom is statistically significant at 5% level ($p = 0.034$), indicating a moderately good model fit. The R^2_{LOGIT} value for this study is 11.45, implying a reasonably explanatory model. Further, Hosmer and Lemeshow goodness-of-fit statistic is non-significant ($X^2 = 5.290$, $df = 8$, $p > 0.05$), suggesting that the overall model fit is acceptable. Moreover, the model yielded a Nagelkerke R^2 of 19 per cent indicating that the independent variables contribute to the combination of risk management with audit committee functions.

Table 4 displays that two test variables of the audit committee characteristics out of four were consistently significantly associated with the incidence of combining the risk management and audit committee functions. As for audit committee size, *AC_SIZE* is positively associated with the combination of RM & AC functions (p -value = 0.098, one-tailed significance). This result is consistent with the prediction of agency theory and, empirically, with the finding of Yatim (2009). This result gives support to hypothesis 2 in a manner that the size of the audit committee do indeed proxy for its effectiveness in enhancing the quality of internal control and, thus, monitoring risk management activities. Since the Saudi listed industrial companies have not established a separate risk management committee, therefore, audit committee size contributes in conducting a periodic review of the firm’s risk management activities. As for audit committee meetings *AC_MEET*, a significantly negative association has been reported between audit committee meetings and the combination of RM & AC functions (p -value = 0.051, one-tailed significance). This result does not give support to the agency theory suggestion and to the empirical finding reported by Yatim (2009) that meeting frequency is not an important component of audit committee effectiveness. Thus, hypothesis 4 is not supported.

Table 4: the Results of the Pooled Logit Regression (N = 102 Firms)

Variables	Expected Sign	Coefficient	Z	P-Value
AC_INDE	+	-0.4116	-0.47	0.638
AC_SIZE	+	0.4133	1.29	0.196
AC_EXPERT	+	1.3352	0.85	0.396
AC_MEET	+	-0.2776	-1.63	0.102
Control variables				
FSIZE	+	1.0098	1.69	0.091
LEV	+	-0.0379	-2.12	0.034
FAGE	+	-0.0543	-2.58	0.010
Constant	+	-5.5662	-1.52	0.127
-2 Log Likelihood	-58.6409			
Hosmer-Lemeshow	0.728			
Chi ² (7)	15.16			
Prob > chi ²	0.034			
Pseudo R ²	0.1145			
Nagelkerke R ²	0.190			
Coxsnel R ²	0.138			
Correctly Classified (%)	72.5			
No. of Observations	102			

*** significant at 1%, **significant at 5% and *significant at 10% (1-tailed test where direction is predicted, otherwise 2-tail.)

The results also show that there is no support for hypothesis 1 and 3 concerning the associations of audit committee independence *AC_INDE* and audit committee financial expertise *AC_EXPERT* with combining the functions of RM & AC. These results are not in the line with the prediction of agency theory and the previous finding reported by Yatim (2009) concerning the audit committee independence. As for the audit committee financial expertise, Yatim (2009) reported an insignificant association between the establishment of RMC and audit committee financial expertise. Yatim (2009) indicate that audit committee qualification are more useful in auditing and financial reporting matters and, therefore, these qualifications are not needed in identifying and mitigating risks associated with firm operations and businesses.

CONCLUSIONS AND IMPLICATIONS

The main objective of this study is to examine the association between combining the risk management and audit committee functions with audit committee characteristics of Saudi listed industrial firms. The hypotheses of this study is based on the premise that industrial firms that have more independent, large size, financial expert and diligent audit committees are more likely to combine the functions of risk management and audit committee since these firms have not established a stand-alone risk management committees. The study reports that the combining of risk management and audit committee functions is positively associated only with audit committee size. Thus, the size of the audit committees among industrial Saudi firms is likely to support and enhance the quality of internal control and, thus, monitoring risk management activities. Limitations of the study lie on the other internal corporate governance mechanisms (i.e., board of directors characteristics and ownership structure). Future line of research should put an effort to introduce these mechanisms. Further research should replicate this model to determine its validity in different contexts of GCC countries, in different time periods, and with different sample size. These limitations may motivate more future research in the GCC market.

One important implication of these findings relates to the issue of firm performance in of Saudi Arabia. Saudi government, stock market, companies and accounting and auditing regulators would gain some new insights from this study in terms of the understanding the determinants influencing risk management activities. The results of this study would benefit banks in the way that they can assess the creditworthiness of incorporating companies in Kingdom of Saudi Arabia. The numbers incurred in the audited financial statements are based on to mandate bond covenants. Moreover, credit decisions made by lenders are determined based on audited financial statements. Therefore, risk management issues are of the utmost

important for any lending institution. Investors and financial analysts depend on audited financial statements to make decisions related to bonds, bond rating, interest rate, and all other decisions related to investments in Kingdom of Saudi Arabia market. Accordingly, increased understanding and prediction of companies' events is important to this user group. Further, the results of this study will be of interest to the researchers and academic community due to a lack of formal research body addressing the issues of risk management in Kingdom of Saudi Arabia and, therefore, this study will provide with substantial information about issues in the markets of Saudi Arabia to count on, in the future, as premise data.

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