

# AN EMPIRICAL INVESTIGATION OF FACTORS ASSOCIATED WITH FIRM PERFORMANCE: EVIDENCE FROM KINGDOM OF SAUDI ARABIA

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**Abstract.** This study investigates the relations between agency cost variables (firm size, leverage and auditor type) and the firm performance of 392 listed companies in the Saudi Stock Exchange (Tadawul) during 2007-2010. This study identifies two measurements of the firm performance: (1) ROA and (2) ROE. Using the multiple regressions, the results of this study show that the likelihood a firm performance (ROA) is significantly affected increases with the firm size. On the other hand, leverage and auditor type have no influence on the firm performance. Interestingly, the explanatory power of firm performance (ROA) model is high. Somewhat surprisingly, model (2)'s explanatory power is insignificant indicating to the inability of the proposed variables (firm size, leverage and auditor type) in explaining the expected effect on firm performance (ROE).

**Keywords:** ROA, ROE, Kingdom of Saudi Arabia.

## 1. Introduction

There are increasing openness and integration of Saudi Arabia with the global economy which, in turn, has created push-and-pull factors that are contributing to changing the institutional framework environment which, consequently, are aiming in enhancing companies values in the Saudi marketplace. Subsequently, after these recent developments, Saudi Arabia is found to be a profitable business environment for local, regional, and foreign investors [2], [4], [9] and [12]. There has been a surge of interest in Saudi Arabia about the firm performance issues. Several studies have been conducted in different contexts other than Saudi Arabia [7], [18], [19] and [24]. Therefore, the conflicting and inconclusive results evidenced by the prior studies on firm performance, the paucity of firm Performance research in Kingdom of Saudi Arabia, the recent incremental developments that have been implying to Saudi market derive the motivation for investigating the firm performance in the setting of Kingdom of Saudi Arabia. In particular, little is known and many questions remain unanswered about firm performance in Kingdom of Saudi Arabia.

Yet, to the best of the researchers' knowledge, no empirical evidence exists that allows conclusive determinations to be made of how companies incorporating in Kingdom of Saudi Arabia perform. With support for this, Meyer (1977) argues that management research should pay more attention to specific cultures, legal frameworks, geographies, and industry structures [17]. "Management theories" based on western firms may be unsuitable and irrelevant to other countries and, consequently, previous studies' findings might not be applicable in the context of Kingdom of Saudi Arabia. Therefore, the objective of this study is to provide empirically evidence on the determinants influencing companies' performance in Kingdom of Saudi Arabia. The remainder of the paper is organized as follows. Section 2 discusses the

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literature review and the hypotheses development. Section 3 describes the research methodology. The results and discussions have been highlighted in section 4. The final section provides conclusions and implications.

## **2. Literature Review and Hypotheses Development**

### **2.1. Firm Size**

Banz (1981) reports that as firms grow up, it becomes more difficult for them to sustain impressive performance [28]. Therefore, smaller firms are more creative, innovative and change more readily to enhance their values [22]. In consistent with these arguments, Hudaib and Haniffa (2006) empirically document a significant negative association between firm size and firm performance [24]. On the other hand, it is indicated that large firms have a direct effect on firm performance [18]. Kumar (2004) reports that large firms are more efficient than small firms because of economies of scale, skilled employees and market power. In the same line [15], Ghosh (1998) indicates that larger firms are better performers than smaller firms due to their ability to diversify their risk [3]. Haniffa and Hudaib (2006) report that large firms have more analysts who concern about firms' performance and as such they will be under more pressure to perform well [24]. In consistent with this debate, Aljifri and Moustafa (2007) empirically report a positive association between firm size the firm performance [18]. Thus, the expected sign for the effect of firm size on firm performance in the context of Saudi Arabia is positive. The testable hypothesis of firm performance is stated in a direct form:

*H<sub>1</sub>: Ceteris paribus, there is a positive association between firm size and firm performance.*

### **2.2. Leverage**

Agency theory conjectures that debt financing is more effective than equity [20]. It is believed that it controls managers' incentive from wasting free cash flows and, consequently, it enhances the managers' motivation in improving the firm performance [27]. Furthermore, debt financing applies aggressive market monitoring on managers actions. For instance, Grossman and Hart (1982) document that debt financing makes managers aware of consuming fewer perks and become more efficient to avoid bankruptcy; the loss of control as well as loss of reputation [30]. In contrary, Stiglitz and Weiss (1981) predict that as a firm is financed with large debts, it is more likely that its equity holders with limited liability may prefer to undertake highly risky projects and this might inverse with the firm performance [13]. Previous studies on firm performance have resulted in contradictory results. For example, Downen (1995), McConnell and Servaes (1995), Short and Keasey (1999), Weir et al. (2002), Haniffa and Hudaib (2006) and Aljifri and Moustafa (2007) report a significant negative relationship between leverage and firm performance [25], [14], [11], [5], [24] and [18]. However, Hurdle (1974) documents a positive association of the leverage with firm performance [8]. Therefore, the expected sign for the effect of leverage on firm performance in the context of Saudi Arabia is negative. The testable hypothesis of firm performance is stated in a direct form:

*H<sub>2</sub>: Ceteris paribus, there is a negative association between leverage and firm performance.*

### **2.3. External Auditor**

Agency theory and information suppression hypothesis conjuncture that there is a relationship between auditor type and firm performance [6] [20] and [32]. It is suggested that the higher audit quality may control opportunistic management behaviors, reduce agency costs and, consequently, increase the firm value in the marketplace [21]. In consistent with this conjunction, Aljifiri and Moustafa (2001) find empirically a significant positive relationship between auditor type and firm performance [18]. Thus, the expected sign for the effect of external auditor type on firm performance in the context of Saudi Arabia is positive. The testable hypothesis of firm performance is stated in a direct form:

*H<sub>3</sub>: Ceteris paribus, there is a positive association between auditor type and firm performance.*

## **3. Research Method**

### **3.1. Sample and Source of Data**

Data is obtained from the World scope database for the periods 2007-2010 to assure the availability of recent data. The boom of Kingdom of Saudi Arabia clearly emerged in early 2005 [29]. In addition to

economic solidity, at the end of 2006, Kingdom of Saudi Arabia has a high economic and political stability. For the study, the population of interest comprises companies listed on the Kingdom of Saudi Arabia stock exchange. Samples selected for the four years from 2007 to 2010 are depicted in Table 1.

Table 1: Sample Selection during 2007-2010

	Total Observation
Total listed companies	146 company
Period of study (2007-2010)	4 year
Total observations	586 observations
Missing and Incomplete data	(194 observations)
Total observations selected	392 observations

### 3.2. Model Specification

The economic model is used to develop a model of firm performance (which was in line with what is mostly found in the literature). The variables proposed for inclusion in the model capture differences in the costs of agency relationships. The dependent variables are continuous measurements. To estimate this model, Multivariate Analysis is applied using Multiple regression model because the dependent variables are continuous nature. The multiple regression is estimated using cross-sectional data to capture if there is a significant impact of the following determinants: the firm size (SIZE), the leverage (LEV) and the external auditor (AUD) on firm performance (ROA and ROE). The functional equation of the multiple regression model is utilized to determine the extent of the influence of each of the independent variables on the firm performance:

$$\text{Firm performance (ROA)} = \beta_0 + \beta_1 \text{SIZE} + \beta_2 \text{LEV} + \beta_3 \text{AUD} + e \quad (\text{Model 1})$$

$$\text{Firm performance (ROE)} = \beta_0 + \beta_1 \text{SIZE} + \beta_2 \text{LEV} + \beta_3 \text{AUD} + e \quad (\text{Model 2})$$

Where the dependent variable is:

Firm performance (ROA) = return on assets

Firm performance (ROE) = return on equity

Where the independent variables are:

SIZE =  $\log_{10}$  of the total assets,  
 LEV = total debt to total assets,  
 AUD = "1" big 4, "0" others,  
 e Error term.

## 4. Empirical Results And Discussions

### 4.1. Descriptive and Univariate Analysis

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

Table 2: Descriptive statistics and univariate test results of continuous variables 2007-2010

Variables	N	Mean	Std.Deviation	Minimum	Maximum
Firm Size	392	6.42	0.8	4.88	8.50
Leverage	392	20.11	14.60	0.07	62.21
Auditor Type	392	0.52	0.50	0.00	1.00
Big 4 - ROA *	203	8.60	7.84	0.01	47.54
Non-Big 4 - ROA*	189	9.67	7.32	0.05	31.39
Big 4 – ROE*	203	16.51	12.90	0.01	83.67
Non-Big 4 - ROE*	189	15.12	11.29	0.08	50.43

<sup>†</sup> Using the Mann-Whitney test reveals that there is a significant difference between the means of ROA in firms audited by Big 4 audit firms and firms audited by Non-Big 4 audit firms. On the other hand, no significant differences have been reported between the means of ROE in firms engaging with Big 4 audit firms and firms engaging with Non-Big 4 audit firms.

Table 2 shows that there is a significant range of variation among the considered sample of this study. The range of firm size is from 4.88 to 8.50 with a mean of 6.42 and standard deviation of 0.8. Further, the range of leverage is from 0.07 to 62.21 with a mean of 20.11 and standard deviation of 14.60. The results of this study also show that there are significant differences in terms of the ROA of firms audited by Big 4 and firms audited by Non-Big 4. In contrary, no differences have been reported in the ROE between firms audited by Big 4 and firms audited by Non-Big 4. Further, to examine the correlation between independent variables, a Pearson product correlation ( $r$ ) was computed as shown in table 3.

Table 3: Pearson Correlation Analysis of Dependent and Independent Variables on 392 observations for 2007-2010

	ROA	ROE	SIZE	LEV	AUD
ROA	1.00	N/A			
ROE	N/A	1.00			
SIZE	- 0.193**	0.061	1.00		
LEV	- 0.104	0.047	0.175**	1.00	
AUD	- 0.070	0.057	0.279**	0.244**	1.00

**Note:** \*\* Significant at 1 per cent level (2-tailed).  
 \*Significant at 5 per cent level (2-tailed).  
 N/A: Not applicable

As illustrated in Table 3, firm size (SIZE) is statistically correlated with firm performance (ROA) at 1 per cent significant level. In contrary, no statistically relationship has been found between firm size (SIZE) and firm performance (ROE). Further, it is interesting to note that there is a positive statistically correlation between leverage (LEV) and auditor type (AUD) with firm size (SIZE) at 1 per cent significant level indicating that the larger the firm size is, the higher its debt and the more likely it hires a differentiated audit quality. Moreover, the results suggest that there is a significant positive association between auditor type (AUD) and leverage at 1 per cent significant level indicating that the higher the debts, the more likely the firm chooses a differentiated-audit quality. With respect to the correlation among variables, the correlation matrix confirms that no multicollinearity exists between the variables as the tolerance values are all above 0.10 [31] as shown in table 5. In addition, none of the variables correlates above 0.80 or 0.90 all variables have a correlation of less than 0.279 [26].

#### 4.2. Multivariate Analysis

The descriptive and univariate analysis support the conjecture that there is a significant range of variation in terms of firm performance, firm size, leverage and audit type among listed companies in the kingdom of Saudi Arabia. Further, the descriptive analysis considers three interrelationship among the independent variables.

Table 4: Summary of the Models 1 & 2

Models	R	R Square	Adjusted R Square	F	Sig.
Model 1	0.205	0.042	0.035	5.692	0.001
Model 2	0.080	0.006	- 0.001	0.824	0.481

Table 4 shows that the coefficient of determination ( $R^2$ ) for ROA is equal to 4.2 per cent and the adjusted  $R^2$  is equal to 3.5 per cent which is quite low level compared with the previous studies such as Aljifri and Moustafa (2007) which is 45 per cent [18]. This can attributed to the limited number of the independent variables included into the model. In terms of the coefficient of determination ( $R^2$ ) for ROE, it is surprisingly to be equal to 0.6 percent and the adjusted  $R^2$  is equal to - 0.1 per cent which is quite very low compared with the previous studies. The table also depicts that the ROA model is a statistically significant where the F test statistic = 5.692 with 3 and 388 degrees of freedom with a p-value < 0.001. With regard to the ROE model, it is a statistically insignificant where the F = 0.824 with 3 and 388 degrees of freedom with a p-value < 0.481.

Table 5: The results of the regression of Models 1 &amp; 2

<b>ROA</b>						
<b>Variables</b>	<b>Expected sign</b>	<b>Coeff.</b>	<b>T</b>	<b>p-value</b>	<b>Tolerance</b>	<b>VIF</b>
(Constant)		20.879	6.723	0.000		
Firm Size	+	-1.710	-3.443	0.001	0.910	1.099
Leverage	-	-0.37	-1.389	0.165	0.928	1.077
Auditor Type	+	-0.042	-0.052	0.959	0.883	1.133
<b>ROE</b>						
(Constant)		10.412	2.058	0.040		
Firm Size	+	0.693	0.856	0.393	0.910	1.099
Leverage	-	0.025	0.579	0.563	0.928	1.077
Auditor Type	+	0.902	0.689	0.491	0.883	1.133

Table 5 shows that the beta coefficients for the independent variables. The largest *t* statistics is -3.443 (p-value < 0.001) which is the firm size. This indicates that firm size has a degree of importance in the model 1 referring to the strongest unique contribution in explaining firm performance (ROA). Firm size has a significant negative effect on firm performance. Therefore, this result makes us reject hypothesis 1. This result is similar to that found by Hudaib and Haniffa (2006). One possible explanation is that as it has been indicated by Hannan and Freeman (1989) which is in the context of Saudi Arabia, smaller firms are more creative, innovative and change more readily to enhance their values [22]. However, the multiple regression estimations of leverage and auditor type are unable to report a significant contribution in explaining firm performance (ROA). Therefore, we reject hypotheses 2 and 3. Somewhat surprisingly, model (2)'s explanatory power is insignificant indicating to the inability of the proposed variables (firm size, leverage and auditor type) in explaining the expected effect on firm performance (ROE).

## 5. Conclusions and Implications

The main objective of this study is to examine the relations between firm size, leverage and auditor type and firm performance, using two proxies (ROA and ROE). A sample of 392 listed companies on Saudi stock exchange (Tadawul) for the periods expanding from 2007 to 2010 is used. Using the Multiple regression, this study finds a significant negative association between firm size and firm performance (ROA) at a 1 per cent significant level. However, a significant association between leverage and auditor type with firm performance is enable to be empirically evidenced by this study. Somewhat surprisingly, model (2)'s explanatory power is insignificant indicating to the inability of the proposed variables (firm size, leverage and auditor type) in explaining the expected effect on firm performance (ROE).

Limitations of the study lie on the firm performance models where the models are developed focusing on establishing a relationship between firm size, leverage and auditor type with firm performance from accounting perspective (ROA and ROE) in the setting of Saudi Arabia. One important implication of these findings relates to the issue of firm performance in Kingdom 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 companies' performance. 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, firm performance 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 firm performance 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. Regarding future line of research, efforts should be put at introducing the market measurement of firm performance (Tobin's Q) at first place and increasing the number of independent variables particularly the inclusion of corporate governance 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.

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