

# The impact of board independence on accounting-based performance

## Evidence from Saudi Arabia and Bahrain

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### Abstract

**Purpose** – The purpose of this paper is to explore the effect of board independence on firm's performance from the Stewardship theory perspective.

**Design/methodology/approach** – The study uses panel data of 162 firms listed in Bahrain Bourse and Saudi Stock Exchange during the period of 2013-2015. It also uses several econometric techniques to confirm the robustness of the results, such as firm fixed-effect approach and two-stage least squares (2SLS) in order to overcome the endogeneity which exists in such relations.

**Findings** – The study found an inverse effect of board independence on firm performance which was measured using two accounting-based measures: return of assets and return on equity. Based on these results, it was found that internal directors are more effective in enhancing performance of the firm than independent directors as information asymmetry problem and lack of firm-specific experience hinders the ability of independent directors of taking proper decisions that enhance firm's performance.

**Originality/value** – The study contributes to the ongoing debate about the relation between board independence and firm's performance in emerging markets, focusing on Saudi and Bahraini markets which have recently sought to form a system of laws that aims at protecting investors. The study indicates the importance of such laws rather than traditional governance measurements in enhancing performance.

**Keywords** Board independence, Stewardship theory, Accounting-based performance

**Paper type** Research paper

### Introduction

The relationship between board structure and firm performance has received considerable attention in recent studies of corporate finance. Most of such studies do not have strong evidence of the inevitable impact of board structure on firm's performance which might be attributed to the lack of causal relationship between the two variables. This does not necessarily mean that there is no important effect, but rather such effects differ based on differences of operational and environmental conditions of the firm (Linck *et al.*, 2008; Wintoki *et al.*, 2012). Therefore, studies conducted outside USA proved to have a positive relationship between board independence and firm's performance, whereas studies conducted in USA did not prove the same. This might be attributed to the existence of a system of laws and legislation in the USA that works well and protects investors from any influence of board members who represent the majority of ownership in the firm against small investors (Hermalin and Weisbach, 2003).

Most studies conducted in emerging markets found that such markets do not have enough laws and legislation governing financial markets. Despite the absence of institutions that protect investors' rights, a positive effect of board independence on firm's performance was found (Liu *et al.*, 2015; Ferreira and Matos, 2008; Klapper and Love, 2004; McCahery *et al.*, 2016). Researchers have offered several explanations for



these conflicting results for studies conducted in the USA as opposed to other countries with different environment and cultures. A variation of internal and external governance mechanisms in monitoring independent board (external) of a firm was found important in developing countries due to weak legal institutions and legislation garrison for investors. On the other hand, firms in the USA witnessed the dominance of independent board members for a long time as the percentage of independent board members in the period 1991-2003 ranged between 63 and 71 percent, respectively. The prevailing culture of independence of board of directors in American firms for a long time made it difficult to statistically prove this relationship as no variation in corporate data could be found. This could be attributed to the fact that the nature of the US economy and the market brought about by the balance between various stakeholders of the firm made the independence of board members a normal practice in an advanced economy which has concrete legal and legislative tools to overcome such a relationship. In other countries, many studies have proved a positive relationship between board independence and firm performance including firms in India (Black and Khanna, 2007, UK (Dahya *et al.*, 2008)), South Korea (Black and Kim, 2012), and Kuwait (Hamdan *et al.*, 2013).

To achieve our study objectives and to address problems in a scientific way, we organize the remaining sections as follows: the second section reviews the relevant literature and develops research hypotheses. The third section develops a methodology through identifying a study sample, developing a study model, and measuring study variables. The fourth section shows an advanced descriptive study and the relationship of study variables. The fifth section analyzes the results of the empirical study and tests hypotheses. The final section presents the study findings, recommendations and areas for future research, as well as study limitations.

### Literature review and hypotheses development

Previous studies have differed on the extent of board structure's influence on firm's performance. This is dependent on the legal and regulatory environment levels that aimed at protecting investors and other stakeholders in the firm, as well as other factors such as sample variation and the methodology used. Here, we can distinguish between two trends in previous studies.

#### *First direction: no effect of board independence on firm's performance*

Many studies did not find an effect of board independence on firm's performance. Among these studies, the study of Hermalin and Weisbach (2003) which looked at studies surveyed the relationship between board structure and firm's performance in the USA and concluded that board structure do not effect, including board independence, firm's performance. Specifically, some of these studies which were based on accounting measure of performance (Hermalin and Weisbach, 1991; Mehran, 1995; Klein, 1998; Bhagat and Black, 2001), and others based on the measure of "Tobin" (Tobin's Q) (Morck *et al.*, 1988) found no effect of board independence on firm's performance. These studies concluded that lawmakers and financial markets in the USA have adopted the independence of board of directors as a key element in corporate governance, and has asked for a large number of independent members to be in the board. Furthermore, several studies have shown that independent board members are more effective in firms that have disclosure of information, and those with less control costs (Duchin *et al.*, 2010; Linck *et al.*, 2008).

There is another trend in the literature that aims to support the idea of non-existence of the relationship between board independence and firm's performance, based on the "Stewardship theory" as opposed to the Agency theory, with the assumption that internal managers are more capable of and trustful to managing the firm and efficiently look after its

resources in order to achieve highest levels of performance and serve shareholders' interests (Donaldson, 1990; Donaldson and Davis, 1991, 1994). This theory believes that the control be centralized in the hands of the firm's directors (Dalton *et al.*, 1998). Based on this theory, a positive correlation was found in several studies between the ratio of internal managers and the availability of information that contributes in the rationalization of a decision-making process in a firm (Baysinger and Hoskisson, 1990). Managers from within the firm are more familiar with its conditions than others, and are therefore best placed to make decisions that contribute to improving the firm's performance levels. Several studies have found a positive relationship between internal managers and firm's performance (Kenser, 1987), while other studies noted a relationship between internal managers and spending on research and development (Baysinger *et al.*, 1991; Hill and Snell, 1988). Furthermore, some studies did not find a relationship between board structure, including board independence, and firm's performance (Chaganti *et al.*, 1985; Daily and Dalton, 1992; Kesner *et al.*, 1986; Schmidt, 1975; Zahra and Pearce, 1989). Even some studies have questioned the independence of members from outside the firm as internal managers might have an influence on the selection of independent board members that share special interests with them (Coles *et al.*, 2014; Hermalin and Weisbach, 1998). Moreover, multiple appointments of independent directors in a number of firms lead to the phenomenon of busy directors from the perspective of shareholders as such directors are not able to allocate enough time to serve each firm. This leads to reluctance of investors to invest in those firms which have a large number of independent directors in their boards (Fich and Shivdasani, 2006). Moreover, evidence shows that some independent directors work for the interest of the parent firm in which they belong to and not for the interest of the hosting firm. The size of representatives in the financial firms' boards is linked to a higher debt level of the firm as these directors work for the benefit of their financial firm regardless of the hosting company's interest (Dittmann *et al.*, 2010). In the end, the directors choose to work in firms that increase their own benefits, regardless of the value of the firm (Fahlenbrach *et al.*, 2010).

Based on previous theories that explain the lack of effect of board members' independence on firm's performance, the current study suggests the following null hypothesis for KSA and Bahrain:

*H0.* There is no positive and significant effect of board independence on firm's performance.

#### *Second direction: the existence of the effect of board independence on firm's performance*

The agency theory says to reduce agency costs, firm's board should include a large number of independent directors as this step reduces the agency cost (Mobbs, 2013), and conflicts between managers and shareholders, as well as being related to high-quality information (Rutherford and Buchholtz, 2007). The firm's board that includes a large number of independent directors is more objective, more able to control and make decisions (Fama and Jensen, 1983), and can effectively intervene when managers act opportunistically (Post *et al.*, 2011). The difference between outside and inside members of the board comes from their different strategic views, as executive board members care more on short-term firm's performance, whereas independent board members focus on long-term firm's performance as well as environmental and social issues (Johnson and Daniel, 1999). Therefore, the study of Shaukat *et al.* (2015) found a positive relationship between board independence and firm's performance that is related to environment and society.

A strong relationship was found between board independence and firms' performance in countries that do not have enough laws that protect investors and other stakeholders'

interests. Focusing on China, as an emerging market, it has recently began to dispense government management companies. This is apparent as Liu *et al.* (2015) surveyed the impact of board independence in 16,000 firms listed in “Shanghai” stock exchange, using various statistical methods, and found positive effect of board independence on firms’ performance. This independence acts as a substitute for laws and regulations to protect owners’ rights in the firms and contribute in the improvement of their performance level. Another study conducted by Dahya *et al.* (2008) introduced an empirical evidence from 22 countries, other than USA, that showed a positive and significant relationship between board independence and firm’s performance in countries categorized with lower levels of investors’ protection. This finding is confirmed by other studies too (Aggarwal *et al.*, 2009; Bruno and Claessens, 2010).

Board independence has also found to be strong with a positive relationship when voluntary disclosure of information exists (Al Maskati and Hamdan, 2017) which increases transparency of accounting information, and reduces asymmetry of data provided to investors. Ferris *et al.* (2003) stated that independent directors monitor firm’s performance better than internal managers, as they bring with them valuable experience, and provide first-hand knowledge and rare information which is hard to get from somewhere else (Balsmeier *et al.*, 2014). This is true, because of the unique experience independent board members bring in from their mother firms, and become important advisors in strategic decision making (Kor and Sundaramurthy, 2009; Adams and Ferreira, 2007). Therefore, firms with independent board members are more efficient in their operations and can strengthen shares’ performance when compared with board members who are not associated with other firms (Masulis and Mobbs, 2011). Obviously, there is a widespread controversy in the management literature to the need of the vast experience of independent board members that can be transferred from their firms to solve hosting firm’s complex processes (Linck *et al.*, 2008; Boone *et al.*, 2007; Coles *et al.*, 2008). This has been confirmed by the study of Kor and Sundaramurthy (2009) which showed that the specialized expertise of independent board members was directly linked to rate of growth in sales. Independent board members also play an important role on influencing profits policy, especially in family businesses (Atmaja, 2010).

Based on the agency theory, and previous studies that confirmed a positive relationship between board independence and firm’s performance, our study has developed the following alternative hypothesis that tests the effect of board independence on performance of listed firms in the Saudi Stock Exchange and Bahrain Bourse:

*H1.* There is a positive and significant effect of board independence on firm’s performance.

## Methodology

### *The bases of sample selection*

The study began compiling data from all firms listed in the Saudi Stock Exchange and Bahrain Bourse for a period of three years from the year 2013 to 2015. Firms which did not have enough data to estimate study variables and those with extreme values were excluded from the study. The final sample included 162 firms; 120 firms from the Saudi Stock Exchange and 42 firms from Bahrain Bourse.

### *The study model and methods of measuring variables*

This study looks at the impact of board independence on firms’ performance in the Saudi Stock Exchange and Bahrain Bourse. The study has developed a model based on a set of independent variables that represent board independence, and a group of dependent variables that represent firms’ performance. It has also developed a set of control variables that are related to firm’s characteristics and the financial market.

*Accounting-based measure of firm performance*

The study is based on a set of measures to measure firm's performance. Two accounting-based measures are used: return on assets (ROA) as an operational scale, and return on equity (ROE) as a financial scale. The ROA/ROE is calculated by dividing the net operating income before extraordinary items to total assets/equity (Liu *et al.*, 2015). The two different performance metrics have been used as a way of verification as previous studies showed variations in results of a specific metric used to measure performance.

*Measurement of board independence*

The ratio of independent directors in a firm's board is used to measure the extent of independence. To determine the level of independence of a board member, a list of corporate governance in KSA and Bahrain has been used which sets conditions for independent board member including: a member should not be employed in the firm; should not own – directly or indirectly – more than 10 percent of firm's shares; has not held a managerial position previously in the firm; does not have any contractual or business relationship with the firm; and finally does not offer legal, consulting, and financial services to the firm or its affiliates. The reference is being made to reports issued by the KSA and Bahrain financial markets, which determine the number of independent board members in each firm that meet independence conditions previously mentioned (Hussain and Mallin, 2003).

After obtaining the actual number of independent board members, we followed the method of Liu *et al.* (2015) in modeling. The impact of independent members in the board was investigated through the expression of 1 if a firm has one independent member and 0 if not (*Ind\_d1*). The same applies if a firm has two independent members (*Ind\_d2*), three independent members (*Ind\_d3*), four independent members (*Ind\_d4*), and use a variable (*Ind\_d5*) for firms using five or more independent members in the board. For an expanded measure of independence, we have added two variables to measure independence, the first is the ratio of independent board members, and the second is a dummy variable, where 1 is considered if a firm has at least one independent board member and 0 if it does not have any independent members in the board.

*The control variables*

The study used three groups of the control variables. The first group was related to ownership structure, the second group focused on monitoring costs, and the third group was concerned with various boards and firm's characteristics.

*Ownership structure.* Three control variables were used here: the concentration of ownership which is calculated by dividing the ownership ratio of the largest shareholder on ownership ratio of the five largest shareholders, the percentage of foreign ownership, and the percentage of institutional ownership.

*Monitoring costs.* Two control variables are used here to indicate monitoring costs resulting from the agency costs; a monitoring cost is being added as a control variable cost where a share turnover variable is an agent variable for the monitoring cost variable, while the other variable is the average of sales growth.

*Board and firm's characteristics.* In addition to the previous control variables, a group of board and firm's characteristics have been used and these are as follows: firm's size as measured by a natural logarithm of firm's total assets, firm's age, leverage as measured by dividing liabilities on total assets, board size, duality between board chairman and chief executive officer posts, which is expressed as 0 if he is having these two posts and one otherwise.

Based on the previous measurement of study variables, the model which combines these variables can be illustrated as follows:

$$\begin{aligned} Performance_{i,t} = & \beta_0 + \beta_1 \%Ind_{i,t} + \beta_2 IndepDV_{i,t} + \beta_3 Ind\_1_{i,t} + \beta_4 Ind\_2_{i,t} + \beta_5 Ind\_3_{i,t} \\ & + \beta_6 Ind\_4_{i,t} + \beta_7 Ind\_5_{i,t} + \beta_8 ConcOwnership_{i,t} + \beta_9 ForeOwnership_{i,t} \\ & + \beta_{10} InstitOwnership_{i,t} + \beta_{11} Turnover_{i,t} + \beta_{12} SalesGrowth_{i,t} \\ & + \beta_{13} FirmSize_{i,t} + \beta_{14} FirmAge_{i,t} + \beta_{15} Leverage_{i,t} + \beta_{16} BoardSize_{i,t} \\ & + \beta_{17} Duality_{i,t} + \beta_{18} Industry_{i,t} + \beta_{19} Country_{i,t} + \varepsilon_i \end{aligned}$$

where  $Performance_{i,t}$  is the firm's performance ( $i$ ) during the period ( $t$ ), which was measured through ROA and ROE;  $\beta_0$  the constant, a performance value without taking the impact of board independence and other control variables;  $\beta_{1-19}$  the slope of independent and control variables in the model;  $\%Ind_{i,t}$  the ratio of independent members in the board ( $i$ ) per year ( $t$ );  $IndepDV_{i,t}$  the dummy variable, independent board members ( $i$ ) per year ( $t$ ), where number (1) is assigned if there is at least one independent member in the board, otherwise (0);  $Ind\_1_{i,t}$  the dummy variable given number (1) if there is one independent board member ( $i$ ) per year ( $t$ ), otherwise (0);  $Ind\_2_{i,t}$  the dummy variable given number (1) if there are two independent board members ( $i$ ) per year ( $t$ ), otherwise (0);  $Ind\_3_{i,t}$  the dummy variable given number (1) if there are three independent board members ( $i$ ) per year ( $t$ ), otherwise (0);  $Ind\_4_{i,t}$  the dummy variable given number (1) if there are four independent board members ( $i$ ) per year ( $t$ ), otherwise (0);  $Ind\_5_{i,t}$  the dummy variable given number (1) if there are five or more independent board members ( $i$ ) per year ( $t$ ), otherwise (0);  $ConcOwnership_{i,t}$  the control variable, ratio of concentrated ownership in the firm ( $i$ ) per year ( $t$ );  $ForeOwnership_{i,t}$  the control variable, foreign ownership in the firm ( $i$ ) per year ( $t$ );  $InstitOwnership_{i,t}$  the control variable, ratio of institutional ownership in the firm ( $i$ ) per year ( $t$ );  $Turnover_{i,t}$  the control variable, shares turnover of the firm ( $i$ ) per year ( $t$ );  $SalesGrowth_{i,t}$  the control variable, firm's average sales growth ( $i$ ) per year ( $t$ );  $FirmSize_{i,t}$  the control variable, firm's size ( $i$ ) per year ( $t$ );  $FirmAge_{i,t}$  the control variable: firm's age ( $i$ ) per year ( $t$ );  $Leverage_{i,t}$  the control variable, firm's leverage ( $i$ ) per year ( $t$ );  $BoardSize_{i,t}$  the control variable, firm's board size ( $i$ ) per year ( $t$ );  $Duality_{i,t}$  the control variable, separation of duties between board chairman and chief executive officer of the firm ( $i$ ) per year ( $t$ ). Number (1) is given if there is no duality in the two posts, otherwise (0).  $Industry_{i,t}$ : Control variable, firm's industry type, where number (1) is given if a firm belongs to a particular sector, otherwise (0);  $Country_{i,t}$  the control variable, firm's country, where number (1) is given if a firm belongs to a particular country, otherwise (0);  $\varepsilon_i$  the random error.

### Descriptive study

Table I shows a descriptive analysis of study variables, both in Bahrain and Saudi Arabia, where numbers of Saudi Arabia's sample are put first and numbers of Bahrain's sample come second between brackets.

Table I shows higher returns of Saudi firms when compared with Bahraini firms as the former have the largest economy in the Arabian Gulf. As with board independence, we notice that independent members of Saudi firms stood at 27.4 percent, while Bahraini firms at 20.6 percent as only two independent members exist in the board. This is clearly shown in Table II where 29 percent of the Bahraini firms have only two independent members. This is confirmed in Table II by 26 percent of Saudi firms having five or more independent board members.

**Table I.**  
Descriptive of  
study variables

Variables	Minimum	Maximum	Mean	SD
<i>Panel A: performance measures</i>				
Return on assets (ROA)	-8.450 (-22.320)	38.540 (16.240)	6.516 (2.827)	8.302 (6.494)
Return on Equity (ROE)	-20.700 (-26.960)	55.520 (26.200)	11.376 (4.528)	12.319 (10.761)
<i>Panel B: independent directors</i>				
%_Ind	0.000 (0.000)	0.800 (0.667)	0.274 (0.206)	0.252 (0.198)
Ind_d1	0.000 (0.000)	1.000 (1.000)	0.025 (0.143)	0.157 (0.354)
Ind_d2	0.000 (0.000)	1.000 (1.000)	0.050 (0.286)	0.219 (0.457)
Ind_d3	0.000 (0.000)	1.000 (1.000)	0.167 (0.119)	0.374 (0.328)
Ind_d4	0.000 (0.000)	1.000 (1.000)	0.108 (0.024)	0.312 (0.154)
Ind_d5	0.000 (0.000)	1.000 (1.000)	0.258 (0.119)	0.440 (0.328)
<i>Panel C: control variables</i>				
Board size	5.000 (4.000)	13.000 (13.000)	9.142 (8.714)	1.731 (2.099)
Institutional ownership	0.000 (0.000)	83.690 (94.510)	31.346 (49.358)	24.525 (28.530)
Foreign ownership	0.000 (0.000)	41.730 (94.510)	4.437 (28.932)	8.959 (27.340)
Concentration ownership	0.000 (0.000)	1.000 (0.980)	0.638 (0.567)	0.249 (0.236)
Firm size (Million)	44.313 (4.797)	434,878.084 (10,680.320)	26,938.005 (1,037.609)	69,142.592 (2,410.619)
Firm age	4.000 (5.000)	59.000 (54.000)	25.300 (27.452)	13.853 (12.684)
Financial leverage	0.013 (0.000)	1.044 (0.914)	0.418 (0.406)	0.253 (0.293)

**Table II.**  
Descriptive of  
dummy variables

The level of independence of a board member	Frequency of 1s		Frequency of 0s	
	Frequency	Percent	Frequency	Percent
Ind_d1	3 (6)	3 (14)	117 (36)	98 (86)
Ind_d2	6 (12)	5 (29)	114 (30)	95 (71)
Ind_d3	20 (5)	17 (12)	100 (37)	83 (88)
Ind_d4	13 (1)	11 (2)	107 (41)	89 (98)
Ind_d5	31 (5)	26 (12)	89 (37)	74 (88)

As for control variables, we notice from Table I that the board size in Saudi firms is greater than in Bahrain, and the percentage of institutional ownership in Bahraini firms is more than 49 percent, which is greater than that of Saudi firms of around 31 percent.

Table II shows the frequencies and percentages of dummy variables that are used to measure the level of board independence of firms operating in Saudi Arabia and Bahrain.

The increase in percentage of institutional ownership in Bahraini firms is due to the fact that most of these firms belong to the social corporation and other institutions that invest in listed firms. Therefore, the effectiveness of corporate governance in Bahraini firms and foreign ownership are expected to increase, due to the fact that the Bahraini economy is an open economy to foreign investment, as opposed to the Saudi economy, which has just started to make the first steps in this direction. The increase in foreign ownership of firms would bring global expertise and relationships to these firms expecting better performance. As for ownership concentration, it is noticed that Saudi firms are more concentrated because

of the nature of family business or the nature of investment opportunities there. Finally, the finding shows that Saudi firms are more reliant on debt financing than Bahraini firms.

#### *Relationship analysis between board independence and accounting-based performance*

This part of the study preliminarily aims to analyze the relationship between board independence in firms operating in Saudi Arabia and Bahrain and their performance through the use of path analysis of this relationship. This analysis is based on dividing firms into two categories, where the first category enjoys a high level of board independence, and the other has a low level of board independence based on the median. In each group, we calculate mean and standard deviation of performance indicators, with the use of one of parametric tests (two-independent sample *t*-test), and also one of non-parametric tests (Kolmogorov-Smirnov *z*-test) to test the differences between the two groups. Table III shows firms that are characterized by high board independence perform better in terms of ROA index or ROE, but this difference is not significant, in the sense that board independence is not the main factor that affects performance in Saudi and Bahraini firms. It may be true that independent board members have brought their expertise and relationships to the firms and contributed in performance improvements, but there are other anticipated factors that can significantly affect the performance other than independence. We have also noticed that the institutional ownership increases in firms with high board independence, and this is a good indication that institutions are looking to invest in firms that are known with board independence. The relationship might take the opposite direction in a way that firms with a high level of institutional ownership have higher board independence due to the imposition of these institutions to high levels of governance. This relationship needs to be tested deeply to analyze its causality.

In contrast, firms with high board independence have low foreign ownership. Merging the two samples of Saudi Arabia and Bahrain might have led to the emergence of firms having high board independence and low foreign investment, especially with firms that are operating in Saudi Arabia. It is not expected that board independence leads to more ownership concentration if these two samples are not merged. On the other hand, it is useful to comment on the relationship between board independence and leverage, as we have noticed that firms with more board independence have more debt. This might be due to independent board members have good contacts with financing institutions and

Variables	Firms with high board independence		Firms with low board independence		Difference	Testing the difference	
	Mean	SD	Mean	SD		<i>t</i> -test	<i>z</i> -test
<i>Panel A: performance measures</i>							
Return on assets (ROA)	5.701	8.492	5.469	7.515	0.231	0.181 (0.857)	0.882 (0.418)
Return on equity (ROE)	10.899	13.419	8.228	10.721	2.671	1.376 (0.171)	0.969 (0.304)
<i>Panel B: control variables</i>							
Board size	9.172	1.844	8.867	1.826	0.306	1.057 (0.292)	0.633 (0.818)
Institutional ownership	37.267	27.757	34.530	25.564	2.737	0.640 (0.523)	0.985 (0.287)
Foreign ownership	10.256	19.646	11.167	18.343	-0.910	-0.302 (0.763)	0.946 (0.333)
Concentration ownership	0.638	0.257	0.594	0.233	0.044	1.071 (0.286)	1.243 (0.091)**
Firm size (million)	29,071	72,529	10,459	4,192,941	18,612	1.945 (0.054)*	1.574 (0.014)**
Firm age	26.862	13.863	24.693	13.183	2.169	1.016 (0.311)	0.861 (0.449)
Financial leverage	0.453	0.272	0.371	0.247	0.082	1.995 (0.048)**	1.204 (0.110)

Note: \*, \*\*, \*\*\*Significance at 10, 5 and 1 percent levels, respectively

**Table III.**  
Relationship between  
board independence  
and performance



consequently encourage firms to go for debt financing. This relationship cannot be ascertained unless further in-depth analysis is conducted.

*Granger causality test*

Causality test aims to find the direction of relationship between some of control variables and board independence through answering the question as to whether the foreign and institutional ownership as well concentration ownership can cause or encourage board independence or not? This is what we are trying to answer in this part of the study. This step is to determine the causal direction of “Granger”. When there is one integrative vector a systematic error correction for Engle and Granger (1987) is used. By applying this test the results emerged as shown in Table IV. Six proposed models of relationships have been developed.

Table IV shows that there is no causal relationship towards the impact of institutional ownership on board independence. This indicates that institutions investing in public shareholding firms in Saudi Arabia and Bahrain do not encourage independence of board members. This finding contradicts with the corporate governance theory which sees institutional investors as a key supporter to board independence. On the other hand, non-existence of such an effect might be attributed to other factors that outweigh the influence of institutional investors in the selection and identification of independent board members, or may be a preliminary indicator of the non-importance of board independence in improving firm’s performance. In this case, institutional investors are not willing and not encouraging independence. This assumption is consistent with the Stewardship theory which does not see the need to board independence and prefers a firm to be managed by internal members who are non-independent, have detailed work expertise and are available in the firm where they are employed.

As with the causal effect of foreign ownership on board independence, we have noticed from Table IV that there is a causal and significant relationship between foreign ownership and board independence. The foreign investors who possess good experience in multinational firms and have good relationships with others prefer a larger representation of independent members in firms’ boards. This undoubtedly brings expertise from other firms and contribute well in improving firm’s performance.

It is known that ownership concentration cannot bring independent members in the firm as a specific category of investors is willing to control and manage the firm in accordance with a certain vision. This is clearly shown in Table IV where no causal relationship is found between ownership concentration and board independence.

**Empirical study**

Empirical studies in finance face many measurement problems including relationship study between board independence and performance as many internal variables are

Dependent variable	Institutional ownership	Foreign ownership	Concentration ownership
Board independence	0.799 (0.452)	3.974 (0.021)**	1.784 (0.173)
Institutional ownership		3.134 (0.047)**	1.865 (0.159)
Foreign ownership			0.768 (0.466)
Concentration ownership			

**Notes:** The null hypothesis states that there is no causal relationship between the slow factors (independent variables in the horizontal side and dependent variable in the vertical side) of the table. The upper value is for “Fisher” F-Statistic test and the lower value in brackets (Prob.) is the probability value for this test. Symbols mean: that there is a causal effect for independent variable to dependent variable at \*10, \*\*5 and \*\*\*1 percent levels, respectively

**Table IV.**  
Granger causality test

related to a random error of regression models. Like most empirical corporate finance research works, the analysis of the relationship between board composition and firm performance faces the challenge of endogeneity, which can arise from unobserved heterogeneity, simultaneity, and reverse causality (Adams *et al.*, 2010; Wintoki *et al.*, 2012; Liu *et al.*, 2015). Liu *et al.* (2015) pointed out that the problem of unobserved heterogeneity appears when there is a set of latent variables that drive the relationship between board characteristics and performance. For instance, some of highly capable internal directors might seek to hire more independent board members when a firm achieves higher level of performance, attributing this to independent members, where in fact the good performance comes from internal directors.

To reach accurate results and to avoid different measurement problems on the relationship between board independence and performance, we use two different panel data models. These models are as follows: firm FE approach and two-stage least squares (2SLS). Tables V and VI show results of two models, respectively.

### FE approach

When time-series and cross-sectional data are merged, we get panel data that gives more disparity, less internal correlation between variables, more degrees of freedom, and more efficiency. Panel regression models are divided into FE approach and random-effect (RE)

Variables	ROA Models			
	Model 1: FE		Model 2: 2SLS	
	$\beta$	<i>t</i> -Statistic	$\beta$	<i>t</i> -Statistic
<i>Panel A: independent directors</i>				
%_Ind	-6.646	-0.505	-0.606	3.419***
Ind_1	0.716	0.221	-0.531	0.397
Ind_2	1.409	0.350	-0.920	0.359
Ind_3	3.297	0.691	0.822	0.412
Ind_4	5.074	0.803	0.832	0.407
Ind_5	-4.648	-2.584**	-0.877	-1.982*
<i>Panel B: control variables</i>				
Board Size	0.576	1.181	0.941	0.348
Institutional ownership	0.034	1.113	0.718	0.474
Foreign ownership	-0.093	-2.157**	-0.891	2.374**
Concentration ownership	-5.428	-1.877	-0.520	0.604
Firm size	0.558	1.550	0.456	1.965
Firm age	0.148	3.071***	0.214	3.472***
Financial leverage	-11.012	-3.629***	-2.245	3.789***
<i>R</i>	0.463		0.415	
<i>R</i> <sup>2</sup>	0.215		0.172	
Adj. <i>R</i> <sup>2</sup>	0.137		0.110	
<i>F</i> -Statistic	2.753***		8.697***	
<i>p</i> -value	0.002		0.000	
Hausman test ( $\chi^2$ )	27.886***			
<i>p</i> -value	0.002			
Durbin-Watson stat.	2.114		2.338	

**Notes:** This table reports the regression results using the ordinary least-squares with firm and year fixed-effects (FE), and the two-stage least-squares (2SLS). All regressions are estimated with robust standard errors clustered at the firm level. *t*-critical: at df 162, and confidence level of 99 percent is 2.326 and level of 95 percent is 1.645 and level of 90 percent is 1.282. *F*-Critical (df for denominator  $n-\beta-1 = 162-19-1 = 142$ ) and (df for numerator =  $\beta = 19$  and confidence level of 99 percent is 2.03 and confidence level of 95 percent is 1.66 and confidence level of 10 percent is 1.48. \*, \*\*, \*\*\*Significance at 10, 5 and 1 percent levels, respectively

**Table V.**  
Effect of board  
independence on ROA

Variables	ROE models			
	Model 3: FE		Model 4: 2SLS	
	<i>B</i>	<i>t</i> -Statistic	$\beta$	<i>t</i> -Statistic
<i>Panel A: independent directors</i>				
%_Ind	-3.312	-0.164	-3.643	-0.180
Ind_1	-0.229	-0.046	-0.252	-0.051
Ind_2	-0.019	-0.003	-0.021	-0.003
Ind_3	-5.077	-1.893*	-5.585	-2.082
Ind_4	-6.415	-2.661**	-7.056	-2.927**
Ind_5	-3.118	-1.255	-3.430	4.448***
<i>Panel B: control variables</i>				
Board size	-0.388	-0.517	-0.426	-0.569
Institutional ownership	0.048	1.030	0.053	1.134
Foreign ownership	-0.166	-2.498**	-0.183	-2.748**
Concentration ownership	-10.051	-2.264**	-11.056	-2.490**
Firm size	0.840	1.519	0.924	1.671
Firm age	0.257	3.470***	0.283	3.817***
Financial leverage	-4.395	-0.943	-4.835	-1.037
<i>R</i>	0.447		0.536	
<i>R</i> <sup>2</sup>	0.200		0.287	
Adj. <i>R</i> <sup>2</sup>	0.120		0.144	
<i>F</i> -Statistic	2.513***		3.016***	
<i>p</i> -value	0.004		0.000	
Hausman test ( $\chi^2$ )	37.129***			
<i>p</i> -value	0.000			
Durbin-Watson stat.	2.431		2.038	

**Notes:** This table reports the regression results using the ordinary least-squares with firm and year fixed-effects (FE), and the two-stage least-squares (2SLS). All regressions are estimated with robust standard errors clustered at the firm level. *t*-Critical: at df 162, and confidence level of 99 percent is 2.326 and level of 95 percent is 1.645 and level of 90 percent is 1.282. *F*-Critical (df for denominator  $n-\beta-1 = 162-19-1 = 142$ ) and (df for numerator  $= \beta = 19$  and confidence level of 99 percent is 2.03 and confidence level of 95 percent is 1.66 and confidence level of 10 percent is 1.48. \*, \*\*, \*\*\*Significance at 10, 5 and 1 percent levels, respectively

**Table VI.**  
Effect of board  
independence on ROE

approach. The trade-off between the two approaches depends on the assumptions set on possible correlation between cross-sectional units (firms), amount of  $\epsilon_i$  error (other factors affecting firms' performance), and regressed variables  $X_s$ . If assumed that  $\epsilon_i$  and  $X_s$  are not correlated, a RE approach is best, otherwise FE approach is best. This was confirmed by "Hausman Test" where a null hypothesis assumes that capabilities of an FE approach and random-effects approach (EF) are same, but if a null hypothesis is rejected then this indicates that RE approach is inappropriate, and it is therefore preferable to use FE approach. Houseman  $\chi^2$  for ROA and ROE models shown in Table IV is significant, which means that capabilities of FEs model is best representing the relationship, confirming our assumption that  $\epsilon_i$  and  $X_s$  are correlated.

Models 1 and 3 in Tables V and VI, respectively, show results of regression estimating ordinary least-squares model in an FE approach as follows:

$$Performance_{it} = \gamma \times \%\_Ind_{it} + \beta \times Control_{i,t} + d_i + d_t + \epsilon_{it}$$

Performance variable ( $Performance_{it}$ ) is measured based on ROA and ROE. Board independence ratio ( $\%\_Ind_{it}$ ) is the independent variable, with the addition of a set of control variables that are related to firm's characteristics and ownership structure. ( $d_i$ ) and ( $d_t$ ) symbols of the model indicate FEs of units (firms) and years, respectively.

Based on FEs method, it can be noticed that most independence levels are adversely associated with firms' performance where existence of five and more independent board members have the highest effect. The two performance models ROA and ROE have shown significant and adverse effects on performance. Therefore, it can be said that the negative impact on firm's performance starts to emerge when there are five and more independent directors in the board as they lack enough experience in firm's management and operational information of daily work. Our results differ from the findings of Liu *et al.* (2015) which showed a positive relationship between board independence and firms' performance in China, where a positive effect starts from three and more independent board members.

### *2SLS method*

The 2SLS is used to overcome the simultaneity problem, which usually appears in the financial pilot studies (Liu *et al.*, 2015). The simultaneity problem exists when there are some internal sloping variables, which is likely associated with the endogeneity problem. In this case, the capabilities of ordinary least-squares are not consistent and do not give accurate results. Therefore, the regular 2SLS method and instrumental variables give consistent and adequate estimates. The 2SLS has been estimated according to a set of contributing variables as shown in Models 2 and 4 of Tables V and VI, respectively. It has been noticed from these results that independent board members' ratio has been adversely and insignificantly associated with firms' performance in Saudi Arabia and Bahrain when using different scales to calculate performance. Therefore, these results confirm what we previously reached at that no positive effect is found between board independence and firms' performance in Saudi Arabia and Bahrain. This leads us to accept the first assumption that is based on the Stewardship theory which seems more appropriate to explain the relationship between board structure and firms' performance in Saudi Arabia and Bahrain.

### *The role of ownership structure in the relationship between board independence and firm's performance*

The board of directors plays an important role in reducing agency conflicts, resulting from the separation of ownership from management (Fama and Jensen, 1983). Table III shows the advanced analysis of the relationship between ownership structure, board independence and performance. It can be noticed from the table that there are different levels of relationship between ownership structure and board independence as all indicators show firms with higher ownership concentration, higher foreign concentration, and higher institutional concentration are characterized with high ratio of board independence than other firms.

There was an insignificant effect of ownership structure as a controlling variable between board independence and firm's performance, as a negative relationship was found between ownership concentration and performance which might indicate that directors use firm's resources for their own purposes (Berle and Means, 1932). On the other hand, effect of ownership concentration on performance varies when taking independence into consideration where ownership concentration has a positive effect on firms' performance in Saudi Arabia and Bahrain (Khamis *et al.*, 2015a, b, c). The results of our study are consistent with a study conducted in Jordan which found an adverse effect of ownership concentration in firms' performance, in addition to other ownership structure variables that showed negative impacts on performance (AbuSerdaneh *et al.*, 2010). In general, we cannot confirm that ownership structure can determine the relationship between board independence and firms' performance in Saudi Arabia and Bahrain.

*Results of control variables*

The fixed effects model shows additional results related to other control variables. Such results include a positive and insignificant effect of firm's size on performance, but firm's age is found to be significant in ROA and ROE models at less than 1 percent. The leverage is found to have a negative and significant effect in performance at less than 1 percent, based on ROA model. This finding is consistent with the return and risk theory, where firms with independent board members may achieve some advantages. This finding differs with the results of previous studies which have found that independent board members, as representatives of financial firms, create more debt to the firm, as these members work primarily for the interest of their own firms irrespective of the hosting firm (Dittmann *et al.*, 2010). As with the impact of board size on performance, results vary where some of these models have shown negative effects, while others positive effects. These different results call for further studies to find out more facts about the role of board size on firm's performance.

**Conclusion**

This study provides a framework for the relationship between board independence and performance of the Gulf firms, and takes sample firms from Bahrain and Saudi Arabia as evidence. Our study is based on two popular theories in management, namely the agency theory, and stewardship theory, and two accounting-based measures of firm performance which are ROA and ROE. To test the hypotheses, panel data are used which include 120 listed firms in Saudi Arabia and 42 listed firms in Bahrain for the period of 2013-2015 using several econometric techniques to overcome the different measurement problems of this relationship. Descriptive and applied results show a negative relationship between an increase of independent board members and firm's performance. Therefore, our study support the stewardship theory for the relationship between board independence and firms' performance in Saudi Stock Exchange and Bahrain Bourse and which says that internal managers are more trusted in firm's management and its resources than external managers. The results also show that the existence of independent board members increases information asymmetry and control costs of firms in Saudi Arabia and Bahrain, and reduces expected benefits of independent board members. The adverse effect of independent board members on firms' performance in Saudi Arabia and Bahrain is attributed to their inadequate information and expertise in operational details of the work as shown in our study.

Undoubtedly, there are many benefits of having independent board members; however, it must be commensurate with the nature of business environment and culture prevailing in the society as Gulf business environment is surrounded with social and economic conditions that make an increase in independent board members an improper decision. This calls for a need for internal managers who are knowledgeable and experienced in operational details of firm's daily work. Therefore, the most important recommendation of this study is not to increase the number of independent board members to more than five members, a number at which a negative impact of the board members on firm's performance starts to emerge.

The study used a range of econometric techniques to overcome measurement problems and reach the right relationships between variables to ensure the robustness of the study results and to provide preliminary evidence about the relationship of board independence with performance. However, caution must be taken when generalizing study results to all Gulf States. Although there are some similarities in the Gulf States in terms of social, economic conditions and other characteristics, but each country has special conditions that distinguish it from other Gulf states. Therefore, to get a clear picture and more accurate results about the Gulf States, the study sample has to be expanded to apply to financial markets of all the Gulf States. In future studies, research in the impact of board independence on corporate governance, earnings quality and their relationships with corporate social responsibility can further contribute to come up with the best fit for board structure.

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**Further reading**

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