

The Association between Board Size, Independence and Firm Performance: Evidence from Saudi Arabia

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Received: 15 December 2016 Accepted: 5 January 2017 Published: 15 January 2017

Abstract

This study examines the association between board size, independence and firm performance in Saudi nonfinancial listed firms. The sample consists of 329 firms during the period 2013 to 2015. Both between- and within-firms variation analysis are used to test the hypotheses. The study finds that neither board independence nor board size is linked to firm performance, but some evidence (from additional tests) supports the argument that nonexecutive members of the board of directors may lack real independence; in this case they would be both less effective and more costly for firms. Together, these findings are consistent with the view that business structure in Saudi Arabia is dominated by a tribal system that gives more attention to personal relationships instead of skill and competency in selecting member of the board of directors.

Index terms— board size, board independence, firm performance, saudi nonfinancial listed firms.

1 Introduction

he main function of the board of directors is to monitor management's activities to ensure they are in line with shareholders' interest (Jensen & Meckling, 1976). Through their monitoring function, independent board members can reduce agency cost and ensure that management does not use the firm's resources in their own interests (Hillman & Dalziel, 2003). The size of a board is another important factor in corporate governance (CG) that affects the monitoring system and can improve the decision-making process (Haniffa & Hudaib, 2006), and in this way can help enhance the long term performance of the firms.

A review of the literature confirmed that board size and independence were among the important factors affecting firm performance, but the findings are contradictory. Some prior studies have concluded that independence of the board is associated with improved performance (Hossain, Prevost & Rao, 2001; Reddy, Locke, Scrimgeour & Gunasekarage, 2008), while in other studies an independent board was found to have a negative impact on firm performance (Fauzi & Locke, 2012; ??grawal & Kneoeber, 1996).

Meanwhile, many of the studies investigating the relationship between board size and performance found that smaller boards are more effective in improving the level of firm performance ??Cheng, Evans Author: Qassim University. e-mail: mohd778@hotmail.com & Nagarajan, 2008; Eisenberg, Sundgren & Wells, 1998; Guest, 2009;Hossain et al., 2001;Reddy et al., 2008); although some studies found that firms with large boards reported better performance (Coles, Daniel, & Naveen, 2008;Dalton, Johnson, &Ellstrand, 1999;Fauzi & Locke, 2012;Larmou & Vafeas, 2010).

Regardless, board size and independence have become a focus of CG regulations around the world. For instance, the Cadbury Report, published in 1992, mandated that all UK listed firms should appoint a minimum number of three outside directors on their boards, the majority of whom should be independent of the firms ??Cadbury, 1992). Meanwhile, in the US, the Sarbanes Oxley Act (SOX) required that boards should have five members to provide full-time independent services ??SOX, 2002). In this regard, The New York Stock Exchange (NYSE) required that independent members of boards should constitute the majority on the boards of all listed firms (NYSE, 2009).

3 THEORY AND HYPOTHESIS DEVELOPMENT

45 In the case of Saudi Arabia, the CG regulation, issued by the Capital Market Authority (CMA) in 2006,
46 emphasized the importance of board size and independence in improving governance quality and firm performance.
47 Specifically, the CG regulation required that all listed firms could determine the number members on the board
48 of directors provided that the number was no less than three and no more than eleven, the majority of whom
49 should be non-executive members (CMA, CG Regulation, 2006).

50 While Saudi Arabia is no different from advanced countries in this respect, it should be noted that each country
51 has unique characteristics that affect its economy and modelling of its business sector. The argument that one CG
52 code, therefore, could be applied universally to all business structures ignores the differences between countries
53 and their economic features that shape their business environment. It can also be pointed out that there are
54 differences within a single country and between each business unit inside that country, with each based on its
55 own leadership model and capital structure.

56 With regard to the case of Saudi Arabia, it should be noted that there are specific environmental factors
57 affecting the business sector. For example, Saudi society is dominated by a tribal system in which decision
58 making is concentrated in one influential

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60 person, and ultimately this can lead to aspects of cronyism and nepotism (Haniffa & Hudaib, 2007). Such a
61 system affects the decisions related to nominating members of the board, so that directorships are often selected
62 on the basis of relationship with the CEO and not on formal rules or professional competence.

63 Although such a pattern may increase the board size in terms of quantity, it may negatively affect the quality
64 of the board. This is due to the gap between the qualification of members selected and the requirements of the
65 position held. In such a situation, it is to be expected that the board of directors would be less effective and
66 more costly in terms of higher total remuneration paid to the members. On the other hand, such a model of
67 board composition may explain the personal nature of business in which agency conflict is likely to increase as
68 a result of absence of consultation and consensus in the decision making process. Another problem of such a
69 model is related to secrecy of information, where CEOs determine the type and quantity of information available
70 to different individual board members based on their personal preferences. This limitation of information can
71 adversely affect the ability of directors in carrying out their monitoring functions (Jensen, 1983).

72 To summarize, these factors, related to society and social structure in Saudi Arabia, affect business structures
73 and processes in ways that are different from what is expected in advanced countries. Consequently, adopting
74 CG regulations from advanced countries and applying them directly in less developed countries like Saudi Arabia
75 might not be an ideal option.

76 Considering the environmental factors of the Saudi business sector, the important question the current study
77 set out to answer is: to what extent are the CG regulations appropriate for Saudi firms in terms of the relationship
78 between board independence and board size, and the performance of Saudi nonfinancial listed firms?

79 The sample frame of this study includes all 329 of Saudi nonfinancial listed firms over the period 2013 to 2015.
80 Two main statistical tests are used to analyze data for within-and between-firms variation tests.

81 The findings reveal that neither board size nor board independence is linked to firm performance. However,
82 there is some evidence from an additional test that reveals a negative relationship between board independence
83 and firms' financial performance, indicating that board members are less effective in carrying out their functions
84 and represent a higher cost for their firms. Overall, the results are consistent with the view that the Saudi
85 business sector is influenced by factors present in its society that give more attention to personal relationships
86 instead of skill or competency in selecting the members of board directors.

87 These results may alert the policy maker (i.e. the CMA) to the differences between Saudi Arabia and advanced
88 countries in terms of relevant business sector needs. Specifically, in its efforts to renew CG regulations, the CMA
89 should adopt appropriate regulations that consider the specific needs of Saudi business sector instead of blindly
90 borrowing regulations from abroad.

91 The remainder of this paper is organized as follows: Section 2 reviews the literature and develops the research
92 assumption. The research methodology is described in Section 3. Section 4 reports and discusses the results of
93 the study. The final section provides the conclusion, and discusses limitations of the study and possible areas for
94 future research.

2 II.

3 Theory and Hypothesis Development

97 Due to a separation between ownership and management, management might misuse the firm's resources to
98 maximize their own interest. This would cause a conflict between owners of firms and management. Agency
99 theory suggests that the board of directors can reduce such conflicts by acting as a monitoring control system and
100 ensuring that management acts are consistent with the behavior of owners (Jensen & Meckling, 1976). However,
101 as the board is responsible for authorizing access to a firm's resources (Hendry & Kiel, 2004), developing the
102 strategic direction of the firm and providing guidance for setting roles and objectives aligned with owners' interests
103 (Jensen, 1993, Zahra & Pearce, 1989), it is most important to ensure that performance complies with established
104 goals. In addition, as part of their responsibilities to ensure that firms achieve the goals established, the boards

105 have the authority to remove a CEOs if he or she fails to perform as expected (Zahra & Pearce, 1989), thereby
106 indicating the direct influence board members can exert on corporate performance.

107 In general, board size, among other board characteristics, is considered to be an important factor that affects
108 the monitoring of management and limits the extent of domination of the CEO on the board of directors (Fauzi
109 & Locke, 2012;Zahra & Pearce, 1989), and can improve the decision process (Haniffa & Hudaib, 2006) leading to
110 enhanced corporate performance.

111 Similarly, independent boards can also add value to firms in terms of monitoring management activities and the
112 financial performance of the organization (Hillman & Dalziel, 2003). They also influence a firm's performance in
113 such matters as monitoring the operational processes (Fuzi, Adliana, & Julizaerma, 2016) encouraging managers
114 to focus on long term performance rather than routine activities (Alves, 2014) and authorizing the decisions of
115 management based on whether they benefit shareholders (Fama & ??ensen, 1983). In this regard, Haniffa and
116 Hudaib (2006) indicated that an effective independent board helps reduce agency cost resulting from misallocation
117 of resources. Indeed, an independent board with a majority of non-executive directors can better provide firms
118 with experience, skill, and contacts (Haniffa & Hudaib, 2006;Hermalin & Weisbach, 1988) and thereby helping
119 firms to identify the opportunities for better performance.

120 Zahra and Pearce (1989) argued that the presence of a majority of independent directors is important for
121 developing strategies through their involvement in debates and discussions related to established strategies
122 and long term objectives. In this respect, independent boards provide assurance that the firm's strategies are
123 established consistent with the shareholders' objectives.

124 Previous studies have documented that firms with independent boards tend to report better performance. For
125 example, Reddy et al. (2008) used the data from small firms to investigate the effect of independent boards,
126 among other CG characteristics, on the performance of New Zealand listed firms and found that independent
127 boards improved firm performance, as did Hossain et al. (2001). Likewise, Fauzi and Locke (2012) found a
128 positive relationship between the proportion of non-executive directors on the board and firm performance as
129 measured by Return On Asset (ROA).

130 Using a sample consisting of firms listed on the New Zealand Stock Exchange, Coles et al. (2008) found that
131 firms with a more complex structure with more outside directors on the board performed better in maximizing
132 the value of firms. Similarly, Luan and Tang (2007) documented a positive relationship between outside directors
133 and firm performance, implying that the more outside directors there were on the board, the more independent
134 the board would be of the management and the better the firm would perform.

135 A study undertaken by Bhagat and Black (2002) revealed that low-profitability firms tend to increase the
136 independence of their boards with the expectation of better future performance. This implies that firms recognize
137 that having more independent directors is a viable strategy for improving their performance.

138 In a similar vein, Hermalin, and Weisbach (1988) had earlier reported that in low-profitability firms, internal
139 directors are replaced by outside directors, and they suggested that ineffective management by internal directors
140 could cause poor performance, thus leading to the need for more outside directors. This indicates that more
141 independent boards, measured by the proportion of outside directors on the board, are better able to monitor
142 management and hence improve a firm's performance. Dahya and McConnell (2007) found that British firms
143 that added outside directors in response to the adoption of the Cadbury Report were able to increase their
144 operating performance, indicating that independence of the boards measured by the number of outside directors
145 does indeed have a beneficial impact on the performance of firms.

146 Nevertheless, despite the studies that have shown the positive impact of board independence on firm's
147 performance, some research studies provide evidence that independence of the board is negatively associated
148 with the performance of firms (Agrawal & Kneoeber, 1996; Fauzi& Locke, 2012); while other studies found
149 board independence had no significant impact on the firm's performance (Fuji et al., 2016;Haniffa & Hudaib,
150 2006;Wang & Oliver, 2009). One explanation for the negative results might that the nonexecutive directors
151 have had limited time or irrelevant experience to perform their functions effectively. Wang and Oliver (2009)
152 mentioned other possible reasons for this situation, including the appointment of nonexecutive directors who
153 share similar demographic characteristics as other board members, or where results were reported from passive
154 boards rather than more active boards. This implies that non-executive directors may be selected intentionally
155 to play a passive role in the boardroom. In other cases, non-executive directors may lack real independence as
156 they are controlled by the CEOs (Bhagat & Black, 2002), and therefore they will be less effective in monitoring
157 management; their appointment is merely to comply with the CG regulation. This would lead to adding more
158 non-executive directors with a higher cost to the firm (Fauzi& Locke, 2012) and less contribution to the firm's
159 performance.

160 In summary, research on the relation between independence of the board and firm performance has produced
161 mixed results; some studies have reported positive results supporting the view that independent boards help
162 enhance a firm's performance as they are better able to monitor management and ensure that management
163 activities are in compliance with the interest of owners. Hence, they help limit misuse of firm's assets and
164 improve earnings outcomes. In contrast, some studies documented that with the domination of CEOs on the
165 board of directors as noted in less developed countries, non-executive directors as indicators of independence of
166 the board become more costly, in that they outweigh the benefit obtained from them. This cost is a function of
167 many factors, such as lack real independence, limitations of time, irrelevant experience, and higher remuneration.

3 THEORY AND HYPOTHESIS DEVELOPMENT

168 CMA in Saudi Arabia has adopted a positive view when developing CG regulations. It requires that non-
169 executive directors shall constitute the majority of the board, and the one-third of the board shall be composed of
170 independent directors. The current study extends prior studies by investigating the effect of these requirements
171 on the performance of Saudi nonfinancial listed firms. Since this study uses data from an environment with
172 unique characteristics (i.e. more adherence to social norms and the influence of a tribal system), it is anticipated
173 that the relation between independence of the board and firm performance could well be negative rather than
174 positive.

175 This implies that when the proportion of nonexecutive directors increases, as an indicator of independent
176 boards, the level of firm performance decreases, correspondingly. In other words, an increase in the proportion
177 of non-executive directors is associated with a reduction in the level of firm's performance. Hence, the first
178 hypothesis of this study is stated in the alternative form as follows: H1: There is a negative relationship between
179 the proportion of non-executive directors on the board and the performance of Saudi nonfinancial listed firms.

180 Board size is another important factor affecting the performance of firms. The literature reports that the size
181 of the board can affect performance through its role in monitoring management and the board's involvement in
182 the making decision process of the firms (Haniffa & Hudaib, 2006).

183 In fact, two competing views are used to explain the association between board size and the performance of
184 firms. In the first view, researchers argue that small boards are more effective in improving performance because
185 they can be more easily monitored by shareholders (Haniffa & Hudaib, 2006), and thus they become very helpful
186 in ensuring good outcomes.

187 In addition, Guest (2009) indicated that coordination and communication problems would be less when boards
188 are small, indicating that decisions could be made quickly with small boards. Reddy et al. (2008) argued that
189 small boards are likely to reach consensus more easily on issues being discussed simply because they consist of
190 fewer members. Coles et al. (2008) also argued that small boards are more effective and more productive and
191 cohesive. This suggests that small boards deal better with financial performance issues in a timely and productive
192 manner, thereby being more active compared to large boards and more likely to attain better performance.

193 Prior studies provide evidence consistent with this view. For example, Guest (2009) investigated the impact
194 of board size on firm performance using a large sample of UK listed firms. His results support the hypothesis
195 that larger board size has a negative impact on the performance of firms, implying that smaller boards are more
196 effective in getting better performance.

197 In the American corporate context, Cheng, Evans, and Nagarajan (2008) examined the association between
198 board size and firm performance. Their findings revealed that smaller board has a positive influence on the
199 firm performance. Specifically, this relationship existed at higher takeover intensity. Similarly, Yermack (1996)
200 investigated board size for a large sample of 452 US firms over the period 1984-1991 and provided evidence that
201 smaller boards were more effective in enhancing the firm's value and hence maximizing earnings outcomes. In
202 a study of New Zealand firms, Hossain et al. (2001) found that firms with fewer directors were better able to
203 achieve a higher level of performance.

204 Eisenberg, Sundgren, and Wells (1998) reported a negative relation between board size and financial
205 performance of firms in small and mid-sized Finnish firms. Likewise, Reddy et al. (2008) also found evidence
206 of the negative effect of board size on firm performance, implying that as board size increases, the level of
207 performance decreases. Problems of large boards that affect their effectiveness have been documented in the
208 literature, such as higher coordination costs (Jensen, 1993), slow decision making processes (Zahra & Pearce
209 (1989), and higher free riding cost (Cheng et al., 2008).

210 However, the alternative view that larger boards are more effective in improving the performance of firms also
211 has some support. It is argued that larger boards provide a wider diversity of experiences and skills that are
212 needed to secure firms' resources (Haniffa & Hudaib, 2006); they can give good advice and counsel to management
213 and hence improve firm performance (Dalton et al., 1999). In this context, Zahra and Pearce (1989) argued that
214 because larger boards have more experts and qualified members, they would be better able to monitor the CEOs
215 and retain the power required to resist attempts at domination or exploitation by management. Hence, they
216 would help enhance the quality of managerial activities and improve earnings outcomes.

217 It is also suggested that, because of wider networks of contacts, firms with larger boards are likely to have
218 easier access to outside resources such as external funding and suppliers (Dalton et al., 1999); that, in turn,
219 affects the implementation of strategies and facilitates transactions and contracts with external resources, all of
220 which contribute to improved firm performance.

221 Several studies provided evidence supporting this view. For example, Coles et al. (2008) found that board
222 size is positively associated with Tobin's Q implying that larger boards help enhance value maximizing outcomes
223 for firms. Larmou and Vafeas (2010) also found that having a larger board positively influences the performance
224 of smaller firms that have already suffered from poor operating performance. The results of a study undertaken
225 by Fauzi and Locke (2012) suggested that large boards are more effective in monitoring of management and
226 achieving long-term objectives. Likewise, Dalton et al.'s (1999) meta-analytic study investigated whether number
227 of directors had an influence on the performance of financial firms. They found a positive relation existed between
228 board size and firm performance.

229 In sum, the literature on the relation between board size and firm performance is divided. On one hand, some
230 researchers have argued that smaller boards are more effective in improving firms' performance as they involve

231 less coordination and fewer communication problems. Because they are more cohesive and cooperative, they are
232 more likely to reach consensus easily, which is important in order to deal with financial performance issues in a
233 timely and productive manner.

234 On the other hand, other researchers argue that large boards are more effective as they include directors who
235 have broad, diversified knowledge and the skills needed to secure firm's asset, provide good advice and counsel,
236 and reduce the domination and exploitation of management. Because external directors often serve on multiple
237 boards they have strong contacts with outside firms, which facilitates transactions and contracts with external
238 resources.

239 In the case of Saudi Arabia, CMA required that the number of board members of each listed firms shall not be
240 less than three and not exceed eleven. This implies that CMA stands in the middle between the two competing
241 views.

242 Considering the CMA regulations and also the inconsistent results regarding this issue published in the
243 literature, the current study does not predict the direction of a relationship between board size and firm
244 performance. Hence, in order to examine whether board size is associated with the performance of Saudi
245 nonfinancial listed firms, the second hypothesis of this study is stated, in alternative form, as follows: H2:
246 There is relationship between the number of board members and firm performance in Saudi nonfinancial listed
247 firms.

248 4 III.

249 5 Methodology a) Data

250 The current study uses data obtained from the financial reports of Saudi nonfinancial listed firms over the period
251 2013 to 2015. Data were collected from TADAWL, the official site of the Saudi Stock Exchange. The reason for
252 selecting this period is to examine the relationship between board size, independence and firm performance after
253 the adoption of the CG regulation. Following Larmou and Vafeas (2010), it is considered that a period of three
254 years is sufficient to reflect the effect of both board size and independence on the firms' performance. However,
255 banks and insurance firms are excluded from the sample due to their specific regulatory requirements (Dahya
256 & McConnell, 2007;Guest, 2009;Haniffa & Hudaib, 2006;Hermalin & Weisbach, 1988) that lead to differences in
257 CG practices.

258 The initial sample consisted of 355 firms after excluding banks and insurance firms. Eight firms were found
259 to be outliers, and a further eighteen firms were excluded due to incomplete data. This yields the final sample
260 of 329 firms over the period 2013-2015. Table 1 reports the number of firms per year for the final sample used in
261 the analysis.

262 6 b) Variables

263 The first independent variable is board independence. This variable is defined in line with the CMA definition
264 and studies by Haniffa and Hudaib (2006) and Reddy et al. (2008). It is defined as the proportion of nonexecutive
265 directors to total number of directors on the board. Nonexecutive directors are all members of the board who do
266 not have a full-time management position at the firms, or who do not receive monthly or yearly salary ??CMA,
267 2006).

268 The second independent variable is board size. It is measured as the total number of executive and nonexecutive
269 members of the board, as used in previous studies (Fauzi& Locke, 2012; Reddy et al., 2008).

270 The dependent variable of this study is firm performance, defined as overall earning power or profitability.
271 Consistent with prior studies (Fallatah & Dickins, 2012;Guest, 2009;Huybrechts et al., 2016), this study uses an
272 accounting-based measurement of performance, namely Return On Asset (ROA). This indicator of performance
273 is widely used in the literature to capture outcomes of management activities. Hence, it is appropriate for studies
274 that examine boardperformance relationships. ROA is calculated as dividing operating profit before depreciation
275 and provision by total asset.

276 Deriving from earlier studies, several control variables are included in the regression model. Leverage (LEV) is
277 a ratio of total liabilities to total assets. Prior studies have documented that leverage is negatively associated with
278 firm performance (Fallatah & Dickins, 2012;Guest, 2009;Reddy et al., 2008). Firm size (SIZE) is the natural log
279 of total assets.The relationship between size and firm performance is expected to be positive (Fallatah & Dickins,
280 2012;Guest, 2009;Haniffa & Hudaib, 2006). Board meeting activity (BMEET) is included in the model to capture
281 the effect of board activities. Zahra and Pearce (1989) argued that effective board meetings are an important tool
282 to ensure that the board is active in monitoring firms' performance. Larmou and Vafeas (2010) used a composite
283 index of factors including board and committee meetings to measure board activity; they found that board
284 activity is positively correlated with firm performance. It is measured by the number of board meetings held
285 during a year. Age (AGE) is the number of years from the first listing in TADAWL. In line with Guest (2009),
286 who found that age has a negative impact on ROA, the current study expects a negative relationship between firm
287 age and performance. Business segment (SEGMENT) is measured by the number of business segments that are
288 included as main activities of firm. In line with the findings of previous studies (Cheng et al., 2008;Hossain et al.,
289 2001), the current study expects that the number of business segments is negatively associated with performance.
290 Table ?? summarizes the measurements of the variables used in the regression model.

7 c) Model

In general, the model is used to examine whether board size and independence have an influence on firm performance. Following the studies by Guest (2009) and Larmou and Vafeas (2010), two analytic methods are used to explain the variation in the level of firm performance resulting from the independent variables (i.e. the independence and size of board). The within-firms variation model is estimated first, for each firm in time. The aim of this test is to capture the effect of other factors that are not included in the model; in this way this fixed effect model reduces any endogeneity problem that exists in the board -firm performance relationship (Guest, 2009). To do this, data for each firm is entered three times in a panel covering the period of 2013-2015. This yields an unbalanced sample of 329 firms.

The second model is estimated to explain the between-firms variation by using the mean value for each firm (i.e. one observation per firm). The aim of this test is to capture the differences in firm performance across firms. Notably, the regression model is also reestimated for each year separately by using the real value for each variable instead of the mean value. The purpose of re-estimation analysis is to enhance the validity of the between-firms variation test. In addition, this technique provides additional control for bias in standards errors (Guest, 2009). The regression model is specified as follows: $ROA = \beta_0 + \beta_1 BIND + \beta_2 BSIZE + \beta_3 LEV + \beta_4 SIZE + \beta_5 BMEET + \beta_6 AGE + \beta_7 SEGMENT + e$

Where ROA is an accounting-based measurement of firm performance and other variables are as defined in table ?? IV.

8 Table 2: Variables Definition

9 Results

10 a) The main results

The descriptive statistics of the sample are presented in table 3. It shows that the mean value of ROA is .06 with a minimum value of -.18 and a maximum value of .33. This statistic value indicates that Saudi nonfinancial listed firms reported generally low performance over the period 2013-2015. On average, the proportion of non-executive members of board is about 38 %, suggesting that the proportion of nonexecutive members of board in Saudi nonfinancial listed firms is relatively low, a little over one-third of board directors. In terms of board size, the number of board members range from 4 to 12 members, with the mean value of 8. It appears that Saudi nonfinancial listed firms tend to adhere to the CG regulation that requires the number of board members to be between 3 and 11. It is suggested that the board size is not so large as to adversely affect the firm's performance, nor is it so small to the extent that the firm suffers from problems related to smaller boards. The mean value of leverage is .37, a ratio of total liabilities to total assets that can be considered low for the Saudi nonfinancial listed firms included in the sample. On average, Saudi nonfinancial listed firms are mid-sized firms in terms of total assets. With regard to board activity, the mean value of the number of board meetings is five per year, which can be considered sufficient in terms of frequency. On average, the Saudi nonfinancial listed firms are not recently established; the mean number of years from the first listing in TADAWL is 17.2 years, with a range from 1 year to 46 years. Finally, the mean number of sectors in which the Saudi nonfinancial listed firms are engaged is about 3, with a range from 1 to 10. The result of within-firms variation model reveals that board independence is not associated with firm performance ($p = .75$). This result implies that an independent board has no significant impact in explaining variance in the level of firm performance for any one firm over time. In the between-firms variation model, board independence is also not significantly associated with firm performance ($p = .89$) implying that board independence is not able to explain the variance in firm performance across firms included in the sample. The result of the regression models for each year, as reported in table 6, reveals that board independence has no significant impact ($p = .63$; $p = .83$; $p = .83$). Therefore, the first hypothesis of this study is not supported. This result suggests weak performance on the part of non-executive directors. Overall, the findings of this study are not consistent with the view that an independent board has an important role in reducing any agency conflict that might arise from a separation between owners and management.

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Volume XVII Issue I Version I Year () One possible explanation for this result is the fact that the Saudi population consists of many tribes, and respect for the wishes of a tribal leader may outweigh official rules. This leads to the proposition that the business environment in Saudi Arabia is shaped by the tribal system ??Haniffa & Hudaib, 2007). In this regard, Haniffa and Hudaib (2006) indicated that nonexecutive directors, in less developed countries, are frequently selected based on considerations such as political affiliation or contacts and not because their qualifications or experience.

Another problem linked to such a system is related to board culture, where most patterns of behavior exhibited by the board of directors are derived from those applied in a tribal system (in this case, for example, the rules of nominating non-executive members on the board). Based on this view, most nonexecutive members of boards are selected from among those individuals who have a strong tribal relationship with the CEOs. Consequently, politeness and deference rather than truth and frankness would be common during discussions at board meetings and, in turn, this would adversely affect the performance of firms ??Jensen, 1983). This situation also results in

350 selecting directors with irrelevant experience or poor knowledge about the performance of firms and hence they
351 will be not able to review CEO actions or disclose the faults of management. Another problem when the power is
352 concentrated in one or a few individuals is that information is closely controlled; in this issue, the CEOs determine
353 the type and quantity of information available to members of board ??Jensen, 1983). In some cases, they prevent
354 non-executive directors from access to information that might disclose weaknesses in firm performance.

355 However, the result is consistent with the findings of Bhagat and Black (2002), Haniffa and Hudaib (2006), and
356 Fuzi et al. (2016) who found that board independence was not significantly associated with firm performance.

357 With regard to board size, the results of withinfirms variation model reveal that board size is not statistically
358 associated with firm performance ($p=.50$). In other words, the number of board members has no significant
359 impact on the variance in the level of firm performance for any single firm over time. In the between-firms variation
360 model, board size is also not significantly associated with firm performance ($p=.64$); thus it is unable to explain
361 the variance in firm performance across firms. The result of the regression models for each year, as reported
362 in table 6, reveals that board size does not have any significant impact ($p=.79$; $p=.78$; $p=.44$). Therefore, the
363 second hypothesis of this study is not supported. This finding can be attributed simply to the effectiveness of
364 the members of boards. Although the number of board members seem to be sufficient (eight on average), they
365 are ineffective in performing their functions and therefore serve merely to fill empty seats. This finding stresses
366 the importance of having executive members to perform complementary roles in improving the performance. As
367 executive directors work in firms on a daily basis, they would be more familiar with the operating systems and
368 the processes that need to improve (Haniffa & Hudaib, 2006). Thus, familiarity with the inner workings of the
369 firm would help identify the opportunities for its success. Considering the very small percentage of executive
370 directors of Saudi nonfinancial listed firms (only .11 of board members), it is suggested that firms should find a
371 mix of both non-executive and executive directors so that both can contribute effectively to firm's performance.
372 Since the recent regulations in Saudi Arabia have not specified the number of executive board directors, there
373 is a need to open discussion on this issue due to the importance of having executive directors along with the
374 non-executives on the board of directors.

375 In terms of control variables, the results show that leverage (LEV) is negatively associated with firm
376 performance ($p<.01$), confirming that firms with a high level of leverage achieve a lower level of performance.
377 Size (SIZE) is positively associated with firm performance ($p<.05$) implying that larger firms outperform smaller
378 firms. Finally, the number of segments in which a firm operates (SEGMENT) is negatively associated with firm
379 performance ($p<.01$). The remaining variables (BMEET and AGE) were found to be not significant. The
380 result of the AGE variable also shows that the number of years of listing does not have any influence on firms'
381 performance.

382 **12 b) Results of additional tests**

383 Several tests were carried out in order to enhance the validity of the key results.

384 Alternative measurements of the variables: To test the stability of the initial analysis, alternative measurements
385 are used for board size, independence, and ROA. First, following Larmou and Vafeas (2010) the between-
386 firms variation analysis were repeated using industry-adjusted ROAs. Each value of ROA is adjusted by the
387 corresponding median ROA of firms in the same industry. The TADAWL classification was adopted to classify
388 the industries into 13 industries excluding banks and insurance firms. The aim of this technique is to reduce the
389 fluctuation in ROA across industries, and enhance the accuracy of comparisons made between firms in similar
390 industries included in the sample (Larmou & Vafeas, 2010). However, there was no change in outcome: the result
391 shows that variation in the median industry-adjusted ROA is not influenced by either board size or independence
392 ($p=.83$; $p=.32$ respectively).

393 In line with a study carried out by Fallatah and Dickins (2012), board independence was measured by a dummy
394 variable taking 1 when the board consists of a

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396 Volume XVII Issue I Version I Year ()

397 **14 2017**

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399 The Association between Board Size, Independence and Firm Performance: Evidence from Saudi Arabia majority
400 of independent directors. Notably, this definition uses independent directors instead of non-executives to measure
401 board independence. The un-tabulated result shows that association between board independence and the firm
402 performance does not change across firms, while the coefficient of board independence remains insignificant ($p=$
403 $.10$). In within-firms variation model, board independence is not significant in explaining within-firms variation
404 in ROA values ?? $p=.11$).

405 With regard to board size, it is measured by the natural log of board size (Cheng et al., 2008), proposing that
406 the relationship between the board size and performance is non-linear. The two models (i.e. withand between-

firms variation) were re-estimated to test the relation between board size and performance. The results show that the relation between board size and performance for both models are not significant ($p=.32$, $p=.47$ respectively).

The interaction effect: this study controlled for the effect of interaction between variables on the level of performance as measured by ROA. The study of Wang and Oliver (2009) reported that large firms are more likely to have independent boards and, in turn, this might affect the performance of these firms. To test the effect of interaction between board independence and firm size on performance, the variable of $BIND*SIZE$ is included in the model. The finding (not reported) shows that the interactive variable ($BIND*SIZE$) is not significant ($p=.38$); thus, the result remains unchanged. In particular, the result indicates that non-executive board members in large firms in Saudi Arabia appeared to play no significant role in improving the performance across firms.

Prior studies (Eisenberg et al., 1998; Fauzi and Locke, 2012; Guest, 2009) have documented that board size is associated with firm size proposing that larger firms are more likely to have larger boards of directors to meet with their increased needs. To test the effect of interaction between board size and firm size on performance, the variable of $BFSIZE*SIZE$ is included. The result shows that the coefficient of the interactive variable ($BFSIZE*SIZE$) is not significant ($p=.16$) implying that the number of board members in larger firms do not have a significant role in improving the firms' performance. In order to test whether board size is associated with performance of firms in small and midsize firms, the sample was split into two subgroups based on the median value of firm size. The values below the median of firm size (6.35) represent the small and mid-size firms. The result shows that board size does not have a significant impact on the performance of small and mid-sized firms ($p=.78$). Taken together, the results suggest that size of firms does not modify the relationship between board size and firm performance.

Sensitivity to change in the level of independent variables: The regression model was also re-estimated to test whether the relation differs based on the variation in the level of independent variables.

In first test, it is proposed that the relation between board independence and firm performance is not constant across the entire range of board independence (Bhagat and Black, 2002). In order to test this hypothesis, the range of proportion of non-executive directors on the board is divided into three levels based on quartile values. Each level could be a breakpoint at which the relationship between board independence and firm performance might be significant. The three levels of board independence are: low level of board independence ($BINDL$): taking 1 if $BIND < .24$ (the scores less than the first quartile); mid-level of board independence ($BINDM$): taking 1 if $.24 < BIND < .54$ (the scores representing the interquartile range between .25 and .75 of values); high level of board independence ($BINDH$): taking 1 if $BIND > .54$ (the scores greater than the top quartile). To run the regression, $BIND$ is replaced by one of the three variables and entered one by one to the initial model. This yields three regression models. The results of the three models reveal that neither of the first two coefficients of board independence ($BINDL$ and $BINDM$) is significant across firms ($p=.91$; $p=.14$ respectively). However, the variable of high board independence is negatively significant at the 10 percent level of significance ($p=.058$). This provides some evidence that firms with a high percentage of nonexecutive directors perform more poorly than other firms. Collectively, the results suggest that non-executive directors are neutralized by the power of the CEOs. In most cases, their presence in the firms has no effect on performance, while in some other cases they might have an adverse impact due to their higher cost in terms of board remuneration paid to them and lower benefit obtained from them.

In terms of board size, Guest (2009) indicated that the relation between board size and firm performance might be determined by the optimal board size in which firms achieve a highly valued mix of nonexecutive and executive board members. To test whether the relation between board size and performance might be influenced by a change in the number of board members, the range of board size is divided into three levels based on the percentile values: low, mid, and high size. This yields three independent variables representing the different levels of board size (i.e. $BSIZEL$, $BSIZEM$, and $BSIZEH$). The first variable ($BSIZEL$) is measured by a dummy variable taking 1 if board size < 7 members; the second variable ($BSIZEM$) is measured by a dummy variable taking 1 if $7 < \text{board size} < 9$ members; the third variable ($BSIZEH$) is measured by a dummy variable taking 1 if board size > 9 members. Each of the three variables is used separately in the regression model instead of board size. The results of the three models show that none of the coefficients of the three variables representing $BSIZEH$ is significant ($p=.??5$; $p=.11$, $p=.43$, respectively). This implies that the relation between the board size and performance is not influenced by a change in the number of board members and remains constant across board size.

V.

16 Conclusion

This paper has examined the association between board size, independence and firm performance as measured by ROA. In terms of board independence, the results of this study suggest that board independence is not associated with firm performance. This implies that the CMA recommendation regarding the independence of the board (i.e. that non-executive directors shall make up the majority of members of the board of directors) seems to be ineffective and it is posited that this is because of the specific nature of business structure in Saudi Arabia. In general, Saudi business structure is influenced by societal norms that are heavily influenced by the tribal system and tribal values. In such a system, decision making is based on the views of one or a few individuals who are

469 in positions of high esteem and not based on the official requirements. For example, decisions regarding the
 470 selection of individuals for certain positions in the company are most likely to be based on their relationship to
 471 the influential person, regardless of their skill or qualification. This situation irrelevant experience or inadequate
 472 knowledge about the performance of the firm. Hence they will be not able to review the CEO's actions or
 473 disclose the faults of management. Another problem is the close control over information by the CEOs, who can
 474 determine the type and quantity of information available to other members of the board. In particular, the CEOs
 475 prevent nonexecutive directors from gaining access to the information that they need to be able to monitor the
 476 management, thus affecting their ability to contribute effectively to the firm's performance.

477 The result of the additional tests provide some indication that board independence can, in fact, have an
 478 adverse impact on the firm's performance. In particular, the results of the additional tests show that firms with a
 479 higher percentage of non-executive directors perform worse than firms with a smaller proportion of nonexecutive
 480 directors. This is because, in the Saudi business context, non-executive members lack real independence from
 481 management and represent an additional cost burden that outweighs any benefits obtained from them.

482 In terms of board size, the results reveal that, similarly, the number of board members is not associated with
 483 firms' performance. This unexpected result, which contradicts the findings of a number of other studies, occurs
 484 simply because members of boards in Saudi nonfinancial listed firms are not effective in performing their functions.
 485 In other words, there is a discrepancy between the requirements of the position and the official qualification of
 486 the appointees. This results in the presence of directors on boards who are unable to contribute meaningfully to
 487 firms' performance.

488 In view of a new movement in Saudi Arabia toward reviewing the CG regulation, the results of this study may
 489 be useful for policy makers (i.e. CMA) who are concerned about the relation between board size, independence
 490 and firm performance. In terms of board independence, it is recommended that CMA require firms to have
 491 a nomination and remuneration (N&R) committee whose members shall be non-executive members. However,
 492 Since the R&N committee is responsible for selecting members of boards, it is expected that CEOs are influenced
 493 by societal factors (i.e. relation or contact with directors) when selecting members of boards. To alleviate this
 494 problem, it is suggested that the CEOs could be not be included as members of the R&N committee. On the
 495 other hand, to ensure that non-executive directors are both qualified and independent from management, it
 496 is recommended that CMA encourages firms to have more directors who serve on multiple boards. In terms of
 497 board size, CMA should consider the importance of the role of executive directors in improving firm performance,
 498 instead of continuing the current model of board composition that focuses only on non-executive directors.

499 A limitation of the current study concerns the use of an accounting-based measurement of firm performance
 500 (i.e. ROA). This was used because information on market-based measurements of performance was not available.
 501 As noted by Dalton, Daily, Ellstrand, & Johnson (1998), accounting-based measurement of performance might
 502 lack precision since it involves estimations that are more subject to management control.

503 Nevertheless, the current study has addressed several issues that might be researched further in future studies.
 504 First, the current study was carried out to examine the issues of board size and independence in one country of
 505 the Gulf Cooperation Council (GCC); that is, Saudi Arabia. It is recommended that future studies could obtain
 506 evidence from other GCC countries that have similar business structures. Second, it is recommended that future
 507 studies examine the role of board committees on firm performance. One suggested area is to examine whether
 508 audit committees play a role in improving corporate performance. A third possible area for future research is
 509 the effect of CEOs on board independence and firm performance when they chair the R&N committee. Fourth,
 510 the current study has used the quantitative method to examine the role of board size and independence on
 511 firm performance. It is suggested that future studies should incorporate The Association between Board Size,
 512 Independence and Firm Performance: Evidence from Saudi Arabia often results in the selection of unqualified
 513 directors with qualitative methods to study such issue in more detail. Finally, future studies might investigate
 514 the effect of other factors on the relation between board size, independence and firm performance. For instance,
 515 culture is an important factor that could modify the relationship between board size, independence and firm
 performance, especially in less developed countries, and it is a viable issue for future research to investigate.

1

Year	Firms	Sample/Total
2013	105	94%
2014	110	95%
2015	114	89%
Total	329	

Figure 1: Table 1 :

3

Variable	Minimum	Maximum	Mean	Median	Standard deviation
ROA	-.18	.33	.06	.05	.08
BIND	.00	.89	.38	.43	.19
BSIZE	4	12	8	9	1.5
LEV	.01	.84	.37	.36	.21
SIZE	4.3	8.5	6.4	6.35	.69
BMEET	2	16	5	5	2.2
AGE	1	46	17.2	13	13.4
SEGMENT	1	10	2.96	3	1.80

Figure 2: Table 3 :

4

Figure 3: Table 4

4

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ROA (1)	1	.02	.11*	-.31*	.09	-.02	.11*	-.17*
BIND (2)		1	.23*	.24*	.41*	.08	-.07	.02
BSIZE(3)			1	.10*	.45*	-.05	-.001	-.006
LEV(4)				1	.43*	-.04	-.31*	-.07
SIZE(5)					1	.07	-.05	-.06
BMEET(6)						1	.19*	.04
AGE (7)							1	-.06
SEGMENT (8)								1

[Note: Note: Correlation is significant at the .05 level; variables are as defined in model specification in section III]

Figure 4: Table 4 :

5

presents the regression results for within-and between-firms variation models. Both models are significant at the .01 level with F values of 11.41 and 2.91, respectively.

Figure 5: Table 5

5

ROA = $\beta_0 + \beta_1 \text{BIND} + \beta_2 \text{BSIZE} + \beta_3 \text{LEV} + \beta_4 \text{SIZE} + \beta_5 \text{BMEET} + \beta_6 \text{AGE} + \beta_7 \text{SEGMENT} + e$

Variables	Within-firm variation	Between-firm variation
Intercept	.35 $-(.93)$.24 $-(1.18)$
BIND	.75 (.32)	.89 $-(.14)$
BSIZE	.50 (.67)	.64 (.47)
LEV	.000* $-(7.42)$.001* $-(3.54)$
SIZE	.000* (3.75)	.04* (2.07)
BMEET	.38 $-(.88)$.99 (.01)
AGE	.74 $-(.34)$.19 (1.33)
SEGMENT	.000* $-(3.72)$.06 $-(1.87)$
Firm effect	Yes	
Time effect	Yes	
Adjusted R ² =	.18	.11
F-ratio =	11.41	2.91
n =	329	106

Note.

[Note: *p-values represent one-tailed tests when direction of coefficient is consistent with expectations; variables are as defined in model specification in section III.]

Figure 6: Table 5 :

6

Variables	Model 1	Model 2	Model 3
Intercept	.31	.57	.87
BIND	.63	.83	.83
BSIZE	.79	.78	.44
LEV	.00*	.00*	.00*
SIZE	.02*	.02*	.13
BMEET	.64	.17	.68
AGE	.98	.70	.44
SEGMENT	.06**	.03*	.03*

Note.

[Note: *, ** Represent statistical significant at $P < .05$, $P < .10$, respectively. One-tailed test for a directional predicted sign, and twotailed otherwise.]

Figure 7: Table 6 :

516
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