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Do Board Size and Independence Really Matter? An Empirical Study

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Abstract
Board of directors is considered as the most basic part of effective decision making in the firms. However, the large or small board sizes are continuously in debate and no conclusive decision has yet been achieved. Likewise, research on board independence also shows contrasting results. Some studies are in favour of board independence, others focus their attention on the firm specific knowledge of executive directors. The purpose of this study is to examine the relationship of board size and firm independence with the firm performance in a sample of 609 firms of Karachi stock exchange over the period 2005-2012. This study uses the partial least squares method to determine structural links between the variables under study. The findings of the study demonstrate the fact that board size is positively related to the productivity, but negatively related to the profitability of the firms. However, board independence is positively related to the profitability and negatively related to the productivity of the firms. Overall, board of directors with two characteristics of size and independence has negative relationship with the firm performance.
Keywords: board size, board independence, partial least squares, firm performance

1. Introduction

Board of directors and its impact on corporate performance is the most researched areas in the contemporary research. Board of directors is "elite and episodic decision-making groups that face complex tasks pertaining to strategic-issue processing" (Forbes and Milliken, 1999 p. 492). The board meets periodically to discuss important and crucial tasks and make relevant decisions through group participation, open discussion and coordination, which are the three processes for measuring board effectiveness in strategic decision-making (Zattoni et al., 2015; Minichilli et al., 2012). According to governance scholars, monitoring and advising are the two primary tasks of the board. Based upon the agency and stakeholders theories of corporate governance, the monitoring role of the board of directors makes it responsible to protect the shareholders and stakeholder interest in the business through controlling the activities of management (Finkelstein and Mooney, 2003). On the other hand, following resource dependence theory, the advising role of board underlines that the board provides important advice, counselling and support to the management to reinforce their competencies and experiences by giving feedback and hence, contribute to the strategic decision-making. The board can also help managers to solve critical matters or search new opportunities (Zattoni et al., 2015; Finkelstein and Mooney, 2003).

This paper focuses on the size and independence, two particular aspects, of board of directors. Some researchers, authors and academicians believe that small board increases the effectiveness of the board and is responsible for higher firm performance. Similarly, many believe that if more independent non-executive directors are on board, this enhances the board and firm performance. Based on these beliefs, the assumption of this study would be like that there is negative relationship between board size and firm performance and positive relationship between board independence and firm performance.

The next section presents the literature review of the board of directors and firm performance. Section three reviews research methodology. In the fourth section, results and discussion are presented, followed by section five, the conclusion.

2. Literature review

2.1 Board size and firm performance

Board of directors is the most important internal governance mechanisms, developed internally and show effective reactions to organizational operating situations (Wintoki *et al.,* 2012). Moreover, studies have shown a positive link between board structures and corporate performance, representing a likely substitution effect

between internal and external governance mechanisms. McCahery *et al.,* (2010) documented that board structure becomes strong and important in those countries where legal and legislative institutions are weak and less developed to give proper protection of investors' rights, and Pakistan is one of them. In addition, the board of directors is a group of shareholder-elected individuals whose primary responsibility is to act in the owners' interests by looking after the business affairs and as stewards of an organization's resources.

The large or small board sizes are continuously in debate and no conclusive decision has yet been achieved. For example, Lipton and Lorsch (1992) and Jensen (1993) are of the view that board size should not surpass eight or nine directors. Jensen (1993) stated that board became less effective and coordination is difficult if its size is beyond seven or eight directors. He argued that cost of large board, i.e. less cohesiveness, slow decision-making, frank discussion, more control of the CEO, is much greater than the benefits gained by it. However, based upon the resource dependence theory, it is argued that large board size offers more directors on board in the form of independent non-executive directors and/or female directors with diversity in experience, knowledge and ideas (Guest, 2009). They can use their contacts to safeguard important resources from the external environment for the organizations (Ntim et al., 2014). Furthermore, when the firms get larger and more complex, there is a need for more advice and support to the management, which requires large board, ultimately (Coles et al., 2008).

The empirical literature regarding board size and firm performance is mixed and conflicting. By using data of 7999 firms from Australia for the years 2001-2011, Nguyen et al. (2015) found a significant negative link between large board size and firm value, measured by Tobin's q. However, they mentioned this link to be stronger in smaller firms and they also maintained that firms with large board size have lower operating performance and higher cost. Nakano and Nguyen (2013) also found a negative impact of size and firm value in Japan and declared that large board firms tend to invest more rather than to remove non-performing assets. Wang et al. (2012) also showed the negative impact of board size on firm performance when they tested the relationship in bank holding firms in USA. Guest (2009) argued after analysing 2746 firms listed in years 1981-2002 in UK that board size had a strong negative impact on firm profitability and shares return. Yermack (1996), also empirically, reported a negative relationship between board size and firm value; Tobin's Q and return on assets, when he examined 452 large US firms in the period between 1984 and 1991.

However, the results of different studies presenting the link between board sizes and firm performance as positive. Ntim et al. (2014) found a positive relationship between them when they examined 169 firms from South Africa for the period 2002-2011. They claimed the positive role of board size is a result of proper implementation of the resource dependence role of the board rather than the agency role of the board. Shukeri et al. (2012) also found a positive link of size of boards with firm performance after having analysed 300 publicly listed firms in Malaysia. Adams and Mehran (2005) and Beiner et al. (2006) reported a positive relationship between board size and Tobin's q, when they examined the firms in the USA and Switzerland respectively.

In Pakistan, CG code requires firms to select board size from minimum five directors to maximum sixteen directors. There are very limited studies conducted in Pakistan, which focused on board size and firm performance. Haider et al (2015) and Yasser et al. (2011) found a significant positive link between board size and corporate performance in Islamic financial institutions in Punjab province and 30 firms for the years 2008-2009, respectively. Ali and Nasir (2014) also found a positive relationship between board size and firm performance by arguing that this is the result of more directors with multiple skills and competencies.

2.2 Board independence and firm performance

In response to the big corporate scandals in 2001-2002 and after the SOX act in USA, 2002, the role of independent non-executive directors has increased and now almost all the code of corporate governance in different countries and stock exchange regulations require firms to maintain certain numbers of independent non-executive directors on their board. According to agency theory, the board of directors is a system to protect and safeguard the interests of shareholders so it is necessary to have independent non-executive directors on the board to supervise executive directors and management to reduce agency cost (Fama and Jensen, 1983). Resource dependence theory holds the viewpoint that independent non-executive directors enjoy good reputation among management as being competent, expert and professionals. They act as resources for the company with their diversifiable abilities, extensive knowledge and vast working experience to add value to firm rather than to act as just auditors (Mueller et al., 2008).

There are studies, which show a positive relationship between independent non-executive directors on the board and corporate performance. Liu et al. (2015) found this link positive in government controlled firms in China and declared that board independence positively related to lower insider self-dealing. Wang (2014) studied the 21 empirical studies in China, found that only five studies show any relationship between board independence and firm performance, and in remaining 21 studies the link is insignificant. Black and Kim (2012) also found that board independence significantly improved firm performance in Korea. Another study done by Sanda et al. (2008) also found a positive relationship between board independence and return on assets and

return on equity on 205 Nigerian public listed firms from 1996 to 2004.

However, Cicero et al. (2013) reported non-significant link between board independence and firm performance in the US firms. Shukeri et al. (2012) also showed a negative relationship between independent directors on the board and corporate performance after analysis of three hundred firms of Malaysia stock exchange. Singh and Gaur (2009) also found the board independence to be negatively linked to corporate performance. In Pakistan, Khan and Awan (2012) found a positive link between board independence and corporate performance of 91 firms from Karachi stock exchange while Malik (2012) concluded with no significant relationship between board independence and firm performance when he studied the link between CG measures and stock market prices of KSE-30 index firms for two years.

2.3 Theoretical framework

This study uses resource dependence theory to develop its theoretical foundations. It is argued that large board is in a better position to acquire critical resources from the environment and provide guidance to the management because it is better equipped with diversified, professional qualified directors (Gaur et al., 2015). Moreover, board advisory role is more concerned with higher firm performance rather than monitoring role (Brennan, 2006; Singh, 2011). In the same way, the independent non-executive directors are resources for the firm, contribute in terms of broad knowledge, experience and exposure, and provide the outside relations and networks that value the firms at the end (Gaur et al., 2015).

3 Methodology and data analysis

The sample for this study is the Karachi Stock Exchange 100 index (KSE -100) representing the largest 100 firms, by market capitalization, listed on the Karachi Stock Exchange (KSE). These firms are main firms of Pakistan and account for a wide range of business activities and economic output. The study examines a sample period of 8 years started from 2005 to 2012.

The initial sample, of the KSE-100 Index, consists of 800 firm-year observations for the period 2005 to 2012. However, the present study excludes 179 firms that operate in the financial sector, including commercial banks, Modaraba firms, investment banks and financial securities firms due to different asset base and different corporate governance requirements. Most of the variables discussed in study are taken from KSE, Securities Exchange Commission of Pakistan and the firms' annual reports. The data which is not available in these reports are collected from respective firms' websites and DataStream.

3.1 Measurement of variables

In this study, the board of directors variables are independent variables and corporate performance variables are dependent variables.. These variables are collected from the firm's annual reports, websites of the respective firms. These are given as follows;

Board size (B-SIZ): It is measured by the number of directors on the board. Board size is supposed to be an essential part of active decision-making.

Independent non-executive directors on board (B-NED): It means the number of independent non-executive directors on the board of directors. The independent non-executive directors are the source of vast knowledge, broad experience and diversified skills add value to the firm (Mueller et al., 2008).

Return on total assets (ROA): It is calculated by dividing operating profit by total number of assets. This ratio measures the efficiency and utilization of total assets to generate profit.

Return on equity (ROE): It is calculated by dividing pretax profit by the total book value of equity. It measures the ability of a firm to generate profits from its shareholders' investments in the company.

Total assets turnover (ATO): It is calculated by dividing total net sales by total book value of assets. It measures the contribution of total assets to generate sales in the company. This ratio also measures the productivity of the company. Table 3.1 below shows the summary of variables used in this study.

3.2 Conceptual model and equations

The proposed conceptual model of the study is made with the help of Partial Least Squares based Structural Equation Model ing (PLS-SEM) as shown below. There are three mathematical equations to link these variables.

Equation 1 $_{1}$ $_{\text{B-SIZ}}B\text{-}SIZ$ $_{\text{B-NED}}B\text{-}NED+$

Equation 2 ATO $_{\text{ROA}}$ROA $_{\text{ROE}}$ROE

Equation 3 $_{1}$ $_{1}$

In these equations, $_{1}$ Latent exogenous variable, i.e. BOD (board of directors), path co-efficient, random disturbance term, $_{1}$= endogenous latent construct i.e. CP (corporate performance), = path co-effecient

3.3 Data Analysis

This study uses PLS-SEM for data analysis. In PLS, minimum sample size and non-normal data are the major reasons for using PLS (Hair et al., 204; Henseler et al., 2009). The rule of thumb is that sample size should be equal to the 10 times the largest number of formative indicators (or structural paths) attached to single construct (Hair et al., 2014). This study sample size is far more than the minimum limit of PLS. Overall, the average size of the board of directors in KSE-100 index firms is 8.76 and independent non-executive directors on board constitutes 67.47% of the total board size in eight years as shown in the descriptive statistics in table 2. The average ROA is 14%, the average ROE of firms is 26% and the average of ATO is 1.22 which shows that net sales are 1.22 times of total assets in 8 years.

3.3.1 Partial Least Squares Analysis

PLS analysis comprises of two analyses; measurement model analysis and structural model analysis. Measurement model analysis involves assessment of reliability and validity of model by considering all indicators of constructs used in the model. Structural model analysis consists of significance of path coefficients, the level of R-square values R^2 and the f effect size (Hair et al., 2014). This study uses the SmartPLS 3.2.0 software (Ringle et al., 2015) for PLS analysis.

Measurement model analysis

The measurement model consists of two types, reflective measurement and formative measurement model. All he indicators used in this study for BOD and CP are formative in nature following the guidelines of Hair et al, (2014). The estimation of PLS assessments initiates with the measurement models and uses decisive criteria of indicator significance and multicollinearity that are exactly related to the formative outer mode (Ringle et al., 2010). The bootstrapping approach with 5000 resamples in SmartPLS 3.2.0, is used in the data set to determine the significance of each indicator's weight to its related construct to measure the validity in the measurement model. Andreev et al. (2009) suggested that the construct reliability of formative indicators should be tested through the test of multicollinearity (VIF). Table 3 shows the VIF values of all indicators of their respective constructs and does not find any sign of collinearity. All values are below than that of minimum threshold values (VIF< 5) as mentioned by Hair et al. (2014). Similarly, table 4 shows the indicators' weight, t-values and p-values reflect the significance of indicators in forming their respective constructs. It can be seen through the indicators of the BOD that B-SIZ and B-NED is significantly contributing to their construct at the$\alpha = 0.01$ level. Likewise, ATO and ROA contribute significantly at $\alpha = 0.01$ and, $\alpha = 0.05$ levels, respectively, in making CP construct, however, ROE is not significant. Hair et al. (2014) recommended that in order to remove formative indicators if weight is not significant then outerloading should be tested before removing any indicator. The outerloading is also not significant for the ROE but as it is the indicator which is usually used as a performance measure in prior researches so it is kept for further analysis because the removal of formative indicator can alter the meaning of the construct (Hair et al. 2014).

Structural model analysis

In structural model analysis, the significance of path coefficients between BOD and corporate performance is tested as shown in figure 2. The value of R^2 is also shown in the blue oval of endogenous variable i.e. CP. In PLS-SEM, Standardized path coefficients are used to measure the strength of relationship between latent variables (Hair et al., 2014). The significance of path coefficients (β) is determined through running Bias Corrected and accelerated bootstrap approach of 5000 resamples and the results are shown in the table 5 along with R^2, adjusted R^2 and f^2 values. Figure 3 depicts the bootstrapping results which shows the t-values of indicators' weights to their respective constructs and path between constructs.

In table 5, path coefficient is significant at $\alpha = 0.01$ levels, which shows a significant relationship between the board of directors and corporate performance. However, the significance is not positive, but rather negative that is supported by the studies of Bebchuk et al. (2004) who developed the entrenchment index (E-index) of 24 items and found a significant negative relationship of CG and firm value. Moreover, Core et al. (2006) revisited the CG index of Gompers et al. (2003) and found a significant negative relationship between CG index and operating performance. Similarly, in studies of individual measures of board of directors and firm performance, Nakano and Nguyen (2013), Wang et al. (2012) and Nguyen et al. (2015) found a significant negative relationship between board size and firm performance. Shukeri et al. (2012) and Singh and Gaur (2009) also showed a negative relationship between independent non- executive directors on the board and corporate performance. Values of R^2 is 0.054or 5.4% and f^2 is 0.057 which is a very small effect size and it cannot be determined that the board of directors may cause any variance in the firm performance. The adjusted R^2 values are close to R^2, which shows absence of insignificant indicator in the model (Hair et al., 2014).

4 Findings and discussion

In this study, PLS-SEM is used to conduct the data analysis and interpretation of results. Two board measures and three corporate performance measures have been selected to find any relationship. Board size has a positive relationship to the productivity (ATO) of the firms. It means that as the more and more directors are added to the

board and board size increases, then the overall productivity of the firms increases (Ali and Nasir 2014; Coles et al., 2008; Ntim et al., 2014). However, board size has a negative relationship to profitability (ROA) which shows that more directors fail to optimize the efficient use of resources to control costs and increase profitability. On the other side, the independent non-executive directors has negative link to the productivity, however, they have a positive relation to the profitability of the firms (Liu et al., 2015; Black and Kim 2012; Aggarwal et al., 2009).

The results of this study reflect two important insights related to the board of directors characteristics and corporate performance. Firstly, board size and independence moves in opposite directions when affecting corporate performance. For example, when size affects performance positively, then the independence effect is negative and vice versa. However, the overall impact of BOD on corporate performance is negative as shown in table 5 and figure 2. Secondly, corporate performance is measured through productivity and profitability, which have different relationships to the BOD. Board size and productivity shows a positive relationship which may be interpreted as more and more directors contribute their skills, education, expertise and firm specific knowledge to increase productivity, however, their contribution to reduce costs and control budget was not successful and large board size affects the profitability of firms negatively. Similarly, the presence of more independent non-executive directors affects negatively to the productivity, which may be interpreted as independent directors may not have more firm specific knowledge because the productivity is related to the operational performance of firms and executive directors are more familiar with the operational environment of the firms. However, independent directors contribute positively to the profitability of firms which show that their knowledge and expertise is more linked with the audit, cost and budget control related matters.

5 Conclusion and suggestions

This is the pioneer study that looks into the impact of 'whole construct' of BOD on 'whole construct' of CP and separate measures of BOD and individual measures of CP, in the same study by using PLS-SEM approach for secondary data. This study is advance in the literature as it develops the structural model for the interpretation of BOD and CP constructs and their indicators. Moreover, it is concluded that, overall, the resource dependence theory is inappropriate in its direct relationship to corporate performance, which proves that role of resource dependence theory is not to protect value rather its primary role is to create value in the firms. Although, in this dilemmatic situation, independent directors contribute their knowledge and expertise to the profitability of the firms, however, the board size contributes negatively to the profitability. It may also mean that small board size with more independent non-executive directors can contribute positively to the profitability of firms. In addition, the large board size with less number of independent directors contribute positively to the productivity of firms. Hence, it is a tradeoff between productivity and profitability and the choice rests with the firms.

This study is limited to the KSE 100 companies and is also country specific. Future researchers may expand this research to add more firms and countries as well as more indicators to draw a broader picture of BOD and corporate performance.

References

Adams, R. B., & Mehran, H. (2005). Corporate Governance, Board Structure and its Determinants in the Banking Industry. Working Paper, Federal Reserve Bank of New York, New York, USA.

Aggarwal, R., Erel, I., Stulz, R., & Williamson, R. (2009). Differences in Governance Practices between U.S. and Foreign Firms: Measurement, Causes, and Consequences. Review of Financial Studies, 22(8), 3131-3169. doi:10.1093/rfs/hhn107

Andreev, P., Heart, T., Maoz, H., & Pliskin, N. (2009). Validating Formative Partial Least Squares (PLS) Models: Methodological Review and Empirical Illustration. Paper presented at the 30th International Conference on Information Systems Phoenix, Arizona.

Arfan Ali, & Nasir, S. B. (2014). Impact of Board Characteristics and Audit Committee on Financial Performance: A Study of Manufacturing Sector of Pakistan. Research Journal of Finance and Accounting, 5(7), 144-151.

Beiner, S., Drobetz, W., Schmid, M. M., & Zimmermann, H. (2006). An Integrated Framework of Corporate Governance and Firm Valuation. European Financial Management, 12(2), 249-283. doi:10.1111/j.1354-7798.2006.00318.x

Black, B., & Kim, W. (2012). The effect of board structure on firm value: A multiple identification strategies approach using Korean data. Journal of Financial Economics, 104(1), 203-226. doi:http://dx.doi.org/10.1016/j.jfineco.2011.08.001

Cicero, D., Wintoki, M. B., & Yang, T. (2013). How do firms adjust their board structures? Corporate Finance, 23, 108-127.

Coles, J. L., Daniel, N. D., & Naveen, L. (2008). Boards: Does one size fit all? Journal of Financial Economics, 87, 329-356.

Fama, E. F., & Jensen., M. C. (1983). Separation of ownership and control. . Journal of Law and Economics, 26, 301-325.

Finkelstein, S., & Ann, C. M. (2003). Not the Usual Suspects: How to Use Board Process to Make Boards Better. The Academy of Management Executive (1993-2005), 17(2), 101-113. Retrieved from http://www.jstor.org/stable/4165959

Forbes, D. P., & Milliken, F. J. (1999). Cognition and Corporate Governance: Understanding Boards of Directors as Strategic Decision-Making Groups. The Academy of Management Review, 24(3), 489-505. Retrieved from http://www.jstor.org/stable/259138

Guest, P. (2009). The Impact of Board Size on Firm Performance: Evidence from the UK. The European Journal of Finance, 15(4), 385-404.

Haider, N., Khan, N., & Iqbal, N. (2015). Impact of Corporate Governance on Firm Financial Performance in Islamic Financial Institution. International Letters of Social and Humanistic Sciences, 51, 106-110. doi:10.18052/www.scipress.com/ILSHS.51.106

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Thousand Oaks: Sage.

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The Use of Partial Least Squares Path Modeling in International Marketing. In R. R. Sinkovics & P. N. Ghauri (Eds.), Advances in International Marketing (Vol. 20, pp. 277-320). Bingley: Emerald

Jensen, M. C. (1993). The Modern Industrial Revolution..ure of Internal Control Systems. THE JOURNAL OF FINANCE, 48(3), 831-880.

Khan, A., & Awan, D. S. H. (2012). Effect of board composition on firm's performance: a case of Pakistani listed companies. Interdisciplinary journal of contemporary research in business, 3(10), 853-863.

Lipton M, & Lorsch J. (1992). A modest proposal for improved corporate governance. Business Lawyer, 48(1).

malik, s. u. (2012). Relationship between Corporate Governance Score and Stock Prices: Evidence from KSE-30 Index Companies. International Journal of Business and Social Science, 3(4), 239-249.

McCahery, J., Starks, L., & Sautner, Z. (2010). Behind the scenes: The corporate governance preferences ofinstitutional investors. Paper presented at the Working Paper, University of Amsterdam.

Minichilli, A., Zattoni, A., Nielsen, S., & Huse, M. (2012). Board task performance: An exploration of micro- and macro-level determinants of board effectiveness. Journal of Organizational Behavior, 33(2), 193-215. doi:10.1002/job.743

Mueller., J., Ingley., C., & cocks, G. (2008). the blender approach to governance leadership: Do diverse director attributes contribute to board capital. Paper presented at the managing in the oacific century, Auckland.

Nakano, M., & Nguyen, P. (2013). Why do firms with larger boards have lower market values? Evidence from the investment behavior of Japanese firms. Working paper, Hitotsubashi University, Tokyo. Retrieved from www.ssrn.com website: doi:http://dx.doi.org/10.2139/ssrn.2409882

Nguyen, P., Rahman, N., Tong, A., & Zhao, R. (2015). Board size and firm value: evidence from Australia. Journal of Management & Governance. doi:10.1007/s10997-015-9324-2

Ntim, C. G., Opong, K. K., & Danbolt, J. (2014). Board size, corporate regulations and firm valuation in an emerging market: a simultaneous equation approach. International Review of Applied Economics, 29(2), 194-220. doi:10.1080/02692171.2014.983048

C.M. Ringle, S. Wende, & Becker, J. M. (2015). SmartPLS3. Boenningstedt: SmartPLS Gmbh. Retrieved from http://www.smartpls.com

Ringle, C. M., Sarstedt, M., & Mooi, E. A. (2010). Response-Based Segmentation Using Finite Mixture Partial Least Squares: Theoretical Foundations and an Application to American Customer Satisfaction Index Data. Annals of Information Systems, 8, 19-49.

Sanda, A. U., Garba, T., & Mikailu, A. S. (2008). Board Independence and Firm Financial Performance: Evidence from Nigeria. Working Paper. Retrieved from

Shukeri, S. N., Shin, O. W., & Shaari, M. S. (2012). Does Board of Director's Characteristics Affect Firm Performance? Evidence from Malaysian Public Listed Companies. International Business Research, 5(9). doi:10.5539/ibr.v5n9p120

Singh, D. A., & Gaur, A. S. (2009). Business Group Affiliation, Firm Governance, and Firm Performance: Evidence from China and India. Corporate Governance: An International Review, 17(4), 411-425. doi:10.1111/j.1467-8683.2009.00750.x

Wang, W.-K., Lu, W.-M., & Lin, Y.-L. (2012). Does corporate governance play an important role in BHC performance? Evidence from the U.S. Economic Modelling, 29, 751-760.

Wang, W. (2014). Independent Directors and Corporate Performance in China: A Meta-empirical Study. International Journal of Business and Management, 2(3), 145-171.

Wintoki, M. B., Linck, J. S., & Netter, J. M. (2012). Endogeneity and the dynamics of internal corporate governance. Journal of Financial Economics, 105(3), 581-606. doi:10.1016/j.jfineco.2012.03.005

Yasser, Q. R., Entebang, H., & Mansor, S. A. (2011). Corporate governance and firm performance in Pakistan: The case of Karachi Stock Exchange (KSE)-30. Journal of Economics and International Finance, 3(8), 482-491.

Yermack, D. (1996). Higher market valuation for firms with a small board of directors. Journal of Financial Economics, 185-211.

Zattoni, A., Gnan, L., & Huse, M. (2015). Does Family Involvement Influence Firm Performance? Exploring the Mediating Effects of Board Processes and Tasks. Journal of Management, 41(4), 1214-1243. doi:10.1177/0149206312463936

Table 1. The variables under study

Variables	**Codified as**	**Description**
Board size	B-SIZ	Number of total directors on board
Independent non-executive directors	B-NED	Number of independent non-executive directors on board
Return on total assets	ROA	Calculated by dividing operating profit by book value of total assets
Return on equity	ROE	Calculated by dividing pre-tax profit to common stockholders' equity
Total asset turnover	ATO	Calculated by dividing net sales by total book value of assets

Table 2: Descriptive statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std.Deviation
B_SIZ	609	5	16	8.76	2.046
B_NED	609	0	15	5.91	2.98
ROA	609	-0.4693	1.7478	0.142	0.159
ROE	609	-2.5243	1.8887	0.256	0.394
ATO	609	-0.0509	6.1848	1.225	1.055

Table 3: Reliability test

Latent Variables	Indicators	VIF
Corporate Governance	B-NED	1.74
	B-SIZ	1.74
Corporate Performance	ROA	1.71
	ROE	1.68
	ATO	1.14

Table 4: validity test

Latent Variables	**Indicators**	**outer weights**	**t-values**	**p-values**
Corporate Governance	B-NED	1.321	17.52***	0.000
	B-SIZ	-0.864	4.275***	0.000
Corporate Performance	ROA	-0.571	2.415**	0.017
	ROE	-0.015	0.926	0.928
	ATO	1.028	13.63***	0.000

** Significance at 5% (1.96). *** Significance at 1% (2.576)

Table 5: Significance of path coefficient

Corporate Governance and Corporate Performance					
Path coefficient	**t-value**	**p-value**	**R^2**	**Ad. R^2**	**f^2**
-0.232	5.163***	0.000	0.054	0.052	0.057

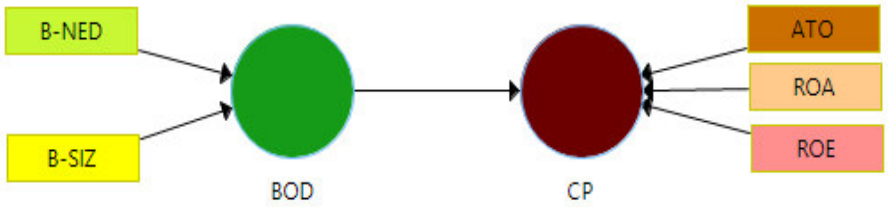

Figure1. The relationship between the board of directors and corporate performance
BOD= board of directors, B-SIZ= board size, B-NED= independent non-executive directors,
CP= corporate performance, ROE= return on equity, ROA= return on assets, ATO= asset turnover ratio.

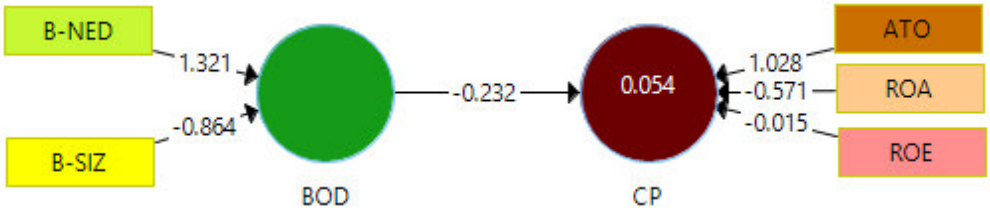

Figure2: structural model of board of directors and corporate performance

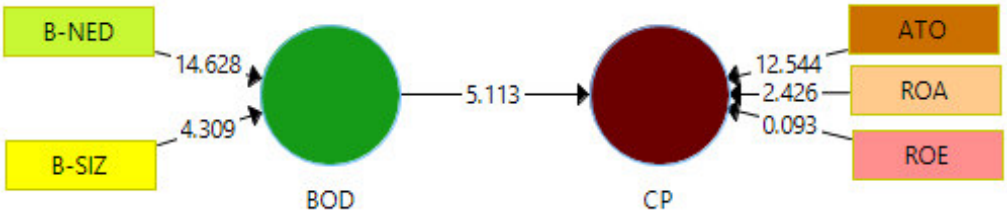

Figure 3: Bootstrapping result showing significance