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Board Diversity, Corporate Risk-Taking and Corporate Diversification Activities: Empirical Evidence From Malaysia

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Abstract

The study examines the impact of board diversity on corporate risk-taking and corporate diversification activities of firms in Malaysia. The data used in the study is consists of 712 firms listed on the Main Market of Bursa Malaysia for a five-years (5) period from 2010 to 2014. The results show that the diverse board, with the presence of female directors as board members in firm, has reduced firms' corporate risk-taking, especially on earnings volatility and debt obligation risks. The similar influence was also recorded for liquidity risk, however, the relationship was insignificant. These results are consistent with many of previous studies that have supported the argument that the female directors have risk-averse behaviour and this reduces their risk-taking in the context of corporate firms. The risk-intolerance behaviour of female directors was also represented through the negative relationship between board diversity and geographical diversification activities and the positive relationship between board diversity and industrial diversification activities. Female directors in the diverse board prefer business venture activities that are less-risky like industrial diversification activities that are usually conducted domestically. Conversely, geographical diversification activities were not preferred as firms need to expose to the high-risk foreign market environment when they venture their businesses across these locations. Theories such as agency and asymmetric information theory, resources dependence theory and human capital theory are in relation to the evidence found in the study, of which it connects the link between gender of board members and tolerance of risk-taking and preference of types of business activities. This study contributes towards an understanding of types of corporate risk-taking preferred by the female directors in the diverse board of Malaysian firms. Practically, it has also highlighted the diversification activities conducted by the board members, with the presence of female directors.

Keywords: Board Diversity; Corporate Risk-Taking; Corporate Diversification; Malaysia.

1 Introduction

The The Malaysian government has laid out focus to ensure that at least 30% of firms listed on the Bursa Malaysia to be made up by female directors in their board by the year 2020 (Ching, 2018, NST). Presently, statistic shows that the female directorship in Malaysian public firms is extremely low. They are accounted for only 19.2% of directors in the top 100 public listed firms (PLCs) in Malaysia. While, this percentage was far lower in the year 2008, where only 7.7 % of directors are found to be female directors (Abdullah, Ismail, Izah & Nachum, 2012). The Malaysian government has taken a step forward to deter gender bias in the corporate position. Despite this effort, the overall assembly of the female as board members still remains under-represented especially among the public firms. The role of female directors is equally important on the ground that they can provide check and balance in the decision made by their male counterparts. Many studies have found that female directors were seen to be more risk-averse and tend to provide better-quality decision if they exist in the board of firms (Perryman, Fernando & Tripathy, 2016; Morrison, 2012). Therefore, the effort to assemble female board members should be taken seriously in the time to come. In this regards, this study has taken steps to explore the concept of board gender diversity and its reaction to corporate risk-taking and diversification activities of public firms in Malaysia.

This study tends to focus on the effect of board gender diversity with regards to three (3) different types of corporate risk; namely earnings volatility risk, debt obligation risk and liquidity risk) and on the two (2) types of corporate diversification activities; namely industrial and geographical diversification activities. It begins with a discussion of existing research on board gender diversity and its effect on the corporate risk-taking and the corporate diversification activities that are based the hypotheses of the study. Specifically, the study has examined the reaction of female board members on the firms' corporate risk tolerance and also their involvement in types of business activities either industrial or geographical diversification activities. The findings show that the increase of board diversity (increase in the proportion of female directors on board) has led to a significant decrease in earnings volatility and debt obligation risk-taking. The liquidity risk-taking is also reduced by the presence of female board members; however, the relationship is insignificant. While, for the case of corporate diversification, female board members prefer to involve in industrial diversifications activities that are conducted domestically over the geographical diversification activities, diversification activities across multiple foreign countries. Thus, the involvement of the female board members in diversification activities can indicate the preference of business activities based on the involved risks.

These findings contribute to the literature as a whole by examining the multiple dimensions of corporate risk-taking and corporate diversification activities preferred by the diverse board members. As such, this study is based on a unified approach (not piecemeal approach) on risk-taking and the preferred diversification activities. Besides that, the measurement of the variable for board gender diversity in this study differs with that of the prior studies, of which this study has used gender diversity ratio compared to dummy variables of gender that are more popular previously. Thus, the analyses could provide greater outcomes on the impact of gender on risk-tolerance and preference of business-activities. Further, to the best of authors' knowledge, none of the studies has examined the reaction of board gender diversify on corporate diversification activities of firms, particularly on industrial and geographical diversification activities. This relationship is important to be examined as it describes the pattern of business venture preferred by the female directors with regards to their level of risk tolerance. Also, the motive of diversification conducted in terms of business management by the directors can be revealed.

2 Literature Review and Hypotheses Development

Female directors can contribute greatly to the effective practice of corporate governance in Malaysia (Liu, Wei and Xie, 2014). They can look after businesses very well with a sense of ownership and manage them with high integrity. Female directors are usually having unique executive skill in contributing their expertise to the firms' board (Kim & Starks, 2016). Besides that, females are also considered to be highly ethical and socially concern, of which this attitude could contribute favourably to the value of firms. However, the behaviour of female directors in terms of corporate decision-making may not be certain, especially in regards to the risk-taking and business venture of firms. In general, females are considered risk-averse in their personal life compared to their male counterparts (Loukil & Yousfi, 2016; Morrison, 2012; Ahern & Dittmar, 2012). Therefore, their risk-taking behaviour in regards to corporate context may significantly differ with that of males. The risk-taking decision is an important decision in corporate firms especially for public firms as they usually handle a substantial amount of shareholders' fund. These public firms could perform greatly by taking high-risk in business operations management and also by employing proper risk management procedures (Lenard, Yu & York, 2014). Firms that are not taking any risk in their business may get distorted in the process of capital allocation and investments that can eventually affect its' ability to generate future earnings for them (Faccio, Marchica & Mura, 2016).

Besides that, the magnitude of risk undertaken by female directors can also be used to determine the extent of involvement of firms in business activities like diversification (Krapl, 2015; Luo & Bu, 2018). Firms that prefer high-risk may involve significantly in geographical diversification activities (Krapl, 2015). The geographical diversifier or multinational firm usually takes high risk by seeking assets across multiple foreign countries. By doing so, they may face additional risk exposure especially at the initial stage of diversification (Krapl, 2015). For those firms that are managed by female directors who have low-risk tolerance, they may only focus on diversification activities that are conducted domestically, such as industrial diversification activities. The exposure of risk through industrial diversification activities may be less-severe as it only involves ventures of new businesses in the local market. Therefore, the exposure of risks in terms of political stability, social context and government regulations may not exist within the local context. The industrial diversifier or the conglomerate firms can also utilise their existing local business networks to expand in new businesses within the domestic market. In this regards, business would not face high-risk environment even when they expand their business.

This study therefore intended to examine the influence of female directorship on the corporate risk-taking and corporate diversification activities among public firms in Malaysia. There are three dimensions of corporate risk-taking used in the study; namely earnings volatility risk, debt obligation risk and liquidity risk. For corporate diversification activities, both industrial and geographical diversification activities are used to investigate its reaction with board gender diversity. The hypotheses used in the study are developed in the next section.

2.1 Board gender diversity and corporate risk-taking

Most studies have found that female directors tend to be more risk-averse than their male counterparts (Morrison, 2012; Lenard, Yu, York & Wu, 2013). These findings have been explained based on physiological and biological factors of gender (Loukil & Yousfi, 2016; Meier-Pesti & Penz, 2008). Female is found to be less competitive and have lower self-confidence than male (Andersen, Ertac, Gneezy, List & Maximiano, 2013). They are also found to be vulnerable to the violence of which it leads to adverse action in ambiguous situations (Olsen & Cox, 2001). Therefore, females are risk intolerance when they are asked to make choices in business decision. In terms of social consideration, the behaviour of female can significantly differ with that of the male in the way they socialize, their attitude, belief and so on (Meier-Pesti & Penz, 2008). They usually prefer decisions that are risk-free and prudent. However, gender alone may not the only contribution to the differences in risk-taking behaviour, rather the extent of professional experience in the managerial decision may be the key in risk-taking and risk-tolerance. In this regard, both agency and asymmetric information theory can be used the explain the differences in corporate risk-taking between the genders (Faccio et al., 2016). Both male and female have differences in terms of the availability of information and goal towards the organizations, of which it relates to their preference of risk.

Additionally, corporate risk-taking is also associated with the culture of practice (Li, Griffin, Yue & Zhao, 2013). The risk-taking increases with the culture of individualism. Females generally are less individualistic and prefer to be related to others than their male counterparts, thus they prefer to avoid risk-taking in their daily activities. This is consistent with the resources dependence theory that has been discussed in relation to the behaviour of female directors. Based on the meta-analysis report conducted from 150 related studies, the scholar has found that females are extremely different with males in terms of risk preference and tolerance (Li et al., 2013). Most of the females prefer not to involve in the experiment, gambling, lotteries, 'intellectual risk-taking' and transactions that are not certain in nature. In terms of corporate business management, they prefer decisions that are supported by majorities and the decision should not be extraordinary decision. This is also highlighted in Horak and Cui (2017) and Faccio et al. (2011), that also found that female prefer less-debt holding in business management, of which it leads to lower risk of volatility of share market return and corporate performance (Lenard et al., 2014; Khaw, Liao, Tripe & Wongchoti, 2016), adoption of less risky and uncertain financial policies and tend to continuously invest in research and development activities with an efficient innovation process (Bhagwat & Yonker, 2017), financing investments that are low in risk (Sila, Gonzalez & Hagendorff, 2016) and take less systematic risk (Perryman et al. 2016). Low level of systematic risk may be taken on the basis of strategic conduct, that influences the implication on performance and risk. This has been discussed based on the theoretical lens of Bowman's risk-return paradox (Perryman et al., 2016).

Besides that, the presence of female directors on board promotes a better scrutinisation of the market before any effective decisions were made. Firms can also have a board that is more dynamic and skilful (Lenard et al., 2014; Elstad & Ladegard, 2012). Females are more cautious in making decisions (Levi, Li & Zhang, 2014), actively monitor the business operation and demand more audit works (Srinidhi, Gul & Tsui, 2011) and less overconfident in terms of the firms' future performance and their managerial issues (Shane & Stuart, 2002). A board with female directors can also act as an internal governance provider to alleviate conflicts associated with the agency relationship. Although some scholars have supported the benefits associated with the diverse board members, some are against the idea of diverse

board members, as according to them, the presence of female directors may result in the delay of decision-making process than that with homogeneous board members (Bernile et al., 2017; Sila, Gonzalez & Hagendorff, 2016). Firms will have problems when they need to deal with urgent decisions or information. Females usually do not take the quick decision that may end-up to be risky if it is not planned properly.

The concept of gender diversity in boardroom is still subject to on-giong debate and substantial works on these concepts have been conducted in developed nations rather than in their developing counterparts (Khaw et al., 2016). Although the evidence in developing and emerging economies still lacking, many scholars have also studied the behaviour of female directors in general that may be related to their corporate risk-taking behaviour. Among them is the study conducted by Adams and Ferreira (2009), who have found that female directors are more discipline with regards to their meeting attendance and more suitable to join monitoring committee (eg: such as in strategic and budget control commitee) of firms. They could conduct a very tough monitor of the business. Also, in terms of business acquisitions, female directors were found to be more careful to undertake value gaining acquisition, thus the market responded positively towards their business acquisition. They are also more benevolent, less power oriented and cautious in making their work-related decision (Levi et al., 2014; Adams and Funk, 2012). Thus, these may indicate female directors are more risk-averse than their male counterparts. The degree of risk aversion among the female directors may also be related to the levels of experience that they had. Once they have exceeded certain levels of experience, they may immune and adapt to the culture of the male in business decision making (Adams and Funk, 2012). Additionally, female directors could also contribute to firms by providing viewpoints and perspective that are completely different from that of male directors (Farag & Mallin, 2017). Hence this could be beneficial for the management of firms as their business decision are taken after analyzing multiple viewpoints from both male and female directors.

Hence, the study conjecture that:

Hypothesis 1: Board gender diversity is negatively related to corporate risk-taking.

2.2 Board gender diversity and corporate diversification

Research examining the practice of business activities such as diversification based on the gender of board members are rarely conducted. Thus, there are many unanswered research questions on the business strategies conducted by the directors (either male or female directors) (Zimmerman & Brouthers, 2012). As suggested by the previous studies on gender diversity and its effect on corporate risk-taking, female directors tend to be risk averse than their male counterparts (Morrison, 2012; Lenard et al., 2013). As the risk-taking is differed between the gender, the strategic choices between them may differ as well. Female directors who are risk-intolerance may undertake business strategies that are less aggressive. For the case of diversification, they may just adopt diversification within the local market (or may conduct industrial diversification) rather than focus on the international diversification that

involves business venture across multiple foreign countries. This argument is consistent with the findings found by Lee, Paik & Uygur (2016), who have found that the male directors can achieve higher export performance than their female counterparts.

The decision on the business activities is usually influenced by the gender of board members or managers in firms (Manolova, Brush, Edelman & Greene, 2002). As found in Orser, Spence, Riding & Carrington (2010), firms that are controlled by the female-managers and business owners are usually involved minimally in the business venture activities. However, this is not agreed by Zimmerman & Brouthers (2012), who found that both male and female can pursue same strategies of international diversification if they are given with similar opportunities to venture into foreign markets (Zimmerman & Brouthers, 2012; Ahl, 2006). These studies have also highlighted that the entrepreneurial orientation of an individual (regardless of the gender) is more important in determining their business strategies compared to the gender itself. However, when the study was examined separately on the effect between entrepreneurial orientation and international diversification in both homogeneous (female-only managers) and heterogeneous (mixed-gender managers) samples, they found that the female-only managers' team tend to have high entrepreneurial orientation and they were also more active internationally than the mixed-gender managers' team (Zimmerman & Brouthers, 2012). Therefore, the notion of concluding female managers not prefer diversification activities is somehow irrelevant. Female directors could contribute greatly to international diversification activities as they can communicate efficiently, establish group cohesion and can achieve more focus to the international opportunities that the heterogeneous mixed-gender managers (Zimmerman & Brouthers, 2012). If the female directors become the minority in the male-controlled board, then their valuable advice may not be considered in the decision-making process. Therefore, it is beneficial to have all female management team in the firms (Zimmerman & Brouthers, 2012).

The female director is also sensitive to the requirements of new business segments (Lenard et al., 2013). When firms are involved in diversification activities (either industrial and geographical diversification), there are a lot of adjustments and requirements that they need to meet in order to stay competitive in the market. Male directors can be insensitive and they prefer not to adhere completely on business venture plan of firms. Further, the study also found that directors in homogenous team may have a lack of competitive aggressiveness and pro-activeness that may affect the performance of their internationalization activities. They have lower cognitive and interpersonal behaviour (Richard, Barnett, Dwyer & Chadwick, 2004) and not willing to take the risk if the business venture permits them so (Atkinson, Baird & Frye, 2003). The directors in the homogenous team also may have open communication and they can reach a decision more easily, of which an easy decision can be an inefficient decision. Rather, the board that consists of heterogeneous members usually very inclined to chase the financial goal of firms (Westhead, Wright & Ucbasaran, 2001). Therefore, in this regards, the presence of female directors in the board dominated by the male directors is important especially for firms that are involved intensely in the diversification activities across industries and foreign markets (Hillman, Shropshire, Cannella, 2007). As discussed in the resources dependence theory, the co-operation between both male and female directors can work together to derive with the effective decision.

Hence, the study conjecture that:

Hypothesis 2: Board gender diversity is negatively related to corporate diversification.

3 Models, Data, Variables Measurement and Research Methodology

3.1 Models

The following models are formulated to test the above hypotheses and to answer the research objectives included in introduction section.

Corporate risk-taking:

$$ROA\_Vol_{it} = \alpha_0 + \beta_1 BDR_{it} + \beta_2 FS_{it} + \beta_3 TLTE_{it} + \beta_4 CAPEX_{it} + \beta_5 MBV_{it} + \beta_6 IDR_{it} + + \beta_7 DUM\_IND_{it} + \beta_8 DUM\_YR_{it} + \epsilon_{it} \quad \text{Equation (1)}$$

$$DR_{it} = \alpha_0 + \beta_1 BDR_{it} + \beta_2 FS_{it} + \beta_3 TLTE_{it} + \beta_4 CAPEX_{it} + \beta_5 MBV_{it} + \beta_6 IDR_{it} + + \beta_7 DUM\_IND_{it} + \beta_8 DUM\_YR_{it} + \epsilon_{it} \quad \text{Equation (2)}$$

$$WCR_{it} = \alpha_0 + \beta_1 BDR_{it} + \beta_2 FS_{it} + \beta_3 TLTE_{it} + \beta_4 CAPEX_{it} + \beta_5 MBV_{it} + \beta_6 IDR_{it} + + \beta_7 DUM\_IND_{it} + \beta_8 DUM\_YR_{it} + \epsilon_{it} \quad \text{Equation (3)}$$

Corporate diversification:

$$PDI_{it} = \alpha_0 + \beta_1 BDR_{it} + \beta_2 FS_{it} + \beta_3 TLTE_{it} + \beta_4 CAPEX_{it} + \beta_5 MBV_{it} + \beta_6 IDR_{it} + + \beta_7 DUM\_IND_{it} + \beta_8 DUM\_YR_{it} + \epsilon_{it} \quad \text{Equation (4)}$$

$$GDI_{it} = \alpha_0 + \beta_1 BDR_{it} + \beta_2 FS_{it} + \beta_3 TLTE_{it} + \beta_4 CAPEX_{it} + \beta_5 MBV_{it} + \beta_6 IDR_{it} + + \beta_7 DUM\_IND_{it} + \beta_8 DUM\_YR_{it} + \epsilon_{it} \quad \text{Equation (5)}$$

3.2 Data

The data includes all non-financial firms listed on the Bursa Malaysia for the period from 2010 to 2014. The data from the year 2010 onwards was chosen as it is after the year of the financial crisis that happens in 2008 and 2009. By excluding the crisis-years, the data of financial information could be free from the crisis-effect and therefore the behavior of the female directors on the corporate risk-taking and diversification activities can be measured reliably. The data was only available up to the year 2014 when the data collection process was ended. After dropping observations with missing values, the final data consists of 733 firms with 3,497 firm-year observations. All of these data were collected from Bloomberg database.

3.3 Measurement of Variables

Measures for Board Gender Diversity

To measure board gender diversity, this study has used the board diversity ratio that is the proportion of female directors in relative to the total number of directors on board. The use of this measurement is consistent with prior studies such as Khaw et al. (2016), Loukil (2016) and Perryman et al. (2016). Board diversity ratio will be tested against corporate risk-taking and corporate diversification activities of firms to identify their association.

Measures for Corporate Risk-Taking

There are three (3) different variables used to measure corporate risk-taking in this study. The purpose of using these variables is to create meaningful contribution for the study using multiple risk proxies that are faced by firms in Malaysia. The variables are namely earnings volatility risk, debt obligation risk (leverage risk) and liquidity risk. (1) Earnings volatility risk is measured by the standard deviation of return on assets ratio (ROA; total earnings before interest and taxes divided by total assets) for the examined period. (2) Debt obligation risk; measured by debt ratio (total debt divided by total assets) and (3) liquidity risk measured by the working capital ratio (current assets minus current liabilities). Among prior studies that have used these variables in their works are Loukil (2016), Faccio et al. (2016) and Khaw et al. (2016).

Measures for Corporate Diversification Activities

There are two variables used to measure corporate diversification activities, which are industrial diversification (PDI) and geographical diversification (GDI) activities. These two variables for diversification were used by Subramaniam and Wasiuzzaman (2018) and Lee, Hooy & Hooy (2012). Industrial diversification is measured by (1 – the total squared proportion of sales of the ith industry over total group sales of firm) while geographical diversification is measured by (1 – the total squared proportion of sales of the mth market over total group sales of firm). Industrial diversification refers to a diversification into multiple businesses within the domestic market while geographical diversification refers to a diversification of business across multiple foreign markets.

Control variables

The variables that are used as control variables are those used by the prior studies related to the concepts of board diversity, corporate risk-taking and corporate diversification. Firstly, the study has used firm size as a control variable, which is measured by the natural logarithm of total assets. Large firms usually take high-risk and involve extensively in high-risk diversification activities because large firms usually have substantial resources compared to the small ones (Boubakri, Cosset & Saffar, 2013; Khaw et al., 2016). Secondly, the study

also controls for total liabilities over total equities (TLTE) ratio. Firms that are using high debt usually take high risk and extensively involve in high-risk diversification activities, as they can transfer wealth from debtholders to shareholders (O'Brien, David, Yoshikawa & Delios, 2014; Leland, 1998). Thirdly, the study used capital expenditure (CAPEX) ratio; measured by the current year value of the property, plant and equipment (PPE) minus the prior-year value of PPE plus the current year of depreciation expenses. The cost of capital expenditure is usually high for firms that are high-risk taker as they need to substantially invest in their business activities like diversification (Minton and Schrand, 1999). The fourth control variable is investment opportunities; measured by the market to book value (MBV) ratio of the outstanding share capital of firms. Firms that are highly valued by investors in the market prefer low risk-taking (Rountree, Weston & Allayannis, 2008), however, they usually involved substantially into diversification activities that can generate high returns to them (Subramaniam & Wasiuzzaman, 2018).

The study also used a corporate governance variable; board independence which is measured by the proportion of independent directors over total number of directors on board. The independent directors can serve as an internal governance provider for firms (Setia-atmaja, Tanewski & Skully, 2009). They can reduce the risk-taking of firms (Morrison, 2012; Lenard et al., 2013) and also restrict firms from a venture into diversification activities that are high-risk (Subramaniam & Wasiuzzaman, 2018). In Malaysia, the Malaysian Code of Corporate Governance 2017 (MCCG 2017) has highlighted that the board of publicly listed firms should assembled at least 50% of board members with independent directors (Securitties Commission, 2019). This is mainly to maintain the independence of board decision made by the directors.

3.4 Research Methodology

The study has examined the data using multiple analyses such as descriptive analyses (to analyse the basic description of firms in the sample), non-parametric Kruskal-Wallies analysis (chi-squared test) (to compare mean between groups of firms that assembled the male-only directors with the group that assembled the mixed-gender directors), correlation analysis (to identify the possible relation among the variables in the study) and Tobit regression analyses (to examine association between independent and dependent variables. Tobit regression analysis is the most suitable analysis for this study as the data of the dependent variables are both left and right-censored (the value of the data is within a certain threshold) (McDonald & Moffitt, 1980). Also, to test the endogeneity issue in the regression estimations, the study has used Granger Causality (GC) test (Granger, 1969) to examine reverse causality in the associations. Both univariate and bivariate GC tests are performed. Last but not least, sensitivity analysis is also conducted the examine the robustness of the results. The models estimated in Table 4 have been re-estimated using a new independent variable, the number of female director (No_F) on board, to test its association on the same dependent variables used in the study. The results of the sensitivity analysis are presented in Table 7.

4 Results

The Table 1 reports the distribution of female directors and its percentage over total number of directors on board, arranged by years of analysis. Most of the firms in the data (60.79% of firms) were assembled only male directors in their board. While 30.17% of firms assembled at least one (1) female director, followed by 6.86% of firms assembled at least two (2) female directors, 1.89% for at least three (3) female directors and 0.14% each for at least four (4) and five (5) female directors. Firms that assembled at least one (1) female director on board were increased across the five (5) years period (from 200 firms in the year 2010 to 219 firms in the year 2014). Further, in terms of the mean proportion of female directors based on years, an increasing trend was recorded on the percentage of female directors' representation in Malaysia from the year 2010 to 2014. Overall, an average of 7% of female directors' representation was recorded out of the total number of directors in Malaysian public firms. This is consistent with prior studies such as by Khaw et al. (2016) and Kim and Starks (2016).

[INSERT TABLE 1]

Table 2 reports the descriptive statistics for the variables used in the study. Mean and standard deviation are provided for all firms (full data), firms with the male-only board and mixed-board (board consists of both male and female directors). The mean for the data of the male-only board and mixed-board are compared and its' differences are analysed using non-parametric Kruskal Wallis (Chi-squared) test. In total, there are 3,497 firm-year observations for the full data, from which 60.79% of the observations are for firms with male-only board (2,126 observations) and the remaining 39.21% of observations for the mixed-board (1,371 firm-year observations).

The independent variable used in the study is board diversity, which is represented by board diversity ratio. For the full data that consists of all firms listed on the main market of Bursa Malaysia, mean BDR is 0.067 (6.7% female directorship). The mean BDR for male-only board is zero (0) because there is no female directors in this data sample. While, for the data of mixed-board, mean BDR is significantly high at 0.1709 (17.09% female directorship). The second variable used to proxy board diversity measure is the number of a female director. On average, 0.5084 (or close to 1) female director is presented in the board of the full data, while mean of 1.2969 (or close to 1) female director is presented in the data of mixed-board.

For the corporate risk-taking measures; the full data shows a mean for ROA_Vol of 0.0477. The mean ROA_Vol for the male-only board is significantly higher than that of the mixed-board (0.0521 vs 0.0409). The full data sample also has mean debt ratio (DR) of 0.3935 and mean working capital ratio (WCR) of 246.01. As per ROA_Vol, the mean for DR and WCR for the male-only board are higher than that of the mixed-board although the differences in mean are statistically insignificant. Therefore, on the preliminary note, it is noticeable that firms managed by the male-only board are prone to take the higher risk as all the three variables for the corporate risk-taking measure are higher than that of the mixed-board. It can be highlighted here that the presence of female directors in the board could reduce the corporate risk-taking of firms. However, the results of the regression analysis need to be referred to in the next section before concluding the findings.

In the case of corporate diversification measures, mean industrial diversification (PDI) and geographical diversification (GDI) is 0.2514 and 0.1878 respectively for full data. For the male-only board, the mean PDI is slightly lower than that for mixed-board (0.2477 vs 0.2572) and the mean difference is statistically insignificant. While mean GDI for the male-only

board is significantly higher than that of the mixed-board (0.1985 vs 0.1713). In that regards, both the male-only and mixed boards were tending to involve greatly in PDI activities compared to GDI activities. It is also can be noticed that the presence of female directors in the board can increase involvement of firms in PDI activities while it reduces the involvements in GDI activities.

For control variables, the data of all firms (full data) in Malaysia had mean firm size (FS) of 2.6260, mean total liabilities to total equities ratio (TLTE) of 1.05, mean capital expenditure (CAPEX) of 97.26, mean investment opportunities (MBV) of 2.7858 and mean board independence (IDR) of 0.4544. Firms with the presence of female directors in the board were seen to be the larger firms, as they are having higher mean FS of 2.6329 as compared to mean FS for the male-only board of 2.6219. Not limited to that, firms with the female directors were also had higher total liabilities to total equities ratio (TLTE: 1.3382 vs 0.8640), had higher capital expenditure (CAPEX: 102.91 vs 93.62) and also had higher investment opportunities (MBV: 3.315 vs 2.4441). While, for the board independence (IDR), the presence of the female directors in the board has reduced IDR ratio (IDR: 0.4360 vs 0.4663).

[INSERT TABLE 2]

Next, Table 3 presents the results of pairwise correlations amongst the dependent, independent and control variables used in the study. The independent variable (BDR) is significantly correlated with all the dependent variables (ROA_Vol, DR, WCR, PDI and GDI). The maximum correlation of variables is recorded between WCR and CAPEX that is 0.5541. However, this highest correlation is within the threshold of multicollinearity (in the range between -0.7 and 0.7) suggested by Gujarati and Porter (2009). If any of the variables that correlate not within this threshold, model adjustment need to be conducted before any analyses are examined.

[INSERT TABLE 3]

Next, the TOBIT regression analysis is conducted to test the association of relationship between the dependent, independent and control variables. As discussed in the section of research methodology, TOBIT regression has been used to examine the models of analyses as the data of the dependent variables are centred within the certain value of observation. Also, the models of analyses have been included with the possible industry and year dummies to control its' effect on the experimental variables. Industries are classified based on the sectors of firms listed on the main market of Bursa Malaysia. Based on the TOBIT results presented in Table 4, board diversity (BDR) has negative relationships with the corporate risk-taking variables, especially for earnings volatility and debt obligation risks. While, for the case of liquidity risk, BDR insignificantly influence liquidity risk of the firms in Malaysia. The negative relationships between BDR and the corporate risk-taking variables are consistent with the notion of the behaviour of female directors that usually tend to be risk-averse compared to their male counterparts. The risk intolerance behaviour of female directors is explained in the

perspective of agency and asymmetric information theory, of which the risk preference is related to the differences in availability of information and the goal towards the organizations between male and female directors (Faccio et al., 2016). While the resources dependence theory has discussed the behaviour of females that are less individualistic and prefer to be related to the others (Li et al., 2013). The negative influence between the BDR and the corporate risk-taking variables is also supporting the hypothesis 1.

[INSERT TABLE 4]

There are many evidence on the risk intolerance among the females found by the previous studies such as Morrison (2012), Lenard et al. (2013) and Loukil and Yousfi (2016). They have listed out few factors that led to risk-intolerance behaviour among the female directors which are the physiological and biological factors, social consideration and culture of practice. These factors have led female directors to be less-competitive and have low self-confidence (Andersen et al., 2013), more vulnerable to aggressive situation (Olsen & Cox, 2001), undertake risk-free or less-risky business decision (Meier-Pesti & Penz, 2008), prefer to take decision that is agreed by other colleagues (Li et al., 2013) and prefer to hold low level of debt obligation for the reason to reduce risk exposure (Faccio et al., 2011). Females also tend to be more conscious and consistently look after the business operation, hence the business could always within their predictability condition with low-risk exposure (Levi et al., 2014; Srinidhi et al., 2011). Also, the presence of female directors in the corporate board could act as the internal governance provider for firms to alleviate potential agency problem that can cause firms to have high-risk situation (Shane & Stuart, 2002). Therefore, the presence of female directors in the corporate board is beneficial for the board itself in managing the business operation of firms. Female directors may save the firms that they manage from high-risk exposure by undertaking a business decision that is more risk-averse.

The descriptive results in Table 2 are also in relation to the negative relationships found between board diversity and corporate risk-taking. From the descriptive results, it is very clear that for all the corporate risk-taking variables (ROA_Vol, DR and WCR), the values of their mean for the sample of male-only board members are higher than that of the sample of the mixed-board members. The difference of mean value of the earnings volatility risk between the two sample is significant statistically. Hence, this has shown that the presence of female board members can reduce the risk-taking of firms. Not limited to that, the market valuation of firms with mixed-board members (with the presence of both male and female directors) is significantly higher than that of male-only board members. This could be because of the risk-intolerance behaviour of female directors. Firms that are taking low risk in their business operation could have more stable performance (Pucheta-Martínez, Bel-Oms & Olcina-Sempere, 2018), hence they could reward their shareholders by paying consistent amount of dividends. The shareholders and future investors usually value those firms that are paying high dividends. As indicated by Pucheta-Martínez, Bel-Oms and Olcina-Sempere (2018), the future investors would prefer firms that are being managed by female directors.

In terms of corporate diversification, BDR is seen to be positively affected on the industrial diversification (PDI) activities, with 10% significance level. While a significant negative relationship was recorded between BDR and geographical diversification (GDI) activities. Both of these results have supported the hypothesis 2 of the study. It is also shown that firms with female board members do not prefer to involve in geographical diversification activities that provide uncertain growth to firms. As female directors usually have risk-averse behaviour, their decision on the business expansion (strategy choice) is also usually based on low risk-

taking (Morrison, 2012; Lenard et al., 2013). They would prefer a diversification strategy that is less-aggressive, especially those are conducted domestically like industrial diversification activities. Diversification to foreign markets needs high business risk exposure which is against the preference of risk of female directors (Lee et al. 2016; Orser et al., 2010; Atkinson et al. 2003). The level of cognitive, interpersonal behaviour and professional experience of female may limit them to take the risk if the business ventures permit them to do so. Additionally, some scholars like Westhead et al. (2001) and Hillman, Shropshire, Cannella (2007) have suggested that the board that has both male and female directors can have a better inclination in achieving financial goals through efficient management of business risk exposure. This is discussed through the resources dependence theory, of which it suggested that the heterogeneity of board members does play a major role in business performance and the corporate risk-taking. Also, as discussed in human capital theory by Terjesen, Selay and Singh (2009), the level of education and professional experience of the directors, especially for the female directors in comparison of male directors, do have an effect on the business management of firms (Carter, D'Souza, Simkins & Simpson, 2010). An optimal level of corporate risk-taking is needed to manage businesses efficiently.

Consistent with the regression results, the descriptive results have also presented that firms with mixed-board members (with both male and female directors) prefer industrial diversification (PDI) compared to geographical diversification (GDI) activities. This is represented by the mean value of PDI for the sample of firms with mixed-board members is higher than that of sample firms with the male-only board member. For GDI, firms with male-only board members have significantly ventured in GDI activities as compared to the firms with mixed-board members. The preference of low-risk diversification activities by firms with mixed-board members (heterogeneous board members) is also represented through the higher mean value of capital expenditure (CAPEX) than that of male-only board members (93.6 vs 102.9). This is because, firms that prefer high-risk diversification activities (geographical diversification) usually hold higher current assets (eg:. Cash and cash equivalents) rather than non-current assets (Kalcheva & Lins, 2007). The current assets are needed to expand or acquire businesses at the foreign countries.

4.1 Endogeneity

To test reverse causality of the association between the experimental and outcome variables, the endogeneity test was performed on these variables. The study has used Granger Causality (GC) test (Granger, 1969) to detect the reverse causality. Two (2) types of GC test were performed, namely univariate and bivariate tests, by using EVIEWS statistical software. In univariate GC test, the suspected one-year lagged-value of outcome variables are tested on one to one basis with the current value of the experimental variable. The results showed that any of the outcome variables do not granger cause of the experimental variable. Thus, no endogeneity issue has presented in the models of estimation. Next, the detailed GC test (bivariate test) was also carried out to examine the regressing effect of the one-year lagged value of outcome variables (ROA_Vol, DR, WCR, PDI and GDI) with the current year value

of the experimental variable (BDR). The regression results show that one-year lagged value any of the outcome variables do not granger cause the current year value of the experimental variable in all models of analysis. Therefore, this test result is also confirmed that there is no endogeneity issue arose in the models of estimation.

[INSERT TABLE 5]

[INSERT TABLE 6]

4.2 Sensitivity Analysis

The sensitivity analysis has been performed on the models of analyses to test the robustness of results. The model [1], [2], [3], [4] and [5] are re-estimated using a new independent variable, the number of female director (No_F) instead of board diversity ratio (BDR) on the same dependent variables and with the same control variables. The results are presented in Table 7. The results of estimation have shown that No_F has negative relationships with all the variables of corporate risk-taking, while it has both positive and negative relationship with industrial and geographical diversification respectively. These results are similar to the results presented earlier in Table 4. Therefore, it is now can be confirmed strongly that the presence of female directors on the board has made firms to reduce their corporate risk-taking. Also, the board with female directors prefer to venture into industrial diversification activities (domestic-based diversification activities) rather than geographical diversification activities that are riskier. In these regards, it shows that the gender of directors or the board members has a major influence on firms' risk preference and the choice of business activities.

[INSERT TABLE 7]

4.3 Practical Implication

The above results have provided practical evidence in regards to the board that assembles female directors. It shows that the presence of female directors can reduce firms' corporate risk-taking; mainly on the earnings volatility and debt obligation risk. The leadership of female directors is more concern about the business operation (Levi et al., 2014), hence they prefer low debt component in their business financing activities in order to have a risk-averse business operation. Female directors may also not enter into any project that is high-risk in nature, hence the volatility of firms' earnings can be brought to the minimum level. Given this adverse risk-preference, female directors are also preferred to venture into industrial diversification activities that are conducted domestically with the less exposure of business risk. Business venture activities that are risky such as geographical diversification, conducted across multiple foreign countries, is not preferred by them.

In these regards, female directors could form a valuable resource for firms as they can make decisions that are prudent and less risky. However, the advantage of female directors may not realised by the business owners in Malaysia. This is represented by the data used in the study, where only about 6.7% of firms listed on Bursa Malaysia has assembled female directors on their board. In the future, government or regulators in Malaysia should adopt a more balanced composition of board of directors in public firms. Through which, the governance mechanism of public firms in Malaysia can be strengthened to the highest possible level that can enhance the credibility of the Malaysian capital market. Further, the assembly of female directors on the board of Malaysian firms could suggest a cost-effective management decision as these female directors usually command a lower compensation and wages compared to their male counterparts (Perryman et al. 2016).

4.4 Limitation for future study

Every study has their own limitation. Firstly, the limitation of this study is on the data used where it is limited for only five (5) years. A longer period of data could cover multiple states of economic growth that can be used to estimate the pattern of risk-taking and the choice of business activities of female directors. However, the availability of data for such a period should be verified first before conduct data collection process. Secondly, the concept of gender diversity should also be examined with the other concepts of accounting and finance such as on the effect of working capital, dividend and on the corporate governance variables to access reaction and establish boundaries as well as identify a solid implication in Malaysian corporate culture. Further, this concept of gender diversity should also be investigated in the context of developed markets such as the United States (US) and the United Kingdom (UK), of which it can reflect its' reaction in different corporate culture in terms of its institutionality and the type of firms operated in that business environment.

Additionally, a more meaningful contribution could be established by examining the other characteristics of female directors such as their qualification, professional skills and working experience that may affect the choice of their decision. By doing that, the cognitive behaviour of female directors could be understood hence their pattern of the decision taken can be revealed. Moreover, their cooperative behaviour with the other directors or senior leaders in management team can also be examined in terms of their participation and acceptance of their decision in the group, which are mostly dominated by males. Also, further studies can examine the compensation plan of female directors compared to their male counterparts. This factor could affect the decision made by the female directors in firms. The above suggested new concepts can be examined in future studies to expand the predictability of behaviour of female directors in Malaysia.

5 Conclusion

In This study examines the relationship between board diversity and corporate risk-taking as well as on the corporate diversification activities of Malaysian public firms. A multiple dimension of corporate risk-taking has been used in the study, namely earnings volatility risk, debt obligation risk and liquidity risk. While for the corporate diversification, using both industrial and geographical diversification used to measure the diversification variable. The findings of the study are the increase in the presence of female directors in firms' board can impact positively the corporate risk-taking of firms. Further, the study also found that female directors prefer involvement in industrial diversification activities rather than in geographical diversification activities. Therefore, this highlights the prevalence of risk-averse behaviour of female directors in the corporate board. These results are consistent with the results found in Morrison (2012), Lenard et al. (2013) and Loukil and Yousfi (2016). The results further support multiple theories such as resources dependence theory, agency and asymmetric information theory and human capital theory that are related to the gender of the board members and the decision undertaken by them.

It should be noticed that the data used in the study covers the period immediately after the period of the Asian financial crisis in the year 2008 and 2009. In these regards, the role of female directors in the period after the crisis has importance especially in recovering back the performance of firms. Further, this study has also shed lights on the preference of diversification activities conducted by the firms with the diverse board (assembled by both male and female directors), that has not been looked in previously. Gender of board members does play a major role in determining the way that the firms are being managed. Therefore, it is economically necessary and beneficial to take further efforts to bridge gender bias among the board members in Malaysia. The target of the Malaysian government to make at least 30% of firms listed on the main market of Bursa Malaysia to assemble female directors in their board by the year 2020 should be lauded by the corporate firms.

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Table 1

Number and Mean Proportion of Female Director based on Years in Malaysia

Year	Number of Women Director	Mean proportion of Women Directors					
		0	1	2	3	5	
2010	419	200	48	15	1		0.066
2011	433	208	45	15	1		0.067
2012	444	209	50	11	1		0.065
2013	423	219	50	12	1		0.068
2014	407	219	47	13	1		0.069
Total	2,126	1,055	240	66	5		0.067
Percentage	60.79	30.17	6.86	1.89	0.14		

Table 2
Descriptive statistics

Variables	Full Data			Male-only Board (a)		Mixed-Board (b)		Mean Differences (a) - (b)
	Mean	SD	Median	Mean	SD	Mean	SD	
Board diversity measure								
BDR	0.0670	0.0979	0.0000	0.0000	0.0000	0.1709	0.0818	-0.1709***
No_W	0.5084	0.7391	0.0000	0.0000	0.0000	1.2969	0.6090	-1.2969***
Corporate risk-taking measure								
ROA_Vol	0.0477	0.0882	0.0300	0.0521	0.1051	0.0409	0.0512	0.0112***
DR	0.3935	0.3654	0.3800	0.4019	0.4393	0.3806	0.2027	0.0213
WCR	246.01	1,193.8	63.060	278.10	1,291.7	196.53	1,023.2	81.57
Corporate Diversification measure								
PDI	0.2514	0.2407	0.2114	0.2477	0.2382	0.2572	0.2445	-0.0095
GDI	0.1878	0.2478	0.0000	0.1985	0.2526	0.1713	0.2395	0.0272***
Control variables								
FS	2.6260	0.6427	2.5500	2.6217	0.6455	2.6329	0.6385	-0.0112
TLTE	1.0500	13.179	0.5900	0.8640	2.6211	1.3382	20.788	-0.4742
CAPEX	97.260	455.21	8.0100	93.620	398.74	102.91	531.14	-9.294***
MBV	2.7858	6.9670	1.2500	2.4441	5.9234	3.3150	8.3040	-0.8709***
IDR	0.4544	0.1339	0.4300	0.4663	0.1429	0.4360	0.1163	0.0303***
N (Obs)		3497		2126		1371		
Percentage (%)		100%		60.79		39.21		

BDR is proportion of women directors from the total number of directors), No_W is number of women director in board, ROA_Vol is the standard deviation of ROA (total earnings before interest and taxes divided by total assets) over the available period of data, DR is measured by total debt over total assets, WCR is measured by curent assets minus current liabilities, PDI is industrial diversification index measured by (1 - total squared proportion of sales of the ith industry over the total group sales of the firm), GDI is geographical diversification index measured by (1 - total squared proportion of sales of the firm in market, m, over the total group sales of the firm), FS is natural logarithm of total assets, TLTE is measured by total liabilities divided by total equities, CAPEX is measured by the current value of PPE minus the prior year value of PPE plus the current year depreciation expenses, MBV is market to book value ratio of shares capital, BS is number of directors in the Board and IDR is proportion of independent directors from the total number of directors' in the board. ***, ** & * stand for the significance at 1%, 5% & 10% level, respectively.

Table 3

Correlation analysis (Pairwise Correlation)

All Firms

	BDR	No_W	ROA_Vol	DR	WCR	PDI	GDI	FS	TL_TE	Capex	MBV	IDR
BDR	1											
No_W	0.9469***	1										
ROA_Vol	-0.0445***	-0.0549***	1									
DR	-0.0342**	-0.0207	0.231***	1								
WCR	-0.0172	0.0165	-0.0434***	-0.0313**	1							
PDI	0.0179	0.0455***	-0.049***	0.0249	0.1046***	1						
GDI	-0.0558***	-0.0627***	-0.0285*	-0.0479***	0.1294***	-0.0285*	1					
FS	-0.0204	0.0513***	-0.193***	0.0687***	0.3783***	0.2785***	0.0286*	1				
TL_TE	0.0013	0.0083	-0.0028	0.0504***	-0.008	0.0108	-0.0153	0.0552***	1			
Capex	0.0099	0.0712***	-0.0557***	0.057***	0.5541***	0.1619***	0.0696***	0.4879***	0.0045	1		
MBV	0.0387**	0.0648***	0.0118	0.0166	0.1167***	0.0056	0.0062	0.237***	0.0024	0.1576***	1	
IDR	-0.0504**	-0.1117***	0.1021***	-0.0075	0.0218	0.0114	-0.019	-0.0426**	-0.0176	0.0674***	-0.0291*	-0.3094***

BDR is proportion of women directors from the total number of directors), No_W is number of women director in board, ROA_Vol is the standard deviation of ROA (total earnings before interest and taxes divided by total assets) over the available period of data, DR is measured by total debt over total assets, WCR is measured by curent assets minus current liabilities, PDI is industrial diversification index measured by (1 - total squared proportion of sales of the ith industry over the total group sales of the firm), GDI is geographical diversification index measured by (1 - total squared proportion of sales of the firm in market, m, over the total group sales of the firm), FS is natural logarithm of total assets, TLTE is measured by total liabilities divided by total equities, CAPEX is measured by the current value of PPE minus the prior year value of PPE plus the current year depreciation expenses, MBV is market to book value ratio of shares capital and IDR is proportion of independent directors from the total number of directors' in the board. ***, ** & * stand for the significance at 1%, 5% & 10% level, respectively.

Table 4
Tobit Regression Analysis

Dependent Variable	All Firms				
	Corporate Risk-Taking			Corporate Diversification	
	ROA_Vol	DR	WCR	PDI	GDI
	[1]	[2]	[3]	[4]	[5]
BDR	-0.0493***	-0.1330**	-241.313	0.0800*	-0.3198***
	[0.0153]	[0.0631]	[170.05]	[0.0538]	[0.0860]
FS	-0.0348***	0.0278***	259.247***	0.1516***	0.0049
	[0.0028]	[0.0113]	[29.676]	[0.0097]	[0.0151]
TLTE	0.0001	0.0013***	-1.6164	-0.0001	-0.0015
	[0.0001]	[0.0005]	[1.2641]	[0.0004]	[0.0015]
CAPEX	0.0007*	0.0000*	1.2714***	0.0000	0.0001***
	[0.0004]	[0.0000]	[0.0422]	[0.0000]	[0.0000]
MBV	0.0009***	0.0000	1.3584	-0.0040***	-0.0001
	[0.0002]	[0.0009]	[2.4551]	[0.0009]	[0.0013]
IDR	0.0549***	-0.0304	-63.6441	0.0689*	-0.0628
	[0.0112]	[0.0464]	[124.192]	[0.0394]	[0.0614]
Intercept	0.1125***	0.3385***	-516.05	-0.2264***	0.043
	[0.0092]	[0.0379]	[98.717]	[0.0326]	[0.0502]
Industry dummy	YES	YES	YES	YES	YES
Year dummy	YES	YES	YES	YES	YES
Pseduo R2	-0.0332	0.011	0.0227	0.1037	0.0061
N	3497	3497	3497	3497	3497

Table 5
Granger Causality Test (Univariate Test)

Models	F-Statistic	P-value	Hypothesis Result (significant)	Endogeneity
Model 1				
ROA_Vol_{t-1} does not granger causes BDR	1.19	0.2762	Insignificant	NO
Model 2				
DR_{t-1} does not granger causes BDR	1.58	0.2092	Insignificant	NO
Model 3				
WCR_{t-1} does not granger causes BDR	1.03	0.3090	Insignificant	NO
Model 4				
PDI_{t-1} does not granger causes BDR	0.42	0.5160	Insignificant	NO
Model 5				
GDI_{t-1} does not granger causes BDR	0.28	0.5971	Insignificant	NO

BDR is proportion of women directors from the total number of directors), ROA_Vol is the standard deviation of ROA (total earnings before interest and taxes divided by total assets) over the available period of data, DR is measured by total debt over total assets, WCR is measured by curent assets minus current liabilities, PDI is industrial diversification index measured by (1 - total squared proportion of sales of the ith industry over the total group sales of the firm), GDI is geographical diversification index measured by (1 - total squared proportion of sales of the firm in market, m, over the total group sales of the firm),

Table 6
Granger Causality Test (Bivariate Test)

Variables	BDR		BDR		BDR		BDR		BDR	
	Coefficient	**Robust Std Error**	**Coefficient**	**Robust Std Error**	**Coefficient**	**Robust Std Error**	**Coefficient**	**Robust Std Error**	**Coefficient**	**Robust Std Error**
ROA_Vol (t-1)	-0.019	0.0192								
DR (t-1)			-0.0023	-0.6567						
WCR (t-1)					-3.889E-06	0.0000**				
PDI (t-1)							0.0107	0.0073		
GDI (t-1)									-0.0131	0.0067**
FS	0.0175	0.0018***	0.0179	0.0019***	1.832E-02	0.0018***	0.0166	0.0020***	0.0183	0.0018***
TLTE	0.0000	0.0001	0.0000	0.0001	-1.715E-05	0.0001	-1.05E-05	0.0001	-1.59E-05	0.0001
CAPEX	0.0000	0.0000***	0.0000	0.0000***	-5.394E-06	0.0000	-1.08E-05	0.0000***	-1.04E-05	0.0000***
MBV	0.0005	0.0002*	0.0004	0.0002*	4.480E-04	0.0002*	4.73E-04	0.0002*	0.000443	0.0002*
IDR	0.0416	0.0102***	0.0398	0.0099***	3.663E-02	0.0099***	3.90E-02	0.0099***	0.040647	0.0099***
N	3497		3497		3497		3497		3497	
Pseudo R^2	-0.0231		-0.0233		-0.0219		-0.0228		-0.0223	

BDR is proportion of women directors from the total number of directors), ROA_Vol is the standard deviation of ROA (total earnings before interest and taxes divided by total assets) over the available period of data, DR is measured by total debt over total assets, WCR is measured by curent assets minus current liabilities, PDI is industrial diversification index measured by (1 - total squared proportion of sales of the ith industry over the total group sales of the firm), GDI is geographical diversification index measured by (1 - total squared proportion of sales of the firm in market, m, over the total group sales of the firm), FS is natural logarithm of total assets, TLTE is measured by total liabilities divided by total equities, CAPEX is measured by the current value of PPE minus the prior year value of PPE plus the current year depreciation expenses, MBV is market to book value ratio of shares capital and IDR is proportion of independent directors from the total number of directors' in the board. ***, ** & * stand for the significance at 1%, 5% & 10% level, respectively.

Table 7
Tobit Regression Analysis (Sensitivity Test)

Dependent Variables	All Firms				
	Corporate Risk-Taking			Corporate Diversification	
	ROA_Vol	DR	WCR	PDI	GDI
	[1]	[2]	[3]	[4]	[5]
No_F	-0.0056***	-0.0143*	-43.283*	0.0137**	-0.0507***
	[0.0020]	[0.0084]	[22.757]	[0.0072]	[0.0116]
FS	-0.0345***	0.0288***	261.083***	0.1511***	0.0076
	[0.0028]	[0.0113]	[30.669]	[0.0097]	[0.0151]
TLTE	0.0001	0.0013***	-1.6070	-0.0000	-0.0014
	[0.0001]	[0.0005]	[1.2636]	[0.0004]	[0.0015]
CAPEX	0.0000*	0.0000*	1.2748***	0.0000	0.0001***
	[0.0000]	[0.0000]	[0.0423]	[0.0000]	[0.0000]
MBV	0.0009***	0.0000	1.4389	-0.0040***	-0.0000
	[0.0002]	[0.0009]	[2.4637]	[0.0009]	[0.0013]
IDR	0.0533***	-0.0343	-81.830	0.0745*	-0.0806
	[0.0113]	[0.0467]	[125.91]	[0.0396]	[0.0618]
Intercept	0.1118***	0.336***	-507.32***	-0.2290***	0.0477
	[0.0092]	[0.0379]	[102.36]	[0.0326]	[0.0504]
Industry dummy	YES	YES	YES	YES	YES
Year dummy	YES	YES	YES	YES	YES
Pseduo R2	-0.0328	0.0105	0.0225	0.1076	0.0045
N	3497	3497	3497	3497	3497