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FINANCIAL RISK MANAGEMENT, USAGE OF DERIVATIVES
AND CORPORATE GOVERNANCE

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Abstract

In an increasingly integrated business world, organisations are vulnerable to various types of financial risk. To minimise the down side impact from such risks, derivatives have been commonly used as hedging instruments to mitigate adverse performance outcomes. There is a growing concern over risk management measures taken by companies following major financial crisis in the world and board of directors is increasingly held accountable for such issues. However, in emerging markets, anecdotal evidence suggests that usage of derivatives to hedge financial risk is still at low extent and as such its effectiveness to mitigate risk exposure is questionable. This study examines the determinants of derivatives usage in the contexts of an emerging market from the perspective of corporate governance. Using data of top 100 non-financial listed companies in Malaysia, logistic regression analysis was conducted on the research models and the results show that board independence and directors remuneration are positively related to derivatives usage. Secondly, the presence of women directors moderates the relationship between indirect shareholdings of directors and derivatives usage. The settings of this study reflect Asian based culture in which the sample firms are characterised by highly concentrated ownership structure and low representative of women directors. Therefore, the findings provide empirical evidence to the policy makers on the role of independent directors and gender diversity on risk management practices for countries with similar characteristics.

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Keywords: Derivatives usage, financial risk, corporate governance, gender diversity, Malaysia.



1. Introduction

In an increasingly integrated business world, organisations are vulnerable to various types of financial risk including market risk, credit risk and liquidity risk. For instance, most corporations today are exposed financial risk due to exchange rate fluctuation. Companies may face transactions risk which arises from specific business transactions, translation risk associated with their foreign operations and economic risk which causes fluctuation to firm's value due to exchange rate movement (Smart & Megginson, 2009). Volatility in foreign exchange rate can result in significant losses or cash outflows for those corporations that are ignorant in managing their risk exposure. To minimise the downside impact from such risks, derivatives have been commonly used as hedging instruments to mitigate adverse outcomes among non-financial firms, particularly, due to movements in foreign currency rates, interest rates and commodity prices (Lau, 2016; Yip & Nguyen, 2012). Bartram, Brown, and Conrad (2011) found strong evidence that the use of financial derivatives reduce both total risk and systematic risk.

2. Problem Statement

Major financial crisis worldwide have raised growing concern over risk management measures taken by companies to sustain their performance and financial position. In this context, board of directors is increasingly held accountable for risk management issues. However, in the context of emerging markets, anecdotal evidence suggest that usage of derivatives to hedge financial risk is still at low extent and as such its effectiveness as a risk management tool to mitigate financial risk exposure is questionable. Recent study by Phua, Lok and Setiawan (2018) found that the financial outcomes of derivatives usage among Malaysian listed companies are insignificant in relative to the impact of gains or losses resulted from movement in foreign exchange rates. This implies that derivatives usage is not effective in hedging financial risk.

To gain further insights into this issue, the present study attempts to examine the determinants of derivatives usage in the contexts of an emerging market from the perspective of corporate governance. Corporate governance is crucial in monitoring management from opportunistic behaviour and to protect shareholders' right (John & Senbet, 1998). In this respect, board of directors has been generally viewed as an important corporate mechanism in the determination of firm outcomes. The board of directors is responsible to the agency conflicts arise from the separation of ownership and control so as to mitigate agency risk arising from moral hazard or adverse selection problem (Fama & Jensen, 1983).

As good governance practices, board of directors is required to establish a sound framework for risk management. The board of directors is assigned with the responsibility to establish the risk tolerance level of a company and to review strategies to implement the company's risk policies as disclosed in the statement of corporate governance published in annual reports. Meanwhile, disclosure of risk exposure pertaining to financial instruments has been made mandatory among countries adopting IFRS standards. In addition, the standards also require the recognition of the financial impact associated with the hedge items and hedge instruments in the financial statements. This provided an avenue to empirically assess the effectiveness of usage of derivatives in mitigating specific financial risk. Given that exchange rate risk is one of the most widely hedged corporate risks (Yip & Nguyen, 2012), the present study attempts to examine the role of corporate governance with regards to the usage of financial derivatives in risk management.

3. Research Questions

Based on the problem statement, the following research questions are set to gain further insights into the issues discussed above:

- I. Does family ownership increase the usage of derivatives in risk management?
- II. Does directors and executives compensation increase the usage of derivatives in risk management?
- III. Does board independence increase the usage of derivatives in risk management?
- IV. Does the presence of women director moderate the relationships between (i) family ownership (ii) directors and executives compensation and (iii) board independence and the usage of derivatives in risk management?

4. Purpose of the Study

The main purpose of this study is to empirically examine the effect of three specific corporate governance mechanisms, namely, (i) family ownership (ii) directors and executives and compensation (iii) board independence on the usage of derivatives in risk management in the context of an emerging market among non-financial firms. In addition, the study also examines how the presence of women director interact with these three corporate mechanisms in determining derivatives usage.

5. Research Methods

5.1. Literature Review and Hypotheses Development

Theories of risk management provides four motives for corporate hedging: (1) alleviating the underinvestment problem (2) lowering expected costs of financial distress (3) reducing expected taxes and (4) reducing the manager's personal risk exposure, particularly when management owns stock (Aretz & Bartram, 2010). The levels of risk exposure among companies are, however, different due to their nature of businesses and other characteristics. In the context of emerging markets, companies are also subject to different characteristics from those of developed countries. This study attempts to provide empirical evidence regarding determinants of derivatives usage among Malaysian listed companies in the context of an emerging market.

(a) Family Ownership

In most emerging markets, companies are characterized by a concentrated ownership structure with high family involvement in both ownership and management (Claessens, Djankov, & Lang, 2000). As such, the need for alignment of interests in family-owned companies is minimized (Sitthipongpanich, 2017). This reduces the reliance on external monitoring mechanisms to mitigate managerial opportunism. Durnev and Kim (2005) noted that the relationship between concentrated ownership and governance quality is positively significant in countries with low investor protection. Saleh, Halili, Zeitun and Salim (2017) revealed that family firms with ownership concentration performed better than non-family firms with dispersed ownership structures and family businesses are risk-averse business organizations. Since the

management are more inclined to increase firm value, therefore, they are expected to engage in derivative usage to mitigate financial risk exposure. Therefore, it is predicted that family ownership will increase the usage of derivatives. Thus, it is hypothesised that:

H1: There is a positive relationship between family ownership and derivatives usage

(b) Directors and Executives Compensation

Literatures have presented various reasons for derivative usage such as to increase firm value (Allayannis, Lel, & Miller, 2012) and reduce total and systematic risk (Bartram et al., 2011). It is argued that the collapse of high profile corporations such as Enron highlights the misalignment of executive compensation and derivative use (Supanvanij & Strauss, 2006). Compensation to executives serves as an incentive that affect their decision-making on strategies and policies to be adopted. Cassell, Huang, Sanchez & Stuart (2012) found that CEOs with large compensation leverage actively manage the firm's assets to reduce the firms' financial risk. When managerial compensation is linked to firm performance through stock compensation packages, management may act to increase both their own wealth and shareholders' interest (Fich & Shivdasani, 2005). White (2018) showed that the risk level of the firm is significantly dependent on the difference in the compensation structure between CEOs and non-CEOs executives. Rogers (2002) finds a strong negative relationship between CEO risk-taking incentives and derivatives holdings. Managers with higher stock compensation hedge more since they are interested in maximising stock price and minimizing volatility. On the other hand, Ye (2014) revealed that cash compensation for directors is not sensitive to equity price, and therefore results in less motivation for earnings manipulation. Based on the above discussion, the following hypotheses are proposed:

H2: There is a positive relationship between directors remuneration and derivatives usage

H3: There is a positive relationship between CEO shareholdings and derivatives usage

H4: There is a positive relationship between direct shareholdings of directors and derivatives usage

H5: There is a positive relationship between indirect shareholdings of directors and derivatives usage

(c) Board Independence

The board is presumed to be more independence and would enhance quality of monitoring) as the number of outside directors increases (Fama & Jensen, 1983). Pass (2004) stated that non-executive directors are expected to monitor actions and question management decisions to ensure that the company is acting in the best interests of shareholders and other stakeholders. Elshandidy and Hassanein (2014) examine the role of independent directors on the accounting conservatism during IFRS adoption in the UK. The result of their research shows that independent directors put higher pressure on management to practice more accounting conservatism. Prabowo and Simpson (2011) find no significant effect of independent commissioners on firm performance and concluded that it might be due to lack of institution reform on independent commissioners. On the other hand, Wu and Li (2015) found that increase in board independence has reduced the occurrence of connected transactions and violations such as financial

statement fraud, illegal insider trading, and asset misappropriation. This study proposes the following hypothesis:

H6: There is a positive relationship between board independence and derivatives usage

(d) Gender Diversity

Board gender diversity has been promoted as a way to improve board effectiveness around the world (Chen, Ni, & Tong, 2016; Gordini & Rancati, 2017). Studies examining gender diversity found that female directors contribute to improve firm performance (Conyon & He, 2017, Perryman, Fernanda, & Tripathy, 2016) and reduce firm risk (Gulamhussen & Santa, 2015, Perryman et al., 2016). Gulamhussen and Santa also noted market positively valued the presence of women on board. Baixauli-Soler, Belda-Ruiz, & Sanchez-Marin, (2015) concluded that an inverted U-shaped relationship between the wealth created by Employee Share Options for members of the top management team and risk taking, and female representative exhibit more conservatives behaviour compared to that of non-gender diverse top management teams. Jane Lenard, Yu, Anne York, and Wu (2014) found that more gender diversity on the board impacts firm risk by contributing to lower variability of stock market return. Based on the evidence derived from the extant literature, this study aims to explore whether the presence of women moderates the relationships between corporate governance mechanisms and derivatives usage. In particular, hypotheses testing will be conducted to examine the moderating effect of the presence of women directors on the relationship between (i) directors remuneration, (ii) CEO shareholdings, (iii) direct shareholdings of directors, (iv) indirect shareholdings of directors, (v) board independence as well as (vi) family ownership and derivatives usage.

5.2. Research Models

As an attempt to gain further insights into the relationship between corporate governance and usage of derivatives, the present study proposes the following empirical models. Model 1 examines the effects of (i) family ownership (ii) directors and executive compensation (in terms of directors’ remuneration, CEO shareholdings, direct shareholdings of directors and indirect shareholdings of directors) and (iii) board independence on derivatives usage.

The full equation of the above baseline model is given as Equation 1 below:

$$FD_i = \alpha + \beta_1 DirRem_i + \beta_2 CEOShare_i + \beta_3 BInd_i + \beta_4 FamOwn_i + \beta_5 DirShare_i + \beta_6 IndirShare_i + \beta_7 ROA_i + \beta_8 TA_i + \beta_9 DebtRatio_i + \beta_{10} Firmgrowth_i + \beta_{11} AuditCo_i + \epsilon_i \tag{1}$$

where

FD = Usage of derivatives, a dummy variable, 1 denotes users of derivatives and 0 otherwise

DirRem = the logarithm of directors’ remuneration

CEOShare = shareholdings of CEO divided by total equity shares

BInd = the ratio of independent directors on the board

FamOwn = shareholdings of family members divided by total equity shares

DirShare = direct shareholdings of directors divided by total equity shares

IndirShare = percentage of indirect shareholdings of directors

ϵ_i = error term

We also control for firm size (TA), measured as the logarithm of total assets; return on total assets (ROA); leverage (DebtRatio), the ratio of total liabilities to total assets; growth opportunities (Firmgrowth), the ratio of market value of equity to book value of equity; audit quality (auditCo), a dummy variable denoting audit quality that is equal to 1 if the company is audited by a Big-4 audit company and zero otherwise.

We further extended the model 1 above to explore whether the presence of female directors moderates the relationships between (i) directors and executive compensation, (ii) board independence and (iii) family ownership and derivatives usage. Six models are constructed to examine the moderating effects of the presence of female directors on each individual explanatory variable (i.e. directors remuneration, CEO shareholdings, direct shareholdings of directors, indirect shareholdings of directors, board independence and family ownership) respectively. For instance, to examine whether the presence of female directors moderates the relationship between directors' remuneration and derivatives usage, model 2 as depicted below is developed. The model is then repeated by substituting other explanatory variables for the moderating effect as reported in Table 2.

$$FD_i = \alpha + \beta_1 DirRem_i + \beta_2 CEOShare_i + \beta_3 BInd_i + \beta_4 FamOwn_i + \beta_5 DirShare_i + \beta_6 IndirShare_i + \beta_7 PreFeDir_i + \beta_8 PreFeDir_i * DirRem_i + \beta_9 ROA_i + \beta_{10} TA_i + \beta_{11} DebtRatio_i + \beta_{12} Firmgrowth_i + \beta_{13} AuditCo_i + \epsilon_i \quad (2)$$

where

PreFeDir = presence of female director on the board, a dummy variable, 1 denotes presence of female directors on board and 0 otherwise

5.3 Sample Selection and Data Sources

The sample of this study was drawn from Malaysian listed companies for the year 2014. The largest 100 listed companies, measured in terms of market capitalisation, excluding those companies with incomplete data, were selected as the sample of the present study. As suggested in prior studies, largest companies are more likely to use derivatives as compared to smaller firms (Alkebäc & Hagelin, 1999). Prior studies show that larger firms use more derivatives as the benefit from economies of scale in hedging costs (Haushalter, 2000). Financial companies are excluded in this study as some of these companies are sellers of derivatives in which their objective is not to reduce financial risk, instead, they use derivatives for trading purposes or performing dealer activities.

Data on corporate governance variables and financial derivatives were manually picked from companies' annual reports downloaded from the Bursa Malaysia's website while other financial data were extracted from Thomson Reuters Datastream database.

6. Findings

Table 01. Descriptive statistics

Panel A					
Variables	Observations	Mean	Std. Dev.	Min	Max
Directors, Remuneration (RM ²)	100	12,888,342	23,786,187	63,000	156,400,000
CEO shareholdings (%)	100	4.96309	13.45788	0	68.5
Board Independence	100	.4669375	.1022057	.3	.75
Family Ownership (%)	100	6.03834	14.91121	0	68.5
Direct Shareholdings of D Directors	100	2.17543	7.71394	0	57
Indirect Shareholdings of Directors	100	6.95704	15.7892	0	68.5
Return on Assets	100	.093924	.0986136	-.1042	.6959
Firm size (Total assets) (RM)	100	11,132,632.85	17,193,765.9329	139,777	110,650,200
Debt Ratio	100	24.46997	17.07878	0	63.01888
Growth Opportunities	100	3.9327	7.204319	.46	56.2
Panel B					
Variables	Observations	Dummy = 1	Dummy = 0		
Derivatives Usage	100	56	44		
Audit Quality (1= Big4)	100	90	10		
Presence of Female Directors	100	67	33		

Table 1 presents the descriptive statistics for the sample firms. The results show that directors' remuneration ranges from a low of RM63,000 to a high of RM156.4 million. The average value was RM12,888,342 with a standard deviation of RM23,786,187. This indicates that directors' remuneration is widely dispersed among the sample firms. Similar pattern was observed for firm size. The variation in firm size probably justified the huge dispersion in directors' remuneration. In terms of percentage of shareholdings, the maximum value for CEO shareholdings, family ownership and indirect shareholdings of directors provide further evidence to support that family firms are characterised with concentrated ownership. The independent directors occupied a minimum of 30% and maximum of 75% seats in the board respectively. This shows that all firms meet the minimum quota required for independent directors. The frequency distribution show that slightly more than half of the sample (56%) are derivative users. Despite continuous calls to increase the representative of women on the board, only one third (33%) of the companies appointed women directors on the board.

Table 2. Logistic Regression Results

Expression: Pr(FD), predict()							
	Baseline model	Models incorporating the moderating effect of the presence of women directors					
	Model 1 Coef.	Model 2 Coef.	Model 3 Coef.	Model 4 Coef.	Model 5 Coef.	Model 6 Coef.	Model 7 Coef.
DirRem	1.08567*	.8248364	1.02244*	1.038899*	.985699	1.074611*	.8484329
CEOShare	-3.693038	.1078063	-1.115043	.3391619	-1.013076	-.2220735	-.3357743
Bind	5.566859*	5.664411*	6.176574**	7.936755*	6.314543**	5.565251*	6.223516**
FamOwn	-.4196036	-.7036555	-1.48781	-1.463619	-2.037874	-.4819969	1.189792

DirShare	1.234553	1.431264	.9280609	1.574411	.6642824	1.743821	.3051974
IndirShare	2.070822	1.963857	2.464978	2.232244	2.449707	2.045404	-1.930507
PreFeDir		-2.494401	-2.24396	1.862229	-.3294527	.0682711	-.5249057
PreFeDir @DirRem		.3760286					
PreFeDir @CEOShare			4.441164				
PreFeDir @BInd				-4.008698			
PreFeDir @FamOwn					5.745392		
PreFeDir @DirShare						-.6486166	
PreFeDir @Indirshare							7.9353**
ROA	-4.991267	-4.699305	-3.84241	-4.607319	-3.29508	-4.634074	-3.073934
TA	1.523413***	1.565768***	1.584286***	1.504469***	1.630163***	1.535814***	1.69728***
DebtRatio	-.0014452	-.0010551	-.0028615	.0001772	-.0026638	-.0012023	-.0027671*
Firmgrowth	.293947**	.2970082*	.272413*	.2826335*	.2638469*	.2886092*	.2505869
AuditCo	1.021026	.9703971	.845108	.9403505	.7880029	1.0194	.6760834
_cons	-21.2335	-19.82309	-21.19752	-21.84688	-21.22596	-21.31052	-20.45928
Log likelihood	-54.856428	-54.787719	-54.140206	-54.589132	-53.560436	-54.847563	-52.218175
Prob>Chi ²	0.0039	0.0103	0.0068	0.0090	0.0046	0.0106	0.0019
Pseudo R ²	0.2003	0.2013	0.2107	0.2042	0.2192	0.2004	0.2387

Note: The dependent variable is FD, Derivatives Usage, a dummy variable with 1 denoting derivatives users and 0 otherwise. The independent variables are directors remuneration (DirRem), CEO shareholdings (CEOShare), Board Independence (IndB), Family ownership (FamOwn), Direct shareholdings of directors (DirShare), Indirect shareholdings of directors (IndirShare), The presence of female directors (PreFeDir) serves as the moderating variable, the control variables include Return on Assets (ROA), Firm size (TA), Leverage (DebtRatio), Growth Opportunities (Firmgrowth) and Audit quality (AuditCo).

@ multiplication of the two variables for the moderating effect

*, **, *** denotes significant level at 10%, 5% and 1% respectively.

The results from the logistic regression for all the models are presented in Table 2. Model 1 attempts to test hypotheses 1 to 6. The results show that the model was significant at 1% level. The findings reveal that directors remuneration and board independence are statistically significant. The coefficients in the two variables are both positive. This suggests that higher proportion of independent directors on the board and higher directors remuneration increase the probability of derivatives usage. The results were inline with the predicted sign stated in hypotheses 2 and 6. Both hypotheses are supported. The findings do not present empirical evidence to support the relationships between family ownership, CEO shareholdings, direct shareholdings of directors, indirect shareholdings of directors and derivatives usage. Hence, Hypotheses 1, 3, 4 and 5 were not supported.

The moderating effect due to the presence of women directors was examined in model 2 to model 7. All the models were significant at 1% level. The findings as depicted in model 7 indicate that with the presence of women directors, indirect shareholdings of directors is positively associated with the usage of derivatives. Without the presence of women directors, there is no significant relationship between indirect shareholdings of directors and derivatives usage. This suggests that women directors play an important role in the usage of financial derivatives when they hold indirect shareholdings. For model 2 to 6, the results on the interacting effect between women directors and other corporate mechanisms (family ownership,

directors remuneration, CEO shareholdings, direct shareholdings of directors, independence board) were not significant.

Among the control variables, firm size and growth opportunities are more important in explaining the likelihood in using derivatives among the sample firms. Both variables reported positive coefficient at 1% and 5% significant level respectively. This supports the argument that large companies have more resources to engage in derivatives usage.

In the literature, derivatives use generally supports positive theories that justify risk management at the firm level is beneficial to the shareholders. Overall, the present study contributes to the corporate governance literature by providing evidence from the perspective of an emerging market on the association between directors compensation, board independence and derivatives usage as well as the role of gender diversity in enhancing governance mechanisms in corporate risk-taking. The result suggests that higher directors remuneration tend to increase derivatives usage. This is inline the “incentive hypothesis” that proposed that higher monetary incentives motivate directors to play more effective role in monitoring (Adams & Ferreira, 2008). With regards to board independence, the result supports the view that independent directors, which is associated with good corporate governance, have an entrenchment effect in reducing risk (Wu & Li, 2015). The study also provides evidence to extant literature on the view that gender diversity enhances board monitoring. The settings of this study reflect Asian based culture in which the sample firms are characterised by highly concentrated ownership structure and low representative of women directors in the board. Therefore, the findings may apply to countries that have similar characteristics by providing empirical evidence to the policy makers on the role of independent directors and gender diversity on risk management practices. However, the study suffers from the limitation of cross-sectional analysis. Future studies are warranted to examine panel data over longer periods and to examine more dimensions of board independence and gender diversity so as to gain further insights into how board composition contributes to the effectiveness of board monitoring.]

7. Conclusion

This study addresses two related questions. First, what types of corporate governance mechanisms determine derivatives usage in risk management? Second, is the presence of women directors interact with specific governance mechanism in determining the usage of derivatives? Using data of top 100 non-financial listed companies in Malaysia, the results show that board independence and directors remuneration are positively related to the usage of derivatives. This means the likelihood of using derivatives increase with more independent directors sitting on the board and also with higher directors remuneration. In addition, two specific firm characteristics i.e. firm size and growth opportunities are also positively associated with usage of derivatives. For the second question, the presence of women directors change the relationship between compensation in terms of indirect shareholdings of directors and derivatives usage. The findings suggest that women with indirect shareholdings tend to increase derivatives usage.

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