

# Determinants of Corporate Hedging Practices: Malaysian Evidence

Chin Kar Seng and Hassanudin Mohd Thas Thaker\*

Faculty of Business, Economics and Accounting, HELP University, Malaysia

\*Corresponding author

Copyright © 2018 Chin Kar Seng and Hassanudin Mohd Thas Thaker. This article is distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

## Abstract

The purpose of this research paper is to examine the main determinants of corporate hedging practice in Malaysia. To investigate the determinants of corporate hedging, 50 firms from 4 different economic sectors from year 2010 until 2011 have been chosen for the analysis purpose. The regression analysis has been performed and found that debt is significantly and positively related to corporate hedging practice. Debt usage represents the risk involved by the firms. Firms with high debt usage will hedge more in order to reduce their risk. Besides, managerial ownership is significantly and negatively related to corporate hedging practice. This shows that agency theory is not applicable in the context of Malaysian firms. Managers who held more shares in the firm will involve in less hedging activities. In this way, their shares will be higher in value when the firms are in higher risk. This paper expects to enrich existing literature available in the field of corporate hedging especially involving emerging market like Malaysia.

**Keywords:** corporate hedging, regression, Malaysia

## 1. Introduction

Nowadays, growing international trading in the global market increases the risk exposure of every corporate. No matter how healthy or stable a corporate is, there are still possibilities of facing some risks. Based on Bodnar et al. (2014), more than half of 690 non-financial companies had implemented some form of risk management program according to a global survey. Besides, the awareness of corporates implementing their risk management have been increasing in recent years in order to hedge themselves from any risks. Therefore, risk management

becomes the core part of every corporate, especially for large corporation. Hedging is a risk management tool commonly used by individuals and institutions to reduce their risk exposures (Van Mieghem, 2012). It can minimize variances in the expected cash flows of a firm. In this way, it is able to limit any losses and protect the profits of an investment.

A hedge can be constructed with and without many types of financial instruments including derivatives products (Van Mieghem, 2012). It involves the taking of a position in one market in contradiction of the risk adopted by assuming a position in an opposite market. In the 19<sup>th</sup> century, public futures market was established but only hedging against agricultural commodity prices is allowed. Since then, they have extended to hedge the risks of foreign currency, interest rate exposures, values of energy and precious metals.

Derivatives are one of the common financial instruments used for hedging. They are contracts where the value can be derived from the performance of its underlying assets. The most popular examples of derivatives are futures, forwards, options and swaps. Based on World Federation of Exchanges (2012), the trading volume of derivatives contracts hits 25 billion in 2011 and achieves 12% growth compared to year 2010. It shows a higher growth rate than the cash market. Hence, derivatives are popular in recent years. Derivatives' origins are several centuries back. One of the eldest derivatives, rice future, was traded on the Dojima Rice Exchange in 1650. The Royal Exchange in London was the first exchange who trades derivatives. In Malaysia, the first derivatives exchange was the Kuala Lumpur Commodity Exchange (KLCE). It is established in 1980, and their first derivatives product was the Crude Palm Oil. Currently, Bursa Malaysia Derivatives Berhad (BMDB) is the one and only derivatives market in Malaysia. It is established because of the development of financial risk management in Malaysia. The crude palm oil futures contract remains to be the most active and successful product in the world operated by BMDB.

There are many companies that incurred losses because of not hedging or misuse of the derivatives instruments. For example, Metallgesellschaft loss from Oil future with the amount of \$1800 million in 1993, Sumitomo Corporation loss from Copper future with the amount of \$3500 million in 1996, Kashima Oil loss from Foreign Exchange derivatives with the amount of \$1500 million in 1994 (Karpinsky, 1998). According to Ameer et al. (2010), the use of derivatives on corporate hedging in Malaysia is not as expansively as those developed countries such as United State (US), United of Kingdom (UK) and Australia. There were only 25% of public listed firms from Bursa Malaysia who used derivatives for hedging from year 2003 to 2007 (Ameer, 2010). This is mainly due to two reasons: firstly, Malaysian corporates do not have enough exposures on derivatives; secondly, derivatives are considered to be costly and complex. This is a growing concern because understanding the use of derivatives is necessary to form a sound risk management policy. This demonstrates that Malaysian firms still lack of consensus in using derivatives on hedging. Therefore, this research paper would like to inves-

investigate the main determinants of corporate hedging practice in Malaysia. Specifically, the research would like to examine the firm-specific factors of corporate hedging practice in Malaysia. The specific objectives in this category are as follows:

- To measure the relationship between debt and corporate hedging practice;
- To examine the relationship between investment growth and corporate hedging practice;
- To identify the relationship between managerial ownership and corporate hedging practice;
- To investigate the relationship between liquidity and corporate hedging practice; and
- To study the relationship between profitability and corporate hedging practice.

The research claims two significant contributions. Firstly, this study is expected to enrich the existing literature in the field of corporate hedging practice. This is due to the highly limited studies within a similar field in Malaysia. Thus, this research argues that it will enrich the literature concerning the determinants of corporate hedging determinants in advanced emerging market like Malaysia. Secondly, with the belief that better corporate hedging practices by firms significantly influences performance of firms and help to avoid losses, it is expected that this study will help firms to design better hedging strategies that help in maximising return and minimizing the losses.

## **2. Literature review and hypotheses development**

Hedging against financial risks decreases any cash flow volatility of the firm. It allows the firm to maintain enough funds to be able to pay off its debt holders and any obligations on time. This adds value to the firms and subsequently benefits its shareholders. Therefore, it is important to determine the firm-specific factors affecting their corporate hedging decisions. With this goal in mind, we proposed five important factors relating to the aspects of the firm, which are debt, investment growth, managerial ownership, liquidity, and profitability.

### **2.1 Debt**

According to Modigliani- Miller theory, firms will choose to finance through debt rather than equity as the debt financing's cost is lower compared to equity financing (Modigliani and Miller, 1958). However, the risk of financial distress arises when short-term and long-term debt obligations of the firm are not settled. In other words, the firm would probably default on advance when it has more borrowings. Froot et al. (1993) and Smith and Stulz (1985) had conducted their studies on the corporate risk management policies. Froot et al. (1993) explained that firms can choose to change their capital structure or decrease their leverage ratio to reduce their financial distress costs. However, they cannot utilize the tax advantage that arises with debt. Smith and Stulz (1985) suggested that the better way to reduce financial

distress costs is to engage in hedging. This is because hedging can decrease cash flow volatility, which in turn minimizes the volatility of the firm value without giving up any debt's tax advantages. Their results showed that firms with higher financial distress and debt will do more hedging.

This is supported by Singh (2009), who had conducted a study on how debt maturity structure and exposure affect the interest rate derivatives in the lodging industry. He found out that firms in lodging industry will expose to more risks from their liability rather than their operating cash flow. Besides, small and unrated firms prefer to swap into fixed rate debt while large and high debt rated firms prefer to exchange into floating rate debt. This is for the purpose of reducing their interest rate exposure. They found out that interest rate risk is significantly and positively related to interest rate derivatives. Provided that the risk of interest rate is associated with the debt maturity and borrowing cost, firms with higher debt features are likely to use interest rate derivatives.

There are several empirical studies used leverage ratio as the proxy of debt. Nguyen and Faff (2002) mentioned that firms will have higher level of leverage when they overuse debt on financing their asset. Firms might have tendency to use debt in excess due to the advantages on the cost of debt. They might face the risk of bankruptcy if they are not able to meet the payment especially during the economic downturn period. Therefore, firms that have high leverage ratio tend to do more hedging through derivatives. Afza and Alam (2011) examined the determinants corporate hedging policies in Pakistan from year 2004 to 2008. Their result showed that leverage ratio and hedging have positive and significant relationship. Derivatives such as interest rate future and exchange rate future are able to reduce the fluctuation of interest rate and foreign exchange rate. Therefore, hedging provides certainty to the firm on taking debts at fixed rate without affecting their future planning.

Similarly, both Haushalter (2000) and Wang and Fan (2011) had examined the corporate hedging practices in the oil and gas industry. If firms do not hedge against the price risk, the unexpected changes in the oil price will increase the costs (Haushalter, 2000). This will lead to lower profits, which follow by lower firm value. Hedging can be used to solve variability of cash flow related problems like financial distress problem, underinvestment issues and more (Wang and Fan, 2011). Therefore, firms with higher leverage ratio tend to engage in hedging. Leverage ratio is positively and significantly related to hedging.

There are also several past studies used debt to equity ratio as the proxy of debt. The studies of Reynolds et al. (2009) and Allayannis and Weston (2001) showed that debt to equity ratio is positively and significantly related to hedging. They explained that firms use risk management tools such as derivatives during the financial constraint period. This is because derivatives can help to reduce cash flow variability for business operation, and thereby reduce any financial distress costs.

They found that firms with higher debt to equity use derivatives for hedging. In turn, they have higher firm value. However, Block and Gallagher (1986) argued that debt to equity ratio is positively but insignificantly related to hedging. They had examined the interest rate future and option usage of corporate financial manager in United States firms from Future 500. They suggested that firms, who are using interest rate future, are mostly from the traditional commodity operation industry. Hedging can reduce any risks exposed and administrative issues that may incur. Yet, other firms with high debt to equity ratio do not use derivatives because they do not have enough knowledges and experiences from losses.

Therefore, we hypothesize that

*H1: There is a significant relationship between debt and corporate hedging practice.*

## **2.2 Investment Growth**

Firms with high level of investment growth opportunities are in a good place. According to pecking order theory, internal financing is always preferred when available because it is generated from their own profit without bringing in external investors (Myers & Majluf, 1984). However, they may face underinvestment problem when they are having shortfall of cash. The higher the investment of growth of firms, the higher is their underinvestment cost. Underinvestment problem refers to situation when shareholders of a firm prefer higher risk and profit investments with volatile cash flow rather than low risk investments with safe cash flow.

Froot et al. (1993) had examined the determinants of corporate hedging decision under capital market imperfection conditions. They found out that capital market imperfection will lead to limited cash flow, which restricts the investment opportunity of the firm. The solution is the firms have to raise external funds but they have higher cost than internal funds. The use of derivatives can hedge any risks associated to the external fund. Therefore, firms that have high level of investment growth will engage in the use of derivatives. In other words, investment growth is positively related to derivatives hedging.

Myers (1977) observed that financial distress will cause the firm to reject investment with positive Net Present Value (NPV). This is only applicable when the positive NPV project does not provide sufficient return to cover the debt and cost of investment. Similarly, Bessembinder (1991) discovered that most of the positive NPV project opportunities are gave up because of the variability of cash flow which leads to financial distress. Hedging can reduce any risk of facing financial distress as it can secure the firm into non-default states. Therefore, firms with more investment opportunities hedge more.

There are several empirical studies used capital expenditure ratio as the proxy of investment growth. Opler et al. (1999) used capital expenditure to represent growth opportunity as it indicates the growth of the business in term of new assets purchased. Firms with higher capital expenditure have more business acquisitions if they have excess cash available. Thus, capital expenditure is positively related to investment growth. Similarly, Clark and Judge (2005) explained that capital expenditure and hedging have positive relationship. Firms engage in the use of derivatives to minimize the fluctuation of cash flow and secure a healthy capital foundation. In turn, more investments and commitments can be done which lead to increase in income. There are also several past studies used dividend payout ratio as the proxy of investment growth. Mian (1996) found out that companies with high dividend payout are more likely to hedge in the long run. Inversely, Goldbery et al. (1994) showed that dividend payout is negatively and significantly related to foreign exchange and interest rate derivatives. This is due to the negative association among investment growth and dividend payout. Therefore, firms with lower dividend payout tend to engage in derivatives hedging. Both findings are not consistent with Stanley and Salvary (2005) as they discovered that dividend payout and hedging are not related. They had investigated specifically on the relationship between underinvestment problem and risk management problem. Firms with low dividend payout retain their earnings for any future investment or hedge against any risk available. High dividend ratio does not signify poor performance from the firm. Hence, there is no need for firms to hedge.

Therefore, we hypothesize that

*H2: There is a significant relationship between investment growth and corporate hedging practice.*

### **2.3 Managerial Ownership**

Managerial ownership is defined as the percentage of equity owned by block holders and insiders like officers and directors. According to agency theory, the manager will have more incentives to help the company on generating profit and mitigating the risk if there is any managerial ownership (Smith and Stulz, 1985). In other words, they will be facing higher risk on their salary and shareholder's earnings if they do not manage the company well. Therefore, conflicts between managers and shareholders are decreased and thereby, agency cost is reduced.

Geczy et al. (1997) had carried out a study according to the opinion of managers, debtholders and shareholders on the usage of currency derivatives. Their result showed that firms, who are currency derivatives user, have a greater managerial option holdings compared to non-users. In other words, managerial ownership is positively related to derivatives hedging. It is explained by the positive relationship between firm's long-term investment and managerial option contract. Managerial option acts as an incentive for manager to maximize the shareholders' wealth with long term investment like research and development activities.

There are several empirical studies used number of shareholders as the proxy of managerial ownership. Nguyen and Fatt (2002) found out that the higher the number of shareholders, the firm was more likely to hedge. Smith and Stulz (1985) also discovered that management shareholders is positively related to derivatives hedging. The researchers explained that if managers have a larger number of shareholders, they have more concern on the firm's profit. Rather a policy that maximizes the value for a well-diversified shareholder, managers prefer a corporate risk management that minimize their risk. By such, managers increase the usage of derivatives to hedge against market risks that lie outside the control of them. Managerial ownership creates an incentive for the risk averse manager to increase shareholder value which indirectly increase the overall performance of the company. Therefore, managerial incentives such as stock or compensation contracts can induce managers to maximize the firm value and in turn reduce the agency cost.

Inversely, Supanvanij and Strauss (2006) found that there is a negative relationship between managerial ownership and derivatives usage. They examined the relationship between managerial compensation and hedging decision of the firm. Managers who are holding more stocks or options will hedge lesser. This is mainly because their option contracts can be more valuable when the firm increased in earnings volatility. It is consistent with Fok, Carroll and Chiou (1997), who had studied the association between managerial ownership and derivatives usage in the banking industry. Managers with large equity stakes will not hedge to benefit from the risk-shifting opportunities of deposit insurance. In other words, the managers with large equity stakes have lower derivatives hedging. Tufano (1996) had conducted study on the corporate risk management in the gold mining industry of North America. Firms with more options held by managers have less involvement in hedging the volatility of gold price, while firms with more stocks held by managers have more involvement. This is supported by Carpenter (2000) and Lambert, Larcker, and Verrecchia (1991). They explained that firms tend to hedge more due to the increase in the sensitivity of total portfolio to stock price. Inversely, firms tend to hedge less due to the increase in the sensitivity of stock option portfolio to stock return volatility.

Thus, the hypothesize would be

*H3: There is a significant relationship between managerial ownership and corporate hedging practice.*

#### **2.4 Liquidity**

Liquidity is depends on how quick an asset can be purchased or sold in the market without influencing its price. If a firm lacks of liquidity, it may face financial distress and consequently may force into bankruptcy (Monda et al., 2013). Hedging against financial risks is able to stabilize the cash flow of a firm. In turn, the firm is liquid enough to pay off its debt holders or serve any obligations on time. Staying

liquid brings value to the firm and ultimately benefits its shareholders. Nguyen and Fatt (2002) and Kim and Sung (2005) found out that liquidity is significantly and negatively related to derivatives hedging. High liquidity signifies lower probability of financial distress. Therefore, firms with high liquidity have low derivatives usage. However, it is not parallel with the study done by Gamba and Triantis (2013). They had studied on the interactions between liquidity, hedging and operating policies. Liquidity management is an important part of risk management. But, they discovered that it is difficult to hedge by using derivatives contracts because the marginal value associated with derivatives hedging is likely to be low. Therefore, there are no relationship between liquidity and derivatives hedging. Mian (1996) used current ratio as the proxy of liquidity. The researcher had conducted a study on the factors affecting corporate hedging practices. As a result, current ratio is negatively related to derivatives hedging. This is due to low risks involved in firms with high current ratio.

There are also past studies which used quick ratio as the proxy of liquidity. Clark and Mefteh (2010) found out that quick ratio and derivatives hedging have negative relationship. High quick ratio signifies high liquidity and less risk exposed. Thus, it resulted in low derivatives usage. This is consistent with Gay et al. (2011), who had studied whether derivatives usage is related to the cost of equity. Their result indicated that quick ratio and derivatives hedging are negative related. This is because high quick ratio signifies the firm is in greater position. There is no need to engage in hedging. Geczy, Minton and Schrand (1997) had investigated the factors affecting derivatives usage based on the opinions of manager, debtholders and shareholders. The study showed that quick ratio is negatively related to derivatives hedging. High quick ratio leads to low dividend payout ratio. Thus, firms have lesser needs to hedge against the financial distress or financial risks as they are capable to settle their short term liabilities.

The hypothesis to test this would be:

*H4: There is a significant relationship between liquidity and corporate hedging practice.*

## **2.5 Profitability**

Profitability is extremely important to a business. It shows the overall efficiency and performance of a firm. The higher the profitability, the better condition the firm is. Jang and Park (2011) had analyzed whether firm growth and profitability are related. Their result showed that firm growth has significant as well as positive influence on profitability. The higher the firm growth, the higher the firm's profitability. Firms with high profitability has less financial distress problem. Therefore, they do not need to involve in hedging. In other words, profitability is negatively related to hedging. There are several empirical studies which used return on asset (ROA) as the proxy of profitability. Clark and Mefteh (2010) found out



that return on asset is positively and significantly related to derivatives hedging. Most of the time, firms with bigger size use derivatives. This is because bigger size or higher profitable firms are more likely to be rewarded with more values by the marketplace.

However, Gay et al. (2011) showed that ROA is significantly but negatively related to derivatives hedging. The author had conducted a study on the correlation of cost of equity with derivatives usage. In the study, most firm with lower ROA used derivatives. The higher the ROA of firm, the lower the cost of financial distress. Therefore, the derivatives usage will be lower. Hsin et al. (2007) had examined the corporate hedging effect on US stock. Similarly, they found that the higher the ROA of firm, the lower the risk exposure of firm. Therefore, firms will have lower derivatives usage. There are also past studies used return on equity (ROE) as the proxy of profitability. Gounopoulos et al. (2012) had examined on the impact of foreign exchange exposure on the financial firm's equity. Banks and insurance firms from United States, United Kingdom and Japan had been selected as the sample. They found out that derivatives and equity are positively related. The higher the return on equity of banks, the lower is the changes in foreign currency value. Thus, banks with lower ROE have lesser needs to hedge as their foreign currency is high in value.

It is not parallel with Nelson, Moffitt and Graves (2005) and Chincarini (2007) as their result showed that return on equity was negatively related to hedging. Nelson, Moffitt and Graves (2005) had studied the effect of risk management on the value of equity. While, Chincarini (2007) had examined the performance of global currency hedging after the Asian crisis. They argued that the higher the ROE, the more efficient the firm is using its equity. Thus, there are lesser need to hedge.

Therefore, we hypothesize that

*H5: There is a significant relationship between profitability and corporate hedging practice.*

### **3.0 Methodology**

#### **3.1 Data Source**

This research paper adopts the collection of secondary data only as it is time-saving and cost-effective. By comparing the secondary data collected, it provides a better understanding on the problem. Chaudhry et al. (2014) had also used secondary data collection method to conduct their study. Similarly, Ameer (2010) had collected the data on the foreign currency and interest rate derivatives usage of firms from their annual report to examine his study. The secondary data such as historical yearly firm-specific are collected. These information are gathered from published annual reports in Bursa Malaysia. All the data collected will be used to represent the dependent

and independent variables. This research paper will have 5 years' data coverage from year 2011 to 2015. Similarly, past studies on derivatives or hedging in the developed countries have the same choice of five years coverage (Singh and Upneja, 2007; Allayannis and Weston, 2001).

### ***3.2 Sampling Procedure***

Ameer (2010) focused only on public listed companies in the main market of Bursa Malaysia. Financial information can be collected easily because their annual report are disclosed to the public. However, there are a total of 1014 listed companies in the main market of Bursa Malaysia. The researcher has decided to reduce the sample size by narrowing down to companies in several sectors listed in Bursa Malaysia. Plantation and construction sectors make up part of the country's GDP. According to Bank Negara Malaysia (2016), plantation and construction sectors contribute RM 28,319 million and RM 15,170 million to the nation's GDP, which are RM 328,048 million in total in the fourth quarter of 2016. Moreover, private consumer sector contributes 69.2% of the total GDP of Malaysia in 2015 (Bank Negara Malaysia, 2016). Technology is also one of the top performing sectors in Malaysia (Inside Malaysia, 2012). Therefore, construction, consumer products, plantation and technology sectors are the important sectors to look into based on Malaysia's economy. These four sectors in Bursa Malaysia will then be focused by this research paper. Since 2006, Malaysian firms have to adopt the FRS132, Financial Instruments - Disclosure and Presentation, which is introduced by Malaysian Accounting Standards Board (MASB). Such standard requires listed firms in Malaysia to disclose types of market risk being faced. In turn, the purpose and amount of derivatives usage are disclosed in the annual report of listed companies in Bursa Malaysia. Firms who disclose their derivatives usage in their annual reports will be categorized as derivatives users, and thereby included in the sample of this research paper. There are a total of 250 listed companies in the 4 chosen sectors. Out of 250 companies, only 50 companies met the criteria of complete data on derivatives and other variables.

### ***3.3 Measurement of variables***

The notional amounts of derivatives are used to proxy the hedging practice of the firm under a linear regression model. This approach is chosen to be used in this research paper because the main objective is to determine the key determinants of corporate hedging practice based on derivatives usage. Besides, this approach is consistent with the past studies (Singh and Upneja, 2007; Fok et al, 1997). It is noted that past studies had used different proxies for each explanatory variables. Therefore, all these proxies will be adopted in this research paper.

In line with past studies, debt are measured by the proxy of leverage ratio (Nguyen and Faff, 2002; Afza and Alam, 2011) and debt to equity ratio (Reynolds et al., 2009; Allayannis and Weston, 2001). Leverage ratio is used to assess the

capability of the firm to meet financial obligation. It can be calculated by dividing the long term debt over the total equity of the firm. Debt to equity ratio examines the capability of the firm to repay its debt obligation with its equity. It can be calculated by dividing the total debt over the total equity of the firm. These data will be collected from the firms' balances sheet in its annual report disclosed in Bursa Malaysia. Similar to previous studies, investment growth are measured by the proxy of capital expenditure ratio (Bartram et al., 2006; Opler et al., 1999) and dividend payout ratio (Stanley and Salvary, 2005; Mian, 1996). Capital expenditure ratio indicates the cash used by firm on expanding its business. The higher the capital expenditure, the more likely the firm is in the growing position. Dividend payout ratio indicates how much the firm is paying back its earnings to its investors. In other words, it determines how well the firm is doing in terms of dividend payout. It can be calculated by dividing dividend payout over the net income of the firm. These data will be collected from the firms' financial statements in the annual report disclosed in Bursa Malaysia.

Based on past studies, managerial ownership are measured by the proxy of number of shareholders (Supanvanij and Strauss, 2006; Fok et al., 1997). The number of shareholders is used to measure the degree at which the manager perform in the best interest of the shareholders to hedge the risk that may affect the firms' profit by using derivatives. The data will be acquired from firms' shareholding statements in the firms' annual report disclosed in Bursa Malaysia.

In line with previous studies, liquidity are measured by the proxy of current ratio (Mian, 1996) and quick ratio (Gay et al., 2011; Clark and Mefteh, 2010). Current ratio indicates the capability of a company to pay off its short term liability with its current assets. It can be calculated by dividing the total current assets over the current total current liabilities of the firm. Quick ratio is identical to the current ratio, which shows firm's capability on paying short term liability with its current assets. However, it excludes the inventory from the current ratio as it is difficult to convert it to cash. It is calculated by dividing total current asset minus inventory over the total current liability of the firm. These the data will be collected directly from the balance sheet of firm's annual report disclosed in Bursa Malaysia.

Based on past studies, profitability is measured by the proxy of return on asset (Gay, Lin and Smith, 2011; Clark and Mefteh, 2010) and return on equity (Gounopoulos et al., 2012; Nelson et al., 2005). Return on asset ratio measures how efficient the firm in using its asset to generate profit. It is calculated by dividing net income over the total asset of the firm. Return on equity ratio shows the ability of the firm to generate earning from investment from the shareholder equity. It is calculated by dividing net income over the total equity of the firm. These data will be collected directly from the financial statements of the firm's annual report disclosed in Bursa Malaysia.

### **3.4 Data Analysis**

Regression analysis is conducted to identify the main determinant of corporate hedging practice in Malaysia. In this research paper, multiple regression is appropriate

because this research paper aims to examine the relationship between dependent and two and more independent variables involved. The same analysis was used by most of the past studies (Ameer, 2010; Singh and Upneja, 2007; Fok et al, 1997). Statistical Package for Social Scientist (SPSS) is used to conduct the multiple regression analysis.

A regression equation is developed for the model.

$$\text{CORP.HEDGING} = B0 + B1 \text{ LEV} + B2 \text{ DE} + B3 \text{ CE} + B4 \text{ DP} + B5 \text{ SHARE} + B6 \text{ CUR} + B7 \text{ QUICK} + B8 \text{ ROA} + B9 \text{ ROE}$$

CORP.HEDGING	= Corporate hedging decision; calculated by ratio of total notional amount of derivatives use
B0	= Constant intercept
B1 LEV	= Leverage Ratio; calculated by ratio of long term debt over equity
B2 DE	= Debt to Equity Ratio; calculated by total debt over total equity
B3 CE	= Capital expenditure Ratio
B4 DP	= Dividend Payout Ratio; calculate by dividend payout over net income
B5 SHARE	= Number of Shareholders
B6 CUR	= Current Ratio; calculated by ratio of current asset over current liability
B7 QUICK	= Quick Ratio; calculated by ratio of amount of current asset minus inventory over current liability
B8 ROA	= Return on Asset; calculated by net income over total asset
B9 ROE	= Return on Equity; calculated by net income over total equity

## 4. Results

### 4.1 Data Filtering

**Table 1: Collinearity**

Model	Collinearity Statistics	
	Tolerance	VIF
1		
	(Constant)	
	LEV	.680 1.471
	DE	.588 1.701
	CE	.963 1.038

**Table 1: (Continued): Collinearity**

DP	.952	1.051
SHARE	.886	1.129
CUR	.120	8.332
QUICK	.125	8.015
ROA	.069	14.393
ROE	.068	14.793

Note: This table reports the collinearity statistic. The statistics include tolerance level and Variance Inflation Factor (VIF). The independent variables are LEV, leverage ratio; DE, debt to equity ratio; CE, capital expenditure ratio; DP, dividend payout ratio; SHARE, number of shareholders; CUR, current ratio; QUICK, quick ratio; ROA, return on asset; ROE, return on equity.

From the table 1, most of the VIF and tolerance level in the model are within the acceptable level. The results showed that VIF levels do not exceed 10, and the tolerance level are more than 0.1 (Hair et al., 1995). However, proxy variables, Return on Asset (ROA) and Return on Equity (ROE), in the firm-specific model have a VIF of 14.380 and 14.785 correspondingly, which exceeds the acceptable level. Besides, both proxies have a tolerance level of 0.069 and 0.068, which are lower than 0.1. This shows the data in these two proxies might have collinearity problem. These will turn out to have higher possibilities for standard error. In this case, the researcher chose to eliminate both ROA and ROE proxy variables from the model in our regression test. This is to make sure potential collinearity problem and possibilities for standard error can be avoided.

**4.2 Descriptive Statistics**

**Table 2: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.239 <sup>a</sup>	.057	.030	1269804778.936

Note: This table shows the summary statistics of the model. Statistics shown are R value, R-square value, adjusted R-square value and the standard error of the estimate.

According to table 2, the value of R-square is 0.057 in the firm-specific model. It showed that 5.7% of the variation in dependent variable has been influenced by independent variables in the model. In this case, there is 94.3% variation in the dependent variables is explained by other variables that are not included in this model. On the other hand, the adjusted R-square value is 0.030.

**Table 3: ANOVA Table**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	23731.000	7	33902.000	2.103	.044 <sup>b</sup>
Residual	39020.000	242	16102.000		
Total	41393.000	249			

Note: This table reports the ANOVA statistic. Statistics shown include sum of squares, degrees of freedom (df), mean square, f-value and p-value (Sig).

ANOVA test is also known as F-test, which is used to test whether the overall regression model is a good fit for data. According to table 3, the p-value, 0.044 is lower than 0.1 in the firm-specific model. The result shows that this model is significant and good fit for data.

**Table 4: Correlation Table**

	CHP	LEV	DE	CE	DP	SHARE	CUR	QUICK
CHP	1.000	.187	.018	.076	-.027	-.070	.002	.010
LEV	.187	1.000	.503	.152	-.033	.161	-.207	-.156
DE	.018	.503	1.000	.039	-.050	.027	-.340	-.283
CE	.076	.152	.039	1.000	-.020	-.064	-.053	-.033
DP	-.027	-.033	-.050	-.020	1.000	-.098	.175	.184
SHARE	-.070	.161	.027	-.064	-.098	1.000	.003	-.030
CUR	.002	-.207	-.340	-.053	.175	.003	1.000	.933
QUICK	.010	-.156	-.283	-.033	.184	-.030	.933	1.000

Note: This table reports the correlation between each variable in the model. The variables include CHP, corporate hedging practice; LEV, leverage ratio; DE, debt to equity ratio; CE, capital expenditure ratio; DP, dividend payout ratio; SHARE, number of shareholders; CUR, current ratio; QUICK, quick ratio; ROA, return on asset; ROE, return on equity.

From table 4, all independent variables (LEV, DE, CE, DP, SHARE, CUR and QUICK) are weakly correlated with CHP. Among them, LEV shows the highest correlation to CHP, which is about 0.187. Positive correlation refers to the relationship between two variables in which one variable increases in value with another variable. In the firm-specific model, LEV, DE, CE, CUR and QUICK are positively related to CHP. On the other side, negative correlation refers to the relationship between two variables in which one increases in value as the other decrease. In the model, DP and SHARE are negatively related to CHP.

### 4.3 Regression Equation

**Table 5: Coefficients**

Model	Standardized Coefficients	t	Sig.
	Beta		
1 (Constant)		2.000	.047
LEV	.255	3.418	.001
DE	-.100	-1.321	.188
CE	.035	.551	.582
DP	-.039	-.604	.546

**Table 5: (Continued): Coefficients**

SHARE	-.110	-1.715	.088
CUR	.039	.216	.829
QUICK	-.010	-.055	.957

Note: This table reports the coefficient statistics of the model. The statistics are unstandardized coefficients, standardized coefficients, t-value and p-value (sig.). The independent variables include LEV, leverage ratio; DE, debt to equity ratio; CE, capital expenditure ratio; DP, dividend payout ratio; SHARE, number of shareholders; CUR, current ratio; QUICK, quick ratio; ROA, return on asset; ROE, return on equity.

Based on table 5, a regression equation is formed. It showed the relationship of each independent variables compared to corporate hedging practice.

$$\text{CORP.HEDGING} = B_0 + B_1 \text{LEV} + B_2 \text{DE} + B_3 \text{CE} + B_4 \text{DP} + B_5 \text{SHARE} + B_6 \text{CUR} + B_7 \text{QUICK}$$

$$\text{CORP.HEDGING} = B_0 + 0.255 \text{LEV} + (-0.100) \text{DE} + 0.035 \text{CE} + (-0.039) \text{DP} + (-0.110) \text{SHARE} + 0.039 \text{CUR} + (-0.010) \text{QUICK}$$

#### 4.4 Hypotheses Decisions

*H1: There is a significant relationship between debt and corporate hedging practice.*

The estimated result shows that the p-value of leverage ratio is 0.001, which is lower than the standard p-value of 0.1. Besides, its coefficient is 0.255. These indicate that there is a significant and positive relationship between leverage ratio and corporate hedging practice. It also means that when the leverage ratio increase by 1 percentage point, the corporate hedging practice will increase by 0.255 percentage points respectively, ceteris paribus. This finding is supported by most of the past studies (Nguyen and Faff, 2002; Haushalter, 2000; Wang and Fan, 2011). This is also consistent with Modigliani-Miller theory. Based on the theory, firms prefer to finance through debt instead of equity because the cost of debt financing is lower. The problem is the firms will have a higher ratio of leverage when they overuse debt on financing their asset. High leverage ratio leads to high risk of financial distress and bankruptcy. Hedging can reduce these risks and utilize the tax advantages that arises with debt simultaneously. Therefore, firms with high leverage ratio have higher corporate hedging practice.

However, the p-value of debt to equity ratio is 0.188, which is greater than the standard p-value of 0.1. Also, its coefficient is -0.100. These show that there is an insignificant and negative relationship between debt to equity ratio and corporate hedging practice. This is supported by Block and Gallagher (1986). Interest rate future are mostly used by firms from the traditional commodity operation industry, which is not included in the sample of this research paper. Moreover, firms with

high debt to equity ratio do not use derivatives to hedge because they do not have enough knowledge and experience from losses.

Two proxy variables of the debt, which are leverage and debt to equity, have different results. The result on leverage proxy is used because it is significant and supported by more past studies. In overall, the null hypothesis is rejected because there is significant and positive relationship between debt and corporate hedging practice.

*H2: There is a significant relationship between investment growth and corporate hedging practice.*

The estimated result shows that the p-value of capital expenditure is 0.582, which is higher than the standard p-value of 0.1. Moreover, its coefficient is 0.035. These indicate that there is an insignificant and positive relationship between capital expenditure and corporate hedging practice. On the other hand, the p-value of dividend payout is 0.546, which is greater than the standard p-value of 0.1. As well, its coefficient is -0.039. These indicate that there is an insignificant and negative relationship between dividend payout and corporate hedging practice. In overall, the null hypothesis is not rejected because there is no significant relationship between investment growth and corporate hedging practice.

The result is supported by Stanley and Salvary (2005). They mentioned that there are no relationship between investment growth and derivatives hedging. Low dividend ratio and capital expenditure does not fully represent low expected growth or bad investment performance by the firm. Firms might retain their earnings from investment for any precautionary motives such as insolvency in the future. Moreover, low dividend ratio may turn into a competitive advantage in the future. In this case, there are no associations to any derivatives usage or hedging policy.

*H3: There is a significant relationship between managerial ownership and corporate hedging practice.*

The estimated result shows that the p-value of number of shareholder is 0.088, which is lower than the standard p-value of 0.1. Moreover, its coefficient is -0.110. These indicate that there is a significant and negative relationship between number of shareholder and corporate hedging practice. It also means that when the number of shareholder increase by 1 percentage point, the corporate hedging practice will decrease by 0.110 percentage points respectively, ceteris paribus. In overall, the null hypothesis is rejected because there is significant and negative relationship between managerial ownership and corporate hedging practice. The result is supported by Supanvanij and Strauss (2006), and Fok et al. (1997). They explained that the shares held by managers are higher in value if the firms are in higher risk. Managers have lesser incentives on reducing the risk faced by their firms. In this case, agency theory is not applicable. In turn, firms with higher managerial ownership have lower derivatives hedging.



*H4: There is a significant relationship between liquidity and corporate hedging practice.*

The estimated result shows that the p-value of current ratio is 0.829, which is greater than the standard p-value of 0.1. Besides, its coefficient is 0.039. These indicate that there is an insignificant and positive relationship between current ratio and corporate hedging practice. On the other hand, the p-value of quick ratio is 0.957, which is higher than the standard p-value of 0.1. Moreover, its coefficient is -0.010. These indicate that there is an insignificant and negative relationship between quick ratio and corporate hedging practice. Therefore, the null hypothesis is not rejected because there is no significant relationship between liquidity and corporate hedging practice. This is consistent with Gamba and Triantis (2013). Liquidity is the key for firms to avoid financial distress costs. So, it is the key part of risk management. However, they argued that it is difficult to hedge financial distress risks by using derivatives contracts. This is because the marginal value associated with derivatives hedging is likely to be low. In this research paper, the researcher measures corporate hedging practice by using notional amount of derivatives only. Therefore, there is no relationship between liquidity condition of firms and corporate hedging practice.

## **5. Conclusion**

In the model, debt is significantly and positively related to corporate hedging practice. Debt usage represents the risk involved by the firms. Firms with high debt usage will hedge more in order to reduce their risk. Besides, managerial ownership is significantly and negatively related to corporate hedging practice. This shows that agency theory is not applicable. Managers who held more shares in the firm will involve in less hedging activities. In this way, their shares will be higher in value when the firms are in higher risk. On the other hand, investment growth and liquidity are insignificantly related to corporate hedging practice. Firms give up any investment growth opportunities because they want to keep their earnings from investment for any precautionary motive. Therefore, there are no associations to any hedging policy. Besides, firms that are having insolvency would not involve in derivatives contracts because it is difficult to hedge by using them. Firms with rapid expansion and illiquid condition would not prefer hedging through derivatives contracts.

In overall, derivatives remain fresh to many firms. Misuse of derivatives on hedging leads to losses suffered by some of the firms. This research paper provides more awareness and knowledge on the corporate hedging practice in Malaysia. It contributes to parties such as managers, investors, communities and researchers. The study on the relationship between selected variables and corporate hedging practice can enhance corporate managers on their risk management in order to protect themselves from financial embarrassment in the business environment. Investors can take the result of this research paper into consideration before making any investment decision. All in all, understanding critical factors that affect the

corporate hedging practice in Malaysia can help firms on doing proper planning on their risk management and business operation. In a nutshell, debt and managerial ownership are the main determinants of corporate hedging practice in Malaysia.

## References

- [1] T. Afza and A. Alam, Determinants of corporate hedging policies: A case of foreign exchange and interest rate derivative usage, *Journal of Business Management*, **5** (2011), no. 14, 5792-5797.
- [2] G. Allayannis and J. P. Weston, The Use of Foreign Currency Derivatives and Firm Market Value, *The Review of Financial Studies*, **14** (2001), no. 1, 243-276. <https://doi.org/10.1093/rfs/14.1.243>
- [3] R. Ameer, Determinants of Corporate Hedging Practices in Malaysia, *International Business Research*, **3** (2010), no. 2, 120-130. <https://doi.org/10.5539/ibr.v3n2p120>
- [4] R. Ameer, R. Mat Isa and A. Abdullah, *A Survey on Usage of Derivatives and Their Effect on Cost of Equity Capital*, Technical Report, Institute of Research, Development and Commercialization, Universiti Teknologi MARA, 2010.
- [5] Bank Negara Malaysia. (2016, March 23). Annual Report 2015. [online] [http://www.bnm.gov.my/files/publication/ar/en/2015/ar2015\\_book.pdf](http://www.bnm.gov.my/files/publication/ar/en/2015/ar2015_book.pdf) [Assessed 5 Apr. 2017].
- [6] S. M. Bartram, G. W. Brown and F. R. Fehle, *International Evidence on Financial Derivatives Usage*, Lancaster, United Kingdom: Lancaster University, Management School Chapel Hill, USA: The University of North Carolina, Kenan-Flagler Business School, Working Paper, 2006.
- [7] H. Bessembinder, Forward Contracts and Firm Value: Investment Incentive and Contracting Effect, *Journal of Financial and Quantitative Analysis*, **26** (1991), no. 4, 519-532. <https://doi.org/10.2307/2331409>
- [8] S.B. Block and T. J. Gallagher, The Use of Interest Rate Future and Option by Corporate Financial Managers, *Finance Management*, **15** (1986), no. 3, 73-78. <https://doi.org/10.2307/3664846>
- [9] G. Bodnar, E. Giambona, J. Graham and C. Harvey, A View Inside Corporate Risk Management, *SSRN Electronic Journal*, (2014). <https://doi.org/10.2139/ssrn.2438884>

- [10] N. I. Chaudhry, M. S. Mehmood and A. Mehmood, (2014, November 22). *Determinants of Corporate Hedging Policies and Derivatives Usage in Risk Management Practices of Non-Financial Firms*, [online] Available at: [https://mpira.ub.uni-muenchen.de/57562/1/MPRA\\_paper\\_57562.pdf](https://mpira.ub.uni-muenchen.de/57562/1/MPRA_paper_57562.pdf) [Assessed 5 Apr. 2017]
- [11] L. B. Chincarini, The Effectiveness of Global Currency Hedging After The Asian Crisis, *Journal of Asset Management*, **8** (2007), no. 1, 34-51. <https://doi.org/10.1057/palgrave.jam.2250059>
- [12] E. Clark and A. Judge, Motives for Corporate Hedging: Evidence from the UK, *Research in Financial Economics*, 1 (2005), no. 1, 57-78. <https://doi.org/10.1142/s201049520550003x>
- [13] E. Clark and S. Mefteh, Foreign Currency Derivatives Use, Firm Value and the Effect of the Exposure Profile: Evidence from France, *International Journal of Business*, **15** (2010), no. 2, 100- 120.
- [14] C.W.R. Fok, C. Carroll and C.M. Chiou, Determinants of Corporate Hedging and Derivatives: A Revisit, *Journal of Economics and Business*, **49** (1997), no. 3, 569-585. [https://doi.org/10.1016/s0148-6195\(97\)00040-4](https://doi.org/10.1016/s0148-6195(97)00040-4)
- [15] K. A. Froot, D. S. Scharfstein and J. S. Stein, Risk Management: Coordinating Corporate Investment and Financing Policies, *The Journal of Finance*, **48** (1993), no. 5, 1629-1658. <https://doi.org/10.1111/j.1540-6261.1993.tb05123.x>
- [16] A. Gamba and A. J. Triantis, Corporate Risk Management: Integrating Liquidity, Hedging and Operating Policies, *Management Science*, **60** (2014), 246-264. <https://doi.org/10.1287/mnsc.2013.1752>
- [17] G. D. Gay, C. M. Lin and S. D. Smith, Corporate Derivatives Use and The Cost of Equity, *Journal of Banking & Finance*, **35** (2011), no. 1, 1491-1506. <https://doi.org/10.1016/j.jbankfin.2010.10.033>
- [18] C. Geczy, B. A. Minton and C. Schrand, Why Firms Use Currency Derivatives, *Journal of Finance*, **52** (1997), no. 4, 1323-1354. <https://doi.org/10.1111/j.1540-6261.1997.tb01112.x>
- [19] S. R. Goldberg, J. H. Godwin, M. Kim and C. A. Tritschler, *On Determinants of Corporate Hedging with Financial Derivatives*, Purdue University, Krannert Graduate School of Management, USA, (1994).

- [20] D. Gounopoulos, P. Molyneux, S. K. Staikouras, J. Wilson and G. Zhao, Exchange rate risk and the equity performance of financial intermediaries. *International Review of Financial Analysis*, (2012). [online] Available at: <http://www.sciencedirect.com> [Assessed 5 Apr. 2017].
- [21] J. F. Hair Jr., R. E. Anderson, R.L. Tatham and W. C. Black, *Multivariate Data Analysis*, New York: Macmillan, 1995.
- [22] G.D. Haushalter, Financing Policy, Basis Risk, and Corporate Hedging: Evidence from Oil and Gas Producers, *Journal of Finance*, 55 (2000), no. 1, 107-152. <https://doi.org/10.1111/0022-1082.00202>
- [23] C. W. Hsin, S. R. Shiah-Hou and F. Y.Chang, Stock return exposure to exchange rate risk: A perspective from delayed reactions and hedging effects, *Journal of Multi Finance Management*, 17 (2007), 384-400. <https://doi.org/10.1016/j.mulfin.2006.12.005>
- [24] Inside Malaysia. (2012, July). *Technology & Innovation*, [online] <http://etp.pemandu.gov.my/upload/Inside%20Investor%20-%20Technology%20and%20Innovation.pdf> [Assessed 5 Apr. 2017].
- [25] S. Jang and K. Park, Inter-relationship between firm growth and profitability, *International Journal of Hospitality Management*, 30 (2011), 1027- 1035. <https://doi.org/10.1016/j.ijhm.2011.03.009>
- [26] A. Karpinsky, The risky business of risk management derivatives disasters, *Australian Banker*, 112 (1998), no. 2, 60-66.
- [27] S. Mian, Evidence on corporate hedging policy, *Journal of Financial and Quantitative Analysis*, 31 (1996), no. 3, 419-439. <https://doi.org/10.2307/2331399>
- [28] F. Modigliani, M. H. Miller, The Cost of Capital, Corporation Finance and The Theory of Investment, *The American Economic Review*, 48 (1958), no. 3, 261– 297.
- [29] B. Monda, M. Giorgino and I. Modolin, Rationale for Corporate Risk Management: A Critical Literature Review, *SSRN Electronic Journal*, (2013).
- [30] S. Myers, The determinants of corporate borrowing, *Journal of Financial Economics*, 5 (1977), no. 2, 147-175. [https://doi.org/10.1016/0304-405x\(77\)90015-0](https://doi.org/10.1016/0304-405x(77)90015-0)

- [31] S.C. Myers, N. Majluf, Corporate Financing and Investment Decision When Firm Have Information That Investors Do Not Have, *Journal of Financial Economics*, **13** (1984), no. 2, 187-221.  
[https://doi.org/10.1016/0304-405x\(84\)90023-0](https://doi.org/10.1016/0304-405x(84)90023-0)
- [32] J. M. Nelson, J. S. Moffitt and J. A. Graves, The impact of hedging on the market value of equity, *Journal of Corporate Finance*, **11** (2005), no. 1, 851-881. <https://doi.org/10.1016/j.jcorpfin.2005.02.003>
- [33] H. Nguyen and R. Faff, Further Evidence on the Corporate Use of Derivatives in Australia: The Case of Foreign Currency and Interest Rate Instruments, *Australian Journal of Management*, **28** (2003), no. 3, 307 – 317.  
<https://doi.org/10.1177/031289620302800305>
- [34] T. Opler, L. Pinkowitz, R. Stulz and R. Williamson, The Determinants and Implication of Corporate Cash Holding, *Journal of Financial Economics*, **52** (1999), no. 1, 3-46. [https://doi.org/10.1016/s0304-405x\(99\)00003-3](https://doi.org/10.1016/s0304-405x(99)00003-3)
- [35] M.P. Reynolds, G.S. Bhabra, and G.W. Boyle, Cash Flow, Investment and Derivative Use: An Empirical Analysis of New Zealand Listed Companies, *Journal of Finance and Economics*, **32** (2009), no. 2, 73-82.
- [36] A. Singh, The Relation Between Interest Rate Derivatives, Debt Maturity Structure, and Exposure In The Lodging Industry, *Journal of Hospitality & Tourism Research*, **33** (2009), no. 3, 391-416.  
<https://doi.org/10.1177/1096348009338531>
- [37] A. Singh and A. Upneja, Extend of Hedging in the US lodging industry, *International Journal of Hospitality Management*, **26** (2007), no. 4, 764-776.  
<https://doi.org/10.1016/j.ijhm.2006.07.004>
- [38] S. Singh, Adolescent salvia substance abuse, *Addiction*, **102** (2007), no. 1, 823–824. <https://doi.org/10.1111/j.1360-0443.2007.01810.x>
- [39] C.W. Smith, Jr. and R.M. Stulz, The Determinants of Firms’ Hedging Policies, *Journal of Financial and Quantitative Analysis*, **20** (1985), no. 4, 391-406.  
<https://doi.org/10.2307/2330757>
- [40] C. W. Stanley, The Underinvestment Problem, Risk Management, and Corporate Earnings Retention, *The Journal of Business and Economic Studies*, **11** (2005), no. 2, 74-92.
- [41] J. Supanvanij and J. Strauss, Corporate derivative use and the composition of CEO compensation, *Global Finance Journal*, **21** (2006), no. 1, 170-185.  
<https://doi.org/10.1016/j.gfj.2010.06.004>

- [42] P. Tufano, Who Manages Risk? An Examination of Risk Management Practices in the Gold Mining Industry, *Journal of Finance*, **51** (1996), no. 2, 1097-1137. <https://doi.org/10.1111/j.1540-6261.1996.tb04064.x>
- [43] Jan A. Van Mieghem, Risk Management and Operational Hedging: An Overview, *Handbook of Integrated Risk Management in Global Supply Chains*, edited by Panos Kouvelis, Lingxiu Dong, Onur Boyabatli, and Rong Li. Operations Research and Management Science series by John Wiley & Sons, Inc., 13-49, 2012. <https://doi.org/10.1002/9781118115800.ch2>

**Received: April 25, 2018; Published: May 30, 2018**