MARKET RISK AND BANK SPECIFIC DETERMINANTS OF COMMERCIAL BANKS IN MALAYSIA

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ABSTRACT

Market risk is one of the important risks in banking system. With a myriad number of products, market risk happens when change in net asset value due to changes in equity, commodity prices and exchange rates. This paper is an attempt to identify the factors that determine market risk in banks and to compare that risk determinants between conventional and Islamic banking systems in Malaysia. The unique duality banking system in Malaysia, namely the conventional and Islamic banking system would provide comprehensive determinants of market risk in banking sector. The dataset is constructed from 21 conventional banks and 16 Islamic banks with the year of observation within 2008-2014. Total loan/financing, loan loss provision, total equity, GAP, Interest expenses, short term investment, size, non-interest income and management efficiency are factors that were used in this study. Employing panel data analysis, the results revealed that GAP has strong relationship with market risk. Our findings are not only significant to both bank managers as well as investors, since they the findings will enable them to fully assess the effects of different strategic choices on a bank's risk profile but also contributing in terms of enriching and enhancing literature on market risk management of Islamic and conventional banks. Establishment of a comprehensive market risk management system in both banking system should be a prerequisite as it contributes to the overall risk management system of the bank.

Keywords: Risk management, market risk, Islamic bank, conventional bank, panel data analysis

INTRODUCTION

The past decades have witnessed the banking and financial system being gradually liberalised. In the sphere of the banking system we have seen changes such as the deregulation of interest rates, the introduction of new players, new banking and financial instruments, new institutions and also to some extent the expansion of the prudential regulations. These rapid innovations and the changed environment in which banks operate today present not only major opportunities for banks in satisfying the customers' needs but also the increasing risks they are exposed to. Since effective risk management is very important in order to develop a strong, stable infrastructure and for the survival of banking industry, banks need to improve their risk management capabilities and in doing so, identifying the different types of risks and their determinants play a crucial role in risk management process. As stated by Arora and Jain (2011), in order to manage risk

efficiently these risk factors need to be identified and a proper assessment of such risk factors should be done.

Market risk is defined as the risk that affects the entire banking industry, such as changes in the economic environment like recessions and financial crisis, for instance, the 2007-2008 global financial crises which affects the global financial landscape (Vaaler & McNamara, 2004). Market risk can also be defined as financial and portfolio instruments that can fluctuate with the changing market prices that are caused by factors for counterpart to all the instruments traded on the market. Market risk and its determinants have been examined widely in finance literature. Through finance theories such as the Capital Asset Pricing Model (CAPM), market risk is the main focus of this model which suggests a positive linear relationship between the required rate of return of any stock and its beta, the measurement of market risk (Sharpe, 1964). Since a stock's required rate of return from the point of view of a company also constitutes the cost of equity capital, those factors which affect a firm's market risk at the same time indirectly influence the funding costs of the firm, as well as its market value. The importance of beta is also evident from the investor's point of view. Market risk estimation is useful for investors in order to analyze the nature of risk associated with different investment options and to recognize risk-return relationships within portfolio investment strategies.

Basel Committee on Bank Supervisory (BCBS) and Islamic Financial Services Board (IFSB) implemented risk management guidelines to shape the banking industry that can be used for the whole world. Among the risks faced by the banks, market risk is one of the major risk in conventional and Islamic bank (Hoseininassab et al., 2012). In addition, market risk should be managed together with others risks, alternatively, the elimination of one of the risks will create another new risk in banking. Previous research on the determinants of market risk are very limited, but studies on non-interest income (Cohen et al. 2014), loan loss provisions (Anandarajan et al., 2003) and the size of the banking (Haq and Heaney, 2012) with market risk have been discussed. In terms of Malaysian banks, there is no empirical study that discusses determinant of market risk in Malaysian banks. The majority of available empirical studies deal with only one type of risk such as liquidity risk, operational risk or credit risk. Therefore, banks need to identify the internet factors that can affect market risks. In addition, the market risk management framework in the conventional banking and Islamic banking is essential to allow management to minimize risk and maximize profits.

This paper is organized as follows. This paper begins with an introduction and followed by section 2 which entails review of related literature. Section 3 highlights the methodology and section 4 presents the analysis of the result of the study. Finally, section 5 is the conclusion.

LITERATURE REVIEW

Market risk and its determinants have been widely discussed in previous studies. Madura et al. (1994), Ahmad and Ariff (2004) and Rahman (2009) examine the determinants of market risk exposure.

While Rahman (2009) covers a more comprehensive factors that include nine banks' specific factors that reflect credit, capital, interest rate, liquidity and business operation. Studies by Madura et al. (1994) and Ahmad and Ariff (2004) focus only on the credit, capital, interest rate and business operation related variables. Htay and Salman (2014) focused on relationship among the risk in Malaysian bank including market risk.

Htay and Salman (2014) found that the risk relation varies across the banks and it is difficult to generalize the risk relationship and bank managers need to manage the risks based on their risks portfolio and risk appetite. These findings are to enhance the knowledge on risk behaviours and will be the interest of regulators, investors and industrial players for future investment making decision and regulatory for the risk management in Malaysian banking.

Madura et al. (1994) examine the determinants of the ex-ante risk deposit-taking institution in the United State for the period 1987-1990. They analyzed fourteen risks related variables against three risk measures based on single factors CAPM and one risk measure based on the market information approach. The findings show that only non-performing loan (NPL), funding cost, total loan to total deposit and loan concentration ratio are significant for market risk exposure.

Most of the studies include bank specific character as a control variable when examining the impact of specific factor on risk exposure. Saunders et al. (1990) investigate the relationship between ownership structure and the US bank risk exposure by taking into account three banks specific variables. The variables are the financial leverage and size. The result shows that size is positively related to market risk, but negatively related to interest rate risk. In contrast with the findings by Saunders et al. (1990), Anderson and Fraser (2000) find that size is negatively related to total risk, but positively related to systematic risk. Asma'Rashidah Idris et al. (2011) study on determinants of profitability for Islamic Banking Institutions in Malaysia which is listed on the Bursa Malaysia found that even though there is a lot of determining factors, only the bank's size is very important in the eyes of the consumers. This shows bank's size is a bank-specific determinant and (internal factors) is closely related to the capital adequacy of a bank since relatively large banks tend to raise less expensive capital, hence, appearing to be more profitable (Athanasoglou et al. 2008).

Rahman (2009) investigates the linkage between lending structure and market risk exposure and finds that only total loan expansion (TL) has positive significant relationship and this finding is consistent with Hassan (1994), Gallo et al. (1996), Ahmad and Ariff (2004) and Gonzales (2005). This result conforms to prior belief on the positive association between loan expansion and bank risk exposure. Rahman (2009) finds that management efficiency (MGT) has significant negative relationship to market risk in which such results contradict with the study of Angbazo (1997) who shows that Malaysian banks are efficient in terms of managing its risk exposure particularly in relation to market fluctuation.

Interest rate risk is considered as one kind of market risk. Interest rate risk is a probability that variation in interest rate will have

a negative influence on a quality of portfolio in banking. Previous study regarding risk exposure of Islamic financial institutions using interest rate risk from Gulf Co-operation Council countries conducted by Aldoseri (2012) shows that there is a significant relationship between non-interest income (NONII) and interest rate risk. Firms with lower NONII have lower interest rate risk. The study also finds that growth of total asset (GTA) in conventional bank has a significant negative association with interest rate risk. These results suggest that if total asset is increasing due to short term funds to provide long term loans, GTA will increase the profit and decrease the exposure of interest rate risk. This theory is further enhanced by the fact that lower efficiency in managing assets would lead to higher risk being endured by the organization (Ahmad and Ahmad, 2004). On the other hand, market risk has significant positive relationship with NONII and negatively related to GTA.

Hassan (1993) analyzes the impact of loan sales on bank risk with six banks' specific variables for the United States. Based on his findings, interest rate related variable (GAP) and business operation related variable (size and dividend payout) yield mixed result. GAP ratio is not a significant factor to total risk exposure and size is only significant to two implied asset risk and total risk exposure. These results suggest that GAP ratio and size are significantly related to market risk. Previous study also examined the regulatory restriction on bank's risk-taking; Gonzales (2005) develops nine variables along with three banks' specific variable. As it is not the intention of this study to examine the regulatory aspect, but the finding of bank specific variable is the main concern in this paper.

Gonzales (2005) founds that high investment (INV) in consolidation can represent a loss of diversification; hence it should be responsible for a higher risk exposure. This shows that INV are also related to market risk exposure in the banking system. Rahman (2009) notes that short term investment (INV) can be categorized into three types: namely, securities held for trading, securities held for maturity and securities available for sale. The obvious difference between conventional and Islamic banks is in terms of securities held for trading. Many comparative studies between conventional and Islamic banks focus only on credit risk (Abbas, 2014; Aldoseri, 2012; Hasan and Dridi, 2010; Indriani, 2008; How et al.; 2005) and liquidity risk (Iqbal, 2012; Akhtar et al., 2011; Anam et al., 2012) but there is no other study related to market risk's determinant that have been conducted. To fill this gap, the current study will identify internal factors that determine market risk in banks and to compare that risk determinants between conventional and Islamic banking in Malaysia.

METHODOLOGY

Data

This paper retrieves data for the years of 2008-2014 from the Bankscope database and annual report from the central bank for 16 Islamic banks and 21 conventional banks. The empirical data employed in this paper consists of the pooling time series and cross section data, and the panel data model was used for the analysis.

Market Risk Model

Earnings per share are usually considered to be the single most important variable in determining a share's price (Hasan and

Saimoon, 2011). This study uses earning per share (EPS) as a proxy for market risk because EPS information is useful in evaluating the return on investment and risk of a bank, and most of external decision makers often consider EPS to be the best single measure for summarizing a corporation's performance. Bank is one of the biggest company that is public listed on financial services. EPS can also be used to predict future cash flow per share, to compare inter company performance using the price/earnings ratio, and to indicate the potential impact of the issuance of common stock option, convertible debt or preferred stock on future EPS. It is also a major component used to calculate the price-to earnings valuation ratio. It is also used as a key indicator in measuring the performance of an organization regardless of its types. (Ibrahim et al. 2014).

In the current study, following Gonzales (2005) and Rahman (2009), nine factors were explored as possible determinants of the market risk of banks: (1) equity ratio (2) short term investment to total asset (3) loan to asset ratio, (4) size of the bank (5) ratio of GAP to total assets (6) loan loss ratio, (7) interest expense to total asset (8) management efficiency and (9) non-interest income. This study used Gonzales (2005) and Rahman (2009) because they compare and contrast the finding of the depository institutions with the commercial banks. These different findings infer that the study for depository institution may not be similar to the conventional and Islamic banks. To test whether these factors affect market risk of the Malaysian banking sector, the empirical panel data model is as follows:

$$MR_{it} = \beta_0 + \beta_1 TL_{it} + \beta_2 LLR_{it} + \beta_3 TE_{it} + \beta_4 GAP_{it} + \beta_5 INTEXP + \beta_6 INV_{it} + \beta_7 SIZE_{it} + \beta_8 NONII_{it} + \beta_9 MGT_{it} + \varepsilon_{it}$$

Where,

MRit = Market risk as measured by earning per share bank i in year t

TLit = Total loan/financing to total asset bank i in year t

LLPit = Provision of loan loss to total asset bank i in year t

TEit = Total equity to total asset bank i in year t

GAPit = Ratio of GAP to total asset bank i in year t

INTEXP= Interest expenses/others overheads and expenditure to total asset bank i in year t

INVit = Short term investment to total asset bank i in year t

SIZEit = Natural log of total asset bank i in year t

NONIIit= Non-interest income/income attributable to depositors to total asset bank i in year t

MGTit = Management efficiency as measured by total earning asset divided by total assets of bank i in year t

Hypotheses Development

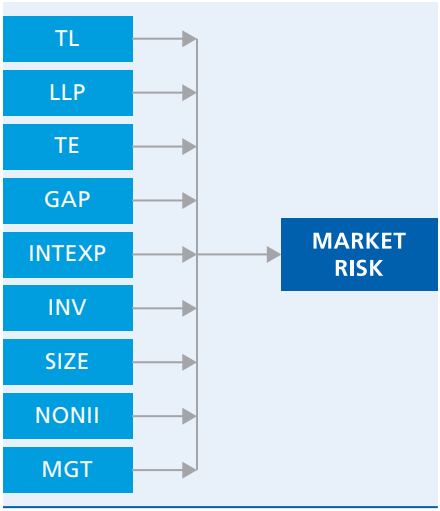
Based on the theoretical framework in Figure 1, explained in the previous section, the following hypotheses have been developed:

H_0: There is no significant relationship between market risk and its determinants in both Islamic and conventional bank.

H_1: There is a significant relationship between market risk and its determinants in both Islamic and conventional bank.

Figure 1:

Theoretical Framework



EMPIRICAL RESULT

This section presents the descriptive analysis, regression model for examining the determinants of market risk and the results of the analysis.

Descriptive statistics

Table 1 presents the descriptive statistics of the market risk for conventional banks. The statistics show that market risk (MR), which is derived from earning per share, has a mean and a medium ratio of -0.533 and -0.483. This suggests that conventional bank on average has a market risk ratio of -0.533. Total loan/financing (TL) is measured by total loan to total asset has a score mean of 0.511, median of 0.597 and standard deviation of 0.227. This shows that total loan/financing has an average of 0.511 among the banks in the sample. This result also shows that the mean of loan loss provision (LLP) is 0.199 with a median of 0.138. Based on the standard deviation, there is a significant dispersion in loan loss provision among banks. The mean and median of TE which is defined by total equity to total asset is 0.111 and 0.092. The descriptive statistic also shows the standard deviation for TE is 0.053. The statistics also show that GAP as measured by different between rate sensitive asset and rate sensitive liability has a mean and median ratio respectively -0.125 and 0.115 with a standard deviation of 0.115. The mean of INTEXP measured by interest expenses/ others overheads and expenditure to total asset is 0.187 and the median is 0.236. This shows that average of INTEXP is 0.187. The liquid asset (INV), which is measured from short term investment by total asset, is 0.136 with a median of 0.140 and standard deviation is 0.066. The descriptive statistic of bank SIZE suggests that banks on average have 7.434 with a median of 7.614 and the standard deviation is 0.673. The result also shows that non-interest income/income attributable to depositors to total asset (NONII) has mean and median ratios of 1.099 and 0.927. Management efficiency (MGT) is measured by earning asset to total asset has a score mean of 0.440, median of 0.357 and standard deviation of 0.239.

Table 1:

Descriptive Statistic for the Conventional Banks

Variable	Mean	Median	Standard Deviation
MR	-0.533	-0.483	0.414
TL	0.511	0.597	0.227
LLP	0.199	0.138	0.189
TE	0.111	0.092	0.053
GAP	0.125	0.115	0.115
INTEXT	0.187	0.236	0.243
INV	0.136	0.140	0.066
SIZE	7.434	7.614	0.673
NONII	1.099	0.927	0.703
MGT	0.440	0.357	0.239

Table 2 presents the descriptive statistics of all variables for the Islamic banks. From the table, market risk (MR), which is derived from earning per share, has a mean and a medium ratio of 0.827 and 0.387 respectively. This suggests that Islamic banks in Malaysia on average have a market risk ratio of 0.827. Total loan/financing (TL) is measured by total loan to total asset has score mean of 1.826, median of 1.833 and standard deviation of 0.237. This shows that total loan/financing has an average of 1.826 among the banks in the sample. This result also shows the mean of loan loss provision (LLP) is 0.006 and median of 0.004. Based on the standard deviation, there is a significant dispersion in loan loss provision among banks which is 0.008. The mean and median of total equity (TE) which is defined by total equity to total asset is 8.504 and 7.518. The descriptive statistics also show that the standard deviation for TE is 3.951. This result also reported that GAP as measured by different between rate sensitive asset and rate sensitive liability has a mean and median ratio respectively -0.080 and -0.069 with a standard deviation of 0.106. The mean of INTEXP measured by interest expenses/others overheads and expenditure to total asset is 0.252 and the median is 0.126. The liquid asset (INV), which is measured from short term investment by total asset, is 17.936 with a median of 15.366 and standard deviation is 13.365. The descriptive statistic of bank SIZE suggests that bank on average have 0.854 with a median of 0.855 and the standard deviation is 0.089. The results also show that non-interest income/ income attributable to depositors to total asset (NONII) has mean and median ratios of 1.919 and 1.927 respectively. Management efficiency (MGT) is measured by earning asset to total asset has a score mean of 0.431, median of 0.377 and standard deviation of 0.173.

Table 2:

Descriptive Statistic for the Islamic Banks

Variable	Mean	Median	Standard Deviation
MR	0.827	0.387	1.253
TL	1.826	1.833	0.237
LLP	0.006	0.004	0.008
TE	8.504	7.518	3.951
GAP	-0.080	-0.069	0.106
INTEXT	0.252	0.126	0.322
INV	17.936	15.366	13.365
SIZE	0.854	0.855	0.089
NONII	1.919	1.927	0.586
MGT	0.431	0.377	0.172

Tests of Multicollinearity

This section discusses the results obtained from the regression on the estimated model. Normally in regression analysis, multicollinearity issue may exist due to related independent variables. The existence of multicollinearity could affect the results by producing a high R^2, small *t* value and large standard error. Pearson's correlation test is used to identify the close association among variables and the result is presented in Table 4 and 5 for conventional and Islamic banks respectively. From the correlation test, there is no extreme high correlation exist among the variables, therefore all independent variables are included in the regression estimation. Such results are also supported by the results from the variance inflation factor test (VIF) which show that the relationship among all the variables is not more than 10. In the cases of any inconsistencies in the results between

these two tests, greater emphasis is given to the regression analysis that will exclude the variable with a higher VIF value. Gujarati (2003) sets the rules of thumb of 10 for VIF in which a larger VIF will show the variables to be highly collinear. **Table 3** shows the results of the VIF reflecting that none of the independent variables for both conventional and Islamic banks has multicollinearity issue.

Table 3:

Result of Variance Inflation Factor (VIF)

Variable	Conventional bank	Islamic bank
TL	4.182	1.933
LLP	1.301	1.240
TE	3.082	1.437
GAP	1.549	1.282
INTEXP	1.608	1.104
INV	1.210	1.700
SIZE	3.550	2.383
NONII	1.235	1.239
MGT	2.704	1.668

Table 4:

Pearson Correlation for Conventional Banks

	RPS	TL	LLP	TE	GAP	INTEXP	INV	SIZE	NONII	MGT
RPS	1.000									
TL	0.346**	1.000								
LLP	0.093	0.400**	1.000							
TE	-0.571**	-0.472**	-0.140	1.000						
GAP	-0.735**	-0.463**	-0.110	0.484**	1.000					
INTEXP	0.386**	0.521**	0.177	-0.408**	-0.464**	1.000				
INV	0.211*	-0.038	-0.047	-0.295**	-0.087	0.333	1.000			
SIZE	0.526**	0.541**	0.047	-0.784**	-0.444**	-0.314**	0.311**	1.000		
NONII	0.056	-0.322**	0.109	0.064	0.067	-0.099	0.122	-0.007	1.000	
MGT	-0.306**	-0.775**	0.281**	0.367**	0.412**	-0.458**	0.035	-0.474**	0.127	1.000

Note: *Correlation is significant at 0.05 levels (2-tailed)
**Correlation is significant at 0.01 levels (2 tailed)

Table 5:

Pearson Correlation for Islamic Banks

	RPS	TL	LLP	TE	GAP	INTEXP	INV	SIZE	NONII	MGT
RPS	1.000									
TL	-0.183	1.000								
LLP	-0.054	0.071	1.000							
TE	0.212*	0.024	0.325**	1.000						
GAP	0.505**	-0.091	-0.038	-0.143	1.000					
INTEXP	0.169	-0.029	0.189*	0.055	0.169	1.000				
INV	-0.208*	0.053	-0.074	-0.063	-0.326**	-0.039	1.000			
SIZE	0.236*	0.614**	-0.002	0.298**	-0.008	0.023	0.101	1.000		
NONII	0.014	0.160	0.044	0.078	0.101	-0.091	0.155	0.318**	1.000	
MGT	0.176	-0.047	0.050	0.211*	-0.125	0.002	0.502**	0.248**	0.024	1.000

Note: *Correlation is significant at 0.05 levels (2-tailed)
**Correlation is significant at 0.01 levels (2 tailed)

Regression analysis

This section analyses the result of the market risk determinants in conventional and Islamic banks from the GLS technique which cover both the fixed effect as well as the random effect. The best model is identified using the Hausman test. The result of GLS estimation for market risk model is presented in **Table 6**. For conventional banks, the results show that four variables namely GAP, INTEXT, SIZE and INV significantly influenced market risk. The regression result shows that GAP has a negative significant relationship with market risk for conventional banks. This result is similar to previous study by Rahman (2009) that states that GAP is significantly related to market risk. This shows that negative GAP value is considered as lability sensitive banks. These negative value indicates that conventional banks is exposed to the market risk in term of interest rate will rise with the value of GAP is -1.75. With regard to INTEXP, results show that conventional banks have a lower coefficient that banks' market risk does not depend on the proportion of funds obtained in the deposit account or cost of the fund. Results also found that INV has a negative relationship with market risk. INV is only factors for the case of the conventional banks, but not for Islamic banks. This shows that negative relationship infers that when conventional banks increase their holding in short term investment, their market risk exposure increases. This result contradicts the findings of Rahman (2009). The most and very important variable is size of the bank. The result shows that bank size has a positive relationship with market risk at one percent significant level. The majority of past studies argue that a larger bank size has more potential to diversify business risk from various perspectives. Saunders et al. (1990) and Hassan (1994) argue that the larger is the bank size, the more information these banks possess which will reduce the risk exposure. This finding is consistent with Rahman (2009) and Gonzales (2005) who suggest the bigger banks tend to embark into risky activities either through off-balance sheet transactions or investment facilities. According to them, larger banks are more flexible in adjustment for the unexpected liquidity and capital shortfall.

For Islamic banks only three variables are significantly related to market risk namely TE, GAP and NONII. The regression result shows that total loan (TE) has positive relationship with market risk at one percent significant level. This finding conforms to the prior studies that when the capital increases, the cushion against the loss also will increase, which reduces the market risk of banks to become insolvent. This paper also finds that GAP is related to market risk but with positive relationship only in Islamic banking. This result contradicts Hassan's (1993) findings that found GAP is significantly related with market risk, whereas a negative GAP bank is exposed to risk that interest rates will increase. The greater the absolute value of GAP, the more banks is exposed to changes in interest rates. Madura et al. (1994) find that the higher non-interest income to total asset (NONII) lead to a lesser business risk. This result is in contrast to the study by Madura et al. (1994), where Islamic banks have a positive relationship with market risk at five percent significant level. This shows that a higher non-interest income will increase the business risk of banks. But, Rahman (2009) found that the increasing involvement in the non-traditional banking activities (NONII) increase the market risk

exposures for Malaysian banks. This show that with the higher NONII, banks will be more exposed to banking risk.

In conclusion, there exist a significant relationship between market risk and the factors under study in both Islamic and conventional bank. Thus, the null hypothesis of no significant relationship between market risk and the factor that influence risk is rejected at a five percent significant level.

Table 6:

Result for Conventional and Islamic Banks

Variable	Conventional	Islamic
Constant	0.387	0.387
TL	1.833	1.833
LLP	0.004	0.004
TE	7.518	7.518
GAP	-0.069	-0.069
INTEXT	0.126	0.126
INV	15.366	15.366
SIZE	0.855	0.855
NONII	1.927	1.927
MGT	0.377	0.377
N	0.387	0.387
R^2	1.833	1.833
Adj. R^2	0.004	0.004
F	7.518	7.518
P	-0.069	-0.069
DW	0.126	7.518

Note: Figure in parentheses is standard error value of the regression coefficient ***, **, * denotes a significant level at 1%, 5% and 10% confidence level.

CONCLUSION

The purpose of this paper is to examine the internal factors affecting market risk in both the Islamic and conventional banks in Malaysia. The general objective of the study is to determine the market risk factor by employing a regression model. The results show that most of the variables that have been tested have significant relationship with market risk except for TL, LLP and MGT for both banks. The results also show that determinants of market risk differ slightly between conventional and Islamic banks. Conventional banks only have four variable that are significant with market risk such as GAP, INTEXP, SIZE and INV but Islamic banks only have three variables that are significant with market risk such as TE, GAP and NONII. With respect to the risk determinants, different types of banks' risk exposures have different risk factors. This is because both banks have different objectives, undergo different operational process, and are bound by to different regulatory acts. Even though some may argue that conventional and Islamic banks are not comparable, the purpose of comparison in this study is just a benchmarking process. The findings in this study provide some insight for empirical literature as well as policy implication. This finding suggests that bank managers and investors should prioritize the risk based on the banks' mission. Because of market risk is one of the important risks in the banking system; all banks cannot run from facing the challenges in managing risk. Investors should be able to monitor their investment decision making before investing in the banking industry by looking at the factors that significantly influenced the market risk. The results of this study suggest that in the implementation of successful market risk management system, banks should focus on several policy implications. The policy implications to the central bank of Malaysia (BNM) as well as the practitioners are highlighted. With the operational process, banks which are exposed with the risk; the BNM should introduce special guideline for all activities and products in the banking operation.

This regulatory change should be motivated by the desire to lessen the product for Islamic and conventional banks. More loans can be distributed based on a limited capital, hence promoting the growth of the Islamic banking market share. The establishment of a comprehensive market risk management system in both banking systems should be a prerequisite as it contributes to the overall risk management system of the bank. This study only focuses on internal factors of bank risk and for future research direction, other external factors should be considered considering the current globalized nature of the financial market.

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