CHAPTER EIGHT :CONCLUSION

8.1 Introduction

The results presented in this thesis provide evidence from Malaysian Islamic and conventional banks, both of which operated in the same jurisdictions, thus having the same financial orientation and institutional environments in their liquidity management regulations, policies and structure. This thesis introduced the innovative method of Partial Least Squares, which is a variance-based Structural Equation Modeling (PLS-SEM) method to examine the simultaneous impact of the liquidity and its factors and banks profitability and insolvency risks (z score) for Islamic and conventional banks before and after the crisis period. The conceptual structure of PLS-SEM has been explained in chapter 5 to serve as an outline of how the research methodology is performed. The introduction of the PLS-SEM in this study provides a silver lining in banks liquidity study because it can help: (i) detect the overall model structure in the relationships between variables; (ii) identify the underlying relationships pattern (indicators) shared by the variables in order to test the concpetual models, and (iii) eliminate or identify items for improvement, such as redundant or irrelevant variables.

8.2 Conclusion: Islamic and Conventional Banks Study

For the pooled study on the relationship between X on Y, no any signifianct relationships was found between bank specific factors and macroeconomic factors on profitability. However, the research finds the positive direct effect of CAR and GDP variables on insolvency risks (z score) only. This is consistent with the studies by Ghosh (2015) and Kohler (2015). This finding means an increase in capital and GDP distanced

the banks from insolvency risks. On the otherhand, a negative direct effect is found for earning quality with insolvency risks (z score) which is consistent with previous studies by Said et. al. (2008). Concentration and inflation has a negative relationship with insolvency risks (z score) and is consistent with the studies by Ramadan et al. (2011) and Horvàth et al. (2014) respectively. As for X on M relationship, only CAR is found to have a significant positive relationship with liquidity. Meanwhile, the M on Y relationship shows only liquidity has a significant negative relationship with insolvency risks (z score). The main implication of these findings will be explained later in this section.

For Islamic banks for the relationship of X on Y (RO1), only efficiency is found to have a significant negative relationship with profitability and is in line with ES concept and this research hypothesis. However, insignificant relationship was found for all other bank specific factors and macroeconomic factors in the profitability model. On the other hand, only concentration (negative) and GDP (positive) are found to have a significant effects in the z score model. As for the relationship of X on M, CAR (positive), concentration (negative) and GDP (negative) are the only factors that have a significant effects on liquidity. Meanwhile, M on Y relationship shows only liquidity has a significant negative relationship with insolvency risks (z score). The main implication of these findings will be explained later in this section.

For conventional banks X on Y relationship, CAR and assets quality are found to have a negative significant effect on profitability model consistent with the studies by Dietrich & Wanzenried, (2011) and Iqbal, (2012), but contrary to this research hypothesis and balanced portfolio concept. For z score model, only concentration, GDP and inflation are found to have a positive relationship. As for X on M, CAR is found to have a positive relationship with liquidity while concentration and GDP has a negative

and significant relationship with liquidity. However, no significant relationship was found on X on M relationships for both profitability and z score model.

The study provides an evidence that Malaysian banks use liquidity as a control mechanism to maximize solvency in line with the risk-returns trade-off concept. Nevertheless, the findings in this research contradict the results for the banks in other developed countries (Berger & Bouwman, 2008; Bologna, 2011; and Mohammad, 2013). This study found that CAR do not only directly significantly affect banks insolvency risks in Malaysia (pooled study), but also mediate through liquidity and show a negative relationship (competitive mediation). Even though some factors show a significant effect for both Islamic and conventional banks, only a few factors were found to be mediated by bank's liquidity, i.e., CAR, concentration, and GDP for only Islamic banks study in both profitability and z score models. The factors being mediated are examples of "complementary mediation" except for CAR-liquidity-z score for pooled study and CAR-Liquidity-z score for Islamic banks which are considered "Competitive" and "indirect-only" mediation respectively. As for the pooled study; the bank management should expect to have high liquidity if the CAR is high, but without good assets quality (i.e., increase in NPLs) will lower their solvency. As for the Islamic banks study, a complementatary mediation of the concentration and GDP through liquidity means that the banks solvency will increased by high concentration and GDP.

The research findings give a clear understanding that those factors are important for the bank's management decisions in enhancing the bank's profitability and solvency. For a robustness check, the study finds that there is a point where profitability could diminish when the average liquidity (LCR and NSFR) is above 100%. However, if the liquidity is below 15% it could also lead to a banking crisis due to the liquidity dry up.

The study suggests that this may be the possible effect during the 2008 GFC. The banks that have excessive liquidity may face a high insolvency risk due excess liquidity which negatively effects the profitability.

By splitting the data set (i.e. Islamic and conventional banks), this study also provides evidence that some of the impact of bank specific factors and macroeconomic factors differs in terms of the sign, magnitude and significance level only in insolvency risks (s score) model. The factors that determine the banks insolvency risks (z score) that are significantly different between Islamic and conventional banks are concentration, GDP, inflation and liquidity. A closer examination of the data showed that the effect of concentration, GDP and inflation on insolvency risks (z score) is much higher in conventional banks than in Islamic banks. However, liquidity exerts a greater (negative) influence on insolvency risks (z score) for Islamic banks than in conventional banks. The result of the significant negative relationship for Islamic bank's liquidity on insolvency risks (z score) contradicts the results reported for most banks in developed countries studies i.e., Lee & Chih (2013). In contrast, this is not the case for conventional banks because aside from an insignificant effect, conventional banks findings is in line with Lee & Chih (2013) study. Bankruptcy is not a problem for banks that has adequate liquidity, and this implies that the more cash and liquid assets the banks have, the less risk they will be bankrupt as a result of the lack of funds. This is because of the significant negative relationship between liquidity and insolvency risks (z score) for Islamic banks that is consistent with concepts (i.e., Lee & Chih, 2013). Thus, the disparities of coefficient, sign and significance level of liquidity on banks z score between Islamic and conventional banks influence the different effects of liquidity on banks insolvency risks. That is, a higher bank’s liquidity position leads to a lower insolvency risks (z score) for Islamic banks but not for conventional banks.

The study also discovers that the relationship of CAR and asset quality on banks profitability also differs between the Islamic and conventional banks. The reason is probably the result of the significant effect through the interaction of these factors on banks z score. But do not apply in the relationship with profitability which shows an insignificant effects through the interaction of concentration, GDP, liquidity on insolvency risks (z score). Moreover, inflation differs between Islamic and conventional banks in the way that Islamic banks tend to choose a low liquidity ratio compared to conventional banks. The evidence is obvious because the consistent nature of the descriptive statistics for conventional banks shows that the result of high liquidity leads to an increase in profitability and a decrease in solvency ratio (z score). This can be compared with the result of the negative relationship between liquidity and z score for pooled and Islamic banks studies, while the insignificant relationship is found between liquidity and profitability. However, both Islamic and conventional banks show a negative effect of concentration and GDP on liquidity. Thus, the study suggests that Islamic and conventional banks should decrease their concentration level and align their policies to improve their liquidity. The study observes that when bank management keeps its liquidity level at an appropriate level during GDP improvement, the bank's profitability increased.

8.3 Conclusion: Before and After Crisis Period Study

Chapter 7 extends evidence from the previous study about the mediation effect on the bank's liquidity effect on profitability and insolvency risks (z score) in the banking sector. The research finds different relationship between the bank's liquidity and profitability and insolvency risks (z score) before and after the 2008 world financial crisis periods.

For the relationship between X on Y of Islamic banks before and after the crisis of profitability model, only Inflation and efficiency are found to have a negative significant relationship after the crisis period. However, no any significant relationship was detected before the crisis. As for Z score model, concentration is found to have a significant positive affects in both periods (i.e. before and after the crisis period). However, efficiency is found to have a significant positive relationship with z score after the crisis only. Apart from this, an insignificant relationship was found for all other variables both before and after the crisis period in both profitability and insolvency (z score) models. The main implication of these findings mean, for Islamic banks, after the crisis is that, for inflations, it means, the banks financings are more on fixed rates, thus, any rise in the inflation can negatively affected their profitability rather than floating rates which they could rescheduling the financings due to the rise in inflations. Conversely, an increase in banks concentrations led to the solvency both before and after the crisis. However, after the crisis, a decrease in the banks expenses does not translate to an increase in the banks solvency. The implications is that, having high market power is a sign that the banks have a positive view from the investors persperctive in line with SCP concept, thus it led to high solvency both before and after the crisis period. However, perhaps due to the excessive liquidity and banks provisionings, decrease in expenses does not translate to an increase in the banks solvency. As for the X on M relationships before and after the crisis period, the findings shows only CAR (positive) have a significant positive imapact on liquidity both before and after the crisis. On the other hand, concentration have a negative significant impacts on banks liquidity after the crisis only. The implications is that the higher the CAR, the higher the banks liquidity both before and after the crisis period. This is due to the facts that CAR entered the LCR and NSFR calculations 100%. A negative relationship of

concentration on liquidity means investors are less likely to provide liquidity to the concentrated banking sector. For the relationship of M on Y, only after the crisis banks liquidity impacts negatively on insolvency risks (z score). This means excess liquidity reduced the banks solvency which is in line with risks returns tradeoff concept.

For the relationship between X on Y of conventional banks before and after the crisis of profitability model only assets quality, concentration and efficiency are found to have a significant negative relationship on profitability after the crisis period. No any significant impact was found before the crisis. For insolvency risks (z score) model, only concentration and inflation are found to have a significant positive relationship after the crisis. However, CAR (positive), GDP (positive) and inflation (negative) are found to have a significant impacts on insolvency risks. For the relationship of X on M, CAR is found to have a significant positive relationship with banks liquidity both before and after the crisis period. On the other hand, concentration is found to have a significant negative relationship on banks liquidity after the crisis period only. Apart from this, an insignificant relationship is found for all other variables both before and after the crisis period. For the M on Y relationship, a negative relationship is found between banks liquidity and profitability after the crisis is found but not before the crisis. However, before the crisis only relationship of liquidity and insolvency risks (z score) is found to be significant and the coefficient is negative.

The reason for different relationships between these four periods could be the preference to have more liquidity and less profitability by conventional banks after the crisis or to have high liquidity and low solvency (z score) by Islamic banks after the crisis period. The study suggests that each period is characterized by sets of different banks, where both Islamic and conventional banks after the crisis period behave more in line with the concept of risk absorption. As shown by descriptive statistics, the bank's

liquidity before and after the crisis for conventional banks is higher (i.e., 114% and 118% respectively) than for the Islamic banks before and after the crisis period (i.e., 109% and 87% respectively). For a robustness checks, this study found that there is at some point that increasing liquidity level by conventional banks reduce their profitability. Furthermore, the study discovers from the sample data that the average ROAA and ROAE for conventional banks before and after the crisis period are higher than for the Islamic banks before and after the crisis period while NIM for Islamic banks before the crisis is higher than for conventional banks before the crisis period. This maybe because of assumptions by conventional banks that high earnings and profit are a result of the bank's efforts when employing its assets, capital and high liquidity.

Another reason for different relationships between these four periods could be due to the effect of the 2008 GFC. The unprecedented rapid assets growth of the conventional banks after the crisis and Islamic banks before the crisis period which increased the liquidity between conventional banks before the crisis and after the crisis period but decrease z score (as shown in the descriptive statistics), shows that the crises might have a high impact on the negative impacts between bank's liquidity and profitability for conventional banks after the crisis period and the negative impacts for Islamic banks' liquidity and Z Score for Islamic banks after the crisis period. The negative effects for conventional banks after crisis between liquidity and profitability and for Islamic banks after the crisis between liquidity and Z Score shows that a high liquidity level is not always optimal because it lowers profitability for conventional banks after the crisis period, and it lowers solvency for Islamic banks after the crisis. Thus, holding a high liquidity level leads to the decreased in banks profitability and an eventual increase in the insolvency risks (z score). This is important since it may send the wrong signal and result in a loss of confidence by bank depositors and shareholders.

The study finds that the bank's liquidity plays a mediating effect in only 3 cases (i.e. 1 cases for Islamic banks and 2 cases for conventional banks) after the crisis but not before the crisis period. The first mediations is for the relationship of concentration – liquidity – z score for Islamic banks after the crisis. The positive indirect effect of bank concentration and liquidity is consistent with the previous study by Horvath, R., et al. (2016) while the significant positive direct effects of concentration on insolvency risks (z score) is consistent with this research hypothesis. Multiplying the indirect and direct effect makes a total effects positive number. This situations is what is referred to as complementary mediation and it is in line with the concept buildings (i.e. SCP and risk returns tradeoff concepts).

For the second mediation (conventional banks after the crisis period), the liquidity fully mediate the relationship between CAR and profitability (i.e. CAR – liquidity – Profitability), in this type of mediation, the indirect (axb) effects produced a negative but significant effects while the direct effects is not significant. This mediation is in line with the concept bulindings (i.e. risk absorption concept and risk returns tradeoff concept). The third mediation (conventional bank after the crisis period) shows a significant positive indirect effect of concentration-liquidity (i.e. path "a") and liquidity to profitability, (i.e. path "b"). On the otherhand, the direct effect shows a significant negative relationship between concentration and banks liquidity. Multiplying indirect and direct relationships (i.e. axbxc) produced a significant but negative relationship. This type of mediation is what is referred to as competitive mediation and it is contrary to the concept building (i.e. SCP and risk return tradeoff concept) and it suggests the exisitence of suppressor effect for explaining the conceptual framework. In sum, understanding of the mediating effects of liquidity provides clear evidence concerning how and what bank specific factors and macroeconomic factors

affect profitability and insolvency risks via liquidity. This may guide depositors, shareholders, government, bank practitioners and academicians to make appropriate liquidity structure decisions and study that can enhance the bank's profitability and solvency. The main implication of the study according to the findings is that, an increase in CAR led to the high liquidity, but high liquidity led to the insolvency risks because banks accumulate access idle funds without using it to finance profitable businesses.

8.4 Contribution and suggestions of the study.

The main contribution for pooled study is that, the banks that maintain high capital are able to withstand the liquidity shock, but this negatively effected their profitability and their solvency. The silver line contribution of the study is that, the banks should find an acceptable way to invest their excess liquidity. This will burst their profitability to be significant and at the same time improve their solvency. However, care must be taken by the banks not excessively depleted their liquidity above certain level (i.e. 102%) for both LCR and NSFR. For Islamic banks, CAR is the only factor that contributes to the bank's liquidity, however excess liquidity negatively effects the banks solvency. On the other hand, low concentration increased the Islamic banks liquidity which negatively effects their solvency. Lastly, decrease in GDP increased the banks liquidity and negatively effects their solvency. For conventional banks, after the crisis, CAR increases the banks liquidity, and increase in the liquidity negatively effects the banks profitability. In addition, high concentration improve the banks liquidity and negatively effects the banks profitability.

Both Islamic and conventional banks, needs special attention as it seems to have been strongly affected by GFC. It is observed that there are some point that profitability could diminish when the average liquidity level is above 102% due to the possible effect

of the GFC and probably of inappropriate liquidity structure. The study provides information that the management of Islamic and conventional banks and the Malaysian government should focus more after the crisis period such as to the development of modern, dynamic and relevant regulatory framework, compliance procedures, increase the assets growth with the best risk management practices, and choosing the best projects. Apart from that, the government should simplify the relevant laws and procedures for capital, governance structure and statutory Reserve Requirements (SRR).

The negative coefficient between liquidity and insolvency risks (z score) for pooled study, Islamic banks, Islamic banks after the crisis indicates that banks have high liquidity, and are not using the excess appropriately. This leads to the liquidity negatively affects the solvency of the banks. On the other hand, a negative relationship between liquidity and bank profitability in conventional banks after the crisis period means also they are also not using their excess liquidity appropriately and it impacts negatively on their profitability. The increased liquidity and the new rules for liquidity introduced by Basel III may causes conflict between the banks management (who always wanted to finance the assets growth) and shareholders and depositors (who wanted their investment to be safe) and on the other hand, the regulators (who wanted the overall banking system to be stable), which results in the decrease of the banks profitability and solvency. The insolvency risks caused by high liquidity might led the banks to react quickly in cutting dividend payments, payment of interest to the depositors and laying off employees. Therefore, in this case, it is also not possible to recommend an increase in the liquidity ratios by the banks within the pooled, Islamic banks, Islamic and conventional banks after the crisis period.

Malaysian government needs to enhance the newly recommended Basel III liquidity ratios (i.e., LCR and NSFR) and recommends the banks to maintain at least an optimum of 102% for both of the ratios (LCR and NSFR) after the 2008 financial crisis. The banks also should be encouraged the banks to use the liquidity judiciously in financing profitable businesses. This is because the conventional banks after the crisis period show a negative effect on liquidity and profitability, also Islamic banks after the crisis period show a negative relationship between bank liquidity and solvency. Thus, the development and the enhancements of the new liquidity measure as suggested above may help banks to have adequate liquidity to withstand financial shocks while encouraging the banks to finance more profitable assets will distance them from insolvency as a result of non-profitability. For example, the bank's management should develop policies that will assess the profitable project and improve its assets-liability risk management.

In addition, the government (i.e., Bank Negara Malaysia) needs to monitor closely the liquidity structures for banks and their profitability after the crisis period. Implementation of this study's recommendation of liquidity ratios by BNM and improvement of assets -liability management by individual banks will be a viable alternative to develop the banking sector in Malaysia. For example, the government can develop a template identifying the deposits that will be treated as stable (and provide more incentive for them) and the ones to be treated as short term non-stable. The management of Islamic and conventional banks should restructure their assets and liabilities to aid in recovering from the impact of recent financial crises by written off the bad debts and financing the new assets that have low default risks. This is because the both Islamic and conventional banks have been impacted due to institutional weakness including weak regulatory monitoring and implementation, moral hazard,

regulatory deficiency, weak accounting procedure as well as inherent instability of the overall banking sector.

This study suggests that the banks need to keep their liquidity at an appropriate level when the economy grows, and interest rates are low in order to improve their profitability. The appropriate liquidity structure gives the advantage of maximizing profitability and minimizing the bank's cost (inefficiency). Based on this, this study would suggest more effort be put into policies, banks' financing behavior and proper risk assessments to mitigate the problem of high liquidity which reduces the bank's overall profitability and led to insolvency risks.

Tthis research performs a robustness check and findings support the concept of risk returns trade off. It shows that the banks in Malaysia has 2 options: Either 1. To increase the liquidity ratios in line with liquidity risk concept (i.e. 108% and above), but both the bank's profitability and solvency ratio (z score) will be negatively effective, however, the banks can be able to withstand the liquidity shocks. Or 2.) the banks may choose to have a low liquidity in line with liquidity buffer concept (i.e. 15% and below) and both the profitability and solvency ratio (z score) will have a positive impact, however, if there is any liquidity dry up in the market (i.e. as in during the 2008 GFC) the banks maybe negatively affected and it may lead to another financial crisis. Conversely, if there is no such a liquidity dry up, the banks can be able to survive an excessive loss as both z score and profitability are positive. The study found the optimum liquidity ratio to be around 102% because at 102%, banks liquidity to profitability is positive (though insignificantly), but generally the banks can be able to operate base on the risk returns trade off concept. It should be noted that, from 2015 BNM set Liquidity ratio (LCR) at 118%, but the SRR (statutory reserve ratio) as at February 2016 was decreased to 3.5% from the previous 4%. The implication is that the banks have excessive liquid assets at

their disbursal and the banks managers might choose to either invest in order to have more profits (but vulnerable to financial crisis) or to hold it as a protection against the financial shock like that of 2008.

8.5 Recommendation for the Future Research

Since this research could not test the possibility of omitting a mediator variable in examining competitive mediation, the study therefore, suggests further research to explore those aspects in liquidity perspectives. Future research should mainly address the following issues:

To further explore other possible hidden mediators (e.g., governance structure, insolvency risks measures, ownership structure etc,) that match the revealed sign of the direct effect. The result in this study gives an essential guide for future research in speculating about the meaning of unexpected direct effects c. The sign of the direct effect can provide a clue to search in future work for a second mediation.

Explore the mediation effect using the ownership structure such as the foreign and domestics banks or the family and public banks. This is because, in the literature, this study assumes that ownership structure may affect the relationship of the liquidity and profitability factors in the mediation model. The research suggests investigating ownership structure to find a robust explanation for such a relationship.

Many studies investigate the direct effects on such relationships (i.e., Liquidity vs. profitability, Liquidity vs. z-score) in many countries, but they do not systematically consider the simultaneous causal relationships of bank specific factors and macroeconomic factors on liquidity, profitability and insolvency risks (z score). This study suggests using more indicators for both bank specific factors and macroeconomic factors of this study's model or re-examining the same model from this study in other

markets. It would also be interesting to explore this mediation model for other countries, especially in South East Asia, such as Singapore, Philippines and Thailand. This is because these countries are in the same region and have a similar geographic area. Also, these countries faced the bubble burst of the GFC 2008-09 but perhaps to varying degrees.

A comparison between developing and developed countries is also strongly suggested. As far as the researcher's concern, there is no any study that examines the mediation effects of factors that determine liquidity for the relationship between liquidity and profitability in Malaysia or between the countries based on the methods that has been widely discussed by recent studies (Goodhue et al., 2012; Hair et al., 2013; Hair, Ringle, et al., 2012; Henseler, 2010; Iacobucci et al., 2007).

The researcher also suggests testing for more possible accounting indicators for the measurement model in PLS-SEM in order to receive robust indicators for each of the liquidity factors.