

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

Chapter 5 provides a comprehensive conclusion on the findings (Section 5.1) and the contributions and implications expected from the study (Section 5.2). Limitations encountered during the study are discussed in Section 5.3. Finally, Section 5.4 brings out some points and recommendations for further study in the future.

5.1 Summary of Results

5.1.1 Objective One: Symmetric and Asymmetric Foreign Currency Exposure

Firstly, the study answers the first research objective by examining and analysing the level of currency exposure by accounting both the symmetric and asymmetric exposure for the whole sample period from 1995 - 2016. Assessing the level of currency exposure is crucial for multinational firms as they are directly affected by currency fluctuations. The currency movement affects the multinational firms in terms of the amounts of foreign payables and receivables. The currency exposure of a sample of 207 Malaysian non-financial firms encompassed monthly data. The exposure level was assessed using panel and firm level models incorporating the symmetric and asymmetric approaches. As for symmetric exposure for the overall sample firms, currency exposure was found to significantly affect the overall stock return. The negative coefficient (-0.0633) connoted that the firms were adversely affected by the USD movements. Using Jorion's (1990) model and an extended model by Yip and Nguyen (2012) for the

firm-level analysis, relatively high percentage of Malaysian non-financial firms were significantly exposed to exchange rate movement. One third of the sample firms (35.75%) was significantly affected by currency exposure. The results were within expectation for a developing country such as Malaysia with relatively lower hedging practice, greater market openness and higher market uncertainty.

Additionally, consideration of the asymmetric exposure shows the overall sample was significantly affected by the USD depreciation. The composition of significantly affected firms was also high under the USD depreciation at 10.14% and remained relatively high compared to developed market. Mean values from the analysis revealed that Malaysian firms benefited from the depreciation of the USD, thus highlighted the country's position as an importing country who gained higher returns from lesser payables through USD weakening. Evaluation of currency exposure in Malaysia in this study showed lower significance level than another relatively close study by Bacha et al. (2013).

5.1.2 Objective Two: Symmetric and Asymmetric Time-varying Foreign

Currency Exposure

The study further extends the analysis on symmetric and asymmetric currency exposure by incorporating the time-varying aspect into the symmetric and asymmetric exposure measurements. While the analyses were run for the whole sample period in objective one, objective two considered the effects of financial events such as Asian financial crisis, peg period, and global financial crisis. In the symmetric time-varying analysis, the study found the overall firms to

be significantly affected by the currency movement during the AFC, peg, and de-peg periods. In contrary, the firms were insignificantly affected during the GFC. The symmetric time-varying analysis showed significant currency exposure during the AFC, peg, and post GFC periods under the USD appreciation and depreciation

The sample firms experienced negative effect from the USD appreciation but in advantage from the USD depreciation during the middle-AFC. In the firm-level analysis, high composition of firms was negatively affected by the AFC which indicated that the majority of non-financial firms in Malaysia reacted negatively towards the USD movements. The decreasing levels of significance after the AFC signalled the possibility of market advancement and better hedging practice as the market had learnt from the devastating impact of AFC (Bacha et al., 2013; Kiymaz, 2003).

The percentage of affected firms during the GFC was 23.67%. However, the effect was negative when the exposure level was assessed from the firm level. Majority of the firms were negatively affected by exposure under almost all periods. Segregating the direction of exposure showed 23.19% of firms were significant to the USD appreciation during AFC, while 14.01% of firms were significant to AFC under the USD depreciation. Similarly, negative effect from the USD appreciation and positive effect from the USD depreciation were also observed during the GFC period. The study asserted better indication of currency exposure by incorporating both the time-varying and decomposition of symmetric and asymmetric exposure. Such improvement could provide better example for

firms and market to better prepare for any future financial events with similar characteristics.

5.1.3 Objective Three: Multiscale Foreign Currency Exposure

Consequently, the study answers the third objective on the measurement of currency exposure across different time scales. Using the wavelet model, the study found non-monotonic exposure throughout the scales which suggested the existence of multiscale nature of foreign currency exposure among the sample firms. The analysis also showed that exposure tended to be more concentrated at longer time interval (higher frequencies). Confirming to the conventional findings by Masih et al. (2010), the results were regarded as plausible and exhibited strong policy implications as the level of exposure were proven as non-monotonous. Thus, all involved parties should assess the exposure level in accordance to their respective investment horizons. The varying exposure under these time-scales further highlighted the need to incorporate time-scale factor in the measurement of currency exposure in risk pricing policy. Better precision in the pricing policy enhanced the risk management strategies to be more adaptive of the complexities of the foreign currency exposure.

While it was logical to assume several time-periods in investment analysis, financial and economic analyses had been restricted to single time domain analysis (Im & Kim, 2013). Existence of multiscale tendency of the average beta coefficient was relevant considering the multi-investment horizons in the market. In fact, multi horizons were higher and wide ranging in a volatile and illiquid market such as Malaysia due to the different and varying trading strategies by investors and market participants. With this, results of this study accentuated the need for the

investors to be more informed of the potential exposure arising from the varying multi-investment horizons. Higher exposure level recorded on higher scale further established the notion of higher systematic risk when the exposure was measured under longer horizon. The results also overcame the mismatching effect arising from compounding the individual stock returns and the market returns with different frequencies in one analysis (Masih et al., 2010). As less and miss-informed investors would cause problems such as illiquidity and high transaction cost, measuring the exposure level in accordance to the multiscale domain must be imperatively introduced to the market wide investors in order to improve the efficiency and depth of the market. Such information could also facilitate the firm managers to construct corporate hedging strategy that was appropriate for the given time frame of a particular project.

5.1.4 Objective Four: Corporate Hedging Practice

The study continued with the fourth objective to investigate the impact of corporate hedging practice on the level of currency exposure, showcasing the significance of financial hedging practice to hedge the currency exposure compared to operational hedging practice. Thus, the study confirmed the presence of higher exposure proposition in Malaysia as a developing country. The results supported the relevancy of the analyses on corporate hedging practice in Malaysia. Firstly, the study evaluated the effect of FCD use as a form of financial hedging practice towards the currency exposure level. The effect of FCD use was found to be significant towards the currency exposure level. The significant result stressed the importance of the financial tool in the market.

Secondly, the study divulged to investigate the effect of operational hedging encompassing two indexes namely the countries and regions index. Both indexes were found to exert insignificant hedging effect towards the exposure level among the firms. Insignificance operational hedging practice occurred when the countries' currency moved in the same direction with the national currency of foreign subsidiaries. In fact, further correlation analysis showed that the ringgit was highly correlated with one-third of the currencies involved in the operational hedging. Parallel movement between the currencies would expose the firms to similar exposure rather. The exposure was levelled out when the currencies moved in different direction which will off-set the exposure. Additionally, insignificance operational hedging was due to significant financial derivative hedging practice which incurred lesser hedging cost for the firms. Thus, firms tended to employ financial derivative hedging which was less costly compared to the operational hedging. Expansions of the firms' operation were only meant to boost the firms' revenue and acquired diversification strategy by operating in different countries.

The study also went further by introducing the interaction terms to include the effect of both hedging practices into one model. The model suggested consistent significance of financial hedging practice, while the countries index only became significant when it is entwined with the financial hedging practice. Hence, combining the financial hedging with the operational hedging to effectively hedge the exposure depended on two conditions. The first condition was minimal correlation level between the currencies of the main and foreign plants. Secondly, wider diversification was practised in the operational hedging.

The Malaysian sample firms could consider these findings in devoting their resources to carry out the suitable corporate hedging practice. Employing the appropriate hedging practice within the firms' structure would provide greater stability in the firms' earnings and cash flows.

5.2 Contributions and Implications of the Study

5.2.1 Contributions of the Study

The study contributes to the overall body of knowledge through its rich methodological approaches on currency exposure. The various exposure measurements in this study demonstrate the numerous considerations in the analysis of currency exposure. Inclusion of asymmetric, time-varying and multiscale aspects of currency exposure analysis expand the analytical procedures in the area. The varying exposure levels acquired through these analyses can be used to guide potential future research on the most appropriate methodological approaches to match the objectives of their studies.

The fact that these analyses are conducted in a developing country such as Malaysia is also a contribution to the body of knowledge. Considering majority of the studies on currency exposure are concentrated on the developed markets, providing insights into the developing markets could provide greater understanding on the topic in developing market. In this sense, this study is deemed as providing experimental assessments on currency exposure under the context of a developing country. The findings are regarded as timely and crucial due to the

higher exposure level reported in developing markets relative to developed markets.

From another point of view, this study contributes to the ‘*aqli*’ aspect of the Islamic finance. Risk plays an important role in business undertaking as supported by the “*al-ghunm bil-ghunm*” principle of profit earning in the *Shariah* arrangements. Considering foreign exchange rate movement is another form of risk arising from the deferred nature of trading contracts, the value of the payables and receivables may change when the contracts are due. This condition is especially important for firms operating in open market of Malaysia. Hence, findings of this study could help the investors to find the measurement techniques that could best ascertain the ubiquitous exposure level and minimise such exposure. This will ultimately contribute towards the permissibility of derivative hedging from the *Shariah* perspective.

5.2.2 Implications of the Study

5.2.2.1 Policy Implications

Findings on the currency exposure level in the study provides in-depth understanding on the nature of the currency exposure existing in the market. Varying exposure levels across different financial periods and time scales are helpful for policy makers to understand how these firms and market respond to any meaningful information or events. Interpreting how the firms responded differently to asymmetric currency movements could also facilitate the policy makers to provide necessary initiatives to help these firms during unfavourable market conditions.

In continuation of the foreign currency exposure and hedging relationship, findings on the effect of corporate hedging in the study provide insights on the effect of operational and financial hedging practices. The significance of financial hedging in comparison to the operational hedging found in this study calls for improvement in the Malaysian financial derivative market. Addressing the different effects of financial hedging and operational hedging would drive further enhancements in the Malaysian derivative market and simultaneously provide higher liquidity for the market. Non-financial firms in Malaysia are urged to be more adaptive towards financial hedging as the derivative tools hold significant effect in managing the exposure level. The market should seriously consider to promote advancement in the developing market as well as wider engagement by market participants towards the derivative.

5.2.2.2 Practical Implications

In term of practical implications, the study manages to confirm the proposition of significant exposure effects from the USD movements towards the Malaysian sample firms. As found in objective one, the sample firms were significantly exposed to symmetric and asymmetric currency exposure arising from the USD movements. Such significance indicates relatively higher vulnerability of Malaysian economy to currency fluctuations. This indirectly calls for sequential investment and risk management strategies by the firms when dealing with business activities denominated in the USD. Facilitated by the findings on the asymmetric exposure, the different responses observed

between exporting and importing firms provide critical contributions towards the development of investment strategies that could be aptly used to hedge the exposure based on the firms' business direction and needs.

Second, consideration of the time-varying factor into the analysis provides evidence that currency exposure responds differently to the financial events included in the study. The varying exchange rate exposure indicates significant implications to shareholders in terms of foreign currency exposure arising from the USD movements. The significant exposure level during the AFC irrespective to the symmetric and asymmetric exposure validates that currency exposure is event specific. The substantial exposure level during the crisis indicates the much-needed hedging practice to protect from the unexpected currency movements during the financial turmoil. Consequently, the significant effect of currency exposure during the peg period also requires consistent hedging practice. In general, the varying currency exposure levels found under each sub-period further accentuates the need to establish better infrastructure, resources, and systems towards more effective risk management routine within the firm structure.

Another important implication lies on the findings from the wavelet decomposition analysis in objective three. Motivated by the diverse investment horizons among investors, inclusion of the wavelet multi-scales exposure in this study as comparison to the exposure level from the OLS model opens a new perspective in the measurement of currency exposure. Evidence of the

varying exposure levels under different time-scales rings the need for better scrutiny on the most appropriate investment horizon that simultaneously minimises the exposure while maximising the firms' returns. An improvement from the restricted two time-scales (short-run and long-run), the findings justify the need to assess currency exposure from as short as 2 days horizon to 1-year period. Different exposure levels faced by the sample firms in this study match the assumption of time-variant exposure. The fact that exposure level tends to be condensed on the longer time scale (long horizon) signals the potential bias that may arise if the measurements ignore time-scale factor in pricing the exchange foreign currency risk. Given the higher level of foreign currency exposure at higher time-scale found in this study, more rigorous hedging activities are required for the market in general. Timely and appropriate risk management strategies would provide better financial stability for both firms and market.

Firm managers should also ensure better hedging practice is embedded throughout the firm. The significant interaction terms under the overall period analysis further enhance the complimentary relationship between financial hedging and regional-based operational hedging among the Malaysian sample firms. In this regard, the study manages to provide evidence of better hedging for the firms' future cash flows should the firms adopt both measures in their risk management routines due to the inherent effect of financial and operational hedging. Special cares should be taken in establishing the operational hedging in which the diversification must be made at wider ranges and across currencies and regions with least correlation. Additionally, firms

may want to change their hedging strategy to better suit the short- and long-term nature of each investment project. Thus, skills and knowledge on hedging practice under both financial and operational aspects should be increased. Otherwise, hedging can also blowback by increasing the risk if the managers do not fully understand the hedging mechanisms. The senior board must acquire comprehensive understanding on the nature of risk and hedging before embarking into any hedging program. Additionally, direct and clear communications among the board of directors, management, and the shareholders must also be in place to enable implementation of the best hedging strategy for the firm's performance.

5.3 Limitations of the Study

A few limitations are met throughout the study, mostly involving data availability for the employed methodologies. Firstly, the long study period propels limited data of firms that maintain their trading data since 1995-2016. Out of the 1000 collected firms, 793 firms were excluded while 207 firms were included as the sample study. The second limitation involves the lack of information on financial hedging activities. Most of the firms did not specifically disclose their involvement with financial derivative as either using the forward, future or any other types of derivatives. Such limitation was previously noted by Muller and Verschoor (2007) as firms do not publicly report their hedging activities in their annual financial reports.

Often, the firms only provide dichotomous information on their involvement as either using or not using the derivative to hedge their foreign currency exposure.

Rescheduling of the Financial Reporting Standard (FRS) 139 to 2010 was also one of the causes that hinders the disclosure of the recognition and measurement of financial instruments including derivative instruments (Chong et al., 2014). Even though more firms begin to further declare their involvement with any derivative instrument, majority of the firms still fail to precisely disclose the type of the derivative being used. Inability to disclose the information becomes a constraint for the study because the corporate information related to operational and financial hedging is important to explain the influence of hedging towards the currency exposure.

Lastly, the study faced limitation in term of study period. Hence, the study was only capable to assess the level of exposure towards the USD movements within the stipulated study period. In this regards, the study only focused on in-depth study on the exposure level by encompassing the asymmetric, time-varying and time-scale aspects rather than widening the study scopes to include other major currencies such as Japanese Yen and the Euro.

5.4 Recommendations for Future Study

The study recommends several gaps for future studies. Firstly, as the results are only confined to Malaysian market, further research can use data from other comparable country with common economic fundamentals to investigate the symmetric and asymmetric exchange rate exposures of firms for comparison purpose. Secondly, measuring the exposure level in accordance to the time-varying and multiscale domains must be imperatively implemented in future research in order to improve the efficiency and depth of the market.

While this study is limited to only address the currency exposure through the methodological changes on a classical sample study in Malaysia, future studies may expand the research to other countries that also go through a few significant financial events likewise to Malaysia. Further study could also re-measure the multiscale exposure either from other similar market characteristic as comparison purpose or inclusion of other variables that potentially inflict the multiscale nature of the exposure. Thirdly, future study may incorporate the use of other form of data collection such as surveys and questionnaires to overcome the data constraint pertaining the disclosure of hedging information. The surveys could be conducted to reach the manager of the firms and obtain primary data of the firms' hedging activities. As this study is hindered by unavailability of data on specific financial hedging practice, utilising the survey would overcome such issue. Additionally, the current observation is limited to money market as may firms do not display the notional amount of their foreign debts and investments. In fact, managerial skill and experience of the manager could act as an important factor towards the implementation of hedging practice. Fourthly, further studies are also welcome to conclude more specific potential determinants to better apprehend the patterns and characteristics of the Malaysian firms in order to improve the financial instrument.

Future study may also include moderating variables into the analysis for better illustration on the causal relationship between the currency exposure level and firm stock return. Similarly, moderating variable could also be implemented into future study on hedging practice. As the level of financial hedging is comparatively low in a

developing country such as Malaysia, further research to ascertain the driving factors is justified.

Lastly, advancements in the disclosure standard is hoped to enable future research to analyse the efficiency of the hedging practice based on the individual financial derivative tool. Conducting individual analysis on the hedging derivative tool rather than financial hedging as a whole could provide more meaningful findings and accentuate the contributions of the future study.

